ICIMH 2020 Abstracts

Oral Abstracts

OA01.01

Chiropractic Care for Migraine: A Pilot Randomized Clinical Trial

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Abstract

Purpose: Studies suggest spinal manipulation reduces migraine burden, but none have evaluated effects of a comprehensive package of chiropractic care on migraine frequency, disability, and quality of life (QOL).

Methods: We conducted a pilot randomized trial comparing an expert-panel-validated, multimodal chiropractic care (CC) intervention plus enhanced usual care (EUC) to EUC alone among 61 adult women with episodic migraine. EUC was comprised of usual medical care and migraine education literature. Individuals assigned to CC+EUC received up to 10 sessions of CC over 14 weeks. Primary aims assessed feasibility of recruitment, retention and adherence to the protocol, and adverse events. Secondary aims evaluated changes in number of migraine days (our main clinical outcome) using daily self-report logs, Migraine Disability Assessment (MIDAS), Headache Impact Test (HIT-6), and Migraine-Specific Quality of Life (MSQL).

Results: Of the 29 individuals randomized to CC+EUC, 24 individuals (82.8%) attended at least 75% of scheduled chiropractic visits. Fifty-seven (93.4%) participants completed daily migraine logs. We observed 98 nonserious adverse events of which 35 were musculoskeletal complaints and 45 were related to migraine attacks. Those in CC+EUC were more likely to report musculoskeletal complaints (31.0%) compared to those in EUC (6.3%). Those randomized to CC+EUC experienced a larger change in number of days with migraine from run-in to the initial follow-up (mean change = −2.90, 95% confidence interval [CI]: −4.04, −1.76) compared to those randomized to EUC alone (mean change = −0.98; 95% CI: −2.03, 0.06) (between-group difference in mean change = −1.92; 95% CI: −3.46, −0.47). CC+EUC also experienced greater improvements in MIDAS, HIT-6, and MSQL.

Conclusion: Recruitment, retention, and adherence to the interventions are feasible. In addition, we observed preliminary evidence of clinically meaningful reductions in migraine frequency, and improvements in disability and QOL among those assigned to CC+EUC that were greater those assigned to EUC alone.

OA01.02

Cost-effectiveness of Spinal Manipulation, Supervised Exercise, or Home Exercise for Spinal Pain in the United States Using an Individual Participant Data Meta-analysis Approach

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Abstract

Purpose: The aim is to estimate the cost-effectiveness of spinal manipulation (SMT), supervised rehabilitation exercise (SRE), and home exercise and advice (HEA) for spinal pain.
Methods: We estimated incremental cost-effectiveness ratios (ICERs) from societal and health-care perspectives using 8 randomized trials performed in the United States. We used a 2-stage approach to individual participant data meta-analysis with quality-adjusted life years (QALYs) as the effectiveness measure. Costs and QALYs from trials comparing similar interventions were combined, and bootstrap methods were used to calculate cost-effectiveness acceptability curves.

Results: The analyses included 1739 participants (60% females) with pooled analyses ranging from 380 to 650 participants (2–4 trials depending on the comparison). On average, SRE led to higher societal costs relative to HEA ($3390; 95% confidence interval [CI]: $1658 to $5121) or SMT ($1288; 95% CI: $77 to $2499) with small gains in QALYs (0.002 to 0.003), and ICERs above $400 000/QALY. Adding SRE to HEA resulted in a similar ICER. SMT resulted in higher societal costs compared to HEA ($677; 95% CI: −$601 to $1956) and a small increase in QALYs (0.003; 95% CI: −0.021 to 0.027), with an ICER of $226 000/QALY. Adding SMT to HE led to lower societal costs (−$931; 95% CI: −$3667 to $1804) and a small increase in QALYs (0.007; 95% CI: −0.005 to 0.020). The probability that adding SMT to HE is cost-effective is above 0.80 if society is willing to pay $100 000 or more per QALY. Adding SMT to SRE led to an additional $340 in societal costs (95% CI: $214 to $465) and a small increase in QALYs (0.01; 95% CI: −0.002 to 0.022) with an ICER of $34 000/QALY. Results from the health-care perspective were similar and the only important difference was the ICER for SMT compared to HEA from decreased to $87 000/QALY.

Conclusion: Adding spinal manipulation to home exercise or supervised rehabilitation exercise is likely cost-effective for spinal pain. Supervised rehabilitation exercise alone or in addition to home exercise is not likely cost-effective.

Abstract

Purpose: Migraine is a leading cause of disability worldwide. While medications remain the standard of care for migraines, many can have side effects, leading patients to seek complementary and integrative medicine options, including chiropractic care. Preliminary studies suggest chiropractic care is a promising nonpharmacologic option for migraineurs as it may address co-occurring neck pain and muscular tension. We sought to understand migraine patients’ perceptions of and experience with chiropractic care.

Methods: The parent study was a 2-arm pilot pragmatic randomized controlled trial (N = 61) investigating a comprehensive multimodal model of chiropractic care for women with episodic migraine (4–13 migraines per month). Women were randomly assigned to chiropractic care (10 sessions over 14 weeks) plus enhanced usual care (UC) versus enhanced UC alone. Semistructured interviews were conducted at baseline and 14-week follow-up with 15 randomly selected participants from the 29 participants randomized to the chiropractic group. Qualitative analysis was performed by 2 independent reviewers using a constant comparative method of analysis for generating grounded theory.

Results: Integrating baseline and follow-up interviews, 3 themes emerged: (1) over the course of treatment with chiropractic care, participants became more aware of the role of musculoskeletal tension, pain, and posture in triggering migraine; (2) participants revised their prior conceptions of chiropractic care beyond “back-cracking”; and (3) participants viewed the chiropractor–patient relationship as an essential and valuable component to effectively managing their migraines. These qualitative perspectives on chiropractic care aligned with results from the main trial which observed increases in quality of life and less migraine-related disability.

Conclusion: In our pilot study, women with episodic migraine reported learning about musculoskeletal migraine triggers and ways to manage their migraines through a comprehensive chiropractic intervention. Combined with the
results from our main trial, these findings suggest chiropractic care as a promising complementary and integrative approach for women with episodic migraine.

**OA01.05**

**Experiences and Attitudes About Chiropractic Care Versus Prescription Drug Therapy Among Patients With Spinal Pain**

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**Abstract**

**Purpose:** The present study examined spine pain patients’ experiences and attitudes toward chiropractic care and prescription drug therapy within a primary care setting. We were interested in examining whether being treated by a chiropractic doctor (DC) for back pain had an influence on a patient’s beliefs and behaviors regarding prescription drug therapy.

**Methods:** Patients with spine pain (n = 150) were administered an institutional review board-approved patient survey assessing their experiences, beliefs, and attitudes regarding chiropractic care and prescription drug therapy. Two cohorts of patients were assembled: (1) 75 patients treated by DC and (2) 75 treated by a primary care physician (PCP). The 30-item patient survey was conducted at an academic medical center from February 2019 to January 2020. Between-group comparisons were examined using chi² analyses and t-tests to determine differences in the rates of reporting.

**Results:** Although we observed high rates of satisfaction with chiropractic care received within a primary care setting, our results demonstrated that seeing a chiropractor did not change patient attitudes regarding prescription medication. Of note, 79% of DC patients and 45% of PCP patients “agreed” that chiropractic care would be a suitable treatment for back pain (overall between-group differences were significant; χ² = 19.65; P < .001). Additionally, 25% of the DC patients “agreed” that taking prescription medications for back pain “made sense” compared to 41% of PCP patients (overall between-group differences were significant; χ² = 7.215; P = .027). Only 7% of PCP patients and 23% of the DC patients “agreed” that a chiropractor was the first health-care provider that they would like to see for their general health needs (these rates were also significantly different χ² = 7.69; P = .02).

**Conclusion:** Although patient satisfaction regarding chiropractic care received for back pain was high, patients “disagreed” that seeing a chiropractor changed their beliefs or behaviors toward prescription drug therapy.

**OA02.01**

**A Mind–Body Resiliency Intervention for Fear of Recurrence Among Cancer Survivors**

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**Abstract**

**Purpose/Background:** Interventions for fear of recurrence (FOR) have nominal effects, perhaps due to limited integration of empirically supported skills for treating FOR. This trial tested the acceptability and feasibility of an adapted multimodal, mind–body intervention for FOR among survivors of various cancers and assessed longitudinal changes in key FOR and coping variables.

**Methods:** Early stage cancer survivors 3 to 30 months posttreatment were recruited to participate in an 8-session in-person group program that taught relaxation skills, cognitive–behavioral techniques, healthy lifestyle behaviors, mindfulness meditation, and positive psychology skills. Feasibility (enrollment rate, session attendance, survey completion, and skills practice) and acceptability (enjoyability, convenience, helpfulness, and relevance) were assessed. Exit interviews assessed survivors’ perceived changes. Measures of FOR (FOR, uncertainty intolerance, and cancer-related uncertainty) and coping (perceived stress, resiliency, positive affect, and coping skills) were collected at baseline, postintervention, +1 month, and +3 months.

**Results:** Participants (N = 23, response rate 58%) included survivors of 7 common cancer types (M = 12 months posttreatment). Attendance was high (M = 6.1 sessions), and 96% of survivors completed all surveys. Sustained increases in skills practice were reported (16% to 76% baseline to postintervention, 71% by +3 months). Survivors rated most sessions (87%) as highly acceptable. Exit interviews revealed cognitive, behavioral, emotional, and existential benefits. Moderate-to-large improvements in FOR severity were observed postintervention (d = 0.87, P < .01) and maintained over time (P < .01), with similar changes observed in other FOR and coping outcomes.

**Conclusion:** The adapted mind–body intervention shows promising acceptability, feasibility, and favorable changes in
FOR and coping that persist by 3 months. Testing in a randomized trial is warranted.

**OA02.02**

**Impact of Integrative Medicine in Patients With Cancer in the BraveNet Collaborative: Results From PRIMIER**

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**Abstract**

**Purpose:** Patients living with and beyond cancer frequently seek care at integrative medicine practices. Demographics, services utilized and outcomes associated with an integrative approach have not been well described.

**Methods:** To evaluate the real-world utilization and effectiveness of integrative interventions in patients with cancer, we analyzed data from the Patients Receiving Integrative Medicine Interventions Effectiveness Registry (PRIMIER), a prospective longitudinal study embedded in the BraveNet practice-based research network. Cancer patients were identified by chief complaint reported on the baseline survey or an ICD code in the electronic medical record. PROMIS-29 was administered at baseline and over 12 months of follow-up. We used linear mixed-effects models with a random intercept to account for repeated measures to estimate changes from baseline on PROMIS-29.

**Results:** A total of 4954 participants were enrolled into PRIMIER from 17 sites over 5 years; 258 (5.2%) unique cancer cases (mean age = 53, 84% female, 89% white) were identified with 3 sites contributing 147 of the participants. The most frequently reported services received were integrative medicine consult (41%), acupuncture (27%), nutritionist (11%), supplements/botanicals/vitamins (11%), and massage (10%). Significant improvements in anxiety were seen at 2, 4, 6 and 12 months with significant reduction in fatigue at 2 and 12 months. The perceived stress score was significantly improved at all evaluated time points. Participants also had significant increases in their patient activation measure levels at 6 and 12 months. Nonsignificant improvements in sleep, depression, and social function were also appreciated. There was no significant change in overall quality of life score.

**Conclusion:** Cancer patients receiving care at integrative medicine clinics experience significant improvements in anxiety, stress, and fatigue with trends toward benefits in sleep, depression, and social functioning. In view of the difficulty in conducting a randomized, sham-controlled trial, this observational cohort analysis suggests that integrative medicine modalities improve patient-reported outcomes in cancer patients.

**OA02.03**

**Mindfulness Mediates the Relationship Between Negative Mind–Body Experiences and Engagement in Physical Activity in a Sample of Young Adult Cancer Survivors**

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**Abstract**

**Purpose:** To highlight the role of mindfulness as a mediator in the relationship between negative mind–body experiences (eg, anxiety, self-judgment, sleep disturbance) and engagement in physical activity in a sample of young adult cancer survivors.

**Methods:** Sixty-three young adult cancer survivors participated in an institutional review board-approved randomized clinical trial of mindfulness-based stress reduction (MBSR) and were either randomized to the 8-week intervention or to a wait list. This analysis pooled baseline to 8-week data from both arms of participants who received MBSR (eg, time 1 and time 2 data for the treatment group; time 3 and time 4 data for wait-list participants). There were no significant differences between each group’s respective baseline. Change scores were created for all variables used in the analysis. Mediation analyses were conducted by first establishing a predictive relationship between negative mind–body independent variables (eg, anxiety, self-judgment, sleep disturbance) and the dependent variable, self-reported engagement in physical activity. Next, mindfulness was included as an independent variable to test its hypothesized mediating role.

**Results:** All independent variables significantly predicted engagement in physical activity (self-judgment beta = −.32, anxiety beta = −.31, p = .01; sleep disturbance beta = −.31, p = .01). However, all became statistically insignificant when mindfulness was included in the model as a mediator. Mindfulness significantly predicted engagement in
physical activity with beta weights ranging from .31 to .36, \( P < .05 \).

**Conclusion:** In this analysis, mindfulness mediated the inverse relationship between negative mind–body experiences and engagement in physical activity. This supports previous findings that mindfulness may facilitate increased regulation of negative experiences during physical activity through nonreactive tolerance or acceptance of uncomfortable bodily sensations, emotions, or thoughts, or through intensifying positive aspects of physical activity (eg, enjoyment, satisfaction). Mindfulness may in part contribute to both short-term increases in physical activity and readiness for longer term positive health behavior change.

### OA02.04

#### Suffering in Advanced Cancer: A Randomized Control Trial of a Narrative Intervention

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**Abstract**

**Purpose:** Advanced cancer often engenders existential angst and psychological suffering. Our prior pilot research suggested that seriously ill patients benefited from a narrative intervention. It tested miLivingStory, which included a telephone interview to elicit the life and illness story and online tools to support revising and sharing the narrative manuscript.⁹ Our current study (1) tested the effects of miLivingStory, compared to miOwnResources, an active control resources-only website and (2) explored the participants’ use of and satisfaction with miLivingStory compared to miOwnResources.

**Methods:** Randomized control trial of 86 primarily white, female patients with Stage III or IV cancer. Intervention group: miLivingStory with narrative intervention and resources. Control group: miOwnResources with online cancer resources only. Measures: Primary outcomes, measured by surveys at baseline, 2 and 4 months, included the peace and meaning subscales of the FACIT-Sp and depressed, anxious, and angry mood subscales of POMS-SF. Website use and satisfaction data were collected automatically and by survey. Analysis: Linear mixed modeling, controlling for baseline primary outcome scores, tested for group comparisons. Pair-wise comparisons tested for within- and between-group differences. Descriptive statistics.

**Results:** At 4 months, miLivingStory had a direct and positive effect for peace (2.86 vs 2.57, \( P = .029 \)), a trend effect for lower depressed mood (0.55 vs 0.77, \( P = .097 \)). miLivingStory appeared to protect against the control group’s steeper decline in well-being between 2 and 4 months. The miLivingStory story was assessed as helpful to quite helpful.

**Conclusion:** This telephone-based narrative intervention with online tools improved advanced cancer patients’ well-being and sense of peace, accompanied with their satisfaction of the intervention.

### OA02.05

**Acupressure to Reduce Nausea and Vomiting in Youth in Treatment for Cancer or Receiving Hematopoietic Stem Cell Transplant: A Randomized Trial**

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Abstract

Purpose: Despite improved pharmacologic management of nausea and vomiting, these symptoms remain a problem for children, adolescents, and young adults in cancer treatment or receiving a hematopoietic stem cell transplant (HSCT). Acupuncture/acupressure is promising nonpharmacologic treatment based on adult data, but there are very few studies in the pediatric setting.

Methods: We performed a pragmatic randomized controlled trial in participants being treated for cancer or receiving a HSCT. Participants aged 5 to 24 years at 2 teaching hospitals in California were randomized to receive daily acupressure + usual care or usual care alone. Patient-reported symptoms were assessed. A composite scale was created for nausea/vomiting (range: 1–8). Electronic medical record (EMR) data on vomiting, and antiemetics use was collected. Linear mixed models were used to analyze differences, and mixed effects negative binomial regression models were used with log transformed outcomes where needed for linearity assumptions.

Results: We enrolled a racially/ethnically diverse sample, n = 95. The composite nausea/vomiting score difference between treatment groups (acupressure–control) was −2.3% (95% CI: −16.5% to +14.4%, P = .78). The difference in daily nausea score (score range: 1–4) was 1.46% (95% CI: −9.45% to +13.69%, P = .80). The difference in daily vomiting episodes (scale: 0–4+) was −26.3% (95% CI: −61.1% to +39.5%, P = .35). The mean difference in average count of daily antiemetics used was −0.001 (95% CI: −0.38 to +0.38, P = 1.00). EMR nurse reports on daily vomiting showed the mean difference was 0.033 (95% CI: −0.52 to +0.59, P = .91).

Conclusion: We did not find statistically significant benefits from acupressure for nausea/vomiting for pediatric cancer treatment or HSCT. The decrease in vomiting episodes and the 95% CI for nausea/vomiting score include clinically significant benefits, suggesting that larger clinical trials are needed to further define potential benefit.

OA03.01

Improvement in Depressive Symptoms Following a 12-Week Yoga Intervention Predicts Decreased Inflammation at 24 Weeks: Findings From a Nonrandomized Trial With Obese, Monolingual Spanish-Speaking Breast Cancer Survivors

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Abstract

Purpose: This study examined the association between inflammatory biomarkers and self-reported outcomes of quality of life in a nonrandomized yoga trial with obese, monolingual Spanish-speaking breast cancer survivors.

Methods: Thirty-five overweight and obese monolingual Spanish-speaking breast cancer survivors completed an institutional review board-approved community-based 12-week yoga intervention. Participants completed Spanish language PROMIS short forms at baseline, 12, and 24 weeks of physical function, fatigue, sleep disturbance, pain interference, depression, anxiety, social role satisfaction, and positive affect. We also collected whole blood spots at all time points, which were analyzed using a validated ELISA protocol. Data analyses included calculation of descriptive statistics, Kendall’s Tau B correlation, and linear regression.

Results: After adjusting for biomarker data outliers, improvements in PROMIS anxiety and sleep disturbance scores at 12 weeks were significantly associated (P < .05) with decreases in IL-6 at 24 weeks (−.27 and −.26, respectively). Improvements in PROMIS anxiety and depression scores at 12 weeks were significantly associated (P < .05) with decreases in CRP at 24 weeks (−.27 and −.34, respectively). Holding previous biomarker change values constant, single linear regression models were examined with 24-week biomarker values as dependent variables, and 12-week PROs of anxiety, depression, and sleep disturbance as predictor variables. Of these predictors, only improvement in 12-week depression scores significantly predicted decreases in 24-week CRP values (Beta Coefficient = −.42, P < .01).

Conclusion: This study examined the association between PROMIS short forms and biomarkers of inflammation in a community-based yoga study. We observed small negative associations between improvement in depression, anxiety,
and sleep disturbance at 12 weeks and decreased inflammation at 24 weeks. Improvement in depression at 12 weeks predicted decreased CRP at 24 weeks, with a moderate-sized effect. While interpretive caution should be exercised due to the study design, this is a positive step toward better understanding the longer term biological effects of yoga in non-English-speaking cancer survivors.

OA03.02

Yoga for Chronic Low Back and Neck Pain in Military Personnel

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Abstract

Purpose: Chronic low back pain (cLBP) and chronic neck pain (cNP) are prevalent conditions that are leading causes of disability among active-duty military personnel. Yoga is an evidence-based nonpharmacological intervention with documented benefits in community samples. However, yoga has not been well-studied among military personnel. We conducted a pilot RCT examining the feasibility/acceptability of 2 types of yoga for military personnel with cLBP/cNP.

Methods: Military personnel with cLBP and/or cNP were recruited at a large military medical facility. Participants were randomized to either active yoga or restorative yoga. Participants were assessed at baseline, 12 weeks, and 6 months; were asked to attend 1 to 2 classes weekly for 12 weeks; and to conduct daily yoga home practice. The primary feasibility outcomes were recruitment rates, intervention attendance, retention for assessments including health outcomes, and satisfaction/acceptability.

Results: In 7 months, 49 participants were enrolled. Approval to locate a research staff member at the military pain clinic was key to recruitment. Of the 49 randomized, 39 (80%) were assessed at 6 months. Satisfaction ratings were high, with 80% to 90% strongly agreeing on “enjoyed participation,” “liked instructors,” “continuing yoga.” Health outcomes improved over time. Conclusion: In conclusion, data suggest that researchers can feasibly conduct a larger RCT comparing styles of yoga for cLBP/cNP with active-duty military personnel to confirm health benefits and understand what type of yoga is preferred.

OA03.03

Results of Multiple Iterations of a Yoga-Based Training Program for Education and Health-care Professionals on Psychological Health

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Abstract

Purpose: Our purpose was to assess changes in psychological health in education and health-care professionals that attended separate versions of a yoga-based training program.

Methods: The RISE (Resilience, Integration, Self-awareness, Engagement) program includes yoga, meditation, and didactic/experiential activities. We examined results from 4 separate studies of RISE: (1) a single arm trial of a 3-day residential RISE program for New York education professionals (N = 74); (2) a waitlist controlled trial of a 3-day residential RISE program for Massachusetts education professionals (N = 30); (3) a single arm trial of a 6-week on-site program for Harvard attending physicians (N = 12); and (4) a waitlist controlled trial of a 6-week on-site program for Harvard resident physicians (N = 33). Self-report measures of psychological health (PSS, RS, PANAS, FFMQ, PES, SCS, UWES, MBI, PFI, and PROMIS-ED) were completed before (baseline), immediately after (post), and 2 months after RISE (follow-up).

Results: Participants from all 4 studies reported improvements in stress from baseline to post and improvements in mindfulness from baseline to follow-up (all P < 0.05). Within-group analyses in the two 3-day RISE programs for education professionals revealed that participants from both studies showed improvements in stress, mindfulness, empowerment, and self-compassion from baseline to post;
and improvements in negative affect, mindfulness, empowerment, and self-compassion from baseline to follow-up (all $P < .05$). Within-group analyses in the 6-week RISE programs for health-care professionals revealed that RISE participants from both studies showed improvements in stress, anxiety, depression, interpersonal disengagement and burnout from baseline to post; and improvements in interpersonal disengagement and mindfulness from baseline to follow-up (all $P < .05$).

Conclusion: Overall, results from all 4 studies suggest that RISE improves education and health-care professionals’ psychological health. On-going research continues to investigate RISE in different populations and programming lengths, intensities, and venues.

OA03.04

Perceived Stress Mediates the Effect of Yoga on Quality of Life and Disease Activity in Ulcerative Colitis. Secondary Analysis of a Randomized Controlled Trial

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Abstract

Purpose: Yoga positively affects health-related quality of life and disease activity in ulcerative colitis. The underlying modes of action remain unclear. Within the present study, we hypothesized that patients’ perceived stress mediates the effects of yoga on health-related quality of life and disease activity.

Methods: This is a secondary analysis of a randomized controlled trial comparing the effects of yoga to written self-care advice in patients with inactive ulcerative colitis and impaired quality of life (ClinicalTrials.gov registration number: NCT02043600). Perceived stress was assessed using the Perceived Stress Questionnaire, health-related quality of life was measured using the Inflammatory Bowel Disease Questionnaire and disease activity captured using the Clinical Activity Index. Outcomes were assessed at weeks 0, 12, and 24.

Results: Seventy-seven patients participated. Thirty-nine patients attended the 12 supervised weekly yoga sessions (71.8% women; 45 ± 13.3 years) and 38 patients written self-care advice (78.9% women; 46.1 ± 10.4 years). Perceived stress correlated significantly with health-related quality of life ($r = .61, P < .001$) and disease activity ($r = .33, P < .01$) at week 24. Perceived stress at week 12 fully mediated the effects of yoga on health-related quality of life ($B = 16.23; \text{ CI} [6.73, 28.40]$) and disease activity ($B = -.28; \text{ CI} [-.56, -.06]$) at week 24.

Conclusion: Our findings confirm the importance of perceived stress in reducing disease activity and increasing health-related quality of life in patients with ulcerative colitis. Practitioners should keep psychosocial risk in mind as a risk factor for disease exacerbation and consider yoga as an adjunct intervention for highly stressed patients with ulcerative colitis.

OA04.01

Changes in Self-Compassion and Mindfulness in Response to the MARIGOLD Online, Self-Paced Intervention for Adults With Depressive Symptoms

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Abstract

Purpose: Previous work has demonstrated that low self-compassion may serve as a vulnerability factor for depression. The MARIGOLD study comprises an online, self-guided intervention for adults with elevated depressive symptoms. MARIGOLD incorporates skills to build positive emotion such as formal and informal mindfulness practice, savoring, and gratitude. Herein, we examine whether the intervention increased self-compassion and mindfulness.

Methods: Participants were randomized to the intervention ($n = 539$) or an emotion-reporting control group ($n = 63$) and completed a subset of questions from the 5 Facet Mindfulness Questionnaire and the Short-Form Neff Self-Compassion Scale at 4 time points: baseline, post intervention, 1 month, and 3 months post intervention. We assessed changes in self-compassion using mixed model regression. Analyses were conducted using SPSS Version 26.

Results: Independent samples t tests demonstrated that there were not significant differences in mean self-compassion or mindfulness scores between the intervention and control group at baseline ($t(568) = .881, P = .236$); t ($568) = .937, P = .165. For self-compassion, the interaction between group assignment (intervention vs control) and time was significant $F(3, 984.66) = 5.834, P = .001$. Pairwise comparisons revealed that the intervention group showed significant increases in self-compassion from baseline to post intervention, $P < .001$. Scores were maintained a 1-
month post and increased slightly again at 3-month follow-up, \( P = .03 \). The control group showed a marginally significant increase in scores between baseline and 3 months post intervention, \( P = .05 \). For mindfulness, there was a significant effect for time but not group assignment. Significant increases in mindfulness occurred between baseline and post assessment in both the intervention and control groups (\( P < .001; P = .002 \)) but no other time points.

**Conclusion:** Online, self-guided interventions have the potential to increase self-compassion. Further testing may determine whether changes in self-compassion mediate reduction of depressive symptoms.

### OA04.02

**A Pilot Study of Mind–Body Skills Groups for Adolescents With Depression**

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**Abstract**

**Purpose:** While 13% of adolescents have had at least 1 major depressive episode in the last year, 60% of these youth are untreated. To increase access and engagement, there is a need for an innovative treatment that can be delivered by a variety of health-care professionals. The purpose of this study was to evaluate a Mind–Body Skills Group (MBSG) program for reducing depression symptoms in adolescents in primary care clinics.

**Methods:** Adolescents who screened positive for depression in primary care clinics participated in a 10-week MBSG program. Participants practiced several skills including meditation, biofeedback, guided imagery, and mindful eating. The Children’s Depression Inventory (CDI-2), Mindful Attention Awareness Scale, and the rumination subscale of the Children’s Response Styles Questionnaire were administered at baseline, post intervention, and at 3-month follow-up. Data were analyzed using linear mixed models with and perceptions of mindfulness, depression stigma, coping styles, and depressive symptom profiles.

**Results:** Participants included 43 adolescents, 79% females, aged 13 to 17 years. The total CDI-2 depression score significantly improved following the intervention (\(-10.0; 95\% \text{ CI: } [-13.6, -6.5]\)) as did the CDI-2 subscales of negative mood (\(-3.4; 95\% \text{ CI: } [-4.8, -2.0]\)), ineffectiveness (\(-3.1; 95\% \text{ CI: } [-4.3, -1.9]\)), negative self-esteem (\(-1.9; 95\% \text{ CI: } [-2.9, -0.9]\)) and interpersonal problems (\(-1.4; 95\% \text{ CI: } [-2.1, -0.8]\)). All depression improvements were maintained at follow-up. Mindfulness (\(7.1; 95\% \text{ CI: } [0.2, 14.0]\)) and rumination (\(-8.5; 95\% \text{ CI: } [-12.3, -4.6]\)) also significantly improved following the intervention, and these improvements were maintained at follow-up.

**Conclusion:** The MBSG intervention resulted in decreased depression and rumination and increased mindfulness. This approach may be an innovative treatment option for depressed adolescents in primary care because it can be delivered in a group setting by a variety of health-care professionals, thereby increasing access and engagement in treatment.

### OA04.03

**Mind the (Racial) Gap: Considerations for Culturally Adapting Mindfulness-Based Interventions for Depression Among Black or African Americans**

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**Abstract**

**Purpose:** Evidence suggests that mindfulness-based interventions (MBIs) can effectively treat depression. Unfortunately, studies of MBIs for depression have focused predominantly on White samples. Thus, it is unclear whether existing MBIs are culturally relevant or effective for Black or African Americans (AAs). This is a critical question given the prevalence of depression and need for effective treatment in this community. To justify culturally adapting evidence-based interventions, at least one of these key conditions should be met: (1) ineffective clinical engagement, (2) unique risk/resilience factors, and (3) unique symptoms of a common disorder. We aimed to quantitatively ascertain whether these conditions are met in the context of MBIs among Black or AAs at risk for depression.

**Methods:** Black and White adults with elevated stress levels \((n = 143)\) completed inventories to assess domains relevant to each of the above conditions (ie, engagement with and perceptions of mindfulness, depression stigma, coping styles, and depressive symptom profiles). \(t\) Test and \(\chi^2\) analyses were conducted to identify whether any of these domains differed by race.

**Results:** Compared to White Americans, Black or AAs \((1)\) were less likely to have heard the term “mindfulness”
(P = .001), had less experience with mindfulness (P = .034), and were more likely to perceive mindfulness as a religious practice (P = .026); (2) scored higher on depression risk factors including depression stigma (P = .006), experience of discrimination (P = .008), emotion suppression (P = .005), and rumination (P = .004); and (3) reported higher levels of somatic depressive symptoms (P = .001), suggesting unique symptomatic experience of depression. Overall, 3 key conditions for cultural adaptation were supported.

Conclusion: This study offers quantitative evidence in support for cultural adaptation of MBIs for Black or AAs with depression. Results highlight misconceptions of mindfulness, depression stigma, unique sociocultural stressors, maladaptive emotion regulation strategies, and somatic depressive symptoms as potential targets for adaptation to improve the approachability and clinical relevance of MBIs for depression.

OA04.4

Engaging Stakeholders in Research on a Telephone-Delivered Mindfulness Intervention for Rural, African American Families

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Abstract

Purpose: Rates of Alzheimer’s disease and related dementias are projected to triple by 2050 and many of those impacted will be African Americans (AAs). AA families who live in rural areas have unique cultural, geographic, health-related and socio-economic needs, including relatively less access to, and willingness to engage with, formal supports and resources, and poorer health outcomes; however, there have been few interventions targeted to rural AA caregivers of persons with dementia. One effective intervention, mindfulness-based stress reduction (MBSR), has been found to be culturally acceptable in AA populations; however, no studies have assessed feasibility, acceptability, and impact of an adapted mindfulness intervention targeting rural AA dementia caregivers.

Methods: To complement an ongoing feasibility study on a telephone-delivered MBSR intervention with AA families, we convened a Community Advisory Board to inform early-, mid-, and late-stage study activities. The Community Advisory Board was convened in July of 2019 and will continue to meet every 2 to 3 months for the 18 month feasibility study period. Surveys will be conducted following each meeting to assess impact of meeting activities.

Results: In the early stage, input was sought on terminology used in the intervention, a local resource guide for study participants, training needed to engaging participants in technology, and recruitment strategies. In the mid stage, we will seek input on challenges that may arise during study recruitment and implementation of the intervention. This will also include seeking feedback on interpretation of findings. In the late stage, we will seek stakeholder input on dissemination of findings. We will also seek participation in planning the next phase of research activities.

Conclusion: Engaging stakeholders as study partners may be crucial to successfully adapting mind–body interventions to local contexts. Local community input may lead to enhanced feasibility, acceptability, and sustainability of tailored interventions and improved outcomes for families impacted by ADRD.

OA05.01

Integrative Group Medical Visits and Clinician Well-being

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Abstract

Purpose: Integrative group medical visits (IGMVs) have been implemented for treatment of chronic pain and other conditions, particularly in primary care settings. IGMVs combine mindfulness, acupuncture, or other modalities with biomedical care, peer support, and health education. However, little research has focused on the clinician experience of IGMVs. Qualitative research exploring the experience of clinicians in GMVs can help assess whether GMVs should be considered among workplace-based interventions to improve clinician well-being, given high rates of clinician burnout in many settings.

Methods: Qualitative methods were used to examine how IGMVs and integrative medicine are combined and implemented for low-income people with chronic conditions in the United States. Data include observation of 20 IGMVs at 4 organizations and interviews with IGMV staff (n = 28) and patients (n = 25). Field notes and interviews were analyzed using constructivist grounded theory methods including inductive coding and memowriting.
**Results:** IGMVs can benefit clinician well-being in 4 ways: (1) extended time with patients. In IGMVs, clinicians and patients typically spend 1 to 3 hours together; (2) increased ability to provide team-based care, including interprofessional collaboration that can increase CIH access; (3) understanding patients’ social context and addressing social determinants of health through referrals and follow-up with clinic or community resources; and (4) opportunity to practice CIH in a biomedical setting. IGMV clinicians described these 3 elements of IGMV as facilitating opportunities to provide CIH in ways that were not possible in individual primary care. Some identified IGMVs as their primary reason for continuing in their current jobs and their only opportunity to practice “the kind of medicine I want to practice.”

**Conclusion:** IGMV programs with adequate institutional support may be beneficial for preventing clinician burnout and improving retention, with particular benefits in the context of safety-net primary care.

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**OA05.02**

**Engaging Patients in their Health Care: Lessons From a Qualitative Study on Interpersonal Processes Health Coaches Use to Support an Active Learning Paradigm**

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**Abstract**

**Purpose:** While a number of health-care trends rely on informed and activated patients, few studies have reported on direct observation of what processes engage and activate patients to be full participants in their own health care. The interpersonal processes and communication strategies used in integrative health coaching (IHC) may offer important insight into how clinicians can help patients step into a more active learning model rather than more typical passive patients roles. This qualitative study uses verbatim transcripts of medical patients’ first few IHC sessions to identify the processes used to engage patients in a more active learning role.

**Methods:** Verbatim transcripts (72) from coaching sessions of 26 patients were qualitatively analyzed for themes. The patients received 6 months of coaching as part of a larger integrative intervention in a randomized, controlled pilot study designed to assess feasibility for a larger randomized controlled trial on the clinical effectiveness of an integrative medicine intervention for those with severe dysfunction from tinnitus.

**Results:** Themes that emerged from the coding include (1) Describing the Health Coaching Process; (2) Key Procedures for Action Planning—optimal health visualization, Wheel of Health, exploration of gaps between current and desired states; (3) Supporting Action & Building Momentum; and (4) Active Listening & Inviting the Patient to Articulate Learning—reflection, clarifying questions, turning patient questions back to patients, highlighting values, identifying potential barriers and resources, and inviting patients to articulate what they were learning.

**Conclusion:** The processes identified in IHC incorporate key principles of adult learning theory and utilize innate resources of goal-orientation, self-direction, and intrinsic motivation. The interpersonal processes that coaches use help patients embrace a more active learning role to become full participants in their health care. Use of these processes has implications for patient engagement in other clinical contexts.

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**OA05.03**

**Developing an Integrative Health and Wellness Program for Parkinson’s Disease Patients**

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**Abstract**

**Purpose:** Parkinson’s disease (PD) is a progressive neurodegenerative disease with characteristic symptoms of resting tremor and rigidity. Current pharmacologic treatments have the ability to improve some, but not all, symptoms. The purpose of this study was to develop an evidence-based and community-informed integrative health program for PD that incorporates integrative/lifestyle therapies to improve functioning and quality of life for patients with PD.

**Methods:** A scientific literature review and 14 semi-structured interviews with key stakeholders (ie, healthcare providers, patients, care providers, community advocates) were conducted to inform program development. Interviews addressed: current care pathway and treatment offerings, primary symptoms, feedback on specific integrative/lifestyle therapies, and potential barriers to utilization.
Interviews were transcribed and coded using thematic analysis.

**Results:** Scientific evidence most supports the incorporation of aerobic exercise, mind–body therapies, and music therapy for improved motor and non-motor outcomes. Interviewees emphasized apathy and depression as potentially targetable sources of disability. There was high interest in integrative/lifestyle therapies that address stress, sleep-deprivation, and motor symptoms in particular, with the most enthusiasm reported for (1) music therapy, (2) nutrition, including teaching kitchens and group nutrition education, and (3) mind–body therapies, specifically mindfulness and stress reduction. Transportation difficulty was highlighted as a major access barrier.

**Conclusion:** Based on the scientific literature, current offerings, patient and family preferences, and input from health-care providers and PD community leaders, an Integrative Health PD program that will include Tai Chi, yoga, mindfulness and stress reduction, nutrition group education, a possible teaching kitchen, acupuncture, massage therapy, and music therapy will be developed. Due to transportation barriers, telehealth options will be explored. The program will be fully integrated within a new Neuroscience Institute alongside conventional treatment to promote overall wellness of PD patients and families with an integrative evidence-based approach.

**OA05.4**

**Health-care Innovation Meets Sleep Hygiene: Designing a Tool That Reduces Blue Light Exposure and Chronic Snoozing**

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**Abstract**

**Purpose:** Sleep hygiene is an often overlooked dimension of wellness. Among the younger generation, poor sleep hygiene is commonplace. According to the American Psychological Association, millennials are more likely to feel stressed due to lack of sleep compared to baby boomers. Experts agree that technology plays a role, notably cellphone usage before bedtime and chronic snoozing in the morning. To provide a solution, we developed a novel tool, called EarlyBirdy, that aims to reduce blue light exposure from cellphone usage before bedtime while preventing snoozing after waking up.

**Methods:** EarlyBirdy was conceptualized as a modified lockbox where a user can lock their cellphones inside before going to bed. The design includes holes on both sides that allow for charging and sound amplification. Users are instructed to set up their alarms on their cellphones before locking them in the box. Once placed inside, the user will lock the box and place the key, along with its key stand, somewhere outside of their room (eg, kitchen or bathroom). When the alarm goes off, the user will then leave their bed and room, take the box to the location of the keystand, unlock it, and turn off the alarm. After finalizing the design, we prototyped EarlyBirdy using a 3-dimensional printer and administered a survey on MTurk.

**Results:** The prototype was built out of ABS plastic. Ten university students volunteered to try the device for 1 night. Based on feedback, the holes had to be widened to accommodate a variety of chargers and increase the alarm’s sound. All 10 of them, as well as 50% (n = 12) of MTurk participants, aged 19 to 29 years, expressed that they will likely use EarlyBirdy.

**Conclusion:** EarlyBirdy is a novel tool that can potentially promote sleep hygiene among millennials. Its unique method for reducing blue light exposure while preventing snoozing has been shown to be feasible.

**OA06.01**

**Acupuncture History, Expectations, and Postoperative Experience Among Cardiac Surgery Patients: The ACU-Heart Pilot Trial**

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**Abstract**

**Purpose:** Cardiac surgery patients suffer high rates of depression, somatic sequelae, and medical complications (eg, atrial fibrillation). Although acupuncture is an effective treatment for these conditions, no trials have tested acupuncture among cardiac surgery patients. It is unknown whether cardiac surgery patients would be receptive to acupuncture. In this study, we assessed cardiac surgery patients’ history of, expectations for, and experience with acupuncture.

**Methods:** These data are part of a randomized, controlled, feasibility trial of daily acupuncture (ACU) or treatment as usual (TAU) following isolated valve surgery via sternotomy. ACU patients received up to 6 acupuncture sessions during...
hospitalization. TAU patients had no intervention. Before randomization, all patients reported history of and expectations for acupuncture. At follow-up (3-months postsurgery), ACU patients reported their experience of postoperative acupuncture.

**Results:** In total, 100 patients were randomized (51 ACU, 49 TAU), mostly males (71%), Caucasian (86%), and 59 years old on average (standard deviation [SD] = 11 years). At baseline, 27% of patients had previous experience with acupuncture, of which 82% had only undergone 1 session. Patients’ expectations for postoperative acupuncture were neutral: most patients agreed “a little” or “moderately” that acupuncture would help them with cardiac surgery (66%), postsurgical symptoms (58%), and energy level (65%), all ACU vs TAU Ps > .20. During hospitalization, ACU patients underwent 3.8 acupuncture sessions on average (SD = 1.1). Among ACU patients at follow-up, many reported acupuncture was “extremely” or “very helpful” (33%), half reported it was “somewhat” or “helpful” (51%), and few reported it was “not helpful” (8%).

**Conclusion:** One in 4 cardiac surgery patients had previous, limited experience with acupuncture. Most patients had moderate expectations that acupuncture would benefit them. Nonetheless, the majority of patients who received acupuncture during postoperative hospitalization found acupuncture to be helpful. Future analyses will assess the impact of acupuncture on depressive symptoms, somatic sequelae, and atrial fibrillation.

**OA06.02**

**Long-term Exercise After Pulmonary Rehabilitation: Exploratory Results of a Pilot Randomized Trial of Tai Chi and Cardiorespiratory Function**

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**Abstract**

**Purpose:** Patients with chronic obstructive pulmonary disease (COPD) often lose improvements in exercise capacity and health-related quality-of-life after pulmonary rehabilitation (PR) when exercise is not maintained. In the context of a randomized controlled trial, the goals of this analysis were to (1) explore longitudinal changes in respiratory function after a 24-week post-PR Tai Chi (TC) intervention and (2) characterize acute cardiorespiratory response to TC versus walking (WLK).

**Methods:** Cardiorespiratory data were available on a total of 85 adults (41% females) randomized (2:1:2) to a 24-week TC program (n = 34), WLK (n = 16), or standard care (SC, n = 35). Respiratory function was assessed at baseline and 24 weeks using spirometry. Acute in-class cardiorespiratory responses during TC and WLK at 24 weeks were assessed using standard cardiorespiratory measures from a portable metabolic cart. Continuous heart rate data during in-class testing was analyzed for conventional heart rate variability (HRV) indices. Questionnaires assessed quality-of-life, physical function, and dyspnea.

**Results:** After 24 weeks, SC experienced a declined forced vital capacity (FVC) while TC maintained baseline (post-PR) values (−0.24 ± 0.03 vs -0.01 ± 0.01, P < .05). TC was less intense than WLK with reduced heart rate, oxygen consumption (VO2), expired carbon dioxide (VCO2), respiratory rate, and ventilation (VE) (P < .05). TC demonstrated a more favorable respiratory efficiency (VE/VCO2) (35.53 ± 5.65 vs 41.07 ± 5.21, P < .05) compared to WLK. Longitudinal changes in FVC were significantly correlated to improvements on the Chronic Respiratory Questionnaire-Dyspnea scale in TC (r = .47, P < .05) but not in the WLK or SC. There were trends in increased HRV in both time and frequency domains in the recovery phase after TC.

**Conclusion:** TC attenuated the decline in FVC seen in SC. Although TC was of lesser aerobic intensity than WLK, TC was associated with more favorable ventilatory efficiency during exercise, suggesting that TC could be a viable exercise option in COPD to maintain benefits seen after PR.

**OA06.03**

**“It Gave Me Hope” Experiences of Diverse Safety Net Patients in a Group Acupuncture Intervention for Painful Diabetic Neuropathy**

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**Abstract**

**Questionnaire-Dyspnea scale in TC (13.20 ± 20.49) compared to WLK (13.60 ± 20.92, P < .05).**
Abstract

Purpose: Neuropathy is one of the most disabling and costly complications of diabetes, and it disproportionately affects racial/ethnic minorities and low-income patients. First-line treatment for painful diabetic neuropathy (PDN) consists of analgesic medications with limited efficacy and significant side effects. Acupuncture is a proven treatment for chronic pain and is a promising emerging alternative. The purpose of this analysis is to explore low-income and minority patients’ experiences living with PDN and with a group acupuncture treatment intervention.

Methods: Semistructured interviews were conducted with a subsample of participants from a randomized clinical trial of a group acupuncture intervention for PDN. Eligible participants were English- or Spanish-speaking adults recruited from a public hospital (70% racial/ethnic minorities, 80% publicly insured/uninsured) with type 2 diabetes and neuropathic pain. Interview transcripts were analyzed using an inductive thematic framework.

Results: We conducted 27 in-depth qualitative interviews. Participants identified that PDN added significant suffering and disability to the multiple challenges of poverty they were already facing, including housing instability, lack of transportation, and limited access to healthy food. In general, they found acupuncture not only alleviated many different types of neuropathic pain (burning or aching, sensations of heat or cold, numbness) but also reduced their reliance on medication. They noted improvements in sleep, stress management, and mood. Some found that they grew more engaged in caring for their diabetes through study participation. They strengthened their understanding of diabetes and PDN as well as their awareness of its effect on well-being. Finding a beneficial treatment also renewed their hope and motivation.

Conclusion: Diverse safety net participants with PDN found group acupuncture helpful in treating their pain and improving overall well-being. More research is warranted to explore the ways in which acupuncture or other complementary therapies could bolster patient empowerment to improve health outcomes in marginalized populations.

Abstract

Purpose: To determine whether integrative medicine involvement can reduce hospitalization frequency and duration for patients with complex medical conditions and frequent hospitalizations.

Methods: The UCLA East-West Medicine clinic is an integrative medicine specialty service which uses Traditional Chinese Medicine (TCM) to form an integrative medical assessment—utilizing acupuncture, trigger point injections, and TCM dietary modifications to improve health and well-being. Recently, a smaller clinic was established in partnership with the UCLA Extensivist Program to provide high touch care for high utilizers of health care, as defined by at least 2 hospitalizations in the past year; 29 patients had 6-month follow-up data available and were included in this analysis. We used the Epic electronic medical record to determine the total number of hospitalizations and hospitalization days for the year preceding their initial visit. These patients were then followed for 6 months by integrative east-west medicine physicians. The number of hospitalizations and hospitalization days were determined at 6 months postenrollment and normalized to 1 year. One and 2-tailed paired t tests were used for statistical analyses.

Results: Patients had an average of 3.76 hospitalizations and 28.21 hospitalization days per year prior to intervention. After 6 months of treatment, patients had an average of 1.21 fewer hospitalizations per year (P = .034; 2-tailed t test) and had an average of 9.86 fewer hospitalization days per year (P = .026; 1-tailed t test). Subgroup analysis of patients who had received 6 or more integrative medicine visits over the trial period suggested greater improvement than those who received fewer visits (P = .042; 1-tailed t test).

Conclusion: Integrative medicine specialty care was effective in reducing hospitalization frequency and total hospitalization days among high utilizers of care. This supports further exploration into using integrative medicine as a cost saving measure among the sickest and most complex patients in the health-care system.
Culinary Medicine Education in Core Medical School Curriculum Improved Medical Student Nutrition Knowledge and Confidence in Providing Nutrition Counseling to Patients

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Abstract

Purpose: Culinary medicine education has become increasingly popular at medical schools across the United States. Medical students electing to participate in experiential culinary medicine education have demonstrated improvements in nutrition knowledge, skills, and attitudes for both self-care and patient care. However, data on the effectiveness of culinary medicine in core medical school curriculum are limited since this education is typically offered only on an elective basis. We will describe the process of obtaining approval for culinary medicine in core curriculum and provide outcomes from the inaugural cohort of first- and second-year medical students who completed this training.

Methods: Culinary medicine education featuring evidence-based nutrition instruction, practical methods to overcome barriers to healthy eating, and a focus on evidence and cooking of paleolithic and vegan diets was piloted in 2018 to 2019 academic year as a noncredit elective among medical students at the University of Maryland School of Medicine. Student advocacy, positive course reviews, and improvements in nutrition knowledge, skills, and attitudes compelled medical student education leadership to include a culinary medicine session in core first- and second-year medical student curriculum beginning in Fall 2019. The session included evidence supporting numerous popular diets with a focus on practical implementation and cooking of Mediterranean diets. Paired t tests were employed to estimate mean differences in presession/postsession outcomes.

Results: All medical students in the 2019 to 2020 first-year class, and most students in the second-year class have completed the culinary medicine training, with the remaining students completing training by January 2020. Presession/postsession outcomes data were collected from 251 students. Statistically significant improvements were noted in all nutrition knowledge and patient counseling outcomes assessed.

Conclusion: A single session of culinary medicine including evidence on numerous popular diets and experiential cooking instruction is feasible in core medical student curriculum, well-received by students, and offers improvements in nutrition knowledge and confidence in nutrition counseling.

East-West Culinary Medicine Shared Medical Appointments: Blending Traditional and Modern Nutrition—A Pilot Feasibility Study

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Abstract

Purpose: Shared medical appointments (SMAs) offer an innovative method to provide education while increasing physician face-time with patients. Covered by third-party payers, our SMAs model promotes optimal self-care through educating patients about East-West nutrition, culinary skills, and mindfulness. Here, we present data from our pilot study to assess feasibility and patient satisfaction of this particular model.

Methods: Adult patients at the UCLA Center for East-West medicine were recruited to attend 1 SMA on the topic relevant to their diagnosis of obesity, cancer, or autoimmune disease. The session centered on educating patients about East-West culinary medicine, integrating Western and Eastern healing food traditions. Each SMA occurred over 90 minutes and included a lecture, cooking demonstration, mindfulness practice, and group discussion. E&M code 99213 was billed per patient.

Results: Fifty patients attended the East-West culinary medicine SMAs, in one of the following subject matters: weight management, inflammation, or cancer. The pilot consisted of 6 individual classes and occurred over a 6-month period. Patients were surveyed after their visit. Patients had an average of 20% subjective improvement in their knowledge of traditional and modern nutrition after 1 session. One hundred percent of patients stated that they would like to expand the informational session into a series. Five patients stated in the comments that they thoroughly enjoyed group discussions and learning about lifestyle modifications from peers. One patient suggested forming an online forum to share healthy recipe ideas and gain support to make better lifestyle choices.
Conclusion: This pilot demonstrated that East-West culinary medicine SMAs were cost-effective, covered by third-party payers, and improved patients understanding of the role of nutrition on health and wellness. Follow-up studies will be performed to study long-term outcomes of SMAs on weight loss, reducing inflammatory symptoms, and improving quality of life in cancer patients. Financially, SMAs suggest a sustainable and effective approach to integrative medicine.

A07.03

Findings From an Annual Follow-up Assessment of a Culinary Medicine Elective in Medical Students: Examining the Durability of Effects up to 2 Years After Course Completion

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Abstract

Purpose: Physicians are the frontline of advising patients on nutrition; however, physicians report feeling ill-prepared to counsel patients on nutrition. Since 2016, the Cooking Up Health (CUH) culinary medicine elective has been implemented at the Feinberg School of Medicine to expand medical students’ comfort in counseling patients in behavior change around nutrition and cooking. This elective has demonstrated feasibility, acceptability, and preliminary efficacy for increasing students’ confidence in nutrition counseling and increasing their fruit and vegetable consumption (Ring et al., 2018). We administered a follow-up survey to previous students who participated in the CUH elective to examine whether these improvements were sustained over time.

Methods: In Fall 2018, we administered a follow-up survey to 2 previous cohorts of medical students who participated in the CUH elective to examine the durability of effects over time. Fourteen students (67%) who previously participated in CUH completed the follow-up survey, which assessed their confidence in nutrition counseling and their diet.

Results: Students reported increased confidence in nutrition counseling from baseline to postelective (Ps < .001). Although students reported increased fruit and vegetable consumption from baseline to postelective (P = .02), these increases were not sustained over time, and students’ fruit and vegetable consumption returned to baseline levels by the follow-up assessment (P = .20).

Conclusion: The current study suggests that the CUH elective has demonstrated efficacy in improving medical students’ confidence in counseling patients in nutrition care, and these effects are sustained up to 2 years after completion of the elective. However, students’ increased fruit and vegetable consumption after taking the elective were not sustained over time. Future research should identify potential barriers to healthful cooking and eating in medical training that may interfere with sustained healthful behavior change. Ultimately, this research may provide evidence to support widespread integration of the CUH elective into medical education.

OA07.04

Feasibility of a Train-the-Trainer Model for Dissemination and Uptake of Culinary Medicine Education

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Abstract

Purpose: The aim of this project is to increase the ability of faculty to deliver a culinary medicine and service-learning education program to medical trainees. In 2016, an academic-community partnership between Northwestern Osher Center and Common Threads led to the development of a unique elective (Cooking Up Health) in which trainees learn about nutrition and cooking and then go into underserved communities to teach elementary school children about healthy habits. Previously reported data show that participants note increased confidence in and attitudes toward nutrition and obesity counseling. Requests from other sites led to our creation of a training through which attendees can bring culinary medicine to their home institution. By sharing this work, we believe we can impact on the nutrition-competence of future health-care providers, the wellness of students during their training, and improve the health of children and families in communities.
Methods: Our goal was to provide other institutions access to a well-researched and vetted course and the tools needed to maximize likelihood of successful implementation. To see whether this was feasible, we hosted workshops in 2018 (13 faculty from 8 institutions) and 2019 (12 faculty from 7 institutions). Workshops were co-curated and taught by academic and community partners. The agenda consisted of participation in a mock culinary medicine class including hands-on cooking, interactive activities, and brainstorming steps to completion. Evaluation of the workshops was conducted using presurvey and post-survey in Qualtrics and follow-up surveys 6 and 12 months later.

Results: Postworkshop evaluations showed participants gained confidence in ability to implement the elective and high likelihood of recommending the course and the training. Perceived barriers to success were financial resources and time in the curriculum.

Conclusion: It is feasible to use a Train-the-Trainer model to disseminate culinary medicine education content. Additional follow-up is needed to assess success of implementation efforts.

OA08.01

Effectiveness of Nonpharmacologic Treatments for Low Back Pain in 17 U.S.-Based Integrative Medicine Clinics

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Abstract

Purpose: Nonpharmacologic treatments are recommended by clinical practice guidelines for low back pain (LBP) and randomized trials support their effectiveness. However, studies on whether nonpharmacologic treatments are effective when implemented in real-world multi-disciplinary clinical settings are needed.

Methods: We analyzed data from the Patients Receiving Integrative Medicine Interventions Effectiveness Registry, a prospective longitudinal study embedded in a practice-based research network. Cases of LBP were identified by chief complaint reported on the baseline survey or an ICD-9/10 code for LBP in the electronic medical record. With the widely used, validated PROMIS-29, we evaluated changes in pain intensity, pain interference, and physical function. We used linear mixed-effects models with a random intercept to account for repeated measures to (1) assess 2- and 12-month PROMIS-29 changes from baseline and (2) whether change over 1 year varied by cumulative dose quartiles, characterized as: none (0 visits), low (1–4 visits), moderate (5–15 visits), or high (15–82 visits).

Results: From August 2013 to November 2018, 4954 participants were enrolled from 17 clinical sites. We identified 489 (10%) unique LBP cases (mean age = 52, 78% females, 84% white). Three-fourths of the sites (13/17) enrolled >10 LBP patients. The most frequently reported nonpharmacologic treatments received were acupuncture (39%), chiropractic care (36%), and massage (15%). Modest 2- and 12-month improvements were observed for pain intensity (mean difference [MD] = −0.46, P < .001; and −0.55, P < .001, respectively). Improvements in pain interference and intensity appeared largest among participants receiving low or moderate dose (all P < .001).

Conclusion: Participants with LBP who received 1 to 15 nonpharmacologic visits experienced modest improvements in pain and function over 1 year.

OA08.02

Pilot Trial of Orally Administered Fatty Acid-Derived Resolvins on Quality of Life and Pain in Adults With Chronic Pain

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Abstract

Purpose: To assess the impact of 4 weeks of oral supplementation with resolvins 17-hydroxy-docosahexaenoic acid (17-HDHA) and 18-hydroxy-eicosapentaenoic acid (18-HEPE) on health-related quality of life and pain in adults with chronic pain.

Methods: This study was a prospective, nonrandomized, open-label clinical trial. Forty-four men and women with a
minimum of 3 months of pain of at least a 4 on the PROMIS-43 pain intensity scale at baseline were recruited from the community and asked to take 6 softgels/day for 4 weeks. Each softgel contained: 150 mg DHA, 50 mg EPA, 12.5 µg 17-HDHA and 10 µg 18-HEPE. The primary outcomes were health-related quality of life measured by the PROMIS-43 Profile and the American Chronic Pain Association Quality of Life Scale. Exploratory outcomes assessed safety and tolerability, changes in anxiety and depression (GAD-7, PHQ-9, and PROMIS-43 anxiety and depression subscales) as well as levels of pain (Brief Pain Inventory and the PROMIS-43 subscales), patient satisfaction and impression of change, plus blood biomarkers associated with inflammation (hs-CRP and ESR). All instruments were administered electronically and separately from trial visits.

Results: All forty-four participants completed the trial without any moderate or serious adverse events. Multiple quality of life domains, including Physical Functioning, Fatigue, Sleep Disturbance and Social Functioning, showed statistically significant improvements (P < .05), with consistent, but borderline changes also evident by changes in the ACPA Quality of Life (P = .051). Exploratory analyses revealed statistically significant parallel changes in all measures of pain intensity and pain interference, as measured by BPI and the PROMIS-43 subscales.

Conclusion: Oral supplements with resolvins may improve quality of life, reduce pain intensity and interference, and improve mood within 4 weeks in people with chronic pain. The biologic plausibility, consistency between outcomes, and the magnitude of the results of this trial support the need for placebo-controlled clinical trials of oral resolvins.

OA08.03

Peeling Back the Layers: The Role of Massage and Acupuncture in an Integrative Pain Management Program in a Safety Net Clinic

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Abstract

Purpose: While there is strong evidence to support the use of multimodal integrative chronic pain management, programs providing this service can be particularly complex to implement in resource-limited settings. We examined how each component of a multimodal, integrative program changed patients’ pain-related outcomes in a public safety net clinic.

Methods: We analyzed data from the Integrative Pain Management Program (IPMP) at a community-based primary care clinic in San Francisco. IPMP is a 12-week core program that provides pain education, movement, and tools for pain self-management with optional additional sessions of acupuncture and massage. Patients were surveyed about pain-related outcomes at the program’s initiation, at the end of the program, and 3 months following the end of the program. We used mixed linear models to compare IPMP participants who received acupuncture and massage treatments during the program with those that did not.

Results: Data were collected for 105 patients with initial surveys, 75 patients at the end of the study period and 28 patients at the 3-month follow-up. For patients who received acupuncture and massage (n = 88), scores of pain self-efficacy and pain catastrophizing trended down over the study period and reached significance prior to the 3-month follow-up. Between-group analysis indicated a statistically and clinically significant decrease in pain interference (Δ4.08, P = .02) and increase in pain self-efficacy (Δ5.14, P = .023) among patients who received massage and acupuncture. Although there were decreased scores for depression, anxiety, and sleep disturbance, they did not meet our threshold for clinical significance. No significant improvements were observed for global physical health, physical functioning, or social satisfaction among patients who attended acupuncture and massage sessions.

Conclusion: While the core integrative pain management program provided benefit to patients in an underserved setting, participation in additional acupuncture and massage sessions was associated with improvement in the domains of pain catastrophizing, pain interference, and self-efficacy.

OA08.04

Effectiveness of Multidisciplinary Shared Medical Appointments (SMAs) for the Treatment of Chronic Pain and Opioid Use

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Abstract

**Purpose:** To evaluate the effectiveness of a multidisciplinary, nonpharmacological, integrative approach using shared medical appointments (SMAs) to reduce opioid use and improve health-related quality-of-life in patients with chronic, non-cancer pain.

**Methods:** Our Center for Integrative & Lifestyle Medicine “Living Well with Chronic Pain” SMA is a weekly group visit program including eight 3-hour sessions. All participants were referred to the program by their primary care physician, and each cohort was limited to 10 patients. Participants experienced self-care education as well as both cognitive/behavioral and physical pain relief techniques including but not limited to meditation, chair yoga, diaphragmatic breathing, auricular acupuncture and massage. Opioid use (morphine in milligrams equivalent [MME]) was tracked weekly via the patients’ electronic medical record. Body mass index (BMI) was measured and patients completed the PROMIS-57 health-related quality-of-life questionnaire during visits 1 and 8.

**Results:** A total of 178 patients over 282 cohorts have participated in the “Living Well with Chronic Pain” SMA to-date. Most patients (170/178; 96%) attended 6 or more of the 8 weekly group visits. Overall, SMA intervention resulted in statistically and clinically significant improvement for all domains measured: physical functioning, anxiety, depression, fatigue, social satisfaction, pain interference, sleep disturbance (\(P < .001\)), and BMI (\(P < .05\)) comparing pre–post (8 week) scores. Average opioid use decreased over the 8-week intervention (−49.8 MME change) and was sustained at 6-month follow-up (−7.5 MME change), representing a clinically significant decrease. When opioid users were analyzed separately from nonusers, pain interference decreased significantly with increased SMA attendance (\(P = .023\)).

**Conclusion:** Cleveland Clinic’s multidisciplinary shared medical appointment model may be an effective approach to chronic pain treatment via its unique combination of education and integrative treatment modalities.

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Abstract

**Purpose:** Chronic pain experienced by children and adolescents represents a significant burden in terms of health, quality of life, and economic costs to U.S. families. In 2015, the Boston Medical Center (BMC) Interdisciplinary Pain Clinic initiated an Integrative Medicine (IM) team model to address chronic pain in children. Team members included a pediatrician, child psychologist, physical therapist, acupuncturist, and massage therapist. Children were referred to the pain clinic from primary care and specialty services within BMC, which is the largest safety-net hospital in the northeastern U.S. For this observational assessment, consent and assent were obtained from parents and pediatric patients. Individualized treatment plans were recommended by the IM team.

**Methods:** Self-reported survey and electronic medical record data were collected about socioeconomic demographics, pain, use of medical and IM services, and quality of life. We compared health and quality of life indicators and costs of care for each participant from the year before entering our study with these same indicators for the subsequent year.

**Results:** Eighty-three participants were enrolled. Participants ranged in age from 4 to 22 years (mean 14.7 years). Eighty percent of the group were females. Forty-two percent of the sample were White; 30% were Hispanic/Latino and 28% were African American. Primary types of pain were abdominal (52%), headache (23%), musculoskeletal (18%), and other (7%). Quality of life indicators improved (\(P = .049\)) and pain interference decreased (Wilcoxon \(P = .040\)). Major economic drivers of cost were Emergency Department (ED) visits, in-patient hospitalizations, and consultations with medical specialists. For the 46 participants who completed the project, the following cost savings were noted: $27,819 (surgical procedures), $17,638 (ED visits), $25,033 (hospitalizations), and $42,843 (specialist consultations). No adverse events were reported by any of the participants.

**Conclusion:** Our experience demonstrated that the use of IM approaches in an interdisciplinary team approach is safe, feasible, and acceptable to families.

**Integrative Approaches to Pediatric Chronic Pain in an Urban Safety-Net Hospital: Cost Savings, Clinical Benefits, and Safety**

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OA09.01

Patients Receiving Integrative Medicine Intervention Efficacy Registry: BraveNet Study Focusing on a Chronic Pain Cohort Using Patient Activation Measure Scoring
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Abstract

Purpose: BraveNet is the first national integrative medicine (IM) practice-based research network (PBRN). Patients Receiving Integrative Medicine Intervention Efficacy Registry (PRIMIER) is a prospective, nonrandomized, observational evaluation conducted at 17 BraveNet clinics. PRIMIER was designed to collect patient-reported outcome measures (PROMs) at specified time periods to examine (1) if specific clinical populations (eg, chronic pain) and (2) IM interventions are associated with improved outcomes over time.

Methods: PRIMIER participants received nonstandardized, personalized, multimodal IM approaches for various medical conditions. Using REDCap, participants electronically consented and then completed Patient Reported Outcomes Measurement Information System (PROMIS)-29, Perceived Stress Scale-4, and the Patient Activation Measure (PAM) at baseline, 2, 4, 6, and 12 months. Linear mixed-models analyses were performed on data to assess change from baseline through 12 months.

Results: Overall, 4954 patients enrolled in PRIMIER from August 2013 to October 2017, and 1047 met the criteria for chronic pain, completed at least 2 surveys, and had evaluable Electronic Health Record data. Chronic Pain participants were white (81%), females (79%), with a mean age of 63 years (standard deviation [SD] = 12 years); 90% males; 65% white; 36% had received depression diagnoses, 27% PTSD; 18% anxiety and average baseline MEDD was 124 mg. Veterans were assessed prospectively from baseline to 3 and 6 months for change in opioid dose and risk.

Conclusion: To-date PRIMIER results indicate a profound improvement across all of the tested PROMs. Further hierarchical clustering analyses (including heatmaps) will provide insights as to whether timing and dose of specific IM interventions and combinations are associated with larger improved outcomes in the chronic pain cohort.

OA09.02

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Abstract

Purpose: National guidelines advise clinicians to decrease opioids for chronic pain management in favor of nonpharmacological modalities, yet we lack evidence for effective strategies. The Integrated Pain Team (IPT) consists of a colocated medical provider, psychologist, and pharmacist embedded in VA primary care to optimize veterans’ chronic pain and decrease opioid use. We evaluated the effectiveness of the IPT model to decrease opioid use and risk.

Methods: New IPT patients (N = 147) were matched to similar veterans with chronic pain prescribed opioids receiving Usual Primary Care (UPC, N = 147) on visit date, age, gender, psychiatric diagnoses, and baseline opioid dose (as morphine equivalent daily dose [MEDD]). Veterans were assessed prospectively from baseline to 3 and 6 months for change in opioid dose and risk.

Results: Among all 294 veterans, mean age was 63 years (standard deviation [SD] = 12 years); 90% males; 65% white; 36% had received depression diagnoses, 27% PTSD; 18% anxiety and average baseline MEDD was 124 mg. Veterans with chronic pain followed by IPT versus UPC had a mean MEDD decrease of 56 mg versus 18 mg after 6 months (P = .03). An adjusted mixed-effects linear regression showed significant average treatment effects of the IPT and time interaction. At 3 months, the reduction of MEDD in the IPT group was 33.6 mg (95% CI: 12.2–55.0 mg) greater than UPC (P = .002), and at 6 months, reduction of opioid dose in the IPT group was 38.2 mg (95% CI: 13.0–63.5 mg) greater than UPC (P = .003). This was independent of race, baseline pain severity, opioid use disorder, and other factors. There were also significant
Improvements in opioid risk: urine drug screen monitoring and naloxone kit distribution at 6 months (all \( P < .001 \)).

**Conclusion:** Interdisciplinary models that promote a multimodal approach to pain care, including complementary and integrative health, can lead to sustained reductions in opioid use and risk.

### OA09.03

**Comparative Effectiveness of Mind–Body Interventions for Knee Osteoarthritis: An Individual-Participant Data Network Meta-analysis**

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**Abstract**

**Purpose:** Knee osteoarthritis (OA) is a major public health problem and a leading cause of long-term pain and disability with substantial health-care costs. No effective medical treatments for the disease currently exist. Recently, mind–body exercises (Tai Chi and Yoga) are recommended as Core Treatment options for knee OA patients. However, no studies have directly compared mind–body interventions with standard therapies for knee OA using an individual-participant data network meta-analysis approach. This is the first study to examine the efficacy of mind–body therapies for knee OA using this approach, which estimates relative effects of all treatments against each other.

**Methods:** Randomized controlled trials evaluating at least 8 weeks of Tai Chi, or Yoga compared with Physical Therapy, Exercise, Attention Control, and Usual Care were selected. Primary outcomes were pain (0–100) and function (0–100), as measured by the Western Ontario and McMaster Universities Osteoarthritis Index. We synthesized individual participant data and performed a 2-stage analysis using an extension of multivariable Bayesian hierarchical random effects models for multiple treatment comparisons.

**Results:** Nine studies (794 participants, mean age 66 years; 65% women) were included in this analysis. Tai Chi was as effective as Exercise (mean difference: 0.68, 95% credible interval: \([-16.3, 17.0]\)) or Physical Therapy (6.0 [\([-4.7, 16.1]\) in relieving pain. Yoga achieved pain relief comparable to Exercise (10.5 [\([-0.8, 22.2]\)]) and Physical Therapy (15.7 [\([-0.6, 32.6]\)].) For function, Tai Chi was as effective as Exercise (1.4 [\([-11.0, 13.8]\)]) and Physical Therapy (7.8 [0.01, 15.5]. Yoga had higher benefits on function compared to Exercise (9.3 [0.7, 18.4]) and Physical Therapy (15.6 [3.1, 28.4]).

**Conclusion:** Mind–body interventions produced beneficial effects similar to those of standard physical therapy and exercise in the treatment of knee OA. Therefore, standardized mind–body interventions should be considered as effective therapeutic options for knee OA, highlighting the importance of holistic well-being of the individuals.

### OA09.04

**A Preoperative Mind–Body Intervention Improves Total Joint Arthroplasty Patients’ Postoperative Physical Function: Primary Outcomes and Mechanistic Explorations From a Randomized Controlled Trial**

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**Abstract**

**Purpose:** To better support patients’ recovery after total joint arthroplasty (TJA), we introduced evidenced-based, preoperative behavioral pain management strategies to our existing multimodal pain management protocol. This study examined the effect of 3 different adjunctive interventions (mindfulness meditation, hypnotic suggestion, and cognitive-behavioral psychoeducation) on preoperative pain and anxiety as well as physical function in early recovery following primary TJA.

**Methods:** This was a 3-arm, prospective randomized controlled trial conducted in a university-based orthopedic practice. Patients (N = 288: knee = 185, hip = 103) attending a preoperative education class were randomized to 1 of 3, 15-minute interventions: mindfulness (n = 108), hypnosis (n = 90), or psychoeducation (n = 90). A brief survey measured pain-at-rest, desire for pain medication, and anxiety immediately before and 15 minutes after the preoperative intervention. Additionally, preoperative and 6-week postoperative PROMIS Physical Function (PF) scores were compared.

**Results:** Linear mixed modeling revealed mindfulness and hypnosis significantly reduced preoperative pain intensity by 24% and 26%, respectively, (\( P < .001 \)), pain unpleasantness by 29% and 33% (\( P < .001 \)), and anxiety by 43% and 29% (\( P < .001 \)). Preoperative mindfulness training also significantly increased PROMIS PF scores from patients’ preoperative to 6-week postoperative visit (+5.62, \( P < .001 \), MCID 3.34) relative to hypnosis and psychoeducation which showed no significant change from preoperative to 6 weeks.
Conclusion: Findings from this study suggest that a single 15-minute mindfulness, or hypnosis intervention immediately reduced preoperative pain intensity, pain unpleasantness, and anxiety in patients preparing for TJA. Historically, we have found no significant improvement in PROMIS PF scores 6 weeks after TJA, whereas with preoperative mindfulness training, we found clinically and statistically significant improvement in self-reported physical function 6 weeks after surgery. These findings suggest that brief, preoperative mindfulness training may be an effective adjunct that can be easily disseminated in clinical settings, provide immediate preoperative pain and anxiety relief, and may improve postoperative physical functioning.

OA10.01

Implementation Strategies used in a Pediatric Integrative Pain Management Pilot Consult Service: Findings from an Ethnography

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Abstract

Purpose: With the co-occurring opioid and chronic pain epidemics bringing focus to the need for nonpharmacological pain management, there is a pressing need to develop and implement Integrative Pain Management (IPM) models. IPM brings together professionals who are typically underrepresented in biomedical health-care settings: acupuncturists, mindfulness-based stress reduction teachers, and music therapists, among others. Many of these IPM modalities are not currently covered under health insurance, one of several reasons that garnering administrative buy-in to support hiring and credentialing IPM providers may be challenging. An ethnography was conducted in the spring of 2017 at a large urban pediatric hospital in the southern United States where an IPM consult service was being pilot tested. In the current analysis, we aimed to identify implementation strategies used to overcome barriers to implementation of IPM services.

Methods: Approximately 200 hours of fieldwork were conducted, including participant observation, field notes, document review, and semistructured interviews and informal interviews with 12 caregivers, 7 patients, 5 administrators, and 10 health-care providers. Data were analyzed using thematic content analysis on ATLAS.TI data management software. Detailed methods have been reported elsewhere.

Results: Themes related to implementation strategies included Gathering Embedded Dually-Trained Providers, Building Philanthropic Support, and Garnering Administrative Buy-In. Of the 6 members of the IPM service, 5 had dual training in both a complementary therapy and a biomedical profession. Working with development professionals to build philanthropic support for the IPM service was crucial to getting the pilot off the ground. To garner administrative buy-in, clinicians worked with high-profile patients offered complementary therapies to their supervisors, built mentoring relationships, and leveraged their non-IPM clinical work to gather support for IPM.

Conclusion: The current analysis identified implementation strategies that may be tested and replicated in future implementation studies of IPM. Identifying effective implementation strategies will be crucial to future IPM implementation efforts.

OA10.02

Integrative Medicine in a Dutch Pediatric Neurology Outpatient Clinic

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Abstract

Purpose: There is an increasing demand for complementary and integrative medicine (CIM) in adults and children in the Netherlands. In 2017, the first Integrative Medicine Pediatrics Outpatient Clinic was created in a large teaching hospital in the Hague. The integrative approach addressing a wide range of neurological complaints among pediatric patients is transforming health care. The collaboration with CIM therapists by implementing a network of referrals is described. The purpose of this study was (1) to characterize the children and parents making use of the pediatric neurology clinic and (2) to determine the perceived effectiveness of CIM in these children using a referral circuit of CIM therapists.

Methods: This was a cross-sectional survey of patients attending the integrative medicine outpatient clinic of child neurology in the Juliana Children’s Hospital between November 2017 and September 2019. Patients’ characteristics, their child’s neurological illness, and the integrative
approach and suggested CIM therapies were recorded. Caregivers and patients experience with CIM treatments were evaluated.

**Results:** 79 Patients data were recorded. The mean age of the neurology patients was 11.5 years. Main complaints were headaches 28 (35%), epilepsy 25 (32%), fatigue 16 (20%), and insomnia 10 (13%). All patients received 1 or more types of CIM, with the most common types being biochemical remedies (61), mind–body therapies (41), bioenergetic remedies (31), and biomechanical therapy (24); 61% of CIM users reported benefits, and 25% experienced no effects. Personal experience of the integrative approach was positive in 83%.

**Conclusion:** A majority of the families reported benefits from CIM and appreciate the collaboration with the referral circuit. Pediatric neurologists should initiate discussion on CIM helping patients and parents to make informed decisions about using CIM and ameliorating the well-being of these children. Further studies should address the specific role of CIM in children with neurological disorders.

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**OA10.03**

**Mindfulness-Based Stabilization of Primary School Children: A Longitudinal Cluster-Randomized Trial on the Effect of Mindfulness Training on Classroom Climate**

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**Abstract**

**Purpose:** Increasing demands on teachers and students lead to an increase of distress on both sides. Studies have shown positive effects of mindfulness-based interventions on, for example, executive functioning. The aim of this cluster-randomized trial was to gain more insight in the efficacy of a mindfulness-based training in primary schools.

**Methods:** A total of 482 children from 13 primary schools were cluster-randomized either to participate in the program immediately or to wait for half a school year. All children filled in standardized questionnaires for capturing the classroom climate (FEES3-4), and health-related quality of life for children (Kidscreen10), and completed a concentration performance test (d2) at baseline, after 6, 12, and 18 months. During the first 6 months, teachers participated in a 20-hour mindfulness-based training and practiced for themselves. Afterward, teachers integrated mindfulness techniques in their daily school routine. For the wait-list group, this program was postponed by 6 months.

**Results:** Analysis of covariance revealed significant between-group differences in 3 scales of the FEES3-4 after 6 months (classroom climate \( P = 0.02 \), willingness to make efforts \( P = 0.01 \), and joy of learning \( P = 0.03 \)). While the score for concentration performance significantly increased from baseline to 18 months in both groups, no significant between-group difference was found. Also no significant difference in the health-related quality of life index score was found. Nevertheless, a significant better general sense of health was observed in the experimental group compared to the wait-list at 6 months. However, this difference did not sustain long term.

**Conclusion:** The learning and practice of mindfulness by teachers alone has a positive influence on students' social interaction and sense of health. Due to nonsignificant group differences at the other time points measured, it can be concluded that the integration of mindfulness exercises in the classroom does not contribute much to the already existing effects. However, the compliance of the teachers plays a decisive role.

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**OA10.04**

**Integrating Massage Therapy and Physical Therapy in an Outpatient Pediatric Oncology Setting**

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**Abstract**

**Purpose:** Nonpharmacological-based pain therapies including massage therapy (MT) and physical therapy (PT) are an important component of integrative care models for pediatric cancer patients. The objective is to integrate MT and PT with standard treatment in order to improve function, reduce pain, and alleviate stress in pediatric cancer patients.

**Methods:** In September 2018, a pilot initiative offering MT half a day a week in the outpatient pediatric oncology clinic was implemented. Through multidisciplinary collaborations particularly with nursing and PT, the certified pediatric MT determined patients who would benefit from both therapies to optimize pain control, muscle strength, balance, and
Reduced Muscle Cocontraction in Older Adults Following Long- and Short-term Tai Chi Training

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Abstract

Purpose: Increased lower extremity muscle cocontraction may contribute to age-related impairments in gait and postural control. Tai Chi (TC) exercise has been shown to improve balance and reduce falls in older adults; however, the neuromuscular mechanisms underlying these benefits are not well understood. This study evaluated the impact of both long- and short-term TC training on lower limb muscle cocontraction and gait characteristics during both single-task (ST) and cognitively-distracted dual-task (DT) overground walking.

Methods: Long-term effects of TC training were assessed via cross-sectional comparisons of adult TC-experts (average 24.5 ± 12 years of experience) and age- and gender-matched TC-naive adults. Short-term training impact was assessed by randomly assigning TC-naive adults to a 6-month TC training program or a wait-list usual care (UC) control. A cocontraction index (CCI) was quantified from surface electromyography (EMG) of the anterior tibialis and lateral gastrocnemius during preferred walking speed under ST and DT conditions.Stride time was calculated from foot-switch sensors. CCI was calculated for both walking tasks.

Results: Twenty-six TC-experts and 60 TC-naive adults were recruited. After baseline testing, 31 TC-naive adults were randomized to TC and 29 to UC. Adjusted linear regression models indicate that TC experts had lower CCI during both ST and DT walking, with differences being greater and statistically significant in DT walking (ST: mean difference (95% CI) = 4.69 (−1.9, 11.3), P = .16; DT: mean difference (95% CI) = 7.01 (0.6, 13.4), P = .033). At baseline, a significant negative correlation between CCI and gait speed was also observed in the DT condition (P = .005) across TC-experts and naives. TC-naive adults randomized to 6 months of TC did not show improvements in CCI, relative to UC controls.

Conclusion: Long-term, but not short-term TC training was associated with improved lower extremity neuromuscular coordination. Understanding how lower extremity EMG dynamics contribute to TC’s positive effects on gait and balance warrants further investigation.
OA11.02

Mindfulness Training-Based Changes in Fear Processing During Associative Learning—A Randomized Controlled Functional Magnetic Resonance Imaging Investigation

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Abstract

Purpose: Mindfulness-based interventions have been widely utilized to ameliorate anxiety and stress-related symptoms; however, the neural mechanisms underlying these improvements are still largely unknown. Mindfulness meditation provides a basis for enhanced attentional skills and nonjudgmental awareness of sensory experience. Here, we propose that the changes in these attentional and sensory systems may modify context-based stimulus-response associations, and that these changes may underlie improvements in anxiety and stress-related symptoms following mindfulness-based interventions.

Methods: We tested this hypothesis using a well-established contextual fear-learning protocol and a randomized longitudinal study design. Meditation-naive participants completed either 8-week mindfulness-based stress reduction (MBSR) (n = 41) or stress management education (SME, n = 25) programs. Behavioral changes and alterations in neural activation patterns associated with fear learning from pre- to postinterventions were assessed using functional magnetic resonance imaging.

Results: A comparison of self-report measures demonstrated that while both interventions decreased stress levels, MBSR resulted in further improvements in anxiety and emotion regulation. Critically, compared to the SME, MBSR intervention was associated with significant increases in connectivity between the amygdala and primary sensory cortex during fear learning. Moreover, while SME was associated with enhanced activity in posterior insula, as well as in primary visual cortices during associative learning.

Conclusion: These results indicate that mindfulness training may improve anxiety related symptoms predominantly though alterations in context-based stimulus-response associations of the threat-related stimuli. While stress-management education predominantly leads to changes in top-down modulation of threat, MBSR intervention resulted in neuroplastic changes in sensory association areas during associative learning. Considering that alterations in threat processing have been implicated in the etiology of anxiety and stress-related symptoms, these alterations during associative learning may be a key mechanism through which mindfulness-based interventions alter fear learning and foster stress resilience.

OA11.03

Impact of MBSR on Brain–Computer Interface

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Abstract

Purpose: Roughly 5 million patients in the United States suffer from paralysis resulting in impaired mobility and communication challenges that significantly impact quality of life. Through noninvasively decoding user intent in real-time, brain computer interfaces (BCIs; devices that establish a direct connection between brains and computers) hold the potential to bypass neuromuscular pathways and restore mobility and communication. One promising approach attempts to decipher motor imagery from the electroencephalogram by recording sensorimotor rhythms, which predictably change in response to real and imagined movements. However, major challenges such as long training times and variable proficiency prevent the widespread clinical adoption of this technology.

Methods: We trained individuals in mindfulness-based stress reduction (MBSR; a widely accessible mindfulness intervention) and compared performance and brain activity before and after training between randomly assigned trained (n = 33) and untrained control (n = 29) groups.

Results: We found significantly greater improvements in BCI control in the MBSR group in tasks that involved comparing brain activity during motor imagery and rest (Wilcoxon Rank-Sum Test: Δmed = 14.06%, Z(33,29) = 2.24, P = .025). MBSR-trained participants’ advantage was primarily due to their ability to up-regulate alpha band activity during intentional rest (Δμ = 1.37 dB, independent
t58 = 2.61, P = .011) which displayed a dose-dependent response with meditation practice (t33 = .43, P = .012).

**Conclusion:** The dose-dependent response of this effect in the MBSR group suggests the recorded patterns are related to meditation practice, however the strongest patterns of alpha upregulation were observed after BCI training. Whether this finding is a direct result of mindfulness practice or represents some interaction between meditation and BCI training could be explored by examining the effects of neurofeedback on traditional mindfulness training. The strategy of cultivating meditative states during BCI control through MBSR training could have major clinical implications including better BCI performance, the design of more advanced BCI systems, improved functional health status, and higher quality of life.

**OA11.04**

**Differences in Subjective and Physiologic Measures of Anxiety Among Expert Meditators and Nonmeditators During and After Acute Stress**

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**Abstract**

**Purpose:** Clinical research has shown the benefit of meditation techniques to help reduce symptoms of stress. We explored how expert mediators (EMs) differ from nonmediators (NMs) in their response to acute stress.

**Methods:** Participants (n = 30) with screening BP readings consistent with Joint National Committee (JNC 7) criteria for pre-hypertension (PH) or stage 1 hypertension (S1H) took an herbal-mineral supplement for up to 6 months. The investigated supplement contained Rosa centifolia, Boerhavia diffusa, Convulvulus pluricaulis, Terminalia arjuna, Tribulus terrestris, Rauwolfia serpentina, Rosa vinca, and magnesium aspartate. Systolic BP and diastolic BP were evaluated at baseline, 3 months, and 6 months. For the secondary analysis, participants who completed all study visits (n = 19) were individually categorized as normotensive, prehypertensive, stage 1 hypertensive, or stage 2 hypertensive according to JNC-7 BP classification at each time point. A Wilcoxon signed-rank test was used to evaluate the significance of differences in BP classification between the 3 time points.

**OA12.01**

**Long-term Effects of a Cardiovascular Health Supplement on Blood Pressure Classification: A Secondary Analysis**

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**Abstract**

**Purpose:** A secondary analysis was performed to evaluate whether intake of an herbal-mineral supplement that is frequently recommended by integrative medicine providers was associated with categorical shifts in blood pressure (BP) classification, according to consensus guidelines. The primary study was designed to prospectively evaluate the safety of the supplement over a 6-month time frame.

**Methods:** Participants (n = 30) with screening BP readings consistent with Joint National Committee (JNC 7) criteria for pre-hypertension (PH) or stage 1 hypertension (S1H) took an herbal-mineral supplement for up to 6 months. The investigated supplement contained Rosa centifolia, Boerhavia diffusa, Tribulus terrestris, Rauwolfia serpentina, Rosa vinca, and magnesium aspartate. Systolic BP and diastolic BP were evaluated at baseline, 3 months, and 6 months. For the secondary analysis, participants who completed all study visits (n = 19) were individually categorized as normotensive, prehypertensive, stage 1 hypertensive, or stage 2 hypertensive according to JNC-7 BP classification at each time point. A Wilcoxon signed-rank test was used to evaluate the significance of differences in BP classification between the 3 time points.
**Results:** Mean systolic BP decreased by 15.0 ± 13.2 and mean diastolic BP decreased by 10.5 ± 8.4 mmHg between baseline and the 3-month study visit. At the 3-month and 6-month study visits, the percentage of participants categorized as normotensive increased and those categorized as hypertensive decreased compared to baseline. Differences in BP classification were significant from baseline to 3 months \((P = .001)\) and baseline to 6 months \((P = .02)\) but not from 3 months to 6 months.

**Conclusion:** Intake of the herbal-mineral supplement was associated with statistically significant and clinically relevant improvements in BP classification. These findings may serve to inform health-care providers who recommend this formula to their patients and further justify additional research on the studied formula.

**OA12.02**

Cannabidiol Use by Integrative Medicine Clinic and Cannabis Dispensary Clients in San Francisco, San Diego, and Chicago: A BraveNet Pilot Study

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**Abstract**

**Purpose:** Cannabidiol (CBD) has catapulted to the top of the most-favored cannabinoid charts without data from controlled clinical trials to support its use. This survey was designed to assess who was using CBD-dominant cannabis products, what product type they were using, frequency of use, for what conditions and the perception of its effectiveness.

**Methods:** Patients at 3 integrative medicine clinics and clients of 10 partner dispensaries in San Diego, San Francisco, and Chicago who used CBD-dominant products within the past month were recruited to participate in an institutional review board-approved, anonymous online survey (REDCap).

**Results:** A total of 430 surveys were completed from June 2018 to May 2019. Respondents were white (82%) women (68%) with a mean age of 52.5 years. They were well educated and in a high socioeconomic bracket; 93% reported no tobacco use and 45% reported no alcohol; 37% were prescribed opioids. The CBD administration forms used were oral tincture (27.9%), oral oil (18.9%), vaporized concentrate (14.2%), oral edibles (13.7%), topical application (10.7%), smoked flower (6.6%), oral capsule (4.1%), and vaporized flower (2.5%). A CBD:THC ratio of 18:1 worked best for 25.3% of the participants followed by 1:1 for 17.1%. 55.4% used CBD daily. Conditions for which CBD was used were chronic pain (44.9%), anxiety (44.9%), acute pain (37.0%), stress (29.3%), arthritis (28.1%), insomnia (26.7%), and depression (23.5%). The impact of CBD on conditions was rated on a 0 (not effective) to 10 (highly effective) scale. The mean ratings for 36 conditions ranged from 6.0 to 8.4, with 28 greater than 7.5. Information about CBD was obtained from the internet (43.6%), dispensary staff (43.1%), or a physician (8.6%)

**Conclusion:** Despite the fact that information about the use of CBD is not emanating from health-care providers, CBD is being used for a wide range of conditions with self-report of therapeutic benefit as assessed by this 1-time observational survey.

**OA12.04**

No Improvement in Disclosure of Natural Health Product Use to Primary Care Physicians in the Last 15 Years: A Survey of Naturopathic Patients

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**Abstract**

**Purpose:** The use of natural health products (NHPs) is common in North America, with many consumers believing they are safe despite the potential for drug interaction. In 2003, we conducted a survey of 198 naturopathic patients and found that while 93% used NHPs, 42% of users had not disclosed this information to their primary care physicians. We repeated our survey in 2018/2019 to explore if the rate of NHP use disclosure had improved.

**Methods:** From November 2018 to February 2019, a 21-item survey about NHP use and disclosure was administered to adult patients who visited the Robert Schad Naturopathic Clinic in Toronto, Canada. Multivariable
logistic regression models were created to explore factors associated with patients' disclosure of NHP use with their primary care physicians and factors associated with physicians asking about NHP use.

Results: A total of 1112 patients were approached; 277 completed the survey (25% response rate). Almost all were using NHPs (99%, 274 of 277); 46% (126 of 277) were using NHPs and prescription medication concurrently. Similar to our 2003 findings, 42% of respondents who used NHPs (114 of 269) did not disclose this information to their primary care physician, primarily because of concerns that their doctor would not approve of complementary and alternative medicine use (21%, 27 of 131). In the adjusted model, physician inquiry about NHP use was most strongly associated with disclosure by patients (odds ratio, 5.27; 95% confidence interval, 2.57 to 10.78); however, 75% of respondents (201 of 268) indicated their physician did not ask about NHP use.

Conclusion: Disclosure of NHP use to physicians by naturopathic patients is limited and has remained unchanged over the past 15 years. Future research should explore primary care physicians' hesitancy to inquire about patient NHP use and the effectiveness of quality improvement or implementation strategies to address this persistent issue.

OA13.01

The Effect of a 10-Hour Mindfulness Skills-Based Curriculum on the Clinical Practice of Multispecialty Resident Physicians: A Qualitative Analysis

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Abstract

Purpose: Over the course of 2 academic years, a 10-hour mindfulness skills-based curriculum (Supportive Training for Residents through Education in Mindfulness) was facilitated with resident physicians within the departments of family medicine, pediatrics, anesthesiology, and ophthalmology. The intention of the study was to assess the effects of a brief mindfulness intervention on residents’ clinical practices.

Methods: The 10 hours of mindfulness training was facilitated during didactic time over the course of 3 months per residency program on average. Within 2 months posttraining, residents were invited to participate in a voluntary, semistructured phone interview that was subsequently transcribed and deidentified. A team of 6 reviewers independently read the transcripts, identifying themes, and overarching categories. The reviewers then met to discuss and establish common language regarding these themes.

Results: Sixty-nine residents participated in the trainings, and 36 interviews were completed. Although residents received the same mindfulness training and curriculum, many viewed and internalized the training in unique ways. Some residents referred to mindfulness as a tool to be wielded in certain situations, others viewed it as a way to relax and decompress, a method for self-exploration, or as a lens with which to view the world differently. Residents reported using mindfulness practices most frequently between patient encounters and prior to entering a patient room. These brief practices included mindful walking, deep breathing, and body scan exercises. Residents found these mindfulness practices helped them better cope with patient-related frustrations, be less distracted and more present with each of their patients, and maintain an awareness of their own stress levels and competing emotions.

Conclusion: Across specialties resident physicians found that a 10-hour mindfulness training was influential in their clinical practices. While their perspectives of mindfulness practice varied, residents commonly agreed that they were able to apply brief mindfulness interventions to support themselves and patients in clinic.

OA13.02

Exploring Effects of Exercise and Mindfulness Training on Cognitive Function in Adults at Risk of Dementia: The Active Minds Study

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Mindfulness Instruction Shows Benefit Among HIV-Infected Youth: A Randomized Controlled Trial

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Purpose: We conducted a pilot randomized controlled trial (RCT) to explore whether mindfulness training (MT), alone or in combination with aerobic exercise training (AT), may improve cognitive function in individuals at risk of dementia.

Methods: Participants with at least 2 risk factors for dementia were randomized to AT (3 sessions/week for 12 weeks), MT (1 session/week for 8 weeks), both interventions (MT+AT), or usual care (UC). Assessments of cognitive function including attention (Digital Symbol Substitution Test), executive function (F-A-S verbal fluency test), and episodic memory (International Shopping List Test) were conducted at baseline, end of treatment (EOT—3 months since baseline), and 6 months since baseline. Scores from each measure were used to calculate a composite score (Z-scores of Attention, Verbal fluency, and Episodic memory for Non-demented adults—ZAVEN). Mixed effects longitudinal models were used to estimate effects on ZAVEN scores at EOT controlling for baseline.

Results: Of the 160 screened participants, 87 were eligible and 37 (13M, 24F; mean age = 70.0 years (SD 6.9)) were randomized (UC = 7; AT = 10; MT = 10; MT+AT = 10). Retention rates were 94.6%. At EOT, MT had significantly higher ZAVEN scores ($b = .43$, SE = .18, $P = .03$) compared to UC, and nearly significantly higher scores compared to AT ($b = .26$, SE = .17, $P = .10$). Similar trends were seen at follow-up, with higher scores in MT versus UC and MT versus AT ($P = .10$). Findings were driven mostly by effects of MT on executive function ($b = 9.05$, SE = 3.53, $P = .01$), and episodic memory ($b = 3.99$, SE = 2.16, $P = .07$). No differences were found with the MT+AT group at EOT or follow-up.

Conclusion: These results suggest a possible effect of MT on cognitive function in older individuals at risk of dementia. AT did not improve cognitive function and may require a longer intervention duration to show an effect. These promising findings need to be confirmed in a larger RCT.

Conclusion: Individuals 13 to 24 years old are an alarming 21% of new HIV diagnoses. This age-group is less engaged in care and only 25% achieve HIV viral suppression. We have found that mindfulness-based stress reduction (MBSR) for urban youth improves psychological functioning and decreases trauma symptoms. Additionally, our NCCIH-funded pilot study of MBSR with HIV-infected youth suggested psychological, cognitive, and HIV viral load benefit. This NCCIH-funded mixed-methods RCT aimed to further explore the effect of MBSR versus health education (HT) on HIV medication adherence in HIV-infected youth.

Methods: Participants 13 to 24 years old with HIV were recruited from 2 academic medical centers. In-depth interviews were conducted with 20 individuals at baseline and follow-up, finding perceived MBSR benefit related to participants’ enhanced capacity to observe nonjudgmentally and accept difficult thoughts, feelings, and experiences associated with living with HIV, which facilitated greater medication adherence. Quantitative data reported here were collected at baseline, 3, 6, and 12 months. Linear additive modeling was used to compare study arms, accounting for baseline differences.

Results: Ninety-seven 13-24-year-old participants consented and 74 completed baseline data collection and were randomized to MBSR or HT. At baseline, the MBSR participants had higher HIV viral load, mindfulness, and positive coping ($P < .05$). Following programs, MBSR participants had greater increase in medication adherence ($P = .001$) and greater decline in HIV viral load ($P = .052$) than HT at 3-month follow-up. Higher at baseline, MBSR participants reported decreased mindfulness at all follow-up time points ($P < .05$) and lower positive coping at 12 months ($P = .009$).

Conclusion: In this mixed-methods RCT, data suggest that MBSR confers benefit for HIV medication adherence and viral load suppression among HIV-infected youth. Given the significant vulnerability of this population and the importance of achieving higher rates of HIV viral suppression to reduce transmission, MBSR remains a promising approach to enhance treatment of HIV-infected youth in effort to end the HIV epidemic.
MINDFULNESS IS MORE EFFECTIVE AT REDUCING AFFECTIVE PAIN, DISABILITY, AND DEPRESSION THAN HEADACHE EDUCATION FOR MIGRAINE: A DOUBLE-BLIND, RANDOMIZED CONTROLLED TRIAL

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Abstract

Purpose: Evaluate 8 weekly classes of a standardized course in mindfulness meditation/yoga (mindfulness-based stress reduction [MBSR]) versus headache (HA) education for migraine, evaluating sensory and affective experimental pain using quantitative sensory testing (QST).

Methods: We conducted a double-blinded, randomized controlled trial of MBSR versus HA education for migraine. Participants were blinded to course content; principal investigator/data analysts to group assignment. Eligibility confirmed with HA specialist evaluation and 4 week HA log. Key inclusion: migraine diagnosis (by ICHD-2); 4-20 migraines/months; exclusion: MOH (by ICHD-2). QST and surveys completed at baseline, 12 weeks, 6 months, and 9 months. Primary outcome: change in migraine day frequency from baseline to 12 weeks. Secondary outcomes: changes in disability, self-efficacy, pain catastrophizing, and depression. Registration: NCT02695498.

Results: Of 96 participants randomized (MBSR n = 49; HA education n = 47), 91 attended 1+ class over 7 cohorts; analyses conducted on those with follow-up data (n = 76). Most participants were women (92%), Caucasian (88%), 46.7 years (SD = 13.01), with 7.9 migraine days/month (SD = 2.92). Both groups reduced migraine days at 12 weeks without significant differences (MBSR -3.00, 95% CI [2.27, 3.98], HA education -2.97, [2.30, 3.84], P = .95). Compared to HA education, MBSR participants had statistically significant improvements (P < .05) at all follow-up visits compared to baseline in Migraine Disability Assessment (MIDAS-1 month: MBSR -8.13, HA education -2.21, 95% CI of difference [2.76, 9.07]); Headache Management Self-Efficacy (MBSR 16.19, HA education 7.99, [0.23, 16.15]); Pain Catastrophizing Scale (MBSR -7.74, HA education -1.92, [2.86, 8.77]), depression (PHQ9: MBSR -1.12, HA education 0.48, [0.43, 2.74]), and perception of experimental pain unpleasantness (but not intensity) (-1.04; [0.056, 2.024]). No adverse events or side effects were reported.

Conclusion: MBSR and HA education both decreased migraine frequency, but only mindfulness improved disability, depression, self-efficacy, pain catastrophizing, and pain unpleasantness, with effects persisting 9 months, suggesting a mechanism of affective pain resilience with mindfulness.

COMPREHENSIVE LIFESTYLE MODIFICATION AND FASTING IN PATIENTS WITH THE METABOLIC SYNDROME: A RANDOMIZED CONTROLLED TRIAL

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Abstract

Purpose: Given that about 80% of cardiovascular risk factors can be influenced by the patients’ behavior, lifestyle modification is increasingly used as a treatment option for patients with the metabolic syndrome. The aim of this study was to assess the efficacy and safety of a comprehensive mind–body medicine program for lifestyle modification including a fasting period in patients with the metabolic syndrome compared to a standard lifestyle program.

Methods: One hundred forty-five patients with the metabolic syndrome (62.8% women; 59.7 ± 9.3 years) were randomly assigned to 10 weeks of (a) comprehensive lifestyle modification (CLM; n = 73) or (b) the DASH diet combined with exercise and relaxation (n = 72). CLM included an
initial 5-day fasting intervention followed by 10 weekly 6-hour group meetings focusing on nutrition, aerobic exercise, mindfulness, yoga, and cognitive restructuring. Coprimary outcome measures were 24-hour ambulatory systolic blood pressure and the Homeostasis Model Assessment (HOMA) Index. Secondary outcomes included anthropometric, laboratory, and self-report measures. Outcomes were assessed at weeks 1 (after the fasting week), 12 (after the lifestyle programs), and 24 (follow-up).

Results: After the fasting week, effects favoring CLM over DASH occurred for the HOMA Index ($P = .047$), body mass index ($P < .001$), weight ($P < .001$), waist circumference ($P = .035$), PROCAM risk score ($P = .033$), blood glucose level ($P = .022$), blood insulin level ($P = .024$), HbA1C ($P = .010$), HbA1C IFCC ($P = .017$), triglyceride levels ($P = .003$), eGFR ($P = .019$), interleukin 6 ($P = .049$), depression ($P = .049$), and fatigue ($P = .014$). Few significant group differences were found at week 12 and 24. No serious adverse events occurred.

Conclusion: Fasting induced positive short-term effects in patients with the metabolic syndrome; however, these effects were not maintained in the longer term. Fasting can thus be considered a treatment option for this patient group, although it remains to be investigated whether and how the effects of fasting can be maintained in the longer term.

OA14.02

How to Capture Clinical Experience—An Example From Case Reporting in Viscum Album Extract Therapy

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Abstract
Purpose: Viscum album extracts (VAE) have been intensively investigated preclinically and clinically, particularly with regard to antitumoral activity, immunomodulation, quality of live, survival, and safety. Doctors with high experience in VAE therapy describe treatment regimens and clinically significant outcomes not reported in published studies of VAE. Similar to the NCI Best Case Series Program, we investigated these additional experiences in high-quality CARE guideline compliant case reports.

Methods: We asked doctors for cases of VAE therapy in cancer patients which they regarded to show a clinically significant outcome connected to VAE therapy. The recruitment strategy included requests via e-mail lists and meetings as well as contacts from a qualitative study with expert doctors in VAE therapy. We assessed the cases for relevance (clinically significant outcome in comparison with the literature) and ran them through a validation process: check for data completeness; triangulation of the data from different sources; reevaluation of crucial diagnostic and follow-up tests; and discussion with experts. All patients/relatives gave informed consent.

Results: A total of 111 cases were recruited; 91 cases were excluded in the assessment process, mainly for relevance and validity; 9 cases were published in peer-reviewed medical journals; and 11 are still being investigated. Older patient data often were incomplete and made validation impossible. The published case reports cover the tumor sites: skin, pancreas, kidney, ovary, pleura, skull, and lymphatic tissue. VAE was administered subcutaneously, intravenously, and intralesionally. In some of the cases, unusually high dosages of VAE were used. Outcomes were long-term survival, tumor regression, improvement of quality of life, and reduced side effects from cancer treatment.

Conclusion: Significant clinical observations of VAE therapy could be captured, elaborated scientifically, and published as case reports in peer-reviewed medical journals. Our search and elaboration procedure could be a model of how to capture relevant clinical experience.

OA14.03

Public Feedback on the Australasian Integrative Medicine Association Guiding Principles for Letter Writing: A Mixed-Methods Study

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Abstract
Purpose: Interprofessional communication (IPC) between health-care practitioners (HCP) can optimise the safe delivery of patient-centred care. In response to calls from HCP, the Australasian Integrative Medicine Association (AIMA) established an interdisciplinary working group to develop an IPC Guiding Principles for Letter Writing that included...
The AIMA IPC Guiding Principles for Letter Writing document was deemed valuable to HCP. Feedback from respondents will be used to revise the document prior to AIMA endorsement. The findings highlight the role of formal communication pathways in providing multidisciplinary care that is safe, coordinated, and patient centered, and the need for further IPC training and education.

**Integrative Nursing Fellowship: Program Evaluation and Outcomes**

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**Abstract**  
**Purpose:** While medicine has developed multiple postgraduate integrative health fellowships and academic programs, nursing has lagged behind (Koithan, Miller, & Linck, 2019). A 2015 survey of undergraduate and graduate nursing programs indicated that few programs fully incorporated an integrative, whole-person approach to care, and symptom management (Miller & Linck, 2019). A transformed high-quality health-care system requires that nursing faculty and academic leaders be prepared to transform nursing education to prepare our workforce. This presentation highlights the program and outcomes of the University of Arizona College of Nursing’s 12-month Integrative Nursing Fellowship.

**Methods:** Personal attributes for fellows (n = 53) were evaluated by pre/posttest self-report methods using the Integrative Medicine Attitude Questionnaire, Arizona Integrative Outcomes Scale, Connor-Davidson Resilience Scale, Arizona Lifestyle Inventory, and Bandura-style self-efficacy inventories. A 6-month post-Fellowship open-ended survey and focused interviews evaluated curricular outcomes (eg, new/revised programs, changes in teaching/learning methods, revised clinical practice competencies).

**Results:** One new entry BSN and 1 new graduate (MSN/CNL) program were developed, approved, and launched. Curricular changes included application of complex adaptive systems thinking across didactic and clinical settings; modeling student-centered, relationship-based teaching/learning (T/L) methods, incorporation of aesthetics and humanities across courses and programs, required skill development in mind and body therapies, and integration of self-care modalities requirements and competencies with time appropriated for these activities. Significant results from paired t test on personal attributes indicated: increased depth of knowledge about integrative nursing content (P = .002); reduced stress/improved relaxation (P = .007); increased empathy, attentiveness, and relationship-centered interactions (P = .026); and increased overall well-being (P < .001).

**Conclusion:** Transforming care requires faculty proficient in developing, implementing, and evaluating curricula based on the concepts and principles of integrative care delivery. This immersive experience resulted in positive changes in both curricular/program design and T/L strategies that reflect integrative concepts and principles.

**Cochrane Risk of Bias Tool 2.0: Assessing Performance and Detection Bias in Systematic Reviews of Unblinded Trials**

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**Abstract**  
**Purpose:** While medicine has developed multiple postgraduate integrative health fellowships and academic programs, nursing has lagged behind (Koithan, Miller, & Linck, 2019). A 2015 survey of undergraduate and graduate nursing programs indicated that few programs fully incorporated an integrative, whole-person approach to care, and symptom management (Miller & Linck, 2019). A transformed high-quality health-care system requires that nursing faculty and academic leaders be prepared to transform nursing education to prepare our workforce. This presentation highlights the program and outcomes of the University of Arizona College of Nursing’s 12-month Integrative Nursing Fellowship.

**Methods:** Personal attributes for fellows (n = 53) were evaluated by pre/posttest self-report methods using the Integrative Medicine Attitude Questionnaire, Arizona Integrative Outcomes Scale, Connor-Davidson Resilience Scale, Arizona Lifestyle Inventory, and Bandura-style self-efficacy inventories. A 6-month post-Fellowship open-ended survey and focused interviews evaluated curricular outcomes (eg, new/revised programs, changes in teaching/learning methods, revised clinical practice competencies).

**Results:** One new entry BSN and 1 new graduate (MSN/CNL) program were developed, approved, and launched. Curricular changes included application of complex adaptive systems thinking across didactic and clinical settings; modeling student-centered, relationship-based teaching/learning (T/L) methods, incorporation of aesthetics and humanities across courses and programs, required skill development in mind and body therapies, and integration of self-care modalities requirements and competencies with time appropriated for these activities. Significant results from paired t test on personal attributes indicated: increased depth of knowledge about integrative nursing content (P = .002); reduced stress/improved relaxation (P = .007); increased empathy, attentiveness, and relationship-centered interactions (P = .026); and increased overall well-being (P < .001).

**Conclusion:** Transforming care requires faculty proficient in developing, implementing, and evaluating curricula based on the concepts and principles of integrative care delivery. This immersive experience resulted in positive changes in both curricular/program design and T/L strategies that reflect integrative concepts and principles.
Abstract
Purpose: Cochrane systematic reviews are considered the gold standard for evaluating the evidence on interventions. A core component of Cochrane methodology is the Cochrane risk of bias tool (RoB 1.0), which is used to assess the quality of included trials and contributes to the overall assessment of certainty for review outcomes. In 2019, RoB 1.0 was updated to RoB 2.0. It is important to evaluate how RoB 2.0 assesses quality in trials where blinding is difficult, impossible, or inappropriate.
Methods: RoB 2.0 covers selection bias, performance bias, attrition bias, detection bias, and reporting bias. We assessed the criteria and rating instructions for each bias domain and considered whether these had changed since RoB 1.0 and if so how this might impact the overall assessment of evidence from unblinded trials.
Results: RoB 2.0 criteria and rating instructions for selection bias, attrition bias, and reporting bias have been elaborated but have not substantively changed from RoB 1.0. Criteria for performance bias and detection bias in unblinded trials have changed. Unblinded trials are no longer automatically rated at high risk of performance bias, but subjective outcomes (eg, pain) in unblinded trials are now automatically at high risk of detection bias, even if obtained through a blinded assessor. New RoB 2.0 criteria for assessing overall risk of bias mean that subjectively experienced outcomes from unblinded trials cannot be at low risk of bias in systematic reviews.
Conclusion: According to RoB 2.0, it is not possible to have low risk of bias and high certainty of the evidence for important patient-relevant outcomes from reviews of unblinded trials. We question the appropriateness and utility of these judgments, particularly in pragmatic trials, which should not be blinded. We suggest some alternative approaches to assessing the risk of detection bias for these outcomes and propose collaboration to develop recommendations on this topic.

OA15.02
The eMCC™: A Validated Taxonomy of Skills Learned Through Mindfulness Practice
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Abstract
Purpose: Along the lines of the Precision Medicine Model, the purpose of this presentation is to describe the 2-phase content validation process used for a taxonomy of skills learned from mindfulness practice that will allow more targeted interventions to address skill-deficits in defined clinical conditions.
Methods: Phase I (development) utilized 11 subject matter experts (SMEs) over 5 months. Phase II (judgment) enrolled 60 international SMEs from 116 invited through snowball sampling. Per American Association for Public Opinion Research guidelines, participation rate for this nonprobability, targeted SME sampling was calculated at 52% for the primary tier, and 42 SMEs also rated the secondary tiers. SMEs were mostly white (80%) or Asian (15%) women (70%) with longstanding personal mindfulness practices (M = 20 years; SD = 9.6) and extensive mindfulness teaching experience (M = 11 years; SD = 6.7); 59% > 50 years; 88% had graduate degrees. SMEs rated the relevance and clarity of Individual Content Validity Indices (I-CVIs) for each category per tier, and Average CVIs (ave-CVIs) for entire tiers.
Results: I-CVIs ranged from 0.57 to 0.97, suggesting the removal of 1 category from the primary tier, leaving an ave-CVI for relevance of 0.92 (range 0.73–0.97). Clarity ratings for the primary tier (ave-CVI = 0.75; range of I-CVI = 0.52–0.88) necessitated exploration of the subcategories of Awareness (second tier; N = 42) to refine description (ave-CVI = 0.80 for clarity; range 0.64-0.93) while showing excellent content validity for both relevance and fit (ave-CVI = 0.95; range 0.88–1.0 for both).
Conclusion: The eMCC™ is the first validated taxonomy of skills learned through mindfulness practice, created to support development of more precise mindfulness-based interventions (MBIs) that target skill-deficits associated with clinical conditions. Further research will validate subcategories, associate specific practices per category, and assess Mindfulness Based Interventions designed to target specific skills from the eMCC™.

OA15.03
Use of Network Meta-analysis to Assess Complementary Medicine Interventions: A Scoping Review
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Abstract

Purpose: In the last decade, network meta-analysis (NMA) has become a well-established knowledge synthesis technique used in systematic reviews (SR) to compare multiple treatments based on all available direct and indirect evidence. Its extent of use to compare therapies in the realm of complementary medicine (CAM) intervention has not been assessed.

Methods: A scoping review of the literature was performed to identify reviews with NMAs involving 1 or more CAM interventions. An information specialist executed a multidatabase search, and 2 reviewers performed study selection and data collection. Information on publication characteristics, diseases studied, interventions compared, reporting transparency, outcomes assessed, and other parameters were extracted from each review.

Results: A total of 90 SR/NMAs were included. The largest number of NMAs was generated from China (40%), followed by the United Kingdom (12.2%) and the United States (8.9%). Reviews were published between 2010 and 2018, with the majority published between 2015 and 2018 (85.6%). More than 90 different CAM therapies appeared at least once, and the median # per NMA was 2 (interquartile range 1–4); 20% of reviews consisted of only CAM therapies. Dietary supplements (51.1%) and vitamins and minerals (42.2%) were the most commonly studied therapies, followed by electrical stimulation (31.1%), herbal medicines (24.4%), and acupuncture and related treatments (22.2%). A diverse set of conditions was identified, the most common being various forms of cancer (11.1%), osteoarthritis of the hip/knee (7.8%), and depression (5.9%). Most reviews adequately addressed a majority of the PRISMA NMA extension items; however, there were limitations in indication of an existing review protocol, methods to explore network geometry (and related findings), and exploration of risk of bias across studies such as publication bias.

Conclusion: Use of NMA to assess CAM interventions is growing rapidly worldwide. Efforts to identify priority topics for future CAM-related NMAs and enhance methods for CAM comparisons with conventional medicine are needed.

OA15.04


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Abstract

Purpose: The systematic review evidence for effective mind–body therapies for chronic pain is fragmentary and dissemination of information from existing reviews could be improved. To guide the development and dissemination of such evidence, the Cochrane Complementary Medicine Field (CAM Field) sought to question stakeholders (clinicians, researchers, and patients/carers) about needs for information on mind–body therapies for chronic pain.

Methods: We developed and tested a survey with the CAM Field Advisory Board in 2018 and then disseminated a revised and expanded online questionnaire through a range of social media channels in 2019. We collected demographics and desires for more information on topics surrounding 6 chronic pain conditions (eg, chronic back pain) and 12 mind–body therapies (eg, mindfulness) defined by our funder. We extracted the top 3 information needs overall and among respondents who were patients/carers only and compared these topics to available evidence in the Cochrane Library.

Results: There were 619 respondents from all continents, with the majority from North America or Europe (85%). Respondents self-identified as patients/caregivers (n = 250), researchers (n = 138), CAM clinical practitioners (n = 136), or conventional clinicians (n = 121). Information was most often desired on acupuncture/acupressure (n = 6 conditions), meditation/mindfulness (n = 6), massage (n = 4), and yoga (n = 3). Relevant Cochrane acupuncture reviews were published between 2005 and 2018 and updates of 2010 and 2016 reviews are ongoing. There is 1 relevant Cochrane yoga review being updated and 1 at protocol stage. Only 1 relevant Cochrane review exists for mindfulness or for massage.

Conclusion: There is a need to update most Cochrane reviews of acupuncture for chronic pain and to produce new reviews of mindfulness/meditation, massage, and yoga. The CAM Field is working with Cochrane review groups to produce or update reviews, developing strategies to disseminate the results of these reviews when
completed, and looking at how best to use non-Cochrane evidence in the meantime.

**OA16.02**

**A Novel Porcine Model to Study the Impact of Active Stretching on Inflammation: Preliminary Findings**

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**Abstract**

**Purpose:** Active stretching targeting connective tissues is integral to mind–body therapies including yoga and Tai Chi. These therapies show promise in relieving musculoskeletal pain, but the biological mechanisms underlying therapeutic effects remain largely unknown. We have previously studied the impact of active stretching on inflammatory processes in a rat model. Here, we extend this work to a porcine model which closer resembles the human musculoskeletal system. We tested the feasibility of an active stretching paradigm in pigs and report preliminary findings on the impact of stretching on local tissue inflammation by measuring inflammatory lesion size, granulocyte and macrophage infiltration, and systemic inflammatory markers.

**Methods:** We trained 12 pigs to stretch before subcutaneous bilateral Carrageenan injection in the back at the L3 vertebrae, 2 cm from the midline. We randomized them to No-Stretch (NS) or Stretch (S; 2 ×/day for 5 min over 48 h)); 72 hours post-injection, animals were anesthetized for blood collection. Lesion area was measured in situ with calipers and cells harvested and stained with CD-45, granulocyte, and CD163 mAbs. RvD1, LXA4, and PDG2 levels were analyzed in the serum and lesion by ELISA.

**Results:** Active stretching was well tolerated. On average, lesion size was significantly smaller in the S versus NS (1058 mm² ± SEM78.41 vs 678.6 mm² ± SEM106.9; P = .009). On average, S lesions contained fewer granulocytes and macrophages than the NS group. While in serum, resolvin RvD1 and LXA4 levels were increased on average, and PDG2 level was decreased in the S compared with NS, but these differences were not statistically significant.

**Conclusion:** A porcine model shows promise for studying the impact of active stretching on inflammation and musculoskeletal health. Active stretching twice a day for 48 h resulted in reduced inflammatory lesion size, consistent with previous studies of active stretching in rodents. Future studies with larger samples and higher stretching doses are warranted.

**OA16.03**

**Electroacupuncture at PC6 Modulates Inflammation in Myocardial Infarction**

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**Abstract**

**Purpose:** Excessive inflammation in myocardial infarction (MI) is associated with exacerbated myocardial injury. Attenuating inflammation has been proposed as a potential strategy for improving myocardial repair in MI. In previous studies, electroacupuncture (EA) has been shown to modulate inflammation and exert beneficial effects in various heart-related conditions, but its efficacy and immune-modulating effects on MI are unclear.

**Methods:** Sprague-Dawley rats were randomized to undergo MI induction (ie, surgical ligation of the left coronary artery) (MI; n = 10), MI induction followed by electroacupuncture (EA; n = 10) or control sham surgery (SO; n = 10). EA was administered 30 minutes post-MI at bilateral PC6 for 20 minutes at 1 mA and 2/15 Hz. Serum and myocardial tissue samples were collected at 4-hour post-MI and evaluated by ELISA for myocardial injury (cTnT, CK-MB, and cytokines (TNF-α, IL-1β, and IL-6), by western blot for NF-κB, and by immunohistochemistry for macrophages (CD68, CD206).

**Results:** Infarcted rats treated with EA showed decreased levels of myocardial enzymes compared to the nontreated infarcted group: cTnT (MI: 84.3 ± 4.9 ng/L vs EA: 60.3 ± 2.6 ng/L; P < .005) and CK-MB (MI: 6.8 ± 0.3 ng/mL vs MI+EA: 4.8 ± 0.2 ng/mL vs EA: 17.4 ± 0.2 ng/mL; P < .005). EA also attenuated NF-κB expressions (MI vs EA, P < .005) and cytokine concentrations: TNF-α (MI: 209.7 ± 8.1 ng/L vs EA: 178.4 ± 7.9 ng/L; P < .005), IL-1β (MI: 20.3 ± 0.2 ng/mL vs EA: 17.4 ± 0.2 ng/mL; P < .005), and IL-6 (MI: 73.2 ± 9.0 ng/L vs EA: 58.6 ± 1.7 ng/L; P < .005). While MI elevated the expression of CD86, pro-inflammatory M1-macrophages (SO vs MI, P < .005) and reduced that of CD206, anti-inflammatory M2-macrophages (SO vs MI, P < .005), EA significantly induced macrophage polarization from the M1 to M2 subtype.
Conclusion: This study demonstrates that EA can attenuate myocardial injury and inflammation in the postinfarcted heart. The findings also provide new insight about the ability of EA to regulate macrophage polarization in MI. While these findings suggest that acupuncture is cardioprotective, potentially through its immune-modulating effects, more research is needed to better understand the mechanisms and clinical implications of acupuncture for MI.

OA16.04

Therapeutic Effect of Mantidis Ootheca Extract in Radiation-Induced Testicular Injury

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Abstract

Purpose: Mantidis Ootheca (MO), described as the ootheca of Hierodula patellifera (Serville, 1839), Tenodera angustipennis (Saussure, 1869), or Statilia maculate (Thunberg, 1784) in Korean Herbal Pharmacopoeia, is an important herbal material that has been traditionally used for treating several medical conditions including spermatorrhea and pediatric enuresis in Korea. We evaluated the effect of MO on testicular injury in mouse after radiation exposure.

Methods: MO (5 and 10 mg/kg/day) was orally administrated to male C57BL/6 mice by for 3 weeks pelvic irradiation exposure, and histological parameters were assessed at 8 h and 35 days postirradiation.

Results: The MO attenuated radiation-induced apoptosis in germ cells after 8 hours after irradiation. MO protected testicular morphological changes, such as changes in seminiferous epithelial height after radiation exposure. In addition, the remaining proliferating germ cells were higher in the MO-treated group than in the radiation group. MO treatment significantly increased testis weight compared with irradiation controls at 35 days. The decrease in the sperm count in epididymis caused by irradiation was counteracted by MO.

Conclusion: The present study suggests that MO protects form radiation induced testicular injury via an anti-apoptotic effect and recovery of spermatogenesis.

Poster Abstracts

P01: Basic Science

P01.01

Caffeic Acid and Coagulation Factor II (F2): Possible Mechanism of Lonicerae japonicae Flos (jinyinhua) in the Intervention of Pneumonia

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Abstract

Purpose: At present, the clinical treatment of pneumonia is mainly anti-infective and late hormone shock therapy. As a kind of traditional Chinese herbal medicine, Lonicerae japonicae Flos (jinyinhua) can effectively reverse the progress of pneumonia and has low toxic side effects. This study looks at finding its core small molecules and related biological mechanisms.

Methods: We confirmed the therapeutic effect of Lonicerae japonicae Flos on pneumonia by animal experiments and identified the significant substances by liquid chromatography. Using bioinformatics methods, we carried out target fishing and text mining for these small molecules and clustered and enriched the target proteins related to pneumonia. We use molecular docking to find the most prominent binding pattern of small molecular ligands to protein receptors.

Results: The treatment of rat pneumonia with Lonicerae japonicae Flos has the effect of close to dexamethasone, which can reduce the inflammation of lung tissue. A total of 31 compounds were identified in the aqueous extract, which mapped to 366 pneumonia-associated proteins and enriched 46 pathways. The core mechanism pathway is Lonicerae japonicae Flos–caffeic acid–coagulation factor 2–neuroactive ligand receptor interaction signaling pathway. The binding energy of caffeic acid to coagulation factor is $6.0 \text{kcal/mol}$, and the molecule is tightly bound to the groove portion of the protein receptor.

Conclusion: Caffeic acid participates in the interaction of neuronal receptor ligands on the plasma membrane by binding to coagulation factor 2 and exerts the therapeutic effect of Lonicerae japonicae Flos on pneumonia. The results have
experimental value for further synthesis and exploration, and related research methods can be applied to the exploration of other small molecules of traditional Chinese medicine.

P01.05

Auricular Acupuncture Modulates Elevated Blood Pressure Through Neural Processing in Medullary Nuclei

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Abstract

Purpose: Auricular acupuncture (AA) is used empirically to manage cardiovascular disorders, including elevated blood pressure (BP). However, precise mechanisms underlying its effects remain unclear. One previous study showed that AA applied at the “heart acupoint” (CO15, the center of the inferior concha) activates neurons in the nucleus tractus solitarii (NTS) through vagal inputs, but its actions on NTS processing and downstream influence on the nucleus regulating cardiovascular function have not been studied. The present study evaluated medullary processing during modulation of elevated BP by the AA. We hypothesized that manual AA (MAA) activates the NTS and ultimately inhibits rostral ventrolateral medulla (rVLM), a critical region controlling cardiovascular function, through opioid and GABA mechanisms.

Methods: In Sprague-Dawley rats subjected to repetitive gastric distension (GD) under anesthesia, MAA was performed at a frequency of 2 Hz for 4 minutes every 10 minutes during a 30-minute period, 2 minutes in each side of the ear. During sham-MAA, the needle was inserted into the same acupoint without subsequent mechanical stimulation. Unilateral microinjection of the chemical (50 nL) was conducted in the NTS and rVLM.

Results: We observed that GD-induced elevation in BP was significantly attenuated by MAA at CO15 (n = 8; P < .05), but neither sham-MAA at CO15 nor MAA at HX9 (overlying the auricular somatic nerve). Modulation of pressor reflexes by MAA at CO15 was markedly (P < .05) reversed by microinjection of kynurenic acid (25 mM; n = 7) into the NTS as well as naloxone (1 mM; a nonselective opioid receptor antagonist; n = 8) or gabazine (27 mM; a GABA receptor antagonist; n = 8) into the rVLM, but not by their vehicles, 0.9% normal saline.

Conclusion: Our data suggest that AA at CO15 excites the NTS through a glutamatergic mechanism, which, in turn, attenuate excitatory cardiovascular reflexes evoked by visceral stimulation through GABA and opioids in the rVLM.

P01.06

Research on Immunoregulatory Mechanisms of Xilei Powder Treating Oral Ulcer Based on Methods of Network Pharmacology

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Abstract

Purpose: Xilei powder (XP) is a traditional Chinese medicine for treatment of oral ulcer. Based on the methods of network pharmacology, the authors aim to explore the potential targets and immunoregulatory mechanisms of XP and provide a scientific basis for the further explanation of the mechanism for treating oral ulcer.

Methods: A database of XP correlated targets was established based on the Traditional Chinese Medicine Systems Pharmacology Database with Lipinski’s Rule of Five as a filter condition. The screened proteins were searched in the Universal Protein Database (Uniprot) for the corresponding gene names, which were matched with the genes related to oral ulcer retrieved from the Comparative Toxicogenomics Database. And the interactions between identical targets were analyzed by Retrieval of interacting Genes/Proteins website. Moreover, the immunoregulatory signaling pathways of XP treating oral ulcer were screened on Kyoto Encyclopedia of Genes and Genomes (KEGG), and the network of molecular-target-pathway was constructed by Cytoscape.

Results: We obtained 52 molecular compounds from XP with 39 targets of treating oral ulcer. By analyzing the enrichment of biological process and KEGG pathways, we found that mechanism of XP for oral ulcer is related to immune inflammatory, small molecule metabolism, hormone level regulation of hormone and neurotransmitter, by regulating interleukin (IL)-17 signaling pathway, Toll-like receptor signaling pathway, Th17 cell differentiation, TNF signaling pathway, PI3K-Akt signaling pathway, and other inflammatory-related pathways.

Conclusion: Complex regulation of IL-17 signaling pathway, Toll-like receptor signaling pathway, Th17 cell differentiation, TNF signaling pathway, and PI3K-Akt signaling pathway may play vital roles in the treatment of XP for oral ulcer.
Analysis on Mechanisms and Medication Rules of Prescriptions for Female Urogenital Diseases Based on Methods of Data Mining and Network Pharmacology

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Abstract

Purpose: Based on the methods of data mining and network pharmacology, the authors aim to explore the medication rules of prescriptions for female urogenital diseases (FUDs) and provide a scientific basis for the further explanation of the mechanism of prescriptions for FUD.

Methods: New prescriptions were extracted by entropy clustering analyzing the literatures of case reports about FUD treated by Traditional Chinese formula. A database of new prescriptions correlated targets was established based on the Traditional Chinese Medicine Systems Pharmacology Database with Lipinski's Rule of Five. The screened proteins were searched in the Universal Protein Database (Uniprot) for the corresponding gene names, which were matched with the genes related to FUD retrieved from the Comparative Toxicogenomics Database. And the interactions between identical targets of new prescriptions and FUD were analyzed by Retrieval of interacting Genes/Proteins (STRING) website for biological processes and Kyoto Encyclopedia of Genes and Genomes pathways enrichments. Moreover, the network of “compound-target-signaling pathway” was showed by Cytoscape.

Results: Twenty-one prescriptions were included, containing 54 herbs, 1192 herbal targets and 52 disease targets. Ten drug–disease intersection targets predicted 6 mainly related pathways and relevant biological processes (FDR < 0.05). In the network comprised with those functioning targets, there were signaling pathways associated with hormone response and immune response, namely, oxytocin signaling pathway, ovarian steroidogenesis, estrogen signaling pathway, GnRH signaling pathway, porolactin signaling pathway, T cell receptor signaling pathway, Toll-like receptor signaling pathway, NOD-like receptor signaling pathway, and so on. The medication rules of was coordinating heart Yang and kidney Yin on the early stage, and nourishing liver and kidney on the advanced stage. It was affected by complex multitargets and multipathways related with hypothalamus–pituitary–ovary reproductive axis.

Conclusion: The mechanism of new prescriptions for FUD might be the hormone response and immune response. It was affected by complex multitargets and multipathways related with hypothalamus–pituitary–ovary reproductive axis.

Digital Gene Expression Profiling Analysis of A549 Cells Cultured with PM10 in Moxa Smoke

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Abstract

Purpose: Digital gene expression profiling (DGE), a next-generation gene sequencing technology, was used to observe the effect of moxa smoke PM10 on the gene expression profile of human lung adenocarcinoma A549 cells.

Methods: The differentially expressed genes (DEGs) identified after PM10 treatment were screened, and their expression patterns were analyzed by cluster analysis, gene ontology (GO) function significance enrichment analysis, and pathway significance enrichment analysis. The DEGs during PM10 intervention in A549 cells and their biological processes and major signal transduction pathways were screened. The relationship between the DEGs and the A549 cell cycle and apoptosis was analyzed.

Results: The main results are as follows: (1) compared with the control group, there were 1109 DEGs after 4 hours of intervention and 3565 DEGs after 20 hours of intervention. Compared with 4 hours of smoking intervention, there were 2149 DEGs after 20 hours of intervention. (2) There were 316 DEGs identified over the course of the intervention (4 h, 20 h). These genes were mainly upregulated after 4 hours of intervention and downregulated after 20 hours of intervention. (3) The biological functions of the differentially expressed genes showed significant enrichment. (4) Some pathways showed significant enrichment.

Conclusion: Our results demonstrate that moxa smoke PM10 has many types of biological activities and can lead to differentially expressed genes in A549 cells involved in various biological processes. Moxa smoke PM10 is both positive and harmful to the body, so it is necessary to carry out further research on moxa smoke.
P01.09

Antidementia Effects of Herbal Formulas Bojungikgi-Tang and Hwangryunhaedok-Tang in Animal Models: Correlation Between Korean and Western Medicines in the Concept of Dementia Types

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Abstract

Purpose: Pattern identification, also known as syndrome differentiation, is an essential part of diagnosis in Korean medicine (KM). The treatment of dementia in KM is based on the pattern identification theory including excess and deficiency syndromes. We hypothesized that each pattern of dementia in KM is closely associated with Alzheimer’s disease and vascular disease in Western medicine.

Methods: The effects of Bojungikgi-tang, a herbal formula for deficiency syndrome, and Hwangryunhaedok-tang, a herbal formula for excess syndrome, were investigated by applying to Alzheimer’s and vascular dementia-like animal models, respectively.

Results: Our data revealed that Bojungikgi-tang has neuroprotective effects and ameliorates memory impairment in amyloid-b-injected Alzheimer’s disease-like mice. In addition, Hwangryunhaedok-tang exerts neuropreventive effect on memory impairment by reducing cholinergic system dysfunction in a bilateral common carotid artery occlusion rat model.

Conclusion: Overall, our findings may provide the scientific evidences for application of herbal formulas for the dementia treatment based on the pattern identification theory in KM.

P01.10

Pharmacodynamic Basis of Bushencuyun Decoction in Treatment of Female Infertility Based on LC-MS and Molecular Docking Strategy

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Abstract

Purpose: Bushencuyun decoction (BCD) is a formula consists of 8 Chinese herb such as Lycium barbarum. BCD has been shown to be effective in the clinical treatment of female infertility. To explore the pharmacodynamic material basis of BCD in the treatment of female infertility based on liquid chromatography–mass spectroscopy (LC-MS) and molecular docking strategy.

Methods: UPLC-Q-TOF-MS was used to identify the chemical compounds of BCD. The disease targets of female infertility were screened from the Comparative Toxicogenomics Database (CTD). And the protein–protein interactions were analyzed by Retrieval of interacting Genes/Proteins online. The molecular docking technology was used to verify the relationship between the chemical compounds and common targets of BCD for female infertility, so as to find out the potential pharmacodynamic basis.

Results: Based on UPLC-Q-TOF-MS, 12 active compounds were identified in BCD, including types of flavonoids, triterpenoid, saponins, and so on. Based on molecular docking technology, we certified that flavonoids, triterpenoid, and saponins were potential pharmacodynamic material basis of BCD for female infertility. We found that estrogen receptor (ESR1), estrogen receptor beta (ESR2), progesterone receptor (PGR), and vascular endothelial growth factor A (VEGFA) were identified as the key targets of BCD for female infertility by CTD database and topological analysis.

Conclusion: LC-MS and molecular docking strategy can find the potential pharmacodynamic substance basis of BCD for female infertility. BCD may treat female infertility due to flavonoids, triterpenoid, and saponins compounds by regulating ESR1, ESR2, PGR, and VEGFA.

P01.11

Analysis on Mechanisms and Medication Rules of Prescriptions for Uterine Fibroids Based on Methods of Data Mining and Network Pharmacology

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Abstract

Purpose: Based on the methods of data mining and network pharmacology, the authors aim to explore the medication rules of prescriptions for uterine fibroids and provide a scientific basis for the further explanation of the mechanism of prescriptions for uterine fibroids.

Methods: New prescriptions were extracted by entropy clustering analyzing the literatures of case reports about
uterine fibroids treated by Traditional Chinese formula. A database of new prescriptions correlated targets were established based on the Traditional Chinese Medicine Systems Pharmacology Database with Lipinski’s Rule of Five. The screened proteins were searched in the Universal Protein Database (Uniprot) for the corresponding gene names, which were matched with the genes related to uterine fibroids retrieved from the Comparative Toxicogenomics Database. And the interactions between identical targets of new prescriptions and uterine fibroids were analyzed by Retrieval of interacting Genes/Proteins (STRING) website for biological processes and Kyoto Encyclopedia of Genes and Genomes pathways enrichments. Moreover, the network of herb-compound-target-signaling pathway was showed by Cytoscape.

Results: Sixty-seven prescriptions were included, containing 145 herbs, 2531 herbal targets, and 46 disease targets. Fifteen drug–disease intersection targets predicted 75 related pathways and relevant biological processes (FDR < 0.05). In the network comprised with those functioning targets, there were signaling pathways associated with hormone response and immune response, namely, oxytocin signaling pathway, ovarian steroidogenesis, estrogen signaling pathway, GnRH signaling pathway, poralactin signaling pathway, T cell receptor signaling pathway, Toll-like receptor signaling pathway, NOD-like receptor signaling pathway, and so on.

Conclusion: The mechanism of new prescriptions for uterine fibroids might be the hormone response and immune response. It was affected by complex multitargets and multipathways related with female abdominal neoplasm’s pathways, yet specific regulatory mechanism still need further studies to explore and verify.

P01.12

Research on Endocrine Mechanisms of Wuziyanzong Pill Treating Male Infertility Based on Methods of Network Pharmacology

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Abstract

Purpose: Based on the methods of network pharmacology, the authors aim to explore the potential targets and endocrine mechanisms of Wuziyanzong Pill (WP) and provide a scientific basis for the further explanation of the mechanism for treating male infertility.

Methods: A database of WP correlated targets was established based on the Traditional Chinese Medicine Systems Pharmacology Database with Lipinski’s Rule of Five as a filter condition. The screened proteins were searched in the Universal Protein Database (Uniprot) for the corresponding gene names, which were matched with the genes related to male infertility retrieved from the Comparative Toxicogenomics Database. And the interactions between identical targets were analyzed by Retrieval of interacting Genes/Proteins (STRING) website for biological processes and Kyoto Encyclopedia of Genes and Genomes (KEGG), and the network of molecular-target-pathway was constructed by Cytoscape.

Results: We obtained 58 molecular compounds, 230 targets of WP, and 32 340 targets of male infertility. The common targets of WP treating male infertility were 129. The P value of protein-protein interactions enrichment is under 1.0e–16. In the network comprised with those functioning targets, there were 53 key targets proteins and 168 KEGG pathways and relevant biological processes (FDR < 0.05). Among them, 10 KEGG pathways were associated with endocrine action, namely, thyroid hormone signaling pathway, prolactin signaling pathway, estrogen signaling pathway, insulin signaling pathway, progesterone-mediated oocyte maturation, oxytocin signaling pathway, GnRH signaling pathway, and ovarian steroidogenesis, oocyte meiosis.

Conclusion: The endocrine mechanisms of WP treating male infertility is probably concerned with complex signaling pathways, yet specific regulatory mechanisms still need further studies to explore and verify.

P01.14

Protective Effect of Mantidis Ootheca Water Extract in Radiation-Induced Testicular Injury

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Abstract

Purpose: Mantidis Ootheca (MO), described as the ootheca of Hierodula patellifera (Serville, 1839), Tenodera angustipennis (Saussure, 1869), or Statilia maculate (Thunberg, 1784) in Korean Herbal Pharmacopoeia, is an important herbal material that has been traditionally used for treating several medical conditions including spermatorrhea and
pediatric enuresis in Korea. We evaluated the effect of MO on testicular injury in mouse after radiation exposure.

**Methods:** MO (5 and 10 mg/kg/day) was orally administrated to male C57BL/6 mice by for 3 weeks pelvic irradiation exposure, and histological parameters were assessed at 8 h and 35 days post irradiation.

**Results:** The MO attenuated radiation-induced apoptosis in germ cells after 8 h after irradiation. MO protected testicular morphological changes, such as changes in seminiferous epithelial height after radiation exposure. In addition, the remaining proliferating germ cells were higher in the MO-treated group than in the radiation group. MO treatment significantly increased testis weight compared with irradiation controls at 35 days. The decrease in the sperm count in epididymis caused by irradiation was counteracted by MO.

**Conclusion:** The present study suggests that MO protects from radiation induced testicular injury via an anti-apoptotic effect and recovery of spermatogenesis.

**P01.16**

**Acceptance Skills Training Reduces Loneliness and Increases Social Contact: Dismantling Mindfulness Training in a Randomized Controlled Trial**

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**Abstract**  
**Purpose:** Loneliness (ie, feeling alone) and social isolation (ie, being alone) are among the most robust known risk factors for poor health and accelerated mortality. Yet mitigating these social risk factors is challenging, as few interventions have been effective for both reducing loneliness and increasing social contact. Accumulating evidence suggests that mindfulness interventions can improve social relationship processes. Less is known about the active mechanisms underlying these improvements. Developing mindfulness-specific skills—namely, (1) monitoring present-moment experiences with (2) an orientation of acceptance—may change the way people perceive and relate toward others. We predicted that developing openness and acceptance toward present experiences is critical for reducing loneliness and increasing social contact and that removing acceptance skills training from a mindfulness intervention would eliminate these benefits.

**Methods:** In this dismantling trial, 153 community adults were randomly assigned to 1 of 3 structurally matched 14-lesson smartphone-based interventions: (1) mindfulness training in both monitoring and acceptance (Monitor+Accept), (2) mindfulness training in monitoring only (Monitor Only), or (3) active control training. For 3 days before and after the intervention, ambulatory assessments were used to measure loneliness and social contact in daily life.

**Results:** Consistent with predictions, Monitor+Accept training reduced daily life loneliness by 22% (d = 0.44, \(P = .0001\)) and increased social contact by 2 more interactions each day (d = 0.47, \(P = .001\)) and 1 more person each day (d = 0.39, \(P = .004\)), compared with both Monitor Only and control trainings.

**Conclusion:** This study demonstrates the efficacy of a 2-week smartphone-based mindfulness intervention for reducing loneliness and increasing social contact in daily life. Importantly, developing acceptance toward present-moment experiences is a critical mechanism for mitigating these social risk factors. By fostering equanimity with feelings of loneliness and social disconnect, acceptance skills training may allow loneliness to dissipate and encourage greater engagement with others in daily life.

**P01.17**

**Study on the Mechanisms of “Xiaoerhuashi Pill, XP” in Intervening the Health Status of High-Calorie Diet Animals**

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**Abstract**  
**Purpose:** High-calorie diet, closely related to the occurrence and development of multiple diseases, is an unhealthy status of life. However, there is no effective intervention in clinic. Thus, based on animal experiments and bioinformatics, this study aims to explore the potential mechanisms of action of Chinese patent medicine—“Xiaoerhuashi Pill, XP” in the intervention of high-calorie diet.

**Methods:** A high-calorie diet model was prepared by 3-week-old rats. The defection and intestinal mucosal morphology were observed after intragastric administration of “Xiaoerhuashi Pill, XP”. The components of “Xiaoerhuashi...”
Pill, XP” were obtained by chromatography-mass spectrometry, with the corresponding targets obtained by database and target fishing. The key effects substances were obtained by molecular docking, with the obtaining of the ore pathway of “Xiaoerhuashi Pill, XP” in intervention of high-calorie diet based on the enrichment analysis.

Results: “Xiaoerhuashi Pill, XP” can actively interfere with defecation and intestinal mucosal structures in high-calorie diet animals. A total of 37 substances were identified in the pediatric digestion solution, and 356 target proteins were mapped, 25 of which were associated with a high-calorie diet. Overall, the analysis shows that the highest degree of integration was quercetin and PON1 protein, with the highest enrichment of insulin resistance pathway.

Conclusion: “Xiaoerhuashi Pill, XP” can intervene in the health status of high-calorie diet animals. Integration of quercetin and PON1 protein can regulate lipid levels, which may be the key mechanisms of action in “Xiaoerhuashi Pill, XP”. The mechanisms, more specifically, may be related to the regulation of pancreas islet function, thus providing a reference for the clinical application of “Xiaoerhuashi Pill, XP”, clinical intervention of high-calorie diet and new drug development.

P01.18

Study on the Mechanism of Yinlai Decoction Intervening Brain-Gut Axis Based on Multisource Database Integration

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Abstract

Purpose: Yinlai Decoction is effective in the treatment of pediatric pneumonia, but its mechanism is not yet clear. Based on the relationship between brain-gut axis and immunity, inflammation, and fever, the mechanism of Yinlai Decoction intervention on brain-gut axis related targets was explored by using multisource database information integration method, which provided targeted guidance for experimental research.


Results: There were 429 chemical constituents of Yinlai Decoction, 689 targets of Yinlai Decoction, 99 targets related to brain-gut axis, and 35 potential targets of Yinlai Decoction in interfering with brain-gut axis.

Conclusion: The target of Yinlai Decoction intervention on brain-gut axis mainly concentrates on the enzymes related to brain-gut peptide. Its main functions are immunity, inflammation, and energy metabolism. It can participate in the immune response and oxidative damage of human body. Brain-gut axis target database provides important support for brain-gut axis research. This research provides targeted guidance for the study of Yinlai Decoction’s mechanism of action and also provides a new method and approach for the modernization of traditional Chinese medicine prescriptions.

P01.19

Study on the Mechanism of Fuzheng Zengxiao Decoction in Increasing Radiosensitivity of NSCLC with the Method of Network Pharmacology

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Abstract

Purpose: Radiotherapy is an alternative treatment for non-small cell lung cancer (NSCLC). However, the effect of radiotherapy does not seem quite satisfying. Therefore, how to increase radiosensitivity is an important topic. Fuzheng Zengxiao Decoction, a Chinese herbal formula, has been shown to be effective in increasing radiosensitivity of NSCLC. In this study, we analyzed Fuzheng Zengxiao Decoction with the method of network pharmacology, in order to explore the potential targets and mechanism of Fuzheng Zengxiao Decoction in increasing radiosensitivity of NSCLC and provide targeted guidance for the following study.

Methods: The Traditional Chinese Medicine System Platform database, Traditional Chinese Medicine (TCM) Database@Taiwan, and The Traditional Chinese Medicines Integrated Database were adopted to establish the database of Fuzheng Zengxia decoction’s effective ingredients. Furthermore, the Fuzheng Zengxiao Decoction’s target points database was set up. The Cancer Radiosensitivity Regulation Factors Database were used to build the radiosensitivity regulation factors database of NSCLC, which was matched with Fuzheng Zengxiao Decoction’s target points database. Based on the matching results, String database was applied to analyze the interactions among target
Results: A total of 32 significant targets of Fuzheng Zengxiao Decoction in increasing radiosensitivity of NSCLC were found. 14 cellular biological processes were processed through GO_BP enrichment analysis (false discovery rate [FDR] < 0.01) and 19 related pathways were carried on by KEGG (FDR < 0.01), which mainly including HIF-1 signaling pathway, Apoptosis, p53 signaling pathway, PI3K-Akt signaling pathway, and so on.

Conclusion: The intervening of a complex multiple-target points pathway may account for the effect of Fuzheng Zengxiao Decoction in increasing radiosensitivity of NSCLC. This study not only makes a contribution to a better understanding of the mechanism of Fuzheng Zengxiao Decoction in increasing radiosensitivity of NSCLC but also proposes a strategy to develop new TCM candidates at a network pharmacology level.

Hewei Jiangni Granule Treats Nonerosive Reflux Diseases: A Mechanism Study

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Abstract

Purpose: Nonerosive reflux diseases (NERD) is a type of chronic digestive disorder with a high morbidity in the clinical; however, its therapy remains a great challenge due to the lack of effective drugs. In this study, the feasibility of Hewei Jiangni Granule (HWJNG) for NERD treatment was demonstrated by investigating its underlying effects on tissue histological changes, neuropeptide releases, and visceral hypersensitivity-related receptor expressions in NERD model rats.

Methods: SPF male Sprague-Dawley rats were randomly divided into 6 groups, including the normal control group, NERD model group, HWJNG group (high dose, medium dose, and low dose) and Omeprazole group. The NERD rat model was established through the combination of basal sensitization and acid perfusion, followed by consecutive gavage administration of water or different drugs for 14 days. The pathological changes of esophageal mucosa, expansion of esophageal squamous cell space, expression of tryptase, and degranulation of mast cells in esophagus were investigated by different techniques. The serum levels of esophageal visceral hypersensitivity-related neuropeptides were measured using enzyme-linked immunosorbent assay. In addition, the gene and protein expressions of transient receptor potential vanilloid 1 (TRPV1) and transient receptor potential cation channel subfamily M member 8 (TRPM8) in esophageal and dorsal root ganglia were investigated, respectively.

Results: Increased histological score of esophageal mucosa, expansion of esophageal squamous cell gap, high expression of tryptase in mast cells, increased serum levels of neuropeptides, and abnormal expression of TRPV1 and TRPM8 were observed in NERD model rats, which were compromised after treatment of HWJNG or Omeprazole.

Conclusion: HWJNG at a medium dose was able to attenuate the expansion of intercellular space and regulate the expression of visceral hypersensitivity-related receptors (TRPV1/TRPM8) and secretion of neuropeptides and thus permitted a certain treatment for NERD rats. This study provides meaningful guidance for treatment of NERD in the clinic.

Network Pharmacology-Based Strategy to Investigate Pharmacological Mechanisms of ShenfuTang and Shengmaiyin for Treatment of Septic Shock

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Abstract

Purpose: To study the mechanism of ShenfuTang and Shengmaiyin on the “same disease with different treatments” of septic shock by using network pharmacology.

Methods: The components of ShenfuTang and Shengmaiyin were obtained by Traditional Chinese Medicine System Platform and Batman-Traditional Chinese Medicine, respectively. The compounds were searched by PubChem. The drug targets were predicted on the Swiss Target Prediction website. The septic shock-related proteins were screened by CTD, GeneCards, OMIM, and DrugBank databases. String constructs a protein interaction network, selects key genes through Cytoscape’s Cytohubba, uses MCODE for cluster analysis, and uses FunRich to perform path enrichment analysis on each protein network.

Results: The key genes and pathways in the common target network of ShenfuTang and Shengmaiyin Intervention in septic shock were mainly related to inflammatory reaction and neuro-endocrine-immune system. The specific target of ShenfuTang was mainly related to adrenaline and its insulin secretion. Relatedly, the specific target of Shengmaiyin is
mainly related to MAPK and ERBB2/ERBB3 signaling pathway.

**Conclusion:** ShenfuTang and Shengmaiyin can treat septic shock through common targets. The unique targets are also focused on the treatment. At a certain level, the microscopic mechanism of Chinese medicine “Yiqi, Huiyang and Jiuyin” is embodied.

### P01.22

**Utilising Network Pharmacology to Explore the Underlying Mechanism of Yinqiao-San Formula (YQS) in regulating CD8+ T cell of Pediatric Acute Respiratory Infection**

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**Abstract**

**Purpose:** Yinqiao-san formula (YQS), a classic herbal formula, has been widely used to treat pediatric acute respiratory infection in clinical practice in China. However, the pharmacological mechanisms of YQS still remain unknown.

**Methods:** We used a network pharmacology and GEO Datasets method to predict its underlying complex mechanism of treating CD8+ T cell of Pediatric Acute Respiratory infection. First, we collected putative targets of YQS based on Integrative Pharmacology-based Research Platform of Traditional Chinese Medicine, TCMIP v2.0 databases. Then, we obtained the CD8 T cells from PBMCs of Pediatric Acute Respiratory Infection target data by GEO Datasets analyzed by GEO2R. Based on the matching results between YQS potential targets and T cell from PBMCs of Pediatric Infection targets, we built a PPI network to analyze the interactions among these targets and screen the hub targets by CytoHubba software. Furthermore, the major hubs were imported to the KEGG resources to perform pathway enrichment analysis.

**Results:** A total of 91 nodes putative targets were picked out as major hubs in terms of their topological importance. The results of KEGG enrichment analysis indicated that YQS mostly participated in the various pathways associated with Phospholipase D signaling, AGE-RAGE signaling, TNF signaling, Chemokine signaling, C-type lectin receptor signaling, interleukin-17 signaling, Rap1 signaling, Toll-like receptor signaling. Moreover, 19 hub nodes of YQS (APP, NXA1, ADCY2, ADCY5, CXCL8, GRM4 and so on), were recognized as potential targets of treatments, implying the underlying mechanisms of YQS acting on pediatric acute respiratory infection.

**Conclusion:** YQS could alleviate pediatric acute respiratory infection through the molecular mechanisms predicted by network pharmacology, and this research demonstrates that the network pharmacology approach can be an effective tool to reveal the mechanisms of traditional Chinese medicine from a holistic perspective.

### P01.23

**Acupuncture Ameliorates White Matter Lesions Via Downregulation of Matrix Metalloproteinase 2/9 in Chronic Cerebral Hypoperfusion Rats**

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**Abstract**

**Purpose:** Acupuncture is suggested as a promising adjunctive therapy to improve the cognitive impairment of individuals with chronic cerebral hypoperfusion (CCH). However, the molecular and cellular mechanisms in white matter remain elusive.

**Methods:** CCH-induced white matter lesion rats were established by bilateral common carotid arteries occlusion and received a 2-week acupuncture treatment at Zusanli (ST36) and Baihu (GV20). Recombinant human matrix metalloproteinase (rhMMP)-2 and rhMMP-9 were injected into corpus callosum (CC) 30 minutes before acupuncture to abolish the therapeutic effects of acupuncture. The MMP2/9 antagonist SB-3CT was administrated intraperitoneally. Arterial spin labeling and functional magnetic resonance imaging were used for detection of cerebral blood flow and observation of functional connectivity. White matter integrity was studied by diffusion tensor imaging (DTI) and immunohistochemistry. Inflammation markers including glia cells, MMP-2, and MMP-9 were detected by immunofluorescence, western blot, and real time polymerase chain reaction. Eight-arm maze was used for assessing of working memory.

**Results:** Acupuncture significantly increased the cerebral blood flow in CC (20.245 mL/100 g/min) compared with BCCAO group (14.069 mL/100 g/min, \(P < .01\)) and promoted the functional connectivity between medulla oblongata and several cortical regions. DTI parameters revealed that fractional anisotropy and axial diffusivity of CC were remarkably improved by acupuncture, followed by a significantly attenuation of myelin loss and neural inflammation in white matter. In addition, behavior performance in 8-arm
maze was enhanced after acupuncture treatment or SB
3CT injection, and this effect was abolished by rhMMP2/9.

Conclusion: Acupuncture improves cognitive impairment
and white matter integrity via down-regulation of microglia-
related MMP2/9 in CCH rats.

P01.24

Antioxidant Analysis of Medicinal
Mushrooms: by Species and Solvent
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Abstract
Purpose: The purpose of this research was to measure the
antioxidant capacity of 6 mushroom species including
Ganoderma sp. (reishi species), Hericium erinaceus (lion’s
mane), Trametes versicolor (turkey tail), Lentinula edodes (shii-
take), Inonotus obliquus (chaga), and Grifola frondosa (mai-
take), and compare 2 preparation methods.

Methods: Both aqueous and hydro-alcoholic extracts of all
6 mushroom varieties where prepared, utilizing a
laboratory-based aqueous extraction technique versus a
traditional hydro-alcoholic tincturing process. Extracts
were then analyzed using 5 different antioxidant assays:
Oxygen Radical Absorbance Capacity (ORAC), Nanoceria
Reducing Antioxidant Capacity (NanoCerac), DPPH radical
caving, Total Phenolic Content (Folin Ciocalteu), and Ferric Reducing Antioxidant Power. Antioxidant capacities
were compared statistically using analysis of variance fol-
lowed by Tukey’s tests for pairwise comparisons.

Results: Among the samples tested, chaga and maitake
consistently demonstrated higher antioxidant activity, irrespective of the type of assay employed, with ORAC values
measuring more than 10 times that of the remaining 4
mushrooms (0.63 ± 0.12 μmol TE/mg chaga; and 0.19 ±
0.08 μmol TE/mg maitake). The aqueous extract required
only 3 days to create (vs 8–12 weeks for the hydro-alcoholic
extract) and produced extracts with higher antioxidant
activity using all assays (P < 0.05).

Conclusion: Mushroom extracts exhibited variable antiox-
idant capacities depending on species and extraction
method. This work evidenced the need to further explore
bioactive components of chaga and maitake and how they
differ by solvent. A simple aqueous extraction method uni-
formly resulted in superior antioxidant activity. These find-
ings could have implications for the herbal medicine com-

P01.28

Study on the Underlying Mechanism of
Huai Er in Treating Hepatocellular
Carcinoma With the Method of Network
Pharmacology
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Abstract
Purpose: Hepatocellular carcinoma (HCC) is one of the
most common and fatal cancer globally. Because of its high
lethality rate and low 5-year survival rate, HCC poses a
severe threat to human health. Trametes robiniophila Murr,
also called Huai er, a kind of mushroom, has been used as a
traditional Chinese medicine (TCM) for over 1600 years.
Even though it has been accepted by the CSCO guidelines
for liver cancer, the mechanisms are not yet clearly
understood.

Methods: The Chemistry Database of CAS and T raditional
Chinese Medicines Integrated Database were adopted to
establish the database of Huai er’s relative compounds.
Furthermore, we built the Huai er’s targets database by
target fishing. The differential gene expressions of HCC
were acquired from a microarray data (GSE60502) from
the Gene Expression Omnibus database. After the overlap
of the Huai er’s targets and the DEGs, we constructed the
PPI network by String database. DAVID bioinformatics
resources were utilized for the enrichment analysis on
gene ontology and KEGG pathway.

Results: A total of 66 targets of Huai er treating on the
HCC were found, 76 cellular biological processes were
processed through GO_BP enrichment analysis (P < 0.05)
and 13 related pathways were collected by KEGG
(P < 0.05) which mainly involved in tumoral metabolism.

Conclusion: Huai er could treat the HCC through the
molecular mechanisms predicted by network pharmacology.
This study proposes a strategy to explore the underlying
mechanisms of TCM at the level of network pharmacology.
P01.29

Effect of Moxibustion on Hyperhomocysteinemia and Oxidative Stress Induced by High Methionine Diet

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Abstract

Purpose: The aim is to observe the effect of moxibustion on hyperhomocysteinemia and to explore the effect of early intervention of moxibustion on prevention and treatment of atherosclerosis from the angle of enhancing antioxidant capacity and protecting vascular endothelium.

Methods: Thirty-eight 8-week-old healthy female SPF C57BL/6J mice were divided into 3 groups: Control group consisted of 8 mice fed with normal diet, and the rest 15 mice in each group were fed with high methionine diet (2% methionine and 3.5% fat on the basis of ordinary maintenance feed). Moxibustion group: mice were grabbed and placed in the fixator to fix the head, tail, and limbs of mice. The moxa sticks were set under the chest of the mice so that the heat was transmitted to the midpoint of the chest of the mice through the small holes at the bottom of the fixator. In the process of moxibustion, the height of moxibustion stick is constantly adjusted to keep the temperature of moxibustion basically constant. Moxibustion intervention for 20 minutes/time (20 min/time, 1 time/day, 6 times/week). Model group: mice were grabbed and fixed. The method was the same as moxibustion group, without other interventions; Control group did not do other interventions. After 12 weeks of intervention, mice were sacrificed for sampling. The levels of serum Hcy, SAH, aortic homogenate SOD, eNOS, ox-LDL and HO-1 were measured by Elisa method, and the pathological changes of aorta and liver were observed by HE staining.

Results: Compared with Model group, results indicated that through moxibustion intervention, the content of serum Hcy and its intermediate metabolite SAH can be reduced to a certain extent, SOD, HO-1, and ox-LDL can be increased.

Conclusion: This study showed moxibustion's ability to enhance the body's anti-oxidation and protect vascular endothelial function, thus playing an early role in the prevention and treatment of atherosclerosis.

P01.30

Collection Survey of Medicinal Herbs in Korea

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Abstract

Purpose: As the Nagoya Protocol comes into effect, royalties must be paid to countries providing genetic resources when using foreign genetic resources as raw materials for medicine or cosmetics, and so on. Thus, it is necessary to provide the public service such as the distribution status for medicinal resources and its integrated management system to protect domestic industries. This study aims to collect medicinal plant and establish their database to efficiently prepare for the Nagoya Protocol and also making vouchers and distribution maps of those plants and securing plant resources for preservation.

Methods: Medicinal plants and their information were collected from South Korea where is arbitrarily divided into 4 regions for collecting. Also, medicinal plants in Korea were categorized as A grade (plants in the Korean pharmacopoeia and the Korean herbal pharmacopoeia) and B grade (additional medicinal plants) according by the priority of collection to efficiently collect. Additionally, the ecological information, such as the location using mobile phone GPS, of the collected plants were uploaded online (https://herba.kr:5022/db/).

Results: A total of 445 species, composed of 102 families 224 genera, of medicinal plants with 6169 of the voucher specimens were collected in this study. The most plants by orders were as follows: 53 taxa in Asterales, 52 taxa in Rosales, 35 taxa in Lamiales, and 30 taxa in Caryophyllales. Among the collected plants, 16 endemic and 2 endangered species were investigated. Furthermore, the information of the collected plants were uploaded online, which is an established system for the integrated management.

Conclusion: The database on plant resources obtained from this study can be used as evidence to secure the sovereignty of Korean medicinal plant genetic resources. Obtained voucher specimens and plant samples for genetic preservation will be managed by the National Medicinal Resource Management Center, and their information will be released through the database.
Effects of Fecal Microbiota Transplantation in Rats Fed With High-Calorie-Diet on “Intestinal Flora-SCFAs-GPR43-IL18” Pathway in Normal Rats

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Abstract

Purpose: This study aimed to explore the effects of fecal bacteria on “intestinal flora–SCFAs–GPR43–IL-18” pathway in rats fed with high-calorie diet.

Methods: Forty SPF Sprague-Dawley rats were randomly divided into normal group without antibiotics (NC1), normal group (NC2), high-calorie-diet model group (M1), high-calorie-diet fecal microbiota transplantation group (M2), and normal fecal microbiota transplantation group (M3). Antibiotic intervention were given in NC2, M1, and M2 group, special feeds were given in M1 and M2 group, bacterium solution were given in M2 group. The changes of intestinal flora were detected by 16s rDNA. The contents of short chain fatty acids (SCFAs) were detected by gas chromatography-mass spectrometry, the expression of GPR43 in intestinal tissue was detected by immunohistochemistry (IHC), and the content of interleukin (IL)-18 in serum of rats was determined by Elisa method.

Results: The microflora structures of the M1 and the M2 were more similar, which were significantly different from other groups. Compared with the NC2, NC1 and NC3 had more tendency in bacterial flora structure. The abundance and diversity of fecal bacteria of M2 and M3 groups were lower than normal rats (P < .05). On family level, compared with NC2, S24-7, Lactobacillaceae decreased, Bacteroidaceae, Verrucomicrobiaceae increased in M2; S24-7, Lactobacillaceae, Ruminococcaceae decreased, Bacteroidaceae, Verrucomicrobiaceae increased in M1 (P < .05). Compared with NC2, acetic acid in M1 and M2 decreased significantly (P < .05); compared with M1 and M2, acetic acid in M3 increased significantly (P < .05). Compared with NC2, propionic acid in M1 decreased significantly (P < .05); Compared with M1 and M2, propionic acid in M3 increased significantly (P < .05). Compared with M1 and M2, butyric acid in M3 increased significantly (P < .05). The GPR43 expression level of M1 and M2 was lower than NC1, NC2, and M3. Compared with NC1 and NC2, the levels of IL-18 in M1 increased significantly (P < .05). Compared with M1, the levels of IL-18 in M3 decreased significantly (P < .05).

Conclusion: High-calorie-dietary factors cause a series of pathological reactions by affecting “intestinal flora-SCFAs-GPR43-IL-18” pathway.

Photosensitivity as a Marker for Chronic Pain in Patients With TBI and PTSD

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Abstract

Purpose: Traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD) are neurobiological conditions independently linked to increases in chronic pain and self-reported photosensitivity. Chronic pain is associated with sensitization of pain-processing circuits in the brain. The additional report of photosensitivity suggests a multisensory sensitization. Therefore, we tested whether chronic pain and photosensitivity are linked to one another in individuals with a history of TBI and/or PTSD.

Methods: Subjects completed a battery of self-report surveys related to chronic pain and TBI/PTSD symptomology before being tested for pressure pain thresholds and visual photosensitivity thresholds. Participants were categorized into 1 of 4 groups based on a validated diagnostic interview for TBI and the PTSD Checklist for DSM 5. Groups included (1) controls: subjects with no TBI or PTSD (n = 104); (2) TBI: subjects with TBI, but no PTSD (n = 142); (3) PTSD: subjects with PTSD but no TBI (n = 9); and (4) TBI+PTSD: subjects with both TBI and PTSD (n = 69).

Results: Control subjects reported lower levels of chronic pain compared to subjects in our TBI (P = .03), PTSD (P < .001), and TBI+PTSD (P < .001) groups, but surprisingly, pressure pain thresholds did not differ (P > .05). Subjects with TBI (P = .046), PTSD (P < .001), or TBI+PTSD (P < .001) all exhibited lower photosensitivity thresholds compared to controls. Lastly, there was a strong correlation between photosensitivity thresholds and chronic pain complaints (R = -.506, P < .001) and with pain thresholds (R = .293, P < .001).

Conclusion: These results suggest that photosensitivity could be used as a marker for individuals in whom central sensitization drives chronic pain and could be applied to other chronic pain populations. Future studies will use
neuroimaging to see whether these behavioral results relate to differences in cortical activity response to pressure pain and light stimuli.

**P01.34**

**Complexity of Whole Body Movement Differentiates Central and Peripheral Pain**

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**Abstract**

**Purpose:** While self-report measures of pain and function are available, there is also a need for objective performance-based measures of patients with chronic pain, such as fibromyalgia (centralized pain) and rheumatoid arthritis (RA; peripheral pain). Assessing movement dynamics may allow for measures of multifactorial functioning in chronic pain.

**Methods:** Using behavioral imaging, participants underwent a movement assessment. We estimated the total amount of kinetic energy (J) from movement and the complexity of whole body movement as an interconnected system. Movements captured included free walking, swaying in place as much as feels comfortable, following along to a video-recorded Tai-Chi-informed form, and metronome-controlled walking. We analyzed whole body movement complexity, assessing for group differences using linear mixed effects models allowing a random slope of complexity time scale and intercept of participant allowing for autocorrelated errors.

**Results:** Twenty participants diagnosed with fibromyalgia, 8 with RA, and 22 age- and gender-matched healthy controls completed the protocol. We found that there was no main effect of groups in complexity, \( P > .4 \). Instead, complexity differentiated groups by kinds of movement. The Tai Chi-informed form demonstrated higher complexity in fibromyalgia versus healthy controls, \( B = -0.08, SE = 0.01 \), \( t(4415) = -5.80, P < .0001 \), while free walking differentiated fibromyalgia from RA, \( B = 0.09, SE = 0.02 \), \( t(4415) = 4.54, P < .0001 \). Swaying in place differentiated all 3 from one another; from largest to smallest: fibromyalgia, healthy controls, then RA, \( P < .01 \). These effects were independent of total amount of kinetic energy.

**Conclusion:** We show that there may be meaningful differences in how the whole body moves as a complex system comparing centralized and peripheral pain conditions and behavioral imaging may be sensitive to these differences. We examine possibilities for objective measurement of systemic dynamics of whole body movement for diagnosis and outcome assessment in chronic pain conditions.

**P01.35**

**Exploration Study of Biomarkers for Diagnosis of Blood Stasis: A Multicenter Observational Study in South Korea**

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**Abstract**

**Purpose:** Blood stasis (BS) is a morbid state of blood stagnancy in a certain area of the body caused by sluggish flow of qi, deficiency of qi, or trauma. Even though several questionnaires for diagnosing BS exist, biomarkers that detect BS have not been found. The objective of this study was to find out the biomarkers which are different between BS and non-BS by analyzing blood parameter data and immunological profile data.

**Methods:** BS patients (n = 250) and non-BS patients (n = 226) were enrolled through 7 centers in this study. After collecting 14 mL of blood from each patient, analysis of blood indicators and a multiplex-based plasma protein assay were conducted twice. The relationship between clinical symptoms of BS and plasma protein was also analyzed. The statistical analyses were performed by SAS 9.1.3. This study has been approved by the institutional review board of Korea Institute of Oriental Medicine.

**Results:** Of the 46 kinds of blood indicators, 7 indicators; platelet, RDW, PDW, lymphocyte, d-dimer, K, and CRP differed significantly between BS group and non-BS group (\( P < .05 \)). As a result of protein assay, A2M, SAP, IL-8, and BSX (resistin) were different between 2 groups (\( P < .05 \)). Platelet, RDW, and BSX were significant in both 2 times of analyzes. Among those biomarkers, it was found that CRP was correlated with pain symptoms (nocurnal pain, traumatic injury, sharp pain, and chronic pain) of BS (\( p < 0.001 \)) and SAP was correlated with color symptoms (dark facial complex, dark red lip and tongue, dark lumps in menses period, dark rings around eyes) of BS (\( P < .01 \)).

**Conclusion:** This study suggests that CRP and SAP are meaningful biomarkers to diagnose BS. However, these biomarkers should be validated through large-scale data collection in order to be used for diagnosis and prognosis.
P01.36LB

**Combined Effect of 2 Nutraceuticals, Curcumin, and Resveratrol, on the Activation of Nuclear Factor Erythroid 2-Related Factor 2**

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**Abstract**

**Purpose:** Combination therapy presents a systematic approach in tackling complex pathological conditions such as cardiovascular diseases (CVD). Curcumin (a polyphenol found in Curcuma longa) and resveratrol (a stilbenoid found in strongly pigmented vegetables and fruit) are 2 popular nutraceuticals known for their powerful antioxidant activities. The nuclear factor erythroid 2-related factor 2 (Nrf2) is a transcription factor that responds to oxidative stress by binding to antioxidant response element (ARE). As isolated compounds, curcumin and resveratrol, are common Nrf2 activators; however, their combined effect has yet to be determined.

**Methods:** AREc32 cells were culture and coincubated with individual or combined curcumin and resveratrol (0–100 μM). After 24 h co-incubation, the cells were washed and replaced with luciferin buffer, and the expression of Nrf2 was analyzed using bioluminescence. Alamar blue assay was used to determine the cell viability.

**Results:** Our results suggested that curcumin-resveratrol, at both 50 and 25 μM, significantly upregulated Nrf2 expression compared to negative control (cells with medium only) (P < .05), without causing any cytotoxicity.

**Conclusion:** The combined activity of curcumin and resveratrol against oxidative stress provides early evidence of a combination therapy that will assist in the management of various chronic conditions such as CVD.

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P01.37LB

**Acupuncture Improves Prefrontal Cortex and Hippocampal Glutamate Levels by Regulating the Expression of Excitatory Amino Acid Transporter 1/2 in Chronic Restraint Stress Rats**

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**Abstract**

**Purpose:** This study intends to determine the effects of acupuncture on the concentrations of excitatory amino acid transporter (EAAT) 1/2 in the prefrontal cortex and hippocampus of rats, and whether the mechanism of acupuncture in antidepression involves regulations of glutamate levels.

**Methods:** A total of 24 rats were assigned into control, model, model + acupuncture (Acu), and model + fluoxetine (FLX) groups at random, with 6 rats in each group. In the present study, we used a 28-day chronic restraint stress rats as a model to investigate how acupuncture could alleviate depression. In the Acu group, Acu pretreatment at Baihui (GV 20), Yintang (GV 29) and Sanyinjiao (SP 6) were performed daily prior to restraint. Open-field test was carried out to evaluate the depressive symptoms at selected time points. The protein levels of EAAT1/2 in the prefrontal cortex and hippocampus were examined by using Western blot.

**Results:** Compared with the C group, the squares crossed and rears of rats in the M group reduced in open-field test (both P < .05); While compared with the M group, the squares crossed of rats in the Acu group and FLX group increased obviously (all P < .05); the rears of rats in the Acu group and FLX group increased obviously (all P < .001). The expression of EAAT1/2 in the prefrontal cortex and EAAT2 level in the hippocampus was significantly lower in the M group than that in the control group (all P < .001); The level of EAAT1/2 in the prefrontal cortex, both in the FLX and Acu group, was increased significantly (all P < .01), while EAAT2 has a significant increase in the hippocampus of FLX and Acu groups (P < .05, P < .001) when compared with those in the M group.

**Conclusion:** We found that chronic restraint stress significantly decreased behavioral activities, whereas acupuncture augmented the levels of EAAT1/2. These findings certificate that acupuncture could alleviate depression through regulations of glutamate levels.
P01.38LB

Curcumin Inhibits Advanced Glycation End Products Formation Against Fructose and/or Glucose-Induced Myoglobin Glycation

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Abstract

Purpose: The increased prevalence of diabetes-induced cardiovascular complications has been linked to nonenzymatic protein glycation due to the over consumption of high fructose and/or glucose-containing diets. In the present study, the inhibitory activity of curcumin on fructose- and glucose-mediated protein glycation and oxidation of myoglobin was investigated in vitro.

Methods: The antiglycation activity of curcumin was evaluated via the formation of advanced glycation end products (AGEs) fluorescence intensity, iron released from the heme moiety of myoglobin, and the level of fructosamine. The protein oxidation was examined using the levels of protein carbonyls and thiols.

Results: The results revealed that curcumin (10, 20, and 30 μM) significantly inhibited the formation of fluorescent AGEs in myoglobin-fructose and myoglobin-glucose glycation models during the 30-day study. Furthermore, curcumin decreased the levels of fructosamine and free iron release from myoglobin which is attributed to the protection of myoglobin from fructose- and glucose-mediated glycation. The curcumin prevented protein oxidation of myoglobin as indicated by decreased protein carbonyls levels and protein thiols modification in both the glycation models.

Conclusion: These studies suggest that curcumin is capable of preventing fructose and glucose-induced glycation and oxidative modification of myoglobin. Hence, these findings provide new insights into the antiglycation properties of curcumin for an efficacious treatment option of AGE-mediated diabetic complications.

P01.39LB

The Brachial Plexus: Anatomic Variation Implications in Clinical Presentation of Painful Atypical Symptomology

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Abstract

Purpose: Travell and Simon’s referral pattern schematics are relied heavily upon by osteopathic physicians, physical therapists, and massage therapists when using specific treatment techniques for pain management, including those addressing myofascial trigger points. Neural anatomic development is highly individualized challenging the utility and accuracy of Travell and Simon’s referral pattern schematics, which were developed independently from consideration of subjects’ anatomic differences. For example, commonly occurring variance rates of the brachial plexus are between 4% and 60% dependent on study sample size. Some upper limb variations show distinct clinical presentation when diagnostic procedures or noninvasive and surgical treatments have failed to identify or supply relief of functional and/or sensory symptoms. The role of peripheral nerve variance in pain perception and recognition lacks investigation. This study’s purpose was to identify brachial plexus variations through cadaveric dissection that could increase atypical symptomology in clinical case presentations.

Methods: Twenty-five formalin embalmed limbs were dissected in the Missouri Southern State University human dissection laboratory from 2016 to 2019. Routine gross dissection techniques were utilized with focus on small nerve fibers remaining intact. Fascicle dissection was completed on 1 brachial plexus.

Results: Common and rarely cited variations were revealed through dissection at macro and micro scales. Variations were found connecting the anterior and posterior innervation pathways of the upper limb in both gross and micro dissections.

Conclusion: Research in myofascial trigger points is leading to better detection and identification. Specific variations interfere with diagnosis and treatment planning by all medical and rehabilitation professionals. Anatomic differences may serve as a reasonable explanation for inconsistent myofascial trigger point treatment outcomes while also leading to an understanding of common variation dependent injury risks. Understanding the commonality and potential role of individual anatomic differences between patients is crucial to providing personalized, least invasive treatment options for those who are suffering.
Acupuncture Produces Antidepressant Response in Chronic Unpredictable Mild Stress Rats via Inhibiting c-Jun N-terminal Signaling Pathway

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Abstract
Purpose: The c-Jun N-terminal kinase (JNK) signaling pathway involving in the neuropathological process of depression has been identified as the crucial factor involved in the antidepressant response of acupuncture. The objective was to identify the molecular mechanisms underlying the antidepressant response of acupuncture in chronic unpredictable mild stress (CUMS) rats by employing the JNK signaling pathway inhibitor SP600125.

Methods: A total of 64 Sprague-Dawley rats were allocated into 8 experiment groups: control group, CUMS group, DMSO group, SP600125 group, Fluoxetine group, SP600126 + Fluoxetine group, Acupuncture group, and SP600125 + Acupuncture group. Body weight and open-field test were carried out at the end of experimental period to assess the depressive behavior. Western blot and enzyme-linked immunosorbent assay were utilized to examine the JNK signaling pathway-related protein levels.

Results: Here, we found that the expression of hippocampal p-JNK was significantly upregulated by the CUMS procedures. Importantly, both acupuncture and fluoxetine reversed the upregulation of p-JNK in accord with JNK inhibitor SP600125. But there was no difference about the expressions of upstream regulators p-MKK4 and p-MKK7 among all groups.

Conclusion: These findings indicated that JNK signaling pathway could be a potential target in acupuncture treatment for depression, which may provide a new perspective for the antidepressant response of acupuncture.

Immunomodulating Effects of Oplopanax horridus in RAW264.7 Macrophage Cell Line and in Murine Bone Marrow-Derived Macrophage

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Abstract
Purpose: Devil’s Club, Oplopanax horridus (OH) (Sm.) Miq. (Araliaceae) (syn. Fatsia horrida [Sm] Benth. & Hook.; Echinopanax horridus [Sm.] Decne. & Planch; Panax horridum [Sm.]), is a deciduous shrub of the Araliaceae or Ginseng family native to the Northwestern United States. Native Americans of British Colombia and the Northwestern United States regard Devil’s Club as an important medicinal plant. Traditional medicinal uses of OH include its use as an antibacterial, antifungal, antimycobacterial, antiviral, and as an immunomodulator for rheumatism and diabetes. Previously, it has been shown that extracts of OH have antibacterial, antifungal, antiviral, and antimycobacterial properties. The mechanisms of action of OH’s effects have not been established and there are few studies that have presented chromatographic profiles of OH extracts, although we are conducting a thorough phytochemical study. Previously, we demonstrated a decrease in tumor necrosis factor alpha and nitric oxide production in a LPS-stimulated RAW264.7 macrophage cell line, which may partially explain the traditional use of OH as an immunomodulator for both rheumatism and diabetes.

Methods: To further characterize the immunomodulatory effects of OH, LPS-stimulated RAW264.7 macrophage cells were treated with OH extracts and a cytokine array was performed. To elucidate potential mechanisms of action(s), we exposed BMDM to LPS and OH extract and analyzed using cytolological profiling and Functional Signature of Ontology (FuSiOn) platforms.

Results: The cytokine array that was performed demonstrated a significant decrease in 15 cytokine/chemokines, including tumor necrosis factor alpha, interleukin 1 (IL-1), IL-6, and IL-10. Prostaglandin E2 levels were also evaluated after OH treatment and demonstrated a significant decrease. We also found a unique signature using CP and FuSiOn platforms.

Conclusion: This study demonstrates that OH extract has significant immunomodulatory activity in both RAW264.7 macrophage cell line and murine BMDM. Future studies
will include determination of biomarker(s) that could be measured in animal and human studies.

**P02: Clinical Research: Acupuncture and Traditional Chinese Medicine**

**P02.01**

**Feasibility and Effectiveness of Acupuncture Combined With Opioid for Cancer Pain: Initial Clinical Experience**

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Abstract

**Purpose:** Pain is a common and intractable symptom experienced by cancer survivors. Given the existing evidence for the analgesic effect of acupuncture, this study aims to evaluate the feasibility of a pragmatic randomized controlled trial (pRCT) for the effectiveness of acupuncture as adjunctive therapy to opioid for cancer pain.

**Methods:** Thirty patients with cancer admitted to the oncology department with moderate or severe pain were recruited and randomized to the adjunctive acupuncture group or the control group which receives opioid without acupuncture. The acupuncture protocol consisted of 2 sections: the standardized acupuncture points and the individual acupuncture points based on the situation of each participant. Four generalized linear mixed-effects models were established to analyze the effects of the treatment and time on the pain intensity and opioid dose during the treatment and follow-up.

**Results:** During 1 month of the trial period (05/15/2019–06/13/2019), around 30% (54 of 183) of the oncology inpatients met the selection criteria and more than half of them were enrolled. In the control group, 1 participant did not start the treatment due to receiving surgery and 1 required to receive acupuncture. The duration and frequency of acupuncture treatment sessions were well tolerated since there were no acupuncture-related adverse events. No one dropped out in the treatment phase, and 1 participant in the acupuncture group was lost to follow-up due to death. The overall positive trends toward the acupuncture group were observed in both NRS and opioid consumption during the treatment and the differences still remained in more than 1 week after the end of the treatment.

**Conclusion:** Findings from the pilot trial suggest that a full-scale pRCT is feasible and manageable. However, future studies are needed to confirm the effects of adjunct acupuncture for cancer pain because a statistically meaningful result was not obtained in this study.

**P02.02**

**Effect of Electric Moxibustion for Patient With Hwa-Byung (Anger Syndrome): A Randomized, Sham-Controlled, Patient Blinded, Pilot Clinical Trial**

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Abstract

**Purpose:** Electric moxibustion is the newly developed medical device which produces heat stimulation by electric device. Hwa-byung (anger syndrome) is a culture-bound syndrome in Korea, and moxibustion has been used for relieving various symptoms of indigestion, anxiety, and depression in patient with Hwa-byung. The aim of this study was to explore the safety and efficacy of electric moxibustion for Hwa-byung.

**Methods:** Twenty-four participants with Hwa-byung were randomly divided into either an electro-moxibustion or sham group. Patients received a total of 8 sessions over the treatment period of 4 weeks. The electro-moxibustion was applied at 4 acupuncture points, CV12, CV4, ST36 and LR3 for 30 minutes. The sham moxibustion with lower temperature was applied at the nonacupuncture points for 30 minutes. Assessments were carried out at the baseline, the end of the treatment (after 4 weeks), and the follow-up (after 8 weeks). The primary outcome was change in Hwa-byung symptom scale after the treatment period compared to the baseline.

**Results:** Twenty-four patients with Hwa-byung were randomly assigned including 12 to moxibustion group and 12 to placebo group, and 20 patients completed the study. Changes in Hwa-byung symptom scale after treatment period showed no significant difference between moxibustion and placebo group (8.0 [–2.0 to 16] in the electric moxibustion group and 5.0 [–1.0 to 9] in the sham group; \( P = .838 \)). At the follow-up assessment, the changes were 11.0 [3.0 to 17.0] in the experiment group and 7.0 [4.0 to 11] in sham group. No serious adverse event was reported in both groups.
Conclusion: In this pilot trial, we could see the possible but not statistically significant effect of electric moxibustion on Hwa-byung symptoms compared to placebo. The results from this sham-controlled pilot study may provide information for the further researches with a larger number of participants.

P02.03

Evaluation of Acupuncture in the Prevention of Chemotherapy-Induced Peripheral Neuropathy: A Retrospective Case Series

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Abstract
Purpose: The aim is to demonstrate the efficacy of acupuncture when initiated prior to chemotherapy and before chemotherapy-induced peripheral neuropathy (CIPN) symptom presentation and continued throughout treatment course to delay or prevent presentation and escalation in patients at a high risk of occurrence and to demonstrate the value and benefit of this individualized and preventative treatment model in order to create a foundation and groundwork for future studies.

Methods: This is a case series of 5 patients with breast or gynecological cancer seeking the support of acupuncture with CIPN prevention as well as with other side effects of cancer treatment. At each visit, the patient was assessed utilizing diagnostic methods of Traditional Chinese medicine and an individualized acupuncture treatment intervention was developed and administered. Outcomes were based on separate evaluation by the oncological care team, patient self-report, and overall treatment effect.

Results: The incidence of grade 2 of higher CIPN in this series of 5 patients was zero. Patients either did not develop symptoms of CIPN or experienced delayed mild onset that resolved completely after a series of 2 to 8 acupuncture treatments. All patients self-reported perceived benefit in the following: pain, digestive system symptoms, anxiety, cancer-related-fatigue, memory loss, facial flushing post-chemotherapy, insomnia, restlessness, irritability, hot flashes, sinus congestion, perceived stress level, and depression. All patients described positive effects on psychological and physical well-being. No adverse events were noted or reported.

Conclusion: The expected incidence of grade 2 or higher CIPN in patients at a high risk of CIPN is ~68% within the first month, in this series of 5 patients the incidence was zero. Our results suggest that an individualized approach to assessment and treatment planning is effective in the prevention and/or mitigation of CIPN in patients undergoing treatment for cancer. The use of acupuncture to prevent CIPN seems to be a worthy treatment strategy for further study.

P02.04

The Study of Indices of Tongue Images From Patients With Upper Respiratory Tract Infection

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Abstract
Purpose: The objective of this study is to observe the tongue indices that were changed with treatment of upper respiratory tract infection (URTI) patients. We proposed 2 hypotheses as follows: (1) the tongue parameters of patients with URTI differ significantly from those of healthy controls and (2) the tongue parameters of patients with URTI may be significantly different before and after treatment.

Methods: Subjects were recruited to obtain tongue images for hypothesis testing. Tongue images were obtained in a constant lighting environment and were preprocessed to correct the color of the tongue and segment the tongue area. The mean value of the color in each region and the tongue coating ratio were calculated, and the differences between the URTI patients and the normal controls and the changes of the groups between before and after treatment were extracted, as tongue indices.

Results: Data from a total of 78 subjects (39 URTI patients and 39 normal controls) were analyzed. The average differences in the tongue indices between visit 1 and visit 2 for the patients and the controls were computed, respectively. The differences in values between visit 1 and visit 2 did not change in the tongue body but contrastively did change in the tongue coating-related indices. In particular, the results showed that the coating ratio reduced and that the CIE a* value of the tongue coating increased through treatment. In summary, the tongue coating of the patients was broader. The density of the tongue coating was lowered due to the coating ratio decreasing according to the treatment.

Conclusion: We analyzed the tongue characteristics of the URTI patients and normal subjects through tongue image analysis. The results showed that the patients had different changes of tongue image before and after treatment. Finally,
it is expected that the tongue characteristics could provide the public the preventive health-care easily.

**P02.05**

**Morphological Analysis of the Liver and Kidney of Wistar Rats After the Administration of Ganmai Dazao Decoction (GMDZ Decoction)**

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**Abstract**

**Purpose:** Chinese herbal medicine is one of the most commonly used complementary and integrative treatments for depression, especially in Chinese culture. Ganmai Dazao decoction (GMDZ decoction) is a herbal medicine widely used in formulations for depression. Most of the phytotherapics currently used either by self-medication or by prescription do not have a known toxic profile. There is a consensus in the medical literature that improper use of a product, even a low toxicity one, can induce serious problems as long as there are other risk factors such as contra-indications or concomitant use of other medicines. These animals were used in an experimental model of depression using the sensitization of rats by ovoalbumin and were treated with GMDZ. The objective of this study is to analyze the liver and kidneys of the animals in order to characterize some toxicity pattern and adverse effects on the use of GMDZ decoction (Animal Comitee: CEUA-FMABC # 07/2017).

**Methods:** Sixteen male Wistar rats were used and were divided into 2 groups. Group 1 was treated with 1 mL saline (control group) and group 2 was treated with GMDZ (10 mg/kg aqueous extract) orally for 30 days. The animals were euthanized with anesthetic overdose and the kidneys and livers were collected, processed, and stained with hematoxilin eosin for histopathological analysis.

**Results:** The livers of the treated animals presented disruption in the hepatic parenchyma, the lobes presenting disorganized hepatocytes, and grade I hepatic steatosis throughout the parenchyma. The kidneys of the treated animals showed areas of necrosis in the cortical region.

**Conclusion:** GMDZ used at current therapeutic doses showed hepatic and renal toxicity. Further studies will be necessary to establish a non-toxic dose.

**P02.07**

**Pediatric Tuina for the Treatment of Anorexia in Children Under 14 years: A Systematic Review and Meta-analysis of Randomized Controlled Trials**

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**Abstract**

**Purpose:** The aim is to evaluate the benefits and safety of pediatric Tuina as a nonpharmaceutical therapy for anorexia in children under 14 years.

**Methods:** Randomized controlled trials (RCTs) comparing pediatric Tuina alone with medicine for anorexia were included in this review. Six electronic databases were searched from inception to June 30, 2019. Two authors independently extracted data and assessed the risk of bias. Significant effective rate was used as the primary outcome. “Significant effective” being defined as the appetite improved and food intake returning to 3/4 or more of normal intake. Secondary outcomes included food intake, adverse events, and compliance. Trial sequential analysis (TSA) was used to calculate the required information size in a meta-analysis and to detect the robustness of the results. Certainty of the evidence was assessed using the online GRADEpro tool.

**Results:** Of the included 28 RCTs involving 2650 children, the majority had a high or unclear risk of bias in terms of allocation concealment, blinding, and selective reporting. All trials compared pediatric Tuina with western medicine or Chinese herbs. For significant effective rate, meta-analysis showed that pediatric Tuina was superior to western medicine (risk ratio [RR] 1.67, 95% confidence interval (CI) [1.35, 2.08]) and Chinese herbs (RR 1.36, 95% CI [1.19, 1.55]). Meta-analysis also showed pediatric Tuina was superior to western medicine (mean difference (MD) −0.88, 95% CI [−1.27, −0.50]) and Chinese herbs (MD −0.69, 95% CI [−1.00, −0.38]) on improving food intake. Two trials reported compliance and 7 trials reported adverse events data. TSA for significant effective rate demonstrated that the pooled data had insufficient power regarding both numbers of trials and participants.
**Conclusion:** Evidence suggested that pediatric Tuina may be potential beneficial for the treatment of anorexia in children under 14 years. Safety of pediatric Tuina is unclear due to insufficient reporting. Further well-designed RCTs with adequate sample sizes are needed.

**P02.08**

**Chinese Herbal Remedy Tongxie Yaofang Versus Pinaverium Bromide for Diarrhea-Predominant Irritable Bowel Syndrome: A Systematic Review and Meta-analysis**

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**Abstract**

**Purpose:** To evaluate the benefits and harms of Tongxie Yaofang or its modified formula (m-TXYF) for Irritable Bowel Syndrome (IBS)-D compared with pinaverium bromide (PB).

**Methods:** Randomized controlled trials (RCTs) comparing TXYF or m-TXYF with PB for IBS-D were included in this review through searching from 8 major English and Chinese electronic databases. Two authors independently extracted data and assessed the risk of bias. The primary outcome was global improvement of IBS-D symptoms. Data were summarized using risk ratio (RR) and 95% confidence intervals (CIs) for dichotomous outcomes, and mean difference (MD) with 95% CI for continuous outcomes. Data were analyzed using the Cochrane's Revman 5.3 software. Certainty of the evidence was assessed using the online GRADEpro tool. Trial sequential analysis was used to calculate the required information size in a meta-analysis and to detect the robustness of the results. The protocol for this review was registered in PROSPERO (CRD42019132259).

**Results:** Twenty-three RCTs involving 1907 adults were included. For global improvement of IBS-D symptoms, there was no difference between TXYF and PB (RR 1.53, 95% CI [0.95, 2.46]), but m-TXYF was superior to PB (RR 1.68, 95% CI [1.44, 1.97]), whether fixed m-TXYF (RR 1.54, 95% CI [1.08, 2.19]) or unfixed m-TXYF (ie, individualized treatment, RR 1.66, 95% CI [1.40, 1.97]). Meta-analysis also showed m-TXYF was superior to PB on improving specific symptoms (stool consistency, stool frequency, or abdominal pain). However, certainty of evidence for the above outcomes was “low” or “very low”. Only 8 trials reported adverse events (AE). Among them, 6 trials reported no AE occurring in either group; the other 2 trials reported 7 mild AEs, and 2 cases occurred in fixed m-TXYF group.

**Conclusion:** The evidence suggests that TXYF and m-TXYF are beneficial for improving stool consistency and abdominal pain, and m-TXYF is also beneficial for global symptoms and stool frequency.

**P02.09**

**Randomized Controlled Trials of Pediatric Tuina for Anorexia: Quality Assessment of Methodological and Intervention Reports**

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**Abstract**

**Purpose:** The aim is to evaluate the methodological quality and intervention reporting quality of published randomized controlled trials (RCTs) on pediatric Tuina (PT) for anorexia and to provide suggestions for clinical trial design and reporting of PT.

**Methods:** Five databases were searched from inception to November 2018. Literature that meeting the inclusion criteria were included. Two authors used the Cochrane bias risk assessment criteria and modified the STRICTA reporting guideline for PT to evaluate the methodological and intervention reporting quality of the included RCTs.

**Results:** Total of 63 RCTs were included. The reporting rates of random sequence generation, allocation concealment, blind method, incomplete outcome data, funding, and baseline data were 34.92% (22/63), 3.17% (2/63), 4.76% (3/63), 79.37% (50/63), 7.94% (5/63), and 100%, respectively. Selective outcome reports, sample size estimates, trial protocol registration, and information were not reported in any of the included publications. Methodological quality assessment showed that 63 RCTs had methodological problems of varying degrees and lacked high-quality. The quality evaluation of PT reporting found that the reporting rate of providing the rationale for using PT and the control setting were 63.49% (40/63), 3.17% (2/63), 4.76% (3/63), 79.37% (50/63), 7.94% (5/63), and 100%, respectively. Selective outcome reports, sample size estimates, trial protocol registration, and information were not reported in any of the included publications. Methodological quality assessment showed that 63 RCTs had methodological problems of varying degrees and lacked high-quality. The quality evaluation of PT reporting found that the reporting rate of providing the rationale for using PT and the control setting were 63.49% (40/63) and 23.81% (15/63), respectively. The reporting rate of the qualifications of clinician providing the PT treatment setting were the same, both were 1.59% (1/63). The reported rates of individualized/nonindividualized selection of PT, single/bilateral manipulation of the massage site, the body reaction induced by the massage and whether other interventions were applied in the same period were
Conclusion: Currently, there is a lack of RCTs with high-quality methodology for the treatment of anorexia by PT. The quality of methodological and intervention reporting in the literature was low. Future RCTs for PT should be designed and reported in strict accordance with the Cochrane Bias Evaluation Criteria. A specific reporting guideline for PT which could be achieved by adapting STRICTA is required in order to develop standards for reporting this intervention.

P02.10

Difference in Time Course of Change in Blood Perfusion/Flow Between Acupoints and Sham Points Following Acupressure Treatment

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Abstract
Purpose: Acupressure, a common practice in Traditional Chinese Medicine, is gaining usage in integrative medicine and health. This pilot study is on the specificity of how such treatment can elevate blood perfusion/flow at acupoints.

Methods: The subjects were a dozen healthy males and females (age = 20–26). Blood perfusion/flow was measured as “flux” with a laser Doppler flowmetry instrument (Moor DRT4). Acupressure was applied with the eraser end of a pencil attached to a Beslands SF-500 Digital Push/Pull Dynamometer at a force of 5 to 6 N (sufficient to produce “de qi”) for 3 minutes.

Results: Acupressure increased blood flow at PC6, HT3, HT7, ST2, and GB14 to an average of 19 ± 4% higher than baseline immediately after treatment, compared to increases at sham points 2 cm medial, lateral, proximal, and distal from each acupoint (12 ± 1%, 11 ± 9%, 12 ± 8%, respectively) (n = 30). To study these apparent differences in greater detail, blood flow at PC4 and sham points was continuously monitored from immediately after treatment to return back to baseline. In this experiment, the average levels of blood flow immediately after treatment were 30 ± 6 (standard deviation) times higher than baseline at the acupoint, and 25 ± 4 and 23 ± 10% at sham points 2 cm proximal and ulnar to the acupoint (n = 4). While the level at the acupoint was higher than the sham points, the differences were not statistically significant (P = .1). On the other hand, the average of the time taken for the acupoint to drop halfway to baseline (25.8 ± 4.5 min) was significantly longer than those for the proximal sham point (15.8 ± 3.8 min) and the radial sham point (15.5 ± 2.7 min) (P < .05).

Conclusion: This study indicates that acupressure accompanied by “de qi” sensation can greatly increase blood flow at acupoints, and the time taken to return to baseline is significantly longer than those for surrounding sham points, suggesting a functional and spatial specificity related to blood flow.

P02.11

Traditional Chinese Medicine for Breast Cancer: A Scoping Review of Systematic Reviews

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Abstract
Purpose: The aim is to summarize traditional Chinese medicine (TCM) for breast cancer and provide evidence base to clinical practice.

Methods: We conducted literature searching in Pubmed, Embase, Scopus, Cochrane Library, and Epistemonikos from their inception to January 2019 to identify systematic review (SR) and meta-analysis of randomized controlled trials (RCTs). Patients with breast cancer in any stage were included. TCM modalities included all kinds of herbal preparations and nonpharmaceutical therapies. ASMTAR-2 and ROBIS were used to evaluate methodological quality of SR.

Results: Twenty-seven SRs including 340 RCTs with 24 082 participants were reviewed, which were published in English in 2006 to 2018. Eight SRs involved 7371 breast cancer patients with hormone therapy and chemotherapy related side effects treated by acupoint stimulation (manual, electric, acupoint injection, and self-acupressure) or massage compared with placebo or conventional therapy. Eight SRs involved 5836 breast cancer patients with hot flush by acupuncture or electroacupuncture compared with sham acupuncture or conventional therapy. Seven SRs focused on 9498 breast cancer patients to treat tumor by conventional therapy combined with herbal medicine, acupuncture, or massage. Three SRs involved 1040 breast cancer patients with side effects by acupuncture or electroacupuncture or acupressure compared with sham acupuncture or conventional
therapy. One SR involved 3142 breast cancer patients after mastectomy treated by herbal medicine compared with conventional therapy. Outcome measures mainly included symptoms, quality-of-life, long-term survival, and adverse events. The quality of 27 SRs was low to moderate by ROBIS. Four SRs reported potential bias of included RCTs and 1 SR reported conflict of interest of included RCTs by ASMTAR-2.

**Conclusion:** Current evidence focuses mainly on acupoint stimulation for breast cancer side effect. Further studies can build up robust evidence for the effectiveness and safety of herbal preparation for breast cancer and should be reported according to PRISMA and address the potential bias and conflict of interest of included RCTs.

**P02.12**

**Prediction of Deficiency, Medium, and Excess Patterns in Japanese Kampo Medicine: A Multicenter Prospective Observational Study**

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**Abstract**

**Purpose:** We have previously reported on a predictive model for deficiency–excess pattern diagnosis which was unable to predict the medium pattern. This study aimed to use data from 6 clinics in Japan to develop predictive models for deficiency, medium, and excess pattern diagnosis and to confirm whether the cutoff values of the diagnosis of these patterns differed between the clinics.

**Methods:** We collected data from patients’ first visit to 1 of the 6 Kampo clinics in Japan from January 2012 to February 2015. The exclusion criteria included unwillingness to participate in the study, missing data, duplicate data, age <20 years, ≤19 subjective symptoms, and irrelevant patterns. In total, 1068 participants were eligible for inclusion. All participants were surveyed using a 153-item questionnaire. We used an e-questionnaire system on a tablet computer to record the subjective symptoms of patients at 6 Kampo specialty clinics. We constructed a predictive model of deficiency, medium, and excess pattern diagnosis using a random forest algorithm from training data and extracted the most important items. We calculated the predictive values of each participant by applying their data to the predictive model and created receiver operating characteristic (ROC) curves with an excess–medium and medium–deficiency patterns. Furthermore, we calculated the cutoff value of these patterns in each clinic using ROC curves and compared them.

**Results:** Body mass index and blood pressure were the most important items in the random forest model. In all clinics, the cutoff value of the excess–medium and medium–deficiency patterns was >0.5 and <0.5, respectively.

**Conclusion:** We managed to create a random forest model of deficiency, medium, and excess pattern diagnosis from the data of 6 Kampo clinics in Japan. We did not find any differences in the cutoff values of these patterns between the 6 clinics.

**P02.13**

**Acupuncture for Pediatric Sickle Cell Pain Management: A Promising Nonopioid Therapy**

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**Abstract**

**Purpose:** To describe the use of acupuncture for pain management in children with sickle cell disease.

**Methods:** Retrospective chart review of a single-institution experience on acupuncture in pediatric patients with sickle cell disease evaluated between 2012 and 2019. Demographic characteristics, presenting pain location, pain score pre- and postacupuncture, and adverse events were collected.

**Results:** Twenty-four patients with sickle cell pain, median age 17.5 years, 62% females, 37.5% African American, 50% Hispanic, received 90 acupuncture treatments: 48 in the hematology outpatient clinic and 42 in the inpatient unit. The mean treatment duration was 18.5 ± 4.8 minutes. Fifty-
five treatments administered to 22 patients who received a median of 2.5 acupuncture sessions had documented pre-/postacupuncture pain scores. Pain reduction was achieved in 65.5% of these treatments. A 0 to 10 scale for 13 treatments reported a mean pre-acupuncture score of 7.31±1.75, postacupuncture of 6.08±1.85, and a mean pain score change of 1.23±1.09 (P=.11); a 0 to 4 scale for 42 treatments reported a mean pre-acupuncture score of 3.31±0.72, postacupuncture of 2.33±0.98, and a mean pain score change of 0.98±0.99 (P<.0001). No adverse events were noted.

Conclusion: Acupuncture therapy decreased pain for our patients with sickle cell disease, providing a safe nonopioid therapeutic option.

P02.14

Efficacy of Electro-acupuncture and Manual Acupuncture Versus Sham Acupuncture for Knee Osteoarthritis

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Abstract
Purpose: Acupuncture is widely used for knee osteoarthritis (KOA), despite contradictory evidence of efficacy. The objective of this trial was to compare the efficacy of electro-acupuncture (EA) and manual acupuncture (MA) with sham acupuncture (SA) for KOA.
Methods: In this multicenter trial, participants with KOA were randomly assigned to receive 24 sessions of EA, MA, or SA over 8 weeks. Participants, outcome assessors, and statisticians were masked to treatment group assignment. The primary outcome was the response rate at week 8, which is the proportion of participants who simultaneously achieved minimal clinically important improvement (MCII) in pain and function. The MCII in pain and function was set at 2 points on the 11-point numerical rating scale and 6 points on the Western Ontario and McMaster Universities Osteoarthritis Index function subscale, respectively. The efficacy analyses used the modified intention-to-treat population, which included all patients who were randomly assigned and had at least 1 postbaseline measurement.
Results: Between December 25, 2017 and October 10, 2018, 1243 participants were recruited and assessed for eligibility; 480 participants were randomly assigned to the EA (n=160), MA (n=160), or SA (n=160) groups, of whom 442 were evaluated for efficacy (EA n=151, MA n=145, SA n=146). The response rates at week 8 were 60.3% (91 of 151) in the EA group, 58.6% (85 of 145) in the MA group, and 47.3% (69 of 146) in the SA group. The between-group differences were 13.0% (97.5% CI, 0.2% to 25.9%; P=.0234) for EA versus SA and 11.3% (97.5% CI, −1.6% to 24.4%; P=.0507) for MA versus SA.
Conclusion: Among patients with KOA, treatment with EA, compared with SA, resulted in less pain and better function at week 8. The response rate in the MA group was increased by 11.3%, but this did not meet statistical significance.

P02.15

Scalp Acupuncture for Poststroke Cognitive Impairment: A Systematic Review and Meta-analysis

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Abstract
Purpose: Although scalp acupuncture has been used in China for decades, its benefits for poststroke cognitive impairment remain unknown. We aimed to systematically review the efficacy and safety of scalp acupuncture in patients with poststroke cognitive impairment to inform clinical practice.
Methods: We performed a comprehensive search of 8 English and Chinese databases from inception through October 2018. We included randomized controlled trials of scalp acupuncture in poststroke cognitive impairment patients with sample size ≥20. The outcomes were cognitive function (Mini Mental State Examination [MMSE], Montreal Cognitive Assessment, Loewenstein occupational therapy cognition assessment [LOTCA], and Neurobehavioral Cognitive Status Examination), mood (Neuropsychiatric Inventory–Questionnaire, Hamilton Rating Scale for Depression-24, and Self-rating depressive scale), activity of daily living (Barthel Index), and quality of life (Short Form-36 and World Health Organization Quality of Life Instruments). We calculated mean differences (MD) and 95% confidence intervals (CIs) for all relevant
outcomes. Meta-analyses were conducted using random effects models. The quality of each study was assessed.

**Results:** Ten randomized controlled trials met eligibility criteria (764 subjects). The mean treatment duration was 8.2 weeks. The average number of sessions was 41. The duration of needle insertion ranged from 30 minutes to 24 hours. Six studies showed that scalp acupuncture resulted in statistically significant improvement on MMSE (MD: 2.97 [95% CI: 1.89, 4.04]), compared with a variety of controls. Four trials reported improvement in LOTCA (8.87 [7.31, 10.42]). Three studies reported improved anxiety or depression. Six studies reported improvement on the Barthel Index (7.63 [5.21, 10.06]). Two studies reported improvement in overall quality of life. No serious adverse events occurred in any of the included trials.

**Conclusion:** Scalp acupuncture has potential benefits on cognitive impairment, depression, daily living activities, and quality of life in patients with poststroke cognitive impairment. Well-designed trials with a standardized therapeutic method are needed to better inform clinical practice.

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**P02.16**

**Yugengtongyu Granules May Reduce the Incidence of Adverse Cardiovascular Events in Patients With Stable Coronary Artery Disease: A Double-Blind Randomized Controlled Trial**

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**Abstract**

**Purpose:** The aim is to evaluate the effect of Yugengtongyu Granules on reducing the incidence of Adverse Cardiovascular Events (ACEs) and improving quality of life in patients with stable coronary artery disease (SCAD).

**Methods:** A method of double-blind randomized controlled trial (RCTs) was used in this research. A total of 114 patients with SCAD in the Department of Cardiology in the China-Japan Friendship Hospital were enrolled from December 2014 to August 2016. Patients were randomly divided into experimental group (n = 57) and control group (n = 57) by a randomized block design. Combined with the basic of standard treatment of SCAD according to 2013 ESC guidelines, the experimental group was given Yugengtongyu Granules orally for 24 weeks and the control group was given standard treatment and placebo. The patients were interviewed or telephoned on the 1st, 3rd, 6th, 9th, and 12th month after enrollment. The incidence of ACE in the 2 groups and the scores of each dimension of the Seattle Angina Questionare (SAQ) at each time were compared. Other indicators, hs-CRP, UCG, ECG, safety indicators (erythrocyte, platelet, coagulation), and so on, were also recorded and compared in this research.

**Results:** Despite 22 subjects withdrew during the follow-up, the incidence of ACE in the experimental group was significantly lower than that in the control group, which were 2.32% to 14.58%, respectively (P = .039), in spite of little difference in hs-CRP and ECG; SAQ in the experimental group scored higher than the control group in the 4 dimensions: Physical Limitation, Anginal Frequency, Treatment Satisfaction, and Disease Perception at the follow-up of the third month or the sixth month; there was no significant difference in the Anginal Stability dimension of SAQ, UCG, and safety indicators.

**Conclusion:** The Yugengtongyu Granules can benefit patients with SCAD by reducing the incidence of ACE and relieve symptoms, leading to a better quality of life.

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**P02.18**

**Cost-Effectiveness of Electro-acupuncture for the Treatment of Symptomatic Gallstone Diseases**

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**Abstract**

**Purpose:** Ten percent to 15% of the adult population are affected by gallstone diseases. Cholecystectomy is controversial and inflammation of gallbladder increases the risk of pancreatitis, cholecystitis, or gallbladder cancer. Electro-acupuncture (EA) has been widely used for gallstone disease. The study aimed to compare the cost-effectiveness of EA in terms of clearance and safety.
Methods: A total of 133 subjects with symptomatic gallstone diseases of gallstones ≤8 mm were randomly allocated in either EA group (n = 66) or control group (n = 67). Treatment group received 20 sessions of EA, while the control group remained for observation. The proportion of patients with total clearance of gallstone and patients reported outcomes (PRO) before and after treatment were assessed. Ultrasongraphers who performed the ultrasound were blinded to the allocation of the subjects.

Results: The number and size of gallstones were statically comparable between groups of 133 subjects at baseline. Three (4.5%) subjects from EA group, while 1 (1.9%) subject from control group had total clearance of gallstones after the study. No significant difference on total clearance of gallstones was found between groups. PRO of EQSD rose 0.01 in treatment group during the first 5 weeks while it dropped 0.04 in control group. At patient level, the incremental cost-effectiveness ratio (ICER) for EQSD is $34 129 per patient to raise Quality-Adjusted Life Years. At clinic level, ICERs for EQSD was $9702, respectively, for having EA of gallstones diseases. The total cost for a patient treated in surgery in public hospital was HK$19 071 while HK$72 503 to $148 282 in private hospitals.

Conclusion: The use of EA for gallstone diseases was found to be safe. With small sample size, it was found that EA was not able to increase total gallstone clearance. Acupuncture of 20 sessions was more expensive than doing surgery at the public hospital which greatly subsided by the Hong Kong government. The use of EQSD showcased the decision-making pathway for patients’ centered care.

Effect of Moxibustion on Intestinal and Serum Malondialdehyde Content and Intestinal IL-6 and TNF-α Levels in Naturally Aging Rats

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Abstract

Purpose: The aim is to observe the effect of moxibustion at Guanyuan point on the levels of intestinal malondialdehyde (MDA) and serous MDA and intestinal inflammatory cytokines in natural aging female rats and to explore the possible mechanism of its anti-aging effect.

Methods: The young group was composed of 8 12-week-old female Wistar rats, 16 36-week-old female Wistar rats were randomly divided into 2 groups, control group and health moxibustion group. The 3 groups of rats were shaved in the Guanyuan area and fixed with a special rat fixator for 20 minutes/day for 40 days. The health-care moxibustion group was treated with special fine moxa strip at Guanyuan point. Forty days later, the contents of MDA in intestine and serum was measured by thiobarbituric acid method, and the expression of inflammatory cytokines interleukin (IL)-6 and tumor necrosis factor (TNF)-α in rat intestine were detected by enzyme-linked immunosorbent assay.

Results: Compared with the young group, the contents of intestinal and serum MDA and the expression of inflammatory cytokines IL-6 and TNF-α in the control group were higher than those in the young group. Compared with the control group, the content of serum MDA and the expression of intestinal inflammatory cytokines IL-6 and TNF-α in the health moxibustion group decreased.

Conclusion: Moxibustion at Guanyuan point can regulate the intestinal immune system and improve the antioxidant capacity of naturally aging rats. Its mechanism may be related to reducing the level of intestinal inflammatory cytokines and inhibiting the production of lipid peroxides in the body.

Evidence-Based Evaluation on Safety of Cheezheng Pain Relieving Plaster

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Abstract

Purpose: Cheezheng pain relieving plaster is widely used in clinical treatment of a variety of diseases. For proprietary Chinese medicines, safety is as important as efficacy. Through a method combined bibliometrics analysis with evidence-based evaluation to conduct the safety of Cheezheng pain relieving plaster.

Methods: Chinese databases (CNKI, VIP, WanFang, and CBM) and English databases (PubMed and Cochrane Library) and the State Food and Drug Administration Adverse Drug Reaction Monitoring Center database were retrieved from the establishment of each database to April 2019. All trials of Cheezheng pain relieving plaster were included. The methodology quality was assessed by internationally recognized evaluation tools or standards, and using R 3.5.3 software to meta-analysis the incidence of adverse reactions/events. The factors affecting the adverse reactions/events of Cheezheng pain relieving plaster were discussed through subgroup analysis, and descriptive analysis
was performed on the studies that could not be meta-analyzed.

**Results:** Sixty-two randomized controlled trial (RCT), 9 CCT, 15 case series, and 8 case reports were included; 8111 cases of Cheezheng pain relieving plaster used in 86 RCT/CCT/case series studies; and 579 cases of adverse reactions/events. The meta results showed that the incidence of adverse reactions/events of Cheezheng pain relieving plaster was 3.73% (95% confidence interval: 2.57%, 5.10%). Subgroup analysis showed that there was no significant association between the incidence of adverse reactions/events among the type of disease, whether it was combined, the mode of administration, the length of medication, and duration of treatment.

**Conclusion:** The incidence of adverse reactions/events in Cheezheng pain relieving plaster in this study was 3.73%, but the incidence was overestimated due to the inclusion of research methodological quality problem and the lack of studies into unreported adverse reactions/events. The adverse reactions/events mainly manifested as skin allergies. It is recommended to pay attention to the patient’s allergy history and medication history before clinical application to ensure the safety of medication.

**P02.21**

**Effect of Acupuncture on Postprandial Distress Syndrome: A Randomized Clinical Trial**

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**Abstract**

**Purpose:** Postprandial distress syndrome (PDS) is the most common subtype of functional dyspepsia, and it lacks satisfactory treatment. Acupuncture is a common treatment for PDS, but the effect is uncertain due to the poor quality of prior studies. This trial was conducted to assess the efficacy of acupuncture in patients with PDS.

**Methods:** In this multicenter, randomized, sham acupuncture-controlled trial conducted at 5 hospitals in China, we randomly assigned 278 adults who had PDS to acupuncture or sham acupuncture thrice a week for 4 weeks. The 2 primary outcomes were the response rate based on overall treatment effect (OTE) and elimination rate of all 3 cardinal symptoms: postprandial fullness, upper abdominal bloating, and early satiation after 4-week treatment.

**Results:** A beneficial OTE at week 4 occurred in 115 (83.3%) of 138 patients with acupuncture, compared with 72 (51.4%) of 140 patients who received sham acupuncture (odds ratio, 4.72; 95% confidence interval [CI], 2.71 to 8.24, \( P < .001 \)). The elimination rate was 28.3% among patients receiving acupuncture compared with 16.4% in the sham acupuncture group (odds ratio, 2.00; 95% CI, 1.12 to 3.58, \( P = .02 \)). The efficacy of acupuncture was maintained during 12-week posttreatment follow-up. There were no serious adverse events.

**Conclusion:** Acupuncture is an effective treatment that increased OTE respond and elimination rate of PDS, with sustained efficacy over 12 weeks in patients who received 4-week acupuncture thrice a week.

**P02.22**

**Blepharospasm Treated by Facial Acupressure and Auricular Point Sticking: A Retrospective Case Series of 60 Children**

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**Abstract**

**Purpose:** Blepharospasm is characterized with involuntary hyperactivity of periocular muscles, increased blink rate, and eye dryness. The aim is to preliminarily evaluate clinical effects and safety of facial acupressure and auricular point sticking on children with blepharospasm.

**Methods:** Sixty children aged 3 to 9 years with blepharospasm diagnosed by a universal clinical guideline in acupuncture clinic of Xi’an NO. Four hospitals, 35 males, and 25 females were all observed between March and October in 2018. All children were only given the same acupoints stimulation (once daily, 15 min each session, for 6 days). Firstly, we applied acupressure manually on facial and head acupoints: Cuanzhu (BL 2), Yuyao (EX-HN 4), Sizhukong (TE 23), Yangbai (GB 14), Yintang (EX-HN 3), T aiyang (EX-HN 5), Quanliao (SI 18), Baihui (GV 20), and Sishencong (EX-HN 1), then combined with pediatric massage for relaxation, such as Kai tianmen, Yun taiyang, and kneading manipulations. After acupressure and massage adopting auricular point sticking on Shenmen, Fengxi, Erjian, Liver, Spleen, Brain stem and Endocrine to consolidate curative effect (replacing new ear sticker every 2 days for 18 days).
Results: According to the Cohen’s blepharospasm evaluation scales, the frequency of eyelid spasm before and after treatment was scored from 0 to 4. Rating dropped to 0 and dry eyes feeling disappeared was defined as cure. Forty children (67%) were cured after 3 courses (18 days) treatment. No adverse events were found, telephone follow-up of 40 curative children for 3 months revealing no relapse.

Conclusion: Sequential use of facial acupressure, pediatric massage, and auricular point sticking may reduce the frequency of blinking and relieve eye dryness symptom in children with blepharospasm. Therefore, it is worthy of further validation in randomized controlled trials.

P02.23

Which Standardized Scale of Skin Itchiness Is Appropriate to Evaluate Comprehensive Patient Change After Taking a Traditional Japanese Medicine?: A Protocol of a Prospective Observational Study

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Abstract
Purpose: Computer-based questionnaires (e-questionnaires) are currently available in many medical fields. We have also been developing an e-questionnaire system based on Japanese traditional Kampo medicine since 2008 based on specialists’ consensus. After more than a decade of data collection and analysis in multiple institutions in Japan, we collected more than 8000 participants’ comprehensive symptom and careful follow-up data. We are analyzing these data and extracting specific features of Japanese Kampo medicine, including how specialists are making a traditional pattern diagnosis and deciding on an appropriate herbal formula. At present, we are tackling following participants’ subjective symptoms and objective findings using standardized scales according to each conventional diagnosis.

Methods: We are including adult patients with skin itchiness, which is one of the most frequent symptoms in Japanese Kampo medicine clinics, mainly due to atopic dermatitis or any other form of eczema. The patient profile and symptoms will be investigated at the first consultation and followed using a visual analogue scale via our e-questionnaire system for 3 months of taking any personalized Kampo medicine. The symptoms and findings will be followed using standardized scales, namely, the Patient-Oriented Eczema Measure, Eczema Area and Severity Index, 5-D itch scale (5 D), and Skindex 16. In addition, we will measure participants’ levels of inflammation markers in the blood due to allergic reactions and intestinal permeability based on the concept of the gut-skin axis or leaky gut.

Results: This observational pilot study has been approved by an appropriate institutional review board, and we are aiming to recruit 30 participants.

Conclusion: It will provide more comprehensive and quantitative assessment of subjective symptoms and objective findings in participants with skin itchiness.

P02.24

Evaluation of the Efficacy and Safety of Tongluo Huayu Capsule in the Treatment of Cerebral Infarction Recovery Phase: A Real-World Study

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Abstract
Purpose: This study is aimed to elevate the efficacy and safety of Tongluo Huatan Capsule in the treatment of cerebral infarction patients of phlegm-stasis obstructing the network vessels syndrome in the recovery phase based on the real-world data.

Methods: A phase IV, multicenter, prospective, 1-armed, real-world study has been conducted in 38 cases of hospitals in China. Patients with atherosclerotic thrombotic cerebral infarction and meridional and collateral apoplexy (Syndrome of intermingled phlegm and blood stasis) were enrolled. Patients were treated with Tongluo Huatan Capsule (1.2 g thrice daily) orally for 4 weeks without Chinese patent medicine such as invigorate blood and unblock the collaterals, extinguish wind, and dissolve phlegm. The primary endpoints were Neurological function deficit assessment (NIHSS), traditional Chinese medicine (TCM) syndrome scores, modified Rankin scores (mRS) and safety including electrocardiogram, blood routine, liver and kidney function, and so on.

Results: A total of 2169 cases were enrolled. The mean NIHSS decreased from 7.46 ± 2.12 at baseline to 4.22 ±
Impact of Self-Acupressure for Fatigue in Systemic Lupus Erythematosus: A Pilot Trial

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Abstract

Purpose: Systemic lupus erythematosus (SLE) is a prevalent autoimmune disease, with high levels of fatigue, lacking treatments. Self-acupressure has been shown to reduce fatigue in other populations. We conducted a pilot study to determine feasibility and preliminary impact on fatigue in people with SLE.

Methods: Participants were women >18 years with a diagnosis of SLE and fatigue ≥4, measured by Brief Fatigue inventory (BFI). Women were randomized into 4 groups; usual care (UC), sham acupressure (sham), stimulating acupressure (SA), or relaxing acupressure (RA), once daily for 6 weeks, and then participated in a 4-week washout period. Feasibility was assessed through study retention. Fatigue was assessed at 0, 3, 6, and 10 weeks. Linear mixed models were used to assess the impact of group by visit on fatigue.

Results: One hundred sixteen women were screened and 52 participants were enrolled (UC = 13, sham = 14, SA = 14, RA = 11). At baseline fatigue was 5.8 ± 1.8, age was 46.3 ± 11.0, 69% of the women were white, and 25% were black. Of the 52 participants, 11 withdrew by week 3, and 22 by week 6; 23 (44%) women completed all 10 weeks, P = 0.27 across groups. At 3, 6, and 10 weeks, SA was superior to RA, sham, and UC (mean change baseline to 6 weeks of BFI: −3.1 ± 0.8 SA, −1.9 ± 0.7 RA, −2.0 ± 0.6 sham, and −0.7 ± 0.6 UC (group by visit at 3, 6, and 10 weeks were all P > 0.05). One women experienced mild transient bruising and another pain in fingers joints when applying acupressure.

Conclusion: Self-acupressure was safe. Acupressure and SA in particular led to clinically meaningful reductions in fatigue of 33% to 50%. However, many women did not complete all 6 weeks of treatment. Shorter self-acupressure treatment <3 weeks and examination of characteristics that led to drop-out could help to better maximize the use of acupressure in SLE.

P02.25

Treatment of Ptosis From Myasthenia Gravis Using East-West Medicine: A Case Report

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Abstract

Purpose: Myasthenia gravis (MG) is an autoimmune neuromuscular disease characterized by weakness and fatigability of the skeletal muscles when autoantibodies are directed against the acetylcholine receptor (AChR) at the neuromuscular junction. In MG, there is an 80% decrease in AChR; 10% to 40% of cases affect only the muscles controlling eye and eyelid movement causing ptosis and diplopia. Since there is no cure for MG, treatments are primarily aimed at improving nerve impulses to muscle or suppressing the immune system. Studies on rats have shown that acupuncture can increase AChR expression at the neuromuscular junction, alleviating muscle atrophy. Studies have also shown that acupuncture can help regulate T cells and T helper cells. In Eastern medicine, muscle weakness and fatigue are caused by a deficiency of Qi and a stagnation within acupuncture meridians. Providing acupuncture treatments to strengthen the root Qi weakness and remove stagnation may help treat ptosis from MG.

Methods: A 57-year-old male with AChR+ MG and thymoma status post thymectomy and radiation in March 2017 who presented with ptosis and diplopia. Diplopia resolved with pyridostigmine, prednisone, and intravenous immunoglobulin, though the ptosis persisted. Cellcept was added September 2019. He received 16 treatments that included acupuncture, tui na massage, dietary, and lifestyle recommendations at the UCLA Center for East-West Medicine over 7 months.
Results: Patient subjectively noticed improvement in ptosis after 2 treatments. He reported 90% improvement after 10 treatments. There was a concurrent decrease in MG quality of life (MG-QoL15r) score (10–1) and decrease MG activities of daily living score (2.5–0.1). Prednisone was reduced from 40 mg to 20 mg qd. Insomnia and constipation had resolved.

Conclusion: This case study suggests that an East-West medicine approach including acupuncture, tui na massage, and concurrent with standard Western medications may help treat refractory ptosis from myasthenia gravis and deserves further validation.

P02.27LB

Licensed Acupuncturists’ Clinical Reasoning: Demonstration of Complexity, Connectivity, and Feedback Loops

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Abstract

Purpose: Traditional Chinese Medicine (TCM) uses diagnostic and treatment procedures that are complex and tailored to each patient. The complexity of the medicine is a core concept and strength of traditional acupuncture and can be maintained successfully in a randomized controlled trial format and often with better results than standardized protocols. This project aims to describe clinicians’ reasoning during the provision of individualized treatment.

Methods: We used several qualitative techniques, including (1) diagnostic interviewing to identify and describe variations in diagnostic reasoning and heuristics as described in retrospective accounts given by acupuncturists in response to their review of clinical records of a small sample of patients they treated in a clinical trial of acupuncture, (2) double coding the diagnostic interviewing data for themes of complexity, considering the TCM diagnostic framework as a complex system, and (3) frame analysis to identify trends of changes in codes across practitioners. Purposive sampling was used to create a sample of practitioners from the parent study (n = 4) with variation in training, offered diagnoses, and years of experience. Each clinician completed 2 interviews covering 2 to 3 patient cases.

Results: We found support for the TCM diagnostic system to act as a complex adaptive system. Found codes include aspects of complex systems including emergence, adaptation, connectivity, emergence, self-reflection, self-organization, nonlinearity, and a critical phase change in a clinician’s thinking. Frame analysis revealed patterns in codes across clinicians.

Conclusion: We requested our practitioners to perform individualized diagnoses—a complex process requiring more than the recitation of memorized facts and patterns—and we are as interested in capturing how practitioners thought as what they thought. Considering the diagnostic process as a complex system may offer insight into the operation of other complex systems of clinical reasoning, such as biomedicine, in addition to adding to the medical education literature.

P03: Clinical Research: Herbs and Supplements

P03.01

A Feasibility Study of Lavender Aromatherapy in an Awake Craniotomy Environment

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Abstract

Purpose: Awake craniotomy maps speech, motor, and sensory function during tumor resection. Although many patients tolerate this surgery well, some studies report patients experience moderate to severe pain and anxiety. Alternate methods to mitigate pain and anxiety are needed; however, interventions are limited due to potential interference with the neurocognitive exam. There is a body of literature related to lavender aromatherapy used to reduce anxiety or pain in a variety of pre/post-surgical procedures. This feasibility study determined the number of patients that would consent to participate and complete the study. Secondary objectives measured the effects of lavender on anxiety and pain, and to improve satisfaction with pain control in patients undergoing awake cranial surgery.

Methods: This was a single arm pilot 10-month study. Forty consecutive patients were approached. Participants received standard of care intraoperatively plus aromatherapy delivered via nasal inhaler at designated times. The devise contained 15 drops of Lavender and grapeseed 4 drops. Outcome measures included enrollment and completion rates, anxiety, and pain as measured by the Visual Analog Scale Anxiety (VAS-A) and pain (VAS-P) and...
satisfaction with pain control as measured by the Patient Opinion of Pain Management survey (POPM) using an independent t test.

**Results:** In total, 31 patients (77% of 40 patients approached, 86% of patients consented) completed all elements of the trial. Most patients (77%) preferred to receive the aromatherapy on an as-needed basis, compared to 23% who preferred scheduled inhalations. Both the VAS-A and VAS-P mean scores did not reach significance; however, the mean score for anxiety was slightly higher at each inhalation point, and the pain score was the same or slightly higher before aromatherapy as compared to postprocedure. POPM scores indicated satisfaction with pain control during surgery.

**Conclusion:** This study demonstrated patient willingness to participate in receiving intraoperative lavender aromatherapy during awake cranial surgery.

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**P03.02**

**Effect of Alkaline Reducing Water on Hydration: Randomized, Double-Blinded, Placebo-Controlled Pilot Trial**

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**Abstract**

**Purpose:** The objective of this study was to evaluate the effects of alkaline reducing water in comparison to reverse osmosis (RO) water on Hydration via Bio-electric Impedance (BI) and plasma osmolarity.

**Methods:** The study was conducted at the Salgado Institute of integrative Health, Londrina, PR, Brazil, and the protocol was approved by the Institutions Ethics committee. Informed consent forms were obtained during patient screening phase of the study at the site of the study. Sample size consisted of 20 healthy volunteers (8 males and 12 females, ages 20–30) randomized by single draw into 2 experimental groups (n = 10 per group). Participants were assessed at baseline (bioelectrical impedance analysis—Quantum V, RJL Systems, Clinton Township, Michigan; and plasma osmolarity) and were asked to drink 1 L of water (alkaline reducing or RO) a day for 5 days. On day 6 postbaseline, participants were re-evaluated. Alkalinity (pH 9.65) was achieved by adding to reverse osmosis water 0.4 mL/L of a proprietary sodium silicate formulation (Cisne enterprises Inc., Odessa, Texas). Negative oxidation reduction potential (−300 mV) and increased free electrons is induced by infusing the water with a proprietary hydrogas technology (Altered Labs LLC, Fort Lauderdale, Florida). Combined, these technologies turn drinkable water into a potent alkaline, reducing (anti-oxidative) agent.

**Results:** Alkaline reducing water induced a statistically significant increase in total body water (p < .038) and intracellular water (p < .046); as well as in extracellular water (although not statistically significant). Plasma osmolarity also significantly (P < .0219) decreased with consumption of alkaline reducing water.

**Conclusion:** Five consecutive days of consumption of 1 L of alkaline reducing water significantly increased total body and intracellular water, while decreased plasma osmolarity, indicating increased hydration in comparison to reverse osmosis water consumption.

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**P03.03**

**Effect of Rubus idaeus (Red Raspberry) Consumption During Pregnancy in a Mouse Model**

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**Abstract**

**Purpose:** The trigger for the onset of human labor remains a scientific mystery. Being born too early or too late is a global health problem and interventions that stimulate or block labor processes are urgently needed. This research examined *Rubus idaeus* (RI)—commonly referred to as red raspberry leaf, which is widely purported to be efficacious in promoting cervical ripening and favorable birth outcomes. The purpose of this randomized control trial was to determine the influence of RI consumption during gestation on C57BL/6 mice and their offspring. The aims were to (1) determine differences in the length of gestation, gestational weight gain, and litter size where RI is consumed daily at varied strengths and (2) determine differences in offspring characteristics and behavior where maternal RI consumption has occurred.
Methods: Once paired, mice were randomly assigned to 1 of 3 groups: placebo (n = 10) receiving plain water, RI aqueous extract fluid of 38 mg/g/day (n = 10), and RI aqueous extract fluid of 57 mg/g/day (n = 10). All received the same standardized diet throughout gestation. Pregnant mice were weighed daily and chow intake, and fluid consumption was determined daily. Length of gestation and litter size were determined at the time of birth. Differences in offspring characteristics were determined and included physical characteristics (weight and body development) and neuromotor reflex and behavior (locomotive abilities, geotaxis reflex, cliff avoidance reflex, and swimming development).

Results: Preliminary findings suggest that litter size and number of viable pups were reduced with RI exposure in a dose dependent fashion (*P* values .0442 and .0286, respectively). Length of gestation did not differ between groups. Reductions in gestational weight gain were also observed but were not found to be statistically significant (*P* value .177).

Conclusion: Use of RI from early gestation should be reconsidered, particularly at high doses.

P03.05

Mixture of Rhodiola L. and Nelumbo nucifera Gaertner Ameliorates Sleep Disturbance

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Abstract

Purpose: Chronic sleep disturbances can result in low performance of activities during the day such as decreased concentration and lethargy, leading to poor quality of life and increased burden on medical use and costs. Drugs commonly used to treat insomnia can cause side effects. This study was conducted to investigate a new agent that can solve the side effect of existing insomnia treatment and help sleep quality using root of *Rhodiola rosea* L. and seed of *Nelumbo nucifera* extract (RNE).

Methods: We examined the change of sleep quality, fatigue, and quality of life in the cases with subthreshold insomnia after administration of RNE. We recruited 20-65-year-old...
healthy people with subthreshold insomnia. The RNE was prepared as capsules containing extract of root of *Rhodiola rosea* L. and seed of *N. nucifera* by the proportion of 2:1. The participants orally administered 2 capsules/day (750 mg/day) before sleep for 2 weeks. Insomnia severity index (ISI), Pittsburgh sleep quality index (PSQI), sleep diary, fatigue severity scale (FSS), and Short Form-36 (SF-36) was assessed.

**Results:** Six men (30.0%) and 14 women (70.0%) were included, and 13 finished the trial. The clinical trial showed that RNE improved overall sleep quality. Subjective evaluation index for sleep, such as ISI, PSQI total score, and component 1, showed improvements over time. The ISI score decreased from 12.80 ± 1.36 to 10.00 ± 4.71, and its PSQI score was reduced from 10.25 ± 2.38 to 8.40 ± 3.03. Wake time after sleep onset (WASO) decreased by 57% and sleep efficiency also showed statistically significant change. FSS was not significantly changed, but items of SF-36 which were related to physical health and mental health significantly increased after administration.

**Conclusion:** RNE markedly improved sleep quality of people with subthreshold insomnia and also ameliorated physical and mental health with safety. These results suggest that RNE might be a preventive or therapeutic agent for sleep disturbance.

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**P03.06**

**Whole System Ayurvedic Medicine Approach for Chronic Low Back Pain**

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**Abstract**

**Purpose:** The aim is to describe the role of whole system Ayurvedic medicine approach for management of chronic low back pain (LBP).

**Methods:** Information from the Ayurvedic classical textbook and scientific evidence for the whole system approach of Ayurveda for management of LBP will be explained along with a case discussion. Clinical feature: A 35-year-old female presented with LBP of 6 years duration. Pain limited her endurance capacity for walking, sitting for a long time, driving, and climbing steps. When the patient came to the initial Ayurveda consultation, she reported severe pain throughout the past week, and the intensity of LBP was rated as 9 to 10 while walking, and 6 to 7 while resting (on a 0–10 numeric pain scale). Imaging done 8 months ago had shown reduction in the intervertebral spaces and herniation of L3-L4 and L5-S1 disc. Magnetic resonance imaging done 8 months ago initial visit for Ayurveda indicate reduction in the intervertebral spaces and herniation of L3-L4 and L5-S1 disc. Oswestry Disability Index Score: 51% represent the severe disabilities. Interventions and outcomes: The patient was managed with Ayurvedic diet, lifestyle changes, along with herbs, and yoga for 6 weeks. Patient was also recommended an Ayurvedic therapy called “Katibasti” for once a week for 6 weeks.

**Results:** The LBP was relieved over a 6-week period with Ayurvedic protocols. At the end of the 4th week, the patient reported pain rated at 3 to 4 out of 10 while walking, and 0 to 2 out of 10 while resting. Oswestry Disability Index score was 28% at the sixth week indicating minimal disability. At the end of the sixth week, all functional activities had improved.

**Conclusion:** The results of this current case study indicate that whole system approach of Ayurvedic medicine may be effective for management of chronic LBP especially with pain and functional activities.

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**P03.07**

**Effects of Garlic (Allium sativum L.) Germinated Bulb on Wound Healing Skin in Wistar Rats**

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**Abstract**

**Purpose:** Garlic is one of the most important bulb crop grown in the world and is rich in allicin. Allicin undergoes enzymatic reaction and is converted to hydrogen sulfide that increase vascular endothelial growth factor levels and promote angiogenesis. The purpose of this study was to evaluate the effect of germinated bulb garlic on the wound healing skin.

**Methods:** It was used germinated garlic bulb alcoholic extract at 10% (w/w) carried in an emulsion (EE) compared to a placebo emulsion (PE) in Wistar rats. Two parallel incisions were made on the right (EE) and left (PE) sides of rat’s back, and the tissues were prepared for histological and morphometrical analysis (3rd, 7th and 14th day) after the beginning of the assay.

**Results:** After 3 days, both area of wound showed fibrous crust and in their surroundings, new blood vessels, and large amount of inflammatory cells; however, there is no
difference between the treatments. After 7 days of lesion, the 2 treatments decreased inflammatory infiltrate, presence of granulation tissue, and a fibroblastic proliferation was observed. At the 14th day, both areas showed a reduction of blood vessels, fibroblasts, and large amount of collagen fibers in the extracellular matrix of dermis, but, in EE treated area, there was a better organization of matrix fibers, extracellular, and thicker collagen fibers. The repairing process was faster when compared to the PE treated area. The blood vessel number in 3 days is lower in EE (156.7 ± 50.33) when compared to PE (213.3 ± 81.45). At 7th and 14th days, respectively, the vessels number is higher in EE treated area (171.0 ± 62.86/65.5 ± 6.36) than the PE (140.0 ± 17.32/55.5 ± 14.85), although those differences were not significant.

**Conclusion:** It is possible to conclude that garlic bulb alcoholic extract can improve the wound healing skin in rats.

**P03.08**

**Tear and Plasma Vitamin D Studies**

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**Abstract**

**Purpose:** The aim is to compare tear and blood vitamin D3 levels in healthy young adults practicing physical activity, with different times of sun exposure, and to evaluate the effects of vitamin D3 eye drop supplementation.

**Methods:** Thirty-six volunteers (19–27 years) separated into 2 groups: indoor (sun exposure less than 3 h/week) and outdoor (sun exposure more than 7 h/week) activities. Blood vitamin D3 levels (3 mL venous blood) and tear levels (Schirmer tapes) were evaluated. Both tear and blood were electrochemiluminescently evaluated to assess metabolite 25 (OH) vitamin D3 levels. After that, vitamin D3 eye drops were used to evaluate possible changes in these levels.

**Results:** The mean plasma vitamin D3 level in the indoor group was 25.01 ng/mL, while the mean plasma vitamin D3 level in the outdoor group was 35.55 ng/mL (P < .05). In all 36 participants, vitamin D3 tear levels were higher than 100 ng/mL (the upper limit of the system used), well above plasma levels in both participant groups (P < .01). In 6 of these randomly chosen subjects, prepared vitamin D3 eye drops were used, with each drop containing 5000 IU, and 1 drop was instilled into each eye twice a day for 3 weeks to assess serum levels. A mean increase was observed, at the plasma level of 25.18%, ranging from 9.2% to 42.8%.

**Conclusion:** Vitamin D3 tear mean levels were high in all volunteers of this study, regardless of sun exposure time; vitamin D3 tear mean levels were much higher than plasma levels in both indoor and outdoor physical activities. The eye drop was effective and increased vit D3 serum levels by 25.18%, with only 3 weeks of use, suggesting the usefulness of the conjunctival pathway for vit D3 absorption. Both results are unpublished in the world literature.

**P03.10**

**Effects of Pau d’ Arco on Primary Dysmenorrhea**

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**Abstract**

**Purpose:** The purpose of this study is to investigate the safety and tolerability of *Tabebuia avellanedae* for primary dysmenorrhea (PDM). PDM is experienced by up to 90% of menstruating women in the United States, causes significant work and school absenteeism, and is one of the most common causes of pelvic pain. Current treatments including nonsteroidal anti-inflammatory drugs and combined oral contraceptives can have significant side effects with chronic use. *Tabebuia avellanedae* is a South American tree, the inner bark of which has great potential as a candidate treatment for PDM as it inhibits production of PGE2 and reduces cyclooxygenase-2 activity in a concentration-dependent manner.

**Methods:** This is a single arm, open-label trial evaluating safety and tolerability of 1050 mg/day of encapsulated *Tabebuia avellanedae* for 2 months in 12 generally healthy women aged 18 to 45 years with PDM. The effects of the treatment on quality of life, pain intensity, and pain interference, and on inflammatory markers high-sensitivity C-reactive protein and PGE2 are evaluated as secondary and tertiary measures, respectively.

**Results:** This trial has been approved by the institutional review board at Helfgott Research Institute and the National University of Natural Medicine. Results are pending study completion.
Conclusion: The proposed study will be the first study evaluating the safety and tolerability of *Tabebuia avellanedae* in PDM. We also aim to collect proof-of-concept mechanistic data supporting the hypothesis that *Tabebuia avellanedae* reduces PGE2 concentration in vivo in women with PDM.

**P03.12**

**High-Dose Cannabidiol for the Treatment of Parkinson’s Related Sleep Dysfunction: Initial Results of a U.S. Case Study**

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**Abstract**

**Purpose:** Sleep disorders are a common and refractory nonmotor symptom of Parkinson’s disease (PD) affecting three-fourths of the patient population. Previous research has noted cannabidiol (CBD) as a potential treatment option.¹⁻³ Recently, hemp-based CBD products have become available in the United States.

**Methods:** A 65-year-old female with a 5-year history of PD and clinical diagnosis of rapid eye movement sleep behavior disorder and abnormal sleep study was evaluated. Parkinson’s Disease Sleep Scale-2 (PDSS-2) and Parkinson’s Disease Questionare-39 (PDQ-39) were completed. After evaluation, patient initiated a dose titration of a tincture with a verified 19 mg of CBD per serving. Patient reached an initial dose of 57 mg/day after 1 month and will be followed monthly to assess tolerability and efficacy.

**Results:** After 1 month, PDSS-2 scores improved from 34 to 27 (−7; minimum clinically significant change [MCSC] = −3.44). PDQ-39 improved from 72 to 59 (−13; MCSDC = −4.72). The patient tolerated treatment well and will continue with titration and monthly evaluation as part of an ongoing CBD case series.

**Conclusion:** A hemp-based CBD extract demonstrates tolerability and efficacy in improving PD-related sleep abnormalities after 1 month of use. The results noted are clinically significant and the first U.S. documentation of benefits seen in previous case studies utilizing high-dose CBD. Note that only product was provided by CV Sciences, San Diego, California; they were not involved in any aspect of the present research. Patient completed a case study consent as part of a pre-existing institutional review board protocol (IRB-13-6248).

**P03.13**

**Multispecies Probiotics as Supplemental Migraine Therapy: A Systematic Review and Meta-analysis**

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**Abstract**

**Purpose:** The occurrence of gastrointestinal diseases and comorbid migraine is well established. Some have theorized that migraine may be induced by a "leaky gut" that allows food particles to pass the gastrointestinal wall. Probiotics have demonstrated potential improvements in intestinal barrier function, although high-quality evidence is minimal. The gut microbiome has also been shown to play a role in chronic pain. These meta-analyses sought to aggregate and analyze previous studies on probiotics and migraine disorders.

**Methods:** A search was performed in June 2019 to identify relevant English-language publications in Medline, Embase, Google Scholar, and Cochrane Library using the terms migraine (migraine disorders and headache) and probiotics (microbial dietary supplements, bifidobacteria, lactobacilli, and gut microbiota). A qualitative review of existing studies evaluated products, methodology, and validity. A systematic meta-analysis was conducted to obtain sums of populations and measures, compare means of distinct interventions, and evaluate outcomes.

**Results:** A total of 6 studies, conducted between 2001 and 2019, representing 1241 adult, predominantly female participants with migraine between 18 and 75 years of age from 5 countries were included in the present meta-analysis. The majority of participants across all included studies had been diagnosed with episodic or chronic migraine. Studies varied across intervention duration (8–12 weeks) number of strains in each probiotic (4–14 strains), composition (Lactobacillus Bifidum and Lactobacilis Acidophilus most frequent), dosages, and outcomes evaluated (migraine self-report surveys, gastrointestinal dysfunction, and quality of life). Overall, frequency and severity of migraine reduced across all studies. No adverse events were reported.

**Conclusion:** Migraine is a widespread, disabling, and costly condition often accompanied by alterations in the gut microbiome. Although probiotics seemingly have great potential to reduce migraine, more randomized, controlled trials are needed to better understand mechanisms, optimal treatment combinations, and outcomes across various patient populations.
Phosphatidylserine for the Treatment of Pediatric Attention-Deficit/Hyperactivity Disorder: A Systematic Review and Meta-analysis

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Abstract
Purpose: The aim is to examine the evidence for phosphatidylserine for symptoms of attention-deficit/hyperactivity disorder (ADHD) in children.

Methods: Medline, Cochrane Library, and ClinicalTrials.gov were searched from inception through 2011/2018. Standardized mean differences and 95% confidence intervals (CIs) were calculated, and the heterogeneity of the studies was estimated using I2.

Results: Four studies met inclusion criteria for the narrative review (n = 116), and 3 for the meta-analysis (n = 270). We found very low-quality evidence that phosphatidylserine may be more effective than placebo in reducing total ADHD symptoms (effect size = 0.74; 95% CI = 0.10, 1.57), very low-quality evidence that phosphatidylserine may be more effective than placebo in improving symptoms of hyperactivity/impulsivity (effect size = 0.55, 95% CI = −0.21, 1.31), and low-quality evidence that phosphatidylserine may be significantly more effective than placebo in improving symptoms of inattention (effect size = 0.36, 95% CI = 0.07, 0.64).

Conclusion: Phosphatidylserine may be effective for reducing symptoms of ADHD in children, particularly symptoms of inattention. High-quality research in this area is warranted.

Shen Long Jian Ji, a Chinese Herb Formula, in the Treatment of Idiopathic Pulmonary Fibrosis: A Randomized, Double-Blind, Placebo-Controlled Trial

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Abstract
Purpose: Based on the early successful animal experiments, we aim to further investigate the clinical effectiveness and safety of Shen Long Jian Ji (SLJJ), a Chinese Herb formula, for the patients with idiopathic pulmonary fibrosis (IPF).

Methods: A randomized, double-blind, placebo-controlled clinical trial was conducted in Affiliated Hospital of Liaoning University of Traditional Chinese Medicine. A total of 60 participants were enrolled who were randomly divided into treatment group and control group with 30 cases in each group. The treatment group were treated with SLJJ granule and control group with SLJJ placebo 3 times a day for 90 days. The study outcomes include Traditional Chinese Medicine (TCM) symptoms scores, blood gas analysis (PO2, PCO2, and SO2), lung function (TLC, VC, DLCO, FEV1, and FFEV1/FVC) and 6WMT. The differences of all indicators in each group before and after treatment were compared on 90th day and between the 2 groups on 30th, 60th, and 90th day.

Results: Following the completion of therapy, the difference of TCM symptoms scores, PO2, PCO2, 6WMT, DLCO, and FEV1 before and after treatment in the treatment group was statistically significant (P < .05). The mean values of PO2, 6WMT, DLCO, and FEV1 were higher, while TCM symptoms scores and PCO2 were lower than those before treatment. However, no statistical difference was founded in the control group (P > .05). There were significant differences in TCM symptom scores, PO2, PCO2, DLCO, FEV1, and 6WMT between groups on 60th and 90th days (P < .05). The mean values of PO2, 6WMT, DLCO, and FEV1 were higher and TCM symptoms scores and PCO2 were lower in the treatment group than those in the control group. No serious adverse reactions were observed during trial.

Conclusion: SLJJ tend to improve multiple indicators of suffers with IPF which may be related to the course of treatment and has good safety. Trial Registration: ChiCTR-INR-17013653.

Psilocybin Use and the Subjective Experience of Connectedness

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Psilocybin Use and the Subjective Experience of Connectedness
Abstract

Purpose: Classic psychedelics such as psilocybin-containing mushrooms are receiving growing interest for their therapeutic potential in conditions such as addiction and treatment-resistant depression. The results of early clinical trials are encouraging. Much of this research has been conducted in highly controlled clinical environments and under conditions of reduced sensory input. Development of these therapeutics will require inclusion of a more naturalistic and expansive contextualization of participant experiences, including relationships between inner and outer worlds. The objective of this study was to better understand how psilocybin use has influenced participants’ experience of connectedness.

Methods: Ten individuals with multiple psilocybin experiences, but not currently using any psychedelics (within preceding 2 months), and no diagnosis of serious mental illness participated in 2 semistructured interviews. The interviews were recorded and transcribed verbatim to text. Transcripts were independently coded in duplicate and analyzed by inductive thematic analysis with integrated consensus-building.

Results: The theme of increased connectedness associated with psilocybin experiences emerged from all participants. The primary focus of this sense of connection was varied and included the physical body, familial and social relationships, the environment and its biota, and a universal spiritual presence or “higher power”. Additional themes included the persistence of these impressions over time and the transformative effect these impressions had on participants’ subsequent life experiences.

Conclusion: A subjective sense of enhanced connectedness deriving from psilocybin experiences emerged from all participants. The primary focus of this sense of connection was varied and included the physical body, familial and social relationships, the environment and its biota, and a universal spiritual presence or “higher power”. Additional themes included the persistence of these impressions over time and the transformative effect these impressions had on participants’ subsequent life experiences.

Effect of Resveratrol on Cytochrome P450 3A4 Metabolism in Healthy Volunteers

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Effect of Resveratrol on Cytochrome P450 3A4 Metabolism in Healthy Volunteers

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Abstract

Purpose: Resveratrol, a polyphenolic antioxidant, is used as a dietary supplement in inflammation, obesity, and aging. In vitro studies have shown that resveratrol is a mechanism-based inhibitor of cytochrome P450 3A4 (CYP3A4), an enzyme important in the metabolism of numerous drugs. We conducted a pilot study to investigate whether single and multiple doses of resveratrol altered the pharmacokinetics of midazolam, an established clinical substrate for CYP3A4, to determine the extent of the natural product-drug interaction in vivo.

Methods: Six healthy adults were recruited for a pharmacokinetic study of oral midazolam on 3 study days: prior to resveratrol administration (day 1), following a single 1 g oral dose of resveratrol (day 8), and following a daily 1 g oral dose of resveratrol for 1 week (day 15). Plasma samples were collected and analyzed using liquid chromatography-mass spectrometry for midazolam. Noncompartmental pharmacokinetic analysis was used to estimate the parameters. Geometric mean ratios and 90% confidence intervals were used to compare results following single and multiple resveratrol dosing to baseline.

Results: Peak midazolam concentrations were increased by 18% and 40% following single and multiple doses of resveratrol, respectively. Exposure to midazolam increased by 10% and 28% following single and multiple doses of resveratrol, respectively. Possibly due to a concomitant decrease in the apparent oral volume of distribution, the terminal half-life of midazolam was slightly decreased upon multiple doses of resveratrol, although the change was not as apparent following a single dose of resveratrol.

Conclusion: Overall, minor interactions were seen with single and multiple doses of resveratrol. Based on the oral pharmacokinetics of midazolam, it appears that resveratrol inhibits intestinal CYP3A4 with minimal effect on hepatic CYP3A4. Further investigation is necessary to confirm whether longer treatment regimens of resveratrol will result in increased inhibition of CYP3A4 and alter the pharmacokinetics of other CYP3A4 substrates.

Phosphatidylserine for Pediatric Attention-Deficit Hyperactivity Disorder: A Systematic Review and Meta-analysis

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Abstract

Purpose/Background: Attention-deficit hyperactivity disorder (ADHD) is one of the most commonly diagnosed psychiatric conditions of childhood and can persist into adulthood with numerous adverse health outcomes. Many children do not receive standard-of-care stimulant medication due to side effects or lack of effectiveness. Other options, including integrative therapies, warrant investigation.

Objective: To examine the evidence for effectiveness of phosphatidylserine supplementation for symptoms of ADHD in children and adolescents.

Inclusion/Exclusion: Study participants were children ≤18 years old with ADHD. Intervention was phosphatidylserine supplementation in any dose/duration, compared to placebo, wait list, or standard of care. Outcome measures were validated scales of ADHD symptoms. All study designs were included in the narrative review, but only trials were included in the meta-analysis.

Methods: Pubmed/Medline, Pubmed/Ovid, The Cochrane Library, and ClinicalTrials.gov were searched from inception through November 2018. Methodological quality was assessed using the Cochrane Risk of Bias tool. Standardized mean differences and 95% confidence intervals were calculated, and the heterogeneity of the studies was estimated using I².

Results: Six studies met inclusion criteria for the narrative review (n = 1064) and 3 studies for the meta-analysis (n = 215). We found very low-quality evidence that phosphatidylserine may be more effective than placebo in reducing total ADHD symptoms (effect size = 0.74; 95% CI = 0.10, 1.57). We found very low-quality evidence that phosphatidylserine may be more effective than placebo in improving symptoms of hyperactivity/impulsivity (effect size = 0.55, 95% CI = 0.21, 1.31) and low-quality evidence that phosphatidylserine may be significantly more effective than placebo in improving symptoms of inattention (effect size = 0.36, 95% CI = 0.07, 0.64).

Conclusion: Phosphatidylserine may be effective for reducing symptoms of ADHD in children, particularly symptoms of inattention. High-quality research in this area is warranted. Future trials should be randomized, controlled, and adequately powered. Registration: The protocol for this review is registered in the PROSPERO database, #CRD42018093188.

P03.22LB

Retrospective Observational Study for Effectiveness of Inmok-tang on Dry Eye Syndrome

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Abstract

Purpose: Dry eye syndrome is a disease with a high prevalence in the world and a condition that causes great discomfort in daily life. The purpose of this study is to analyze effectiveness of herbal medicine treatment on Dry Eye Syndrome.

Methods: We analyze medical records of 114 patients who visited Indara oriental medical clinic for dry eye syndrome. Patients were treated with acupuncture and Inmok-tang, and the ocular surface disease index was evaluated before and after treatment.

Results: Analysis of 114 medical records showed a significant decrease in the pretreatment and posttreatment ocular surface disease index and a statistically significant positive correlation between the duration of Inmok-tang administration and the change in the ocular surface disease index.

Conclusion: Herbal medicine treatment with Inmok-tang reduces the Ocular Surface Disease Index, an indicator of subjective symptoms of dry eye syndrome.

P03.23LB

Enteromorpha prolifera Extract Prevents Against Oxidative Stress-Induced Memory Impairment

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Abstract

Purpose: Enteromorpha prolifera (EPE), which is one of the green algae, contains various antioxidants such as carotenoids, phycocyanin, chlorophyll, and phenolic compounds. Moreover, ethylacetate extract of EPE showed the highest
DPPH radical scavenging activity compared with water or ethanol extract. Nonetheless, there has been no report on the effect of EPE on memory impairment due to oxidative damage. In this study, we examined that protective effect of EPE against oxidative stress-induced memory deficit in animal model.

**Methods:** EPE was orally administered (50 or 100 mg/kg body weight) to mice and then scopolamine (2 mg/kg, i.p.) was intraperitoneally administered for 5 weeks. Memory performance was evaluated in the Morris water maze test and passive avoidance test. Also, brain acetylcholinesterase (AChE) and cholineacetyl transferase (ChAT) activity, biomarkers of oxidative stress and the loss of neuronal cells in hippocampus was evaluated by histological examinations.

**Results:** Administration of EPE significantly restored memory impairments induced by scopolamine in the Morris water maze test (escape latency and number of crossing platform area) and in the passive avoidance test. Treatment with EPE inhibited the AChE activity and increased the ChAT activity in the brain of memory-impaired mice induced by scopolamine. Additionally, the administration of EPE significantly prevented the increase of lipid peroxidation and the decrease of glutathione level in the brain of mice treated with scopolamine. Also, the EPE treatment restored the activities of antioxidant enzymes including glutathione peroxidase and glutathione reductase to control the level. Furthermore, scopolamine-induced oxidative damage of neurons in hippocampal CA1 and CA3 regions were prevented by EPE treatment.

**Conclusion:** It is suggested that EPE may be useful for memory improvement through the regulation of cholinergic marker enzyme activities and the survival of neuronal cell from oxidative stress-induced cell death in the brain of mice.

**P03.26LB**

**Endogenous Gut Microbiota Changes in Healthy Adults Following Supplementation With a Multistrain Probiotic**

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**Abstract**

**Purpose:** Integrative health-care practitioners frequently recommend probiotic supplements to their patients to promote healthy gut microbiota. Lactobacilli and bifidobacteria are

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**P03.25LB**

**Randomized Controlled Trial With a Phytodrug Combination of Nasturtium Herb and Horseradish Root for Uncomplicated Acute Rhinosinusitis**

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**Abstract**

**Purpose:** A combination herbal remedy containing nasturtium (Tropaeoli majoris herba, 200 mg powder/filmtablet) and horseradish (Armoraciae rusticanae radix, 80 mg powder/filmtablet) has been used as licensed drug in Germany for more than 40 years, mainly for the treatment of respiratory infections. There is still insufficient evidence in uncomplicated acute rhinosinusitis. Therefore, we performed a clinical study to investigate the efficacy and safety of the commercially available herbal remedy (Angocin® Anti-Infekt N, Repha, Germany).

**Methods:** A total of 380 patients (m/f, aged 18-75) attending one of the 16 study centers as a result of nasal obstruction and facial pain for ≤3 days were to be randomized in the double-blind, placebo-controlled phase IV study. Treatment was the recommended dose of 3 × 4 film-coated tablets for 14 days. Main criteria for inclusion was a score between 8 and 12 on the MRSSinv (Major Rhinosinusitis Symptom Score; investigator, judged by physician). Primary outcome were changes in MRSSinv as registered between days 6 and 10, computed as area under curve (AUC) and assessed by analysis of covariance with day 3 as covariate. The MRSSpat (judged by patient) was used as coprimary endpoint.

**Results:** A total of 380 patients were randomized, 348 finished per protocol (173 verum, 175 placebo). The analysis of covariance provides a statistically significant smaller AUC with the herbal remedy versus placebo (17.5 vs 19.2; \( P = 0.03, \chi^2 \) test). Interpolation and linear regression analyses confirmed the findings. Adverse events were registered in 42 cases (21.9%) for verum, respectively, 35 (18.6%), for placebo, especially headaches (10.4% v, respectively, 8.2% p) and gastrointestinal complaints (5.7% v, respectively, 3.2% p), with probable causation by medication in 8 verum, resp. 8 placebo cases.

**Conclusion:** The results of efficacy showed a significant difference in favour of the herbal remedy with good tolerance and safety. Further research should concentrate on differential activity by microbiological etiology, recurrence rates, and effects on specific symptoms of rhinosinusitis.
among the most commonly used probiotics, and preclinical studies have demonstrated that they can produce postbiotics that promote the growth of endogenous gut microbiota through cross-feeding interactions. However, many probiotic health benefits are species and strain specific, and more research is needed, particularly on probiotic supplements that contain combinations of probiotic strains. This study explored the short-term impact of a multistrain probiotic supplement on stool levels of commensal gut microbiota in healthy adults.

**Methods:** Ten healthy adults were enrolled in a single-arm, open-label study. Over a 10-day period, participants consumed a once daily probiotic supplement capsule containing 8 strains of lactobacilli and bifidobacteria \((2.1 \times 10^{11} \text{ CFU})\). Strains were *L. acidophilus* NCFM, *L. paracasei* Lpc-37, *L. plantarum* Lp-115, *L. rhamnosus* GG, *L. rhamnosus* HN001, *B. animalis* subspecies lactis Bi-07, *B. animalis* subspecies lactis Bi-04, and *B. animalis* subspecies lactis HN019. Changes in stool microbiota CFU counts from baseline to study completion were evaluated using 16S rRNA gene PCR and analyzed using paired t-tests of log-transformed data to identify significant differences. Cohen’s d was calculated and interpreted as small (\(d = 0.20\)), medium (\(d = 0.50\)), or large (\(d \geq 0.80\)) effect size.

**Results:** Increases in stool CFU counts of *Lactobacillus* species, *Faecalibacterium prausnitzii*, and *Akkermansia muciniphila* were significant \((P < .05)\) with medium or greater effect sizes \((d > 0.50)\).

**Conclusion:** The findings of this study suggest that the probiotic supplement could potentially impact health by affecting levels of endogenous gut microbiota that are considered bioindicators of health. Possible mechanisms include postbiotic exchange and cross-feeding interactions between probiotic strains in the supplement and endogenous gut microbiota. However, randomized, controlled research over a longer duration is necessary to follow-up on the findings of this preliminary work.

### P04: Clinical Research: Manual Therapies

### P04.01

**Spinal Manipulation and Patient Self-Management for Preventing Acute to Chronic Back Pain: The PACBACK Trial**

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### P04.02

**Development and Validation of a Cloak Shaped Device for Sham Pediatric Tuina: Protocol for a Randomized Controlled Study**

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Abstract

Purpose: Valid placebo device or placebo procedure become key issues for randomization and placebo-controlled designed clinical trials on the validation of treatment modalities, as blinding both the recipients and the clinical researches are essential for good research practice. Few have been developed for Pediatric Tuina (PT) which is a therapeutic massage for children. In this study, we will detect whether the newly developed cloak shaped device is valid as a placebo device in PT researches.

Methods: This is a 2-arm, parallel-group randomized controlled trial (RCT), while participants and researchers will be blinded. Sixty eligible children will be randomly assigned to genuine Tuina or sham Tuina group with the informed consent signed by their guardians. During the process of Tuina, a cloak shaped device will be used to cover the children’s body so that the children, guardians, observers, and researchers will be blinded. Guardians and observers will be asked to ascertain whether they could differentiate genuine Tuina from sham Tuina. The primary outcomes are the accuracy judgment rates of the type of Tuina that participants actually received based on guardians’ or observers’ evaluations.

Results: We developed a cloak shaped device and design an RCT to detect whether the device is valid as a placebo in PT researches.

Conclusion: This clinical trial is designed to evaluate the validity of a Cloak Shaped placebo device in researches in regards of PT. We expect results to provide solid evidence for future applications. Trial registration: ClinicalTrials.gov, NCT03247725. Registered on March 2018.

P04.03

Body Awareness in Patients Treated With Osteopathic Manipulative Treatment: A Pilot Study

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Abstract

Purpose: Osteopathic manipulative treatment (OMT) is an integrative form of pain management. Interoceptive body awareness is a mechanism of action in mind–body approaches for pain management. This pragmatic pilot study aimed at investigating the relationship between OMT and body awareness. We explored whether prior experience with OMT was associated with differences in levels of interoceptive body awareness before and after a single OMT treatment. Further analyses in clinical pain outcomes with covariates (mind–body practices, nonosteo-pathic body work, and lifetime exposure to trauma) are ongoing and will be presented.

Methods: Participants were adults seeking OMT for the treatment of pain at an OMT Teaching Lab and were either OMT-naive or OMT-experienced. Interoceptive body awareness was assessed with the Multidimensional Assessment of Interoceptive Awareness Version 2 (MAIA-2; 37 items on 8 scales) before and after their OMT appointment and at 1- and 3-week follow-up. All participants received OMT as part of usual care and OMT practitioners were blinded to individuals’ study enrollment status. We used descriptive statistics with 95% confidence intervals.

Results: A total of 42 participants enrolled in the study, 36 had complete data with blinding maintained and were included in the analyses, 19 were OMT-naive and 17 OMT-experienced. The OMT-experienced participants had significantly higher MAIA-2 scores for not-worrying (3.08 vs 2.41; \( P = .004 \)) and trusting (3.94 vs 3.14; \( P = .032 \)) at baseline. Further analysis is underway and will be ready for the conference presentation.

Conclusion: With integrative approaches to pain management such as OMT, interoceptive body awareness as measured by the MAIA-2, at baseline differs between OMT-naive and OMT-experienced individuals seeking OMT for pain management. These differences may predict treatment outcomes. Further data analysis is underway to better understand the relationship between OMT and body awareness as a potential mechanism of action in the therapeutic effects of OMT for pain management.

P04.04

A Systematic Review of Tuina for Irritable Bowel Syndrome: Recommendations for Future Trials

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Abstract

Purpose: This systematic review assessed whether Tuina (therapeutic massage) is more effective and safer than no
treatment or routine medical treatment for irritable bowel syndrome (IBS).

**Methods:** Ten databases (Pubmed, Embase, Cochrane library, CNKI, Wanfang, VIP, CBM, International Standard Randomized Controlled Trial Number Register, U.S. National Institutes of Health Ongoing Trials Register, and WHO International Clinical Trials Registry) were searched from their inception to June 2019 for randomized clinical trials of IBS diagnosed based on Manning or Rome criteria. Tuina with or without routine treatments (RTs) was tested against RTs. The Cochrane risk of bias was evaluated for each trial. RevMan 5.3 was used to conduct a meta-analysis.

**Results:** A total of 8 trials (5 IBS-diarrhea and 3 IBS-constipation) with 545 participants using 8 different manipulations were included. All trials were published in Chinese. For total effective rate (>30% improvement in overall symptom scores), Tuina showed certain advantages compared with RTs (6 trials, 393 patients, risk ratio [RR] 1.23, 95% confidence interval [CI] 1.03–1.45, I² = 64%), and Tuina in addition to RTs showed more effect than RTs (3 trials, 115 patients, RR 1.29, 95% CI 1.08–1.54, I² = 0) for IBS-diarrhea. All trials did not report adverse effect in relation to Tuina. Risk of bias was generally unclear across all domains.

**Conclusion:** This study shows that both Tuina alone and combined with RTs may be superior to RTs for IBS in total effective rate. Tuina plus RTs may have additional benefit for IBS-diarrhea. Due to the existing methodological issues and the heterogeneity of Tuina manipulation, current findings need to be confirmed in large scale, multicenter, and robust randomized trials (especially on outcome assessing blinding and allocation concealment).

**P04.05**

**Effects of Long-term Massage Therapy: A Case Study**

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**Abstract**

**Purpose:** Chronic pain affects 50 million people in the United States. National guidelines recommend a patient-centered practice. This includes the use of Complementary and Alternative Medicine. Massage therapy (MT) is on the pulse of national strategies to treat chronic pain. However, the literature on massage effects on chronic pain is limited at best. We present 3 cases of chronic pain and long-term MT.

**Methods:** A series of 3 patients indicated for MT each with a different chronic pain condition: complex regional pain syndrome, ankylosing spondylitis, and breast cancer present for MT. The therapist took a patient-centered perspective to guide treatment focus. Outcomes were measured empirically using goniometer measures to the problem areas before and after each session. For patient 1, cervical spine flexion and distance of temporomandibular joint to acromion process were measured across 68 sessions over 40 months, patients 2 were measured across 105 sessions over 26 months, patient 3 measured across 169 sessions over 25 months, both patients 2 and 3 were shoulder flexion.

**Results:** We found an overall effect of sessions on treatment outcomes, such that more sessions led to improvement, B = .024, t(557) = 7.59, P < .0001. This was more pronounced in Case 2 and less in Case 3; however, there were no statistically significant differences across cases or interactions with time in a model exploring these as fixed effects. There was moderate autocorrelation over time, which was controlled for in the statistical model, phi = .25. We also examined individual narratives of treatment for each patient.

**Conclusion:** Each massage session met patients at their pain narrative and engaged them in the decision process of their care. Long-term MT, a constant in the healing process, showed to have meaningful increases of joint mobility. Patient narratives complement these empirical findings by showing the need for more accessible interventions for chronic pain sufferers.

**P04.06**

**Massage for Symptom Management in Adult Inpatients With Hematologic Malignancies**

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**Abstract**

**Purpose:** Nonpharmacologic therapies such as massage are attractive adjunct treatments due to a low side-effect profile and have in the past proven useful in targeting a constellation of side effects frequently encountered in oncology patients.¹⁻¹¹ Although massage therapy often is used to treat musculoskeletal disorders, it also can be used to treat stress and anxiety, improve mood, induce relaxation, and control pain.

**Methods:** We designed a single-arm observational feasibility study of massage therapy in adults admitted to the bone
marrow transplant service at the University of California, San Francisco Medical Center between June 2017 and May 2018. An order set was created in the electronic health record (EHR) to make the service fully automated (Figure 1). An electronic consult order was placed in the EHR for any patient either requesting or agreeing to massage therapy when offered by a physician or nurse practitioner.

Results: Over an 11.5-month period, 109 patients received 142 massage treatments. We received surveys on 134 treatments. Of the 134 treatments, 71 (53%) were paired with both pre- and postmassage surveys completed. We performed both an adjusted and an unadjusted analysis of patient-reported symptoms and our anxiety–distress–fatigue–nausea composite outcome. Patients reported a statistically significant reduction in the composite outcome (\(1.16; 95\%\) confidence interval: 1.55 to 0.76; \(P < .001\)) in the analysis adjusted for patient demographics characteristics. This reduction in the composite scores seems primarily to be driven by reductions in anxiety (pre: 2.2 ± 3.2 vs post: 0.8 ± 1.6), fatigue (pre: 4.5 ± 3.1 vs post: 2.3 ± 2.9), and distress (pre: 2.1 ± 3.1 vs post: 0.6 ± 1.0).

Conclusion: Overall, there was a 64%, 49%, and 63% reduction in the reported symptom scores for anxiety, fatigue, and pain, respectively (Figure 2), and 73% of patients reported “better” or “much better” sleep the following night.

P04.08

Examining the Behavioral and Contextual Elements of Spinal Manipulative Therapy for Low Back Pain

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Abstract

Purpose: Low back pain (LBP) is associated with several maladaptive behaviors including overuse of medications, fear avoidance, and others. Complementary interventions like spinal manipulative therapies (SMT) are now recommended as alternatives to drugs and other invasive treatments for LBP. However, like most LBP interventions, research has yielded only modest treatment effects and has rarely addressed important behaviors and thus may not be reaching its full potential. Indeed, SMT in its clinical application includes contextual and behavioral elements that often go unrecognized. First steps for helping LBP patients shift to healthier pain behaviors requires identifying their needs, and the specific contextual and behavioral aspects of treatments, like SMT, they perceive as helpful/unhelpful.

Methods: A mixed methods analysis of a random sample of 60 deidentified qualitative interview transcripts from LBP patients collected alongside 6 federally funded randomized clinical trials investigating SMT will be performed. Transcripts will be analyzed deductively using an analytic framework informed by the Theoretical Domains Framework, Behavior Change Technique Taxonomy v1, and Template for Intervention Description and Replication.

Results: We will identify and describe LBP patients’ capability, opportunity and resource related needs, and the perceived helpful/unhelpful aspects of SMT, classified in terms of contextual and behavioral elements.

Conclusion: This project will be among the first to apply established behavioral models and contextual frameworks to SMT, expanding the currently limited understanding of its behavioral and contextual mechanisms. Understanding LBP patient needs and their perceptions of treatments, like SMT, from a behavioral and contextual perspective, are essential for understanding SMT’s mechanisms of action. This will provide important new generalizable knowledge about the role of SMT care for overcoming maladaptive pain behaviors, as well as how it could be enhanced to optimize care. This has potentially impactful long-term implications for research and translation of SMT to reduce the public health burden of LBP.

P04.10

Evidence-Based Diagnosis for Low Back Pain: Systematic Review and Terminology Recommendations

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Abstract

Purpose: Inconsistent terminology use and varied clinical evaluation occurs within and between professionals of clinical disciplines caring for persons with low back pain (LBP). The purpose of this systematic review is to evaluate current evidence for office-based diagnostic tests designed to inform working diagnoses for common conditions causing LBP and to recommend standardized terminology use across health-care disciplines.

Methods: A systematic review (Prospero#: CRD42018099106) was conducted from inception through December 2018. PubMed, MEDLINE, CINAHL, Cochrane, and Index to Chiropractic Literature databases were searched. Unpublished (gray) literature was also searched.
Two team members independently determined article eligibility via title, abstract, and full-text screening and by using Scottish Intercollegiate Guidelines Network checklists to assess methodological quality. Results of eligible systematic reviews and individual studies, not already included in those reviews, were described. Two team members separately abstracted and verified data.

Results: Initial searching revealed 3995 articles. After duplicate removal and eligibility screening, 36 (8 systematic reviews and 28 individual studies) were included. Diagnostic criteria identifying probable discogenic, sacroiliac joint, and zygapophyseal (facet) joint pain were obtained from studies using injection-confirmed provocation or anesthetic procedures. Radiculopathy and neurogenic claudication diagnostic criteria are supported by studies using expert-level consensus and imaging findings. Diagnostic criteria for myofascial pain, sensitization (central and peripheral), and radicular pain are supported by expert consensus-level evidence. Commonly, individual studies demonstrated risk for bias in reference standard and patient selection domains.

Conclusion: Current evidence suggests evidence-based criteria should be used to inform—working—rather than definitive diagnoses for LBP. We recommend differentiating nociceptive from neuropathic pain and identifying sensitization during the clinical evaluation. To avoid confusion created by unclear language observed within the scientific literature, we recommend researchers and practitioners adopt terminology consistent with International Association for the Study of Pain terminology.

P04.11

Evidence-Based Diagnosis for Low Back Pain: Office-Based Evaluation

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Abstract
Purpose: Low back pain (LBP) is often diagnosed as nonspecific, due to a lack of gold standard tests to differentiate between multiple potentially overlapping conditions, inconsistent psychosocial contributions to symptom perception and perpetuation, and limited understanding of causal mechanisms. However, nonspecific diagnoses do not identify aberrant physiology, differentiate or characterize symptoms, or otherwise inform care decisions. Guidelines recommend identifying select diagnoses such as radiculopathy, which has the practical effect of demanding differentiation from other LBP producing conditions. Establishing evidence-based working diagnoses for common causes of LBP potentially differentiates clinical presentations with similar characteristics and fosters communication with patients and between health professionals. The purpose of this presentation is to report an evidence-based diagnostic checklist and exam, designed to assist practitioners of multiple disciplines functioning at a primary spine care level in developing evidence-based working diagnoses.

Methods: An iterative process was used to update a previously developed diagnostic checklist and clinical exam. This process was informed by a systematic review of office-based diagnosis methods for common neuromusculoskeletal conditions causing LBP. The systematic review, which searched through published and unpublished literature from inception through December 2018, was conducted according to PRISMA guidelines, and was registered with PROSPERO (CRD42018099106).

Results: The diagnostic checklist and exam facilitate clinical evaluation by organizing and visually displaying evidence for or against working diagnoses, listing evidence-based diagnostic criteria and tests, and providing opportunity to record clinical findings. Conditions causing LBP from nociceptive signaling include discogenic, myofascial, sacroiliac, and zygapophyseal (facet) joint pain. Neuropathic pain encompasses neurogenic claudication, radicular pain, radiculopathy, and peripheral entrapment (piriformis and thoracolumbar syndrome). Sensitization occurs centrally and peripherally to augment nociceptive signaling.

Conclusion: A practical and evidence-based diagnostic process including an exam and checklist can be used to guide clinical evaluation and demonstrate evidence for working diagnoses for primary level spine care practitioners.

P04.12

Brain Function Network of Chinese Massage for Knee Osteoarthritis

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Abstract
Purpose: The aim is to observe the effects of massage therapy on brain function network in patients with knee osteoarthritis.

Methods: For 19 female patients with pain-related symptoms that met the diagnostic criteria for knee osteoarthritis, the unilateral knee with the heaviest pain was selected for 6 weeks of massage treatment. All acupuncture positioning was carried out with reference to the name and location of
the acupoint (the national standard GB/T12346-006 of China). The Numerical Rating Scale (NRS) and The Western Ontario and McMaster Universities Arthritis Index (WOMAC) were assessed at baseline, after the first treatment and after the sixth treatment as well as functional magnetic resonance imaging scanning.

**Results:** The age of 19 subjects ranged from 41 to 69 years, with a course of disease between 1 and 10 years. The most severely affected knees of each subject were chosen in the study and received the treatment. The NRS scores significantly decreased from the baseline, after first treatment to the sixth treatment as 5.26 ± 1.17, 3.08 ± 1.27, and 1.79 ± 1.00, respectively ($P < .001$). And the WOMAC index scores significantly decreased from the baseline, after first treatment to the sixth treatment as 23.37 ± 8.26, 21.79 ± 11.93, and 17.89 ± 13.41, respectively ($P < .05$). After first massage treatment, the hemisphere buckled back, middle of the forehead, the central anterior gyrus, and the medial side of the forehead changed; and after sixth massage treatment, the fusiform and sacral gyrus of the left hemisphere of the brain changed.

**Conclusion:** Tuina treatment can significantly improve the pain symptoms of knee osteoarthritis patients, and the degree of improvement is positively correlated with the number of treatments. Tuina can adjust the changes of pain-related brain function network, and the transient effects of single treatment and multiple times showed the cumulative effect after treatment.

**P04.13**

**Massage Therapy and Knee Osteoarthritis: A Conceptual Research Framework**

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**Abstract**

**Purpose:** Research indicates massage therapy is an effective nonpharmacological intervention for knee osteoarthritis (KOA) pain and dysfunction. However, the mechanisms underlying massage are largely unknown, thereby limiting the development and implementation of targeted massage interventions. Scientific advances have led to the development of a conceptual model of KOA pain which outlines key factors (eg, inflammation, central sensitization, depression), applicable to the investigation of massage-mediated improvements for KOA. Building upon this model, we sought to develop a framework that will guide future investigations of the mechanisms by which massage reduces pain and improves function in KOA, leading to the development of targeted nonpharmacological interventions for pain.

**Methods:** The research team conducted an iterative, in-depth literature review of PubMed, Web of Science, PEDro, CINAHL, PsycINFO, and Google Scholar databases using the key words: massage, knee osteoarthritis, arthritis, and chronic pain. Articles were screened according to factors identified in Kittelson’s conceptual model as important to KOA pain (eg, inflammation, central sensitization, muscle dysfunction, depression, and anxiety). Authors met monthly to review and compile articles based upon consensus.

**Results:** Ninety-one articles were identified as relevant to massage and the factors of KOA outlined in Kittelson’s conceptual model, with 15 specific to the effects of massage in KOA. Research suggests massage may impact KOA pain through multiple pathways, including alteration of inflammatory and neuroendocrine responses, improved pain modulation and decreased pain sensitivity, and improved muscle function, sleep, and psychological well-being.

**Conclusion:** The developed research framework reflects Kittelson’s KOA model and highlights multiple mechanistic pathways through which massage therapy may mediate KOA pain and will be used to guide future research efforts leading to the development of targeted therapeutic massage interventions. Additionally, this framework is applicable to other CIM interventions and may lead to an improved appreciation of key non-pharmacological treatment targets in adults with chronic musculoskeletal pain.

**P04.14**

**Massage and Maternal Anxiety: Feasibility Randomised Controlled Trial on the Effects of a Partner-Delivered Massage on Maternal Mental Health During Pregnancy**

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Abstract
Purpose: Symptoms of anxiety and stress during pregnancy are potentially harmful for mothers and their babies. This study aimed to explore the potential benefits of a partner-delivered relaxation-massage to decrease prenatal maternal anxiety.

Methods: A feasibility randomized controlled trial was conducted with low-risk pregnant women up to 32 weeks gestation. They were randomised to either a partner-delivered relaxation-massage group (intervention) or a self-directed stress-management program (control). After a 2-hour introductory workshop, women (and partners) independently undertook the assigned interventions for 4 to 12 weeks using manuals and DVDs. The primary outcome measure was feasibility (recruitment, attrition, and adherence to the intervention), and secondary outcomes included maternal anxiety, depression, and stress (DASS21); maternal and infant birth outcomes; and safety. Experiences with the massage intervention were captured by qualitative interviews following delivery.

Results: A total of 361 mostly partnered women were approached, out of which only 113 could be screened for eligibility. A total of 44 were recruited and randomized to either the intervention or control group but only 27 of 44 attended the workshops. The massage intervention was carried out once weekly on average and up to twice weekly closer to delivery. Symptoms of anxiety, stress, and depression significantly decreased over time, with no significant differences between groups. Birth outcomes were comparable between the groups. Women reported a benefit from massage of 77.7 ± 15.1 on a 100 mm visual analogue scale, and qualitative interviews with the women showed high satisfaction. No serious adverse events occurred.

Conclusion: The main barriers included slow recruitment and initial high attrition. Once women attended the interventions they were highly satisfied with the intervention. Despite the benefits, however, the massage program was not superior to a self-directed stress management program. Overall, a partner-delivered massage intervention appears to be feasible and safe. Further studies are necessary to examine the benefits of such intervention more closely.

P04.15
Pain Occurrence Collected via Weekly Text Message Over 1 Year in a Pragmatic Trial Evaluating Chiropractic Care for Low Back Pain in Military Members

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Abstract
Purpose: The use of SMS text messages to collect weekly or monthly data provides opportunity to study symptom variation for chronic or episodic problems such as low back pain (LBP). We explored this in 140/750 active-duty military participants with LBP enrolled in a pragmatic, clinical trial conducted to compare usual medical care plus chiropractic care (UMC+CC) to UMC alone. The objective of this subgroup analysis was to describe LBP frequency collected by text message over 1 year.

Methods: After 6 weeks of care, 140 participants were sent weekly text messages through 1 year asking the number of days with LBP (0–7). The analysis included only the 103 (74%) who responded to at least 80% of texts over the 46-week period. We calculated the median number of pain days per week and number of weeks with 0 pain days separately for participants with acute (<1 month) and chronic (>3 months) LBP for both groups.

Results: Mean age was 34 years (18–50), 23% were women, and 25% were nonwhite. There were 56 participants in UMC+CC and 47 in UMC with approximately 45% acute and 45% chronic LBP. The median number of pain days per week in UMC+CC was 2.7 versus 4.2 in UMC for acute LBP and 4.2 versus 5.6 for chronic LBP. The median number of weeks with 0 pain days in UMC+CC was 5.0 versus 1.0 in UMC for acute LBP and 0 for chronic LBP in both groups.

Conclusion: These preliminary results show that the addition of chiropractic care to usual medical care resulted in a difference of more than 1 fewer pain days per week for participants with both acute and chronic LBP and 4 additional weeks with 0 pain days for participants with acute LBP. Further research is needed to investigate the robustness of these findings.
Tuina-Based Versus Physical Manual Therapy-Based Program for the Knee Pain of Osteoarthritis: A Pilot Randomized Controlled Study

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Abstract

Purpose: Chinese massage (Tuina) has not previously been compared with physical manual therapy for patients with osteoarthritis (OA) of the knee. The purpose of this study was to compare outcomes between a Tuina-based physical therapy (TPT) program and a manual-based physical therapy (MPT) program.

Methods: Sixty-six subjects with OA of the knee were randomly assigned to a TPT group (n = 33; 81.8% females, 18.2% males; mean age ± SD = 70.4 ± 11.3 years) or an MPT group (n = 33, 78.8% females, 21.2% males; mean age ± SD = 66.2 ± 11.3 years). Subjects in the TPT group received Tuina, education, and self management and a home exercise program 10 sessions in total over a 3-week period. Subjects in the MPT group received physical manual therapy, education and self management, and a home exercise program 10 sessions in total over a 3-week period. Measured outcomes were the time walked in 20 m, Numerical Rating Scale on pain (NRS-P), the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), and Short Form (SF)-12 questionnaire at baseline, 4th, and 16th week.

Results: Both groups showed clinically and statistically significant improvements in 20-m walk time, NRS-P, SF-12 and WOMAC scores at 4 weeks; improvements were still evident in both groups at 16 weeks. By 4 weeks, WOMAC scores had improved by 50.42% in the TPT group and by 37.16% in the MPT group; NRS-P scores had improved by 66.56% in the TPT group and by 38.84% in the MPT group. At 16th week, both groups were substantially and about equally improved over baseline measurements. Subjects in the TPT treatment group were more satisfied with the overall outcome of their rehabilitative treatment compared with subjects in the MPT group.

Conclusion: The results indicate that a Tuina-based program for patients with OA of the knee provides important benefit at end of the 4-week treatment and the improvement can last for 3 months.

Effects of a Healing Touch Intervention in Postcardiac Event Patients Prior to Starting Cardiac Rehabilitation

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Abstract

Purpose: Having a major cardiovascular event can be life altering and stressful—both physically and psychologically. In accordance with national guidelines, cardiologists routinely recommend cardiac rehabilitation (CR) after major cardiac events, although patients often experience delays prior to starting CR programs. Healing touch (HT) is a noninvasive, complementary approach to healing comprised of gentle touch in a relaxing environment that draws on energy fields surrounding the body to restore harmony and balance. This randomized, controlled study sought to examine the effects of HT on quality of life (QoL), biometric fitness, mental well-being, and CR program attendance in postcardiac event patients.

Methods: After providing informed consent, adults referred to CR programs between 2016 and 2019 were randomized and completed fitness assessments, Dartmouth Quality of LifeQoL surveys, and SF-36 health questionnaires. The experimental group received 6, 60-minute HT treatments over 3 weeks before starting CR. The control group received standard-of-care without HT. Attendance and metabolic equivalents (METs) were assessed throughout the 12-week program, and baseline surveys were repeated upon completion.

Results: Compared to baseline, post-CR assessments across the 73 (39 M, 34 F) participants (37 experimental and 36 control) yielded significant (P < .001) differences in QoL, physical health, mental health, and METs in both groups. Between-groups analyses showed significantly greater CR attendance (36 vs 32 sessions) and significantly higher METs achieved (78.6% mean increase vs 61.3% mean increase) in the experimental versus control group, respectively. On average, those who received HT had more substantial increases in QoL compared to controls over the 12 weeks. Mean body mass index (BMI) also slightly decreased in both groups (−1.7% BMI in experimental; −2.5% BMI in controls).

Conclusion: Results reinforce HT’s safe and therapeutic capacity to reduce anxiety, improve QoL, and support healing in postcardiac event patients. Future longitudinal studies must evaluate whether physical and psychological improvements are sustained after HT and CR completion.
P05.01

Stakeholder Perspectives on Web-Based Delivery of Yoga for Young Adult Cancer Survivors

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Abstract
Purpose: Yoga has potential to improve symptoms (eg, anxiety, sleep disturbance, fatigue) that are common in young adult cancer survivors (YACS), but few yoga trials include YACS. Furthermore, illness and lack of instructors with cancer-specific training can limit community-based access to yoga. Web-based delivery may help to close these gaps, especially for young adults, who are adept internet users. We therefore aim to develop and evaluate online yoga classes for YACS using a stakeholder-engaged approach.

Methods: Using web-based videoconferencing, we conducted interviews with yoga instructors who have experience teaching yoga to adults with cancer (n = 7) and separate focus groups with YACS with a range of yoga experience (n = 7). We then conducted thematic analysis to identify participants’ views on how yoga may benefit YACS and how it may be delivered safely and effectively online.

Results: YACS discussed the limitations of attending public yoga classes not designed for people with cancer. Additional themes from both yoga instructors and YACS include cancer as trauma, rebuilding strength and confidence in the body, relaxation and soothing, coping with noncancer-related stressors, and connecting with a community of fellow YACS. Recommended practices to address these themes include yoga nidra, postures and meditations designed to increase grounding and heart-opening, and group discussions.

Conclusion: Yoga techniques may address YACS’ psychosocial, physical, and existential concerns. Live, web-based delivery has potential to facilitate YACS’ access to yoga and connection with community. Ongoing research will further develop our understanding of YACS’ needs and evaluate the feasibility and efficacy of online yoga classes to meet these needs.

P05.02

Yoga in Women With Abdominal Obesity—Do Lifestyle Factors Mediate the Effect? Secondary Analysis of a Randomized Controlled Trial

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Abstract
Purpose: The reduction of obesity is an important challenge for health policy. Although dietary interventions are widely available, patient adherence is usually low. A possible alternative is yoga which is a promising way to reduce weight. We hypothesized that weight reduction through yoga may be mediated by several lifestyle factors.

Methods: This is an exploratory secondary analysis of a randomized controlled trial comparing the effects of yoga to waiting list in women with abdominal obesity. Body mass index (BMI) and waist circumference were assessed as outcomes; exercise habits, physical activity, and healthy nutritional habits were considered as potential mediating variables. To analyze the mediating effects, the procedure recommended by Hayes was followed. Effects were estimated using a bootstrap sampling procedure with 20,000 resamples using z-standardized change scores. Separate analyses were undertaken for each independent variable. Point estimates and 95% bias-corrected confidence intervals (CIs) were calculated.

Results: Mediating effects on BMI were found for physical exercise habits (95% CI; −0.56 to −0.07) and daily fruit and vegetable intake (95% CI; −0.38 to −0.01). Furthermore, a significant mediating effect was found if both variables were included in a multiple mediator model (95% CI; −0.74 to −0.13). In contrast, there was no evidence for mediating effects in the model containing the lifestyle variables and a change in waist circumference.

Conclusion: Within this secondary analysis of a randomized controlled trial, we showed that the positive effect of yoga on the BMI is mediated through patients’ vegetable and...
fruit intake as well as patients' physical exercise habits. Yoga thus seems to promote a healthier lifestyle.

**P05.03**

**A Positive Response to Nonpharmacological Therapies in Patients With Fibromyalgia**

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**Abstract**

**Purpose:** Identifying the factors associated with response to nonpharmacological therapies in patients with fibromyalgia will help personalize treatments and provide information to improve design and interpretation of future research. We used data from a large comparative effectiveness trial of Tai Chi versus aerobic exercise to investigate baseline characteristics associated with clinical response at 24 weeks in fibromyalgia patients.

**Methods:** Participants were assigned to aerobic exercise (2 ×/week for 24 weeks) or 1 of 4 Tai Chi interventions (1 × or 2 ×/week for 12 or 24 weeks). Results from the trial showed that all treatment groups demonstrated improvement in the revised fibromyalgia impact questionnaire (FIQR) scores, but the combined Tai Chi groups improved significantly more at 24 weeks than the exercise group. We used a minimally clinically important difference of 14% (8.1 units) on a 0 to 100 FIQR scale as response criteria. We performed a multivariable analysis to investigate baseline variables (demographics, physical performance, outcome expectancy, self-efficacy, and other psychosocial factors) associated with positive response.

**Results:** Mean age of the 181 participants was 52 years, 92% were females, average body mass index was 30 kg/m², and average duration of body pain was 12.4 years. Mean FIQR at baseline was 55.5. There were 108 participants (60%) who responded to either treatment. When the 6 variables which were significant (P < .10) in the univariate analyses were included in the multivariate analysis, only FIQR remained significant. Having a higher FIQR score or greater impact of symptoms was significantly associated with clinically meaningful improvement at 24 weeks (P = .01). Response did not significantly differ by treatment.

**Conclusion:** Individuals with fibromyalgia who had more severe symptoms seem to experience greater clinical improvement from Tai Chi or aerobic exercise than those who are less impacted by their condition. More studies are warranted to confirm whether other clinical variables may be associated with positive response.

**P05.04**

**Changes in Perceived Stress After Yoga, Physical Therapy, and Education Interventions for Chronic Low Back Pain: A Secondary Analysis of a Randomized Controlled Trial**

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**Abstract**

**Purpose:** Psychological stress and musculoskeletal pain are common, especially in low-income populations. Studies evaluating treatments to reduce stress in patients with chronic pain are lacking. Given the potentially bidirectional relationship between perceived stress and pain, we aimed to quantify the effect of 2 evidence-based chronic low back pain (cLBP) interventions, yoga and physical therapy (PT), on perceived stress in adults with cLBP.

**Methods:** A predominantly low-income and racially diverse sample (n = 320) was randomized to 12-week yoga, PT, or education interventions. We compared changes in the 10-item perceived stress scale (PSS-10) from baseline to 12- and 52-week follow-up among yoga and PT participants to those receiving education. Subanalyses were conducted for participants with elevated pre-intervention perceived stress (PSS-10 score ≥ 17). We conducted sensitivity analyses using various imputation methods to account for potential biases in our estimates due to missing data.

**Results:** Among 248 participants (mean age = 46.4, 80% nonwhite) completing all 3 surveys, yoga and PT showed greater reductions in PSS-10 scores compared to education at 12 weeks (mean between-group difference, −2.6 [95% CI, −4.5 to −0.66] and −2.4 [CI, −4.4 to −0.48],
respectively). This effect was stronger among participants with elevated pre-intervention perceived stress for both yoga and PT (mean between-group difference, $-3.4$ [CI, $-6.0$ to $-0.77$] and $-3.2$ [CI, $-6.0$ to $-0.54$], respectively). Results were similar at 52 weeks and in sensitivity analyses. **Conclusion:** Among lower income adults with chronic low back pain, we found that yoga therapy and physical therapy were more effective than back pain education for reducing perceived stress. A bidirectional relationship between perceived stress and chronic pain suggests that optimal treatment for certain patients with musculoskeletal pain may include a stress management component.

**P05.05**

**Mindfulness-Based Intervention (Moment-by-Moment in Women’s Recovery) Effects on Substance Use and Relapse Among Women in Long-term Residential Treatment: A Randomized Controlled Trial**

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**Abstract**

**Purpose:** This trial endpoint analysis tests the efficacy of a mindfulness-based intervention (Moment-by-Moment in Women’s Recovery [MMWR]) on substance use and relapse among women enrolled in long-term residential treatment.

**Methods:** This parallel-group randomized controlled trial (NCT02977988) conducted from 2016 to 2018 was designed to compare substance use and relapse among N = 200 women diagnosed with SUD in residential treatment. Participants were randomly assigned to 1 of 2 study conditions as adjuncts to their residential SUD treatment: (1) a mindfulness-based intervention (MMWR) or (2) neurobiology of addiction (NA), with the latter serving as the psychoeducational control condition. Baseline interviews occurred prior to randomization and follow-up interviews were held approximately 8 months after the study intervention start date. All participants received SUD treatment services as normally provided by the treatment facility without affecting the level of usual care provided to patients. Trained study staff interviewed participants using the Timeline Followback (TLFB) measure, a calendar-based validated semi-structured interview measure of daily substance use. This allowed for the quantification of daily substance use from the study intervention start date to study endpoint 8 months later. From the TLFB, we quantified study outcomes as (a) time to first use for any drugs or alcohol intoxication; (b) days of use; and (c) relapse status categorized as abstinence (did not use during the time period), lapse (used after intervention but did not revert to regular use on one-third or less of days from first use), and relapse (continued to use regularly on more than one-third of days from first use to follow-up).

**Results:** We will test study group differences in (1) time to first use with piecewise Cox proportional hazard models, (2) days of use with negative binomial hurdle models, and (3) relapse status with multinomial logistic regression.

**Conclusion:** Positive results will support the use of mind–body practices in SUD residential treatment facilities.

**P05.06**

**Relationships Between Food Insecurity Status, HEI Scores, and ADHD Symptom Severity in a Pediatric ADHD Population**

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**Abstract**

**Purpose:** Food insecurity occurs in 13.9% of households with children in the United States, and the chance of being diagnosed with Attention Deficit Hyperactive Disorder (ADHD) is nearly 6 times greater in food insecure households. Yet, few studies exist exploring this relationship, particularly from the perspective of dietary patterns and nutrient intake. The purpose of this study is to explore relationships among food insecurity status, Healthy Eating Index (HEI) scores, and ADHD symptom severity in a pediatric ADHD population.

**Methods:** These data were collected as part of baseline assessments from a clinical trial investigating an alternative treatment for ADHD in children ages 6 to 12 years (n = 91). Household food security status was assessed using the 18-Item US Household Food Security Survey, and symptom severity of ADHD was assessed using the Child and...
Adolescent Symptom Inventory-5 questionnaire. HEI scores were calculated by administering the Vioscreen Food Frequency Questionnaire. Statistical analyses included 1-way analysis of variance and Wilcoxon Rank Sum tests when appropriate for model assumptions.

**Results:** Children in food insecure households (n = 8) scored higher in hyperactivity symptoms than food secure children (n= 83) (P = .050). The mean cohort total HEI score was 64.7 (SD 9.25), which is higher than reported for the general population of similar age. Children from food insecure households reported decreased HEI score for intake of fatty acids (P = .008) and increased HEI score for empty calorie consumption (P = .036).

**Conclusion:** Results demonstrate that relationships may exist between severity of symptoms of ADHD and dietary quality as measured by HEI scores in food insecure households. Future analyses should test for existing dietary patterns outside of HEI scores in relationship to food insecurity and ADHD symptoms.

**Impact of Tai Chi and Mind–Body Breathing in Chronic Obstructive Pulmonary Disease: Insights From a Qualitative Substudy of a Randomized Controlled Trial**

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**Abstract**

**Purpose:** Prior research suggests that mind–body interventions may support maintenance of healthy behaviors and improve health-related quality-of-life and self-efficacy. We sought to qualitatively explore cognitive, psychosocial, and behavioral factors in patients with chronic obstructive pulmonary disease (COPD) who participated in mind–body interventions.

**Methods:** The parent study was a 3-arm prospective, randomized controlled trial (N = 123) investigating 12-weeks Tai Chi (TC) versus mind–body breathing (MBB) versus education (EDU) control in patients with moderate-severe COPD. TC involved traditional movements and meditative breathing, while MBB focused mainly on meditative breathing. Semistructured interviews were conducted with all participants at 12 weeks. Qualitative analysis of 65 randomly selected transcripts (N = 22 TC, N = 22 MBB, N = 21 EDU) was performed by 2 independent reviewers using an iterative process to identify emergent themes informed by grounded theory methods.

**Results:** Our population had mean age = 68.1, GOLD stage = 2.3. We identified 6 topic areas (awareness, cognitive beliefs, physical well-being, psychological well-being, social functioning/support, and behavior change) frequently mentioned. Compared to EDU, more participants in TC and MBB noted improvements in physical function (eg, better breathing, able to mow lawn, ride bike), awareness of self/self-care (eg, “in tune” with body, awareness of condition, how to take care of themselves), ability to regulate emotions (eg, decreased emotional reactivity, decreased anxiety/stress/frustration), and symptom management (eg, utilizing breathing techniques, pacing). More participants in TC, in particular, expressed cognitive improvements related to executive function (eg, decision-making, planning/setting intentions to continue self-care, physical activity). Those in TC also reported improvements in the ability to break cycles of anxiety and breathlessness, and reduce need to use rescue medications.

**Conclusion:** Both TC and MBB improved management of emotional and physical symptoms in COPD, supporting existing research. TC had a particularly positive impact on intention and planning to continue physical activity and self-care management, which may be important for long-term adherence and healthcare engagement.

**Effect of Audio-Visual Brain Entrainment on Mood and Quality of Sleep: A Pilot Trial With University Students**

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**Abstract**

**Purpose:** Prior research suggests that mind–body interventions may support maintenance of healthy behaviors and improve health-related quality-of-life and self-efficacy. We sought to qualitatively explore cognitive, psychosocial, and behavioral factors in patients with chronic obstructive pulmonary disease (COPD) who participated in mind–body interventions.

**Methods:** The parent study was a 3-arm prospective, randomized controlled trial (N = 123) investigating 12-weeks Tai Chi (TC) versus mind–body breathing (MBB) versus education (EDU) control in patients with moderate-severe COPD. TC involved traditional movements and meditative breathing, while MBB focused mainly on meditative breathing. Semistructured interviews were conducted with all participants at 12 weeks. Qualitative analysis of 65 randomly selected transcripts (N = 22 TC, N = 22 MBB, N = 21 EDU) was performed by 2 independent reviewers using an iterative process to identify emergent themes informed by grounded theory methods.

**Results:** Our population had mean age = 68.1, GOLD stage = 2.3. We identified 6 topic areas (awareness, cognitive beliefs, physical well-being, psychological well-being, social functioning/support, and behavior change) frequently mentioned. Compared to EDU, more participants in TC and MBB noted improvements in physical function (eg, better breathing, able to mow lawn, ride bike), awareness of self/self-care (eg, “in tune” with body, awareness of condition, how to take care of themselves), ability to regulate emotions (eg, decreased emotional reactivity, decreased anxiety/stress/frustration), and symptom management (eg, utilizing breathing techniques, pacing). More participants in TC, in particular, expressed cognitive improvements related to executive function (eg, decision-making, planning/setting intentions to continue self-care, physical activity). Those in TC also reported improvements in the ability to break cycles of anxiety and breathlessness, and reduce need to use rescue medications.

**Conclusion:** Both TC and MBB improved management of emotional and physical symptoms in COPD, supporting existing research. TC had a particularly positive impact on intention and planning to continue physical activity and self-care management, which may be important for long-term adherence and healthcare engagement.
Abstract

Purpose: The study objective was to investigate the effect of the Audio-Visual Brain Entrainment (ABE) on Mood and Quality of Sleep of university students.

Methods: The study was conducted at the Laboratory of Experimental Neuroscience, University of Southern Santa Catarina, Brazil, and the protocol was approved by the Institutions Ethics committee. Informed consent forms were obtained during patient screening phase of the study at the site of the tests. Sample size consisted of 7 university students (4 males and 3 females. Ages between 20 and 58 years who were not making use of analgesics, anti-inflammatories, or sleep aids 7 days prior to, as well as during the study, and who had no hearing disabilities. ABE was delivered with a BrainTap headset (New Bern, North Carolina) in 20-minute sessions 3 times a week for 6 weeks. Session consists of binaural beats at 18 to 0.5 Hz, isochronic tones at 18 to .0.5 Hz and visual Entrainment through light-emitting diode lights at 470 nm flickering at 18 to 0.5 Hz. The following questionnaires were applied at baseline and after 6 weeks: Epworth Sleepness Scale—Daytime sleepiness, Insomnia Severity Index (ISI), Pittsburgh Quality of Sleep Index (PQSI), Depression Anxiety and Stress Scale (DASS-21), and Perceived Stress Scale (EPS-10).

Results: ABE effectively reduced ISI (data not statistically significant), PQSI ($P < .05$), DASS-21 (data not statistically significant), and EPS-10 (data not statistically significant). The participants reported feeling very relaxed during the sessions.

Conclusion: Despite the reduced sample size ($n = 7$), results indicate that ABE significantly increased quality of Sleep of university students (PQSI $P < .05$). A larger sample size study is necessary to confirm and extend the effects of ABE on mood.

P05.09

Effects of Mindfulness on Emotional Well-being Among Older Adults: Reduced Perceived Stress and Negative Affect Variability as Candidate Mechanisms

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Abstract

Purpose: The cognitive theory of stress suggests that 2 factors contribute to an individual's stress susceptibility: variability in appraisal of the stressor (perceived stress) and the affective response to the stressor (negative affect). Negative affect variability (NAV), the within-person variation of negative affect over time, contains unique information relevant to well-being. NAV is directly linked to most mood disorders and associated with elevated stress levels. Dispositional mindfulness, however, has been associated with increased emotional well-being and reduced perceived stress, negative affect, and negative affect variability. This study investigated if perceived stress and NAV are candidate mechanisms by which mindfulness improves emotional well-being among older adults using ecological momentary assessment.

Methods: In a cross-sectional study, 134 mildly to moderately stressed 50- to 85-year-olds completed self-report measures of emotional well-being, dispositional mindfulness, and perceived stress. Participants were then given a pre-programmed handheld device that sounded an alert up to 4 times a day, for 2 days, signaling participants to answer questions regarding their current negative affect. The standard deviation of the 8 negative affect means, gathered over the 2 days, was used to measure daily fluctuation in NAV. Pearson's correlations characterized relationships between variables. A path analysis was conducted to partition the variance among variables.

Results: Bootstrapping analyses indicated a significant indirect effect of mindfulness on emotional well-being through perceived stress and NAV (confidence interval [CI] = .0003 to .052) but not a significant indirect effect of mindfulness on emotional well-being through NAV only (CI = −.0266 to −.0779).

Conclusion: The pattern of appraisal and affective reactivity may be particularly salient in shaping psychophysiological responses to stress and likely plays a prominent role in age-related processes and disease. Mindfulness may decouple this pattern of appraisal and negative affect reactivity and variability, leading to greater stress resilience and emotional well-being.

P05.10

Patterns of Respiration Rate Reactivity in Response to Cognitive Stress Associated With Self-reported Wellness and Resilience

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Abstract

Purpose: Resilience is characterized as the capacity to utilize the stress response for optimal performance, with minimal psychophysiological costs. Both exaggerated and
blunted stress reactivity, specifically cardiovascular and cortisol reactivity, have been associated with reduced self-reported resilience and increased depression. Less is known about stress reactivity of respiration rate and its associated psychological correlates. This study examined respiration rate (RR) reactivity in response to cognitive stress and evaluated psychological correlates.

**Methods:** In a cross-sectional study, 64 adults completed self-report measures of resilience, dispositional mindfulness, perceived stress, depression, and sleep quality. Participants then completed 3 tasks: baseline period, breath counting, and a cognitive stress test (Portland arithmetic Stress Test [PAST]). RR was measured continuously throughout the tasks using a light elastic piezoelectric belt and assessed in BrainVision Analyzer. Participants that increased their respiration rate by 2 breaths per minute during the PAST were identified as responders, whereas participants who demonstrated a blunted respiration response (less than an increase of 2 breaths per minute) were identified as nonresponders. Two sample t tests compared means of the self-reported measures between the 2 groups.

**Results:** Compared to nonresponders (n = 19), responders (n = 34) were associated with greater mindfulness (P = .02), enhanced sleep quality (P = .03), and less depression (P = .01) and perceived stress (P = .007). No significant differences in self-reported resilience were revealed (P = .12). Average increase in RR during the PAST was strongly correlated to a decrease in RR during breath counting, relative to baseline (r = .81).

**Conclusion:** Findings provide more evidence that a blunted stress response, as measured by an absence of a stress-induced increase in RR, may be associated with reduced well-being, and potentially, reduced resilience. Furthermore, responder status may be indicative of a pattern in which the individual can reduce RR under favorable conditions but appropriately respond to the initiation of stress.

**P05.12**

**A SMART Approach to Reducing Atrial Fibrillation Symptoms**

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**Abstract**

**Purpose:** Atrial fibrillation (AF) is the most common cardiac arrhythmia. In patients with paroxysmal atrial fibrillation (PAF), acute stress and negative emotions increase the...
P05.13

Phone-Delivered Mindfulness Training to Promote Medication Adherence and Reduce Sexual Risk Behavior Among Persons Living With HIV: An Exploratory Clinical Trial

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Abstract

Purpose: This study sought (1) to explore whether telephone-delivered mindfulness training (MT) was feasible and acceptable for people living with HIV (PLWH) and (2) to obtain preliminary evidence of MT’s effects on medication adherence and sexual risk behavior.

Methods: Participants (N = 50 PLWH; 50% female; M age = 47.5 years) were randomized to either MT or to health coaching (HC), a time- and attention-matched control group. Both MT and HC were administered during 8 weekly phone calls by trained interventionists. At baseline, postintervention, and at 3-month follow-up, we assessed (a) adherence to ART (self-report, unannounced phone pill counts, viral load), (b) sexual risk behavior (self-report, incident sexually transmitted infections), and (c) hypothesized mediators of MT’s effect (mindfulness, anxiety, depressive symptoms, stress, and impulsivity). At postintervention and follow-up, we conducted qualitative interviews to obtain patient feedback about their experiences in the study.

Results: Fifty-five percent of the MT patients completed at least half of their calls, whereas 86% of HC patients did (P = .025); on average, MT patients completed 4.5 sessions, whereas HC patients completed 5.6 sessions. Most patients (MT = 88%, HC = 87%) reported satisfaction with their intervention. Within-group analyses showed that patients in MT and HC reported improvements in medication adherence, mindfulness, and protected sexual events as well as reductions in anxiety, depressive symptoms, perceived stress, and impulsivity over time; however, no between-groups differences were observed.

Conclusion: MT was generally well accepted but did not appeal to all patients. HC was more universally feasible and accepted by patients. MT and HC helped patients equivalently. Continued research with larger samples is needed to determine the magnitude and durability of these improvements and to identify which patients are most likely to benefit.

P05.14

A 3-Day Yoga-Based Program for Education Professionals Improves Psychological Health: A Pragmatic Randomized Controlled Trial

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Abstract

**Purpose:** The purpose of this controlled trial was to examine changes in psychological health in education professionals that attended a residential 3-day yoga and mindfulness-based program.

**Methods:** The 3-day yoga and mindfulness-based RISE (Resilience, Integration, Self-awareness, Engagement) program was administered at the Kripalu Center for Yoga & Health. Education professionals recruited from the Pittsfield Massachusetts school district were pragmatically assigned to the RISE or waitlist control group. Self-report measures of psychological health were completed before (baseline), after (post), and 2 months after RISE (follow-up). Thirty participants (RISE n = 9, control n = 21) completed baseline and post measures and were included in the analysis.

**Results:** Relative to the control group, the RISE group exhibited improvements in positive affect (P = .033), negative affect (P = .044), mindfulness (P = .001), empowerment (P = .022), self-compassion (P = .001), work engagement (P = .002), and sleep quality (P = .027) from baseline to post. At the follow-up, RISE participants exhibited improvements in stress (P = .008), negative affect (P = .013), mindfulness (P = .001), empowerment (P = .007), self-compassion (P = .001), and sleep quality (P = .025) compared to waitlist controls. After the waitlist control group attended RISE, they showed improvements in resilience (P = .042), positive affect (P = .017), mindfulness (P = .002), empowerment (P = .008), self-compassion (P = .004), and work engagement (P = .018) compared to baseline, and improvements in resilience (P = .031), mindfulness (P = .016), empowerment (P = .018), self-compassion (P = .049), and exhaustion (P = .046) at the follow-up compared to baseline.

**Conclusion:** These findings suggest that the RISE program improves multiple measures of psychological health in education professionals immediately following the program and 2-months following. More research is needed to investigate longer term changes following RISE.

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Efficacy of a 3-Day Residential Yoga-Based Program for Education Professionals

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A Qualitative Evaluation of the Subjective Experience of Receiving a Reiki Session

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Abstract

**Purpose:** The purpose of this study was to examine the qualitative experience of individuals receiving Reiki at private practices throughout the United States.

**Methods:** This study is the qualitative aspect of a large-scale study that showed that a single session of Reiki improved quantitative measures of psychological and physical health symptoms. Trained and certified Reiki Masters (N = 99) conducted Reiki sessions in person at their private practice, with each session lasting between 45 and 90 minutes. For the qualitative aspect of the study, Reiki Masters’ clients were asked to indicate why they were seeking the Reiki session and to describe what they experienced during the session. A random sample of 50 reports was extracted from the total sample (N = 1284) to identify emergent themes using a grounded theory approach.

**Results:** Reiki clients (N = 50) reported that they sought the Reiki session for symptom relief, relaxation, to improve emotional and physical health, and/or curiosity. Qualitative analysis using grounded theory revealed 7 major themes of the Reiki experience: (1) deep relaxation, (2) mental clarity and peace, (3) positive emotions and emotional healing, (4) altered perceptions, (5) spiritual experience or journey, (6) deep breathing, and (7) symptom relief. With respect to the theme of positive emotions and emotional healing, individuals experienced feelings of love, peace, and happiness, and felt as if they had a deep emotional healing. Subthemes for the altered perceptions were visual perceptions such as color and light; body sensations including floating, twitching, waves of energy, tingling, heat/warmth; and changes in the perception of time.

**Conclusion:** These findings suggest that Reiki facilitates eliciting the relaxation response and alters emotions and perception in such a way as to facilitate a healing experience. Future research will compare the experience of Reiki to sham Reiki and other mind-body and bioenergetic healing practices such as qigong.

P05.17

**Examining the Psychometric Properties of the Five Facet Mindfulness Questionnaire Across Racial and Ethnic Groups**

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Abstract

**Purpose:** Little research has been conducted to assess multicultural considerations in measuring mindfulness. The purpose of this cross-sectional study was to investigate the psychometric properties of the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008) across different racial and ethnic groups (Black/African American n = 63; White n = 74; Asian American n = 24; Hispanic/Latinx n = 36).

**Methods:** Differences in FFMQ mean scores between racial/ethnic groups were compared using a 1-way analysis of variance (ANOVA). Reliability for each racial/ethnic group was assessed using Cronbach’s alpha, and convergent validity was examined using Pearson zero-order correlations between the FFMQ and the Satisfaction with Life Scale (SWLS; Diener et al., 1985), the Brief Resilience Scale (BRS; Smith et al., 2008), and subscales of the DASS (Depression, Anxiety, and Stress Scale; Osman et al., 2012).

**Results:** One-way ANOVA results indicated no differences across racial/ethnic groups (F(3, 193) = 2.60, P = .054). FFMQ Cronbach alpha for each group is as follows: Black/African American, α = .80; White, α = .84; Asian American, α = .81, and Hispanic/Latinx, α = .53. Statistically significant correlations between the FFMQ and conceptually related measures was as follows: Black/African American (BRS, r = .53, P < .001; Depression, r = −.396, P = .014; Stress: r = .37, P = .003); White (SWLS, r = −.34, P = .003; BRS, r = .68, P = .000; Depression: r = −.52, P < .001; Anxiety: r = −.42, P < .001; Stress, r = −.398, P < .001); Asian Americans (SWLS, r = −.41, P = .048; BRS, r = −.50, P = .014; Depression: r = −.44, P = .030); and Hispanic/Latinx (BRS, r = .45, P = .006; Depression, r = −.62, P < .001; Anxiety, r = −.480, P = .003; Stress, r = −.53, P = .001).

**Conclusion:** Future studies should examine the FFMQ among different racial identities to further explore multicultural differences. The low reliability found within the Hispanic/Latinx group suggests that large-sample examination of the FFMQ among this population is necessary.

P05.18

**The Construct Validity of the Pentatomic Scale Body Constitution in Chinese**

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Abstract

**Background:** Traditional Chinese Medicine (TCM) practiced body constitution (BC) theory in diagnosing, treating,
and preventing disease. Pentatonic Scale Body Constitution (PSBC) was first recorded in Yellow Emperor’s Canon of Medicine, which classified BC types as Gong, Shang, Jue, Zhi, and Yv according to personality, body shape, and phonetic feature. Patient-Reported Outcomes (PROs) are recommended as one of the supplement measurements for TCM practice. This study aimed to collect the construct of PSBC by the expert panel and confirm the needs of a new construct of PSBC.

Methods: Three rounds Delphi data collection in the expert panel of 7 was conducted for reaching consensus on 78 items containing personality, body shape, demographics based on ancient literature. To confirm the content validity, a cognitive debriefing interview in 10 CMPs and 10 layman subjects with representative ages and genders were used. Twenty pieces of transcription were recorded by verbatim and to ensure interpretation of context of Cantonese was appropriate.

Results: Delphi confirmed the PSBC scales including the 3 domains of personality (35), body shape measurement (10) and demographics (33). Cognitive debriefing reached the Content validity index (CVI) of 80% to 100% on clarity, relevance, and appropriateness of PSBC scales. Two items were modified and response options were improved with visualization aid to facilitate good respond.

Conclusion: This is the first study to explore the meaning of PSBC with ancient literature and expert opinion in the standardization of framework in the new construct of auscultation of PRO development in Chinese. The construct and content were confirmed by Delphi study and the cognitive debriefing interview that showed highly feasible of incorporating auscultation and inquiry in a PRO items measurement. The literature understanding of voice, sound and music are the necessary knowledge supporting to PSBC study. Further scoring algorithm is needed to explore the psychometric properties of PSBC in TCM application.

P05.19

A Community-Based Trial of Mindfulness for Physical Activity in Older Adults: A Pilot Study Applying a Behavioral and Translational Intervention Mapping Approach

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Abstract

Purpose: Engaging in sufficient physical activity is a critical health behavior, particularly for older adults. Mindfulness is a promising approach for developing attentional and emotional regulation, which could be helpful for physical activity, especially if coupled with evidence-based behavior change strategies. Little research, however, has addressed mindfulness as the complex intervention that it is, and from a behavioral perspective in a systematic and rigorous way; further translation to practice is rarely addressed.

Methods: A pilot study was conducted with our community partner, the YMCA Twin Cities as the initial step of a phased project (R21/R33AT009110) leading to a randomized trial (n = 182). Both experimental and control groups were developed using intervention mapping and established frameworks to align target outcomes with intervention mechanisms and behavioral strategies, define fidelity, and discern active and control elements. The Behavior Change Wheel and RE-AIM Framework was used to inform long-term sustainability. Baseline and follow-up measures (accelerometer and self-reported measures) were collected to assess feasibility of data collection. Qualitative measures of barriers and facilitators were also assessed.

Results: Thirty individuals were randomly assigned to 8, 90-minute sessions of Mindful Movement or an active control. A priori feasibility milestones were met (28/30 completed 6/8 sessions, 30/30 completed self-reported follow up, 29/30 completed accelerometer activity measurement, 27/30 engaged in home practice, 28/30 were satisfied, and no moderate or severe adverse events were attributed to the interventions). Qualitative analyses revealed facilitators to intervention engagement included YMCA staff, program content, resources, and format in both groups. Barriers were mostly logistic related (e.g., parking, noise, and scheduling).

Conclusion: Pilot data were used to refine recruitment strategies and interventions for the ongoing randomized trial. This pilot study demonstrates the successful application of processes and frameworks for intervention development and feasibility testing to enhance the likelihood of trial success and eventual broad translation to community-based settings.
Effectiveness of a Self-Hypnosis Protocol for Managing Chronic Pain in Outpatient Integrative Medicine

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Abstract
Purpose: Clinical hypnosis is a psychosocial intervention that can cultivate skills to enhance self-management of chronic pain. Evidence supports the use of individual hypnosis for pain control; however, limited information exists regarding its effectiveness as a group intervention, comparison to individual intervention, and application in integrative medicine. We sought to evaluate the effectiveness of a standardized self-hypnosis intervention for chronic pain conditions in an outpatient integrative medicine setting, assessing the benefits of group and individual intervention delivery.

Methods: A total of 125 patients with a chronic pain condition engaged in an 8-week group hypnosis protocol for training in self-hypnosis for pain management. Of these patients, 15 engaged in an individual application of the protocol. Patients were assessed on a battery of validated measures before and after treatment along with 3- and 6-month follow-up assessing aspects of the pain experience including pain intensity, pain interference, and pain catastrophizing. Participants were also assessed on aspects of physical and mental health, pain widespreadness, self-efficacy, and hypnotizability.

Results: Preliminary analyses indicate that patients improved in pain intensity, $B = -0.80, \text{SE} = 0.16, t(119) = -4.91, P < .001$; pain interference, $B = -1.71, \text{SE} = 0.74, t(122) = -2.32, P = .022$; and pain catastrophizing, $B = -3.92, \text{SE} = 1.06, t(109) = -3.70, P < .001$, immediately following treatment. There were no detectable differences in outcome between group and individual interventions, $P_5 > .1$. Additional analyses of long-term follow-up will occur at data completion in February 2020 and address secondary outcome measures, the moderating roles of hypnotizability and pain widespreadness, and cohort-level effects.

Conclusion: Preliminary posttreatment analyses indicate that the 8-week self-hypnosis protocol was effective in improving aspects of patients’ pain experiences, with comparable intervention effects between settings. We argue for the primary role hypnosis should play in the management of chronic pain in integrative medicine environments.

Caregiver: Interprofessional Yoga and Education Program for Caregivers of Family With Alzheimer’s or Other Dementia

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Abstract
Purpose: The aim is to investigate safety, feasibility, and preliminary effects of an inter-professional, yoga, wellness and caregiving skills program for caregivers of family with dementia.

Methods: Eight-week, single-arm pilot trial with 8 unique once/week classes consisting of a 1-hour, interactive, educational module designed to enhance an aspect of caregiver well-being and/or caregiving skills and a 1-hour integrated yoga/meditation class. The yoga practice, which included philosophy, breathing, postures, relaxation and guided meditation, was gentle, mindful, progressive, and related to the topic for the week. The interprofessional team of PhDs, PAs, OTs, MDs, an RD, yoga teachers, and yoga therapists, from Rutgers, other academic and health institutions, and yoga organizations, designed and implemented the study. Assessments (caregiver well-being, caregiver burden, resilience, mindfulness, perceived stress, sleep, and Short Form-36), were performed at weeks 0, 9 and 16. Qualitative research, including feedback on intervention, perceived benefits, and use of skills and knowledge was obtained at 9 and 16 weeks.

Results: Eight caregivers, ages 50 to 84 years, 6 females, enrolled, 1 dropout due to caregiving challenges. Participants attended 7 or 8 sessions. Adherence to the protocol was high, with no reported adverse events. Significant improvements were reported in the Perceived Stress Scale, The Pittsburgh Quality of Sleep Index, and
the Kentucky Inventory of Mindfulness tools, with positive trends in aspects of the PROMIS 43 and the Caregiver Self Efficacy Scale. Program evaluation indicated most important aspects: meeting other caregivers, sharing experiences/stories, sense of camaraderie, yoga, meditation, relaxation, breathing, emotional, and spiritual benefits. All educational modules were deemed helpful, with Resiliency, Spirituality & Self-Care the highest. Most important skills utilized; coping skills, mindfulness, stretching, breathing, and relaxation.

**Conclusion:** The study was feasible, with successful recruitment, retention, and effective delivery of the intervention. It was safe and well tolerated. Participants reported continued self-care and caregiving skills use, with benefits indicated by qualitative feedback and quantitative assessments.

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**P05.22**

**Interrater Reliability of the Mindfulness-Based Interventions: Teaching Assessment Criteria for Measuring Teacher Skill in Mindfulness-Based Interventions**

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**Abstract**

**Purpose:** The Mindfulness-Based Interventions: Teaching Assessment Criteria (MBI:TAC) is potentially an important tool for measuring teacher skill, a central element in intervention fidelity in mindfulness-based interventions. The MBI:TAC measures 6 teacher competency domains, rated on a 6-point scale. Preliminary data suggest good interrater reliability with intraclass correlation coefficients (ICCs) of .6 to .81 for individual raters, but in prior studies many raters knew teacher experience level. We sought to rigorously evaluate interrater reliability. Prior practice has been to rate 2 sessions; we also assessed whether ratings after viewing 1 session had adequate interrater reliability.

**Methods:** We video recorded courses taught by 21 mindfulness-based stress reduction (MBSR) teachers and randomly selected 2 sessions from each course for rating. We conducted an 8-session course to train experienced MBI teachers in using the MBI:TAC; 18 trained raters participated in the current study. Each MBSR teacher was rated by 3 people who did not know the teacher. Raters assigned an initial rating after viewing the first session and then made a final rating after watching the second session. Two-way random effects models were used to generate absolute agreement ICCs for individual rater and average ratings.

**Results:** Individual rater ICCs ranged from .33 (relational skills domain) to .56; organization and guiding mindfulness practice domains also had ICCs < .50. ICCs based on average ratings ranged from .6 to .8 across 6 MBI:TAC domains after watching 2 sessions. ICCs of ratings done after watching 1 session, averaging 3 raters, were .32 for relational skills but over .5 (range up to .64) for other domains.

**Conclusion:** ICCs indicated good reliability using an average of 3 ratings, but interrater reliability was only fair for 3 of 6 domains when using a single rater. Results suggest that 2 sessions should be rated, ideally by more than 1 rater, to get high interrater reliability.

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**P05.23**

**Feasibility of a Mindful Yoga Intervention for Patients With Chronic Severe Mood Disorders**

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**Abstract**

**Purpose:** Chronic mood disorders lead to significant impairment, a large number of patients do not seek help and, even if they do, many do not respond to treatment or suffer from negative side effects of medication. It is therefore important to develop innovative and attractive treatments for chronic mood disorders. Yoga represents a promising treatment approach in this regard.

**Methods:** This pilot study tested the feasibility of a 9-week manualized mindful yoga intervention for patients with chronic mood disorders. Eleven patients with chronic severe mood disorders, currently in treatment, completed a 9-week mindful yoga intervention. Qualitative methods were used to assess patients’ experiences and quantitative methods were used to assess intervention effects on psychological distress and potential mechanisms.

**Results:** Eight patients completed the training (≥5 sessions) and rated the overall quality of the training with a score of 8.8 (using a 1–10 scale). All participants reported less psychological distress and no adverse events. Potential mechanisms that showed most promise were worry and fear of depression and anxiety, and, to a lesser extent,
ruminations, trusting bodily experiences and not distracting from sensations of discomfort (both aspects of body awareness).

**Conclusion:** A 9-week mindful yoga intervention appears to be a feasible and attractive treatment when added to treatment as usual for a group of patients with chronic mood disorders. Large scale randomized controlled trials with a yoga intervention added to treatment as usual compared to a structurally equivalent control group, with an adequate sample size, are needed to determine efficacy. Regarding potential mechanisms, worry, fear of emotion of the emotions of depression and anxiety, and, to a lesser extent, rumination, trusting bodily experiences and not distracting from sensations of discomfort (both aspects of body awareness) seem most promising to explore in future studies.

P05.24

**A Mindful Yoga Intervention for Young Women With Major Depressive Disorder: Design and Baseline Sample Characteristics of a Randomized Controlled Trial**

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**Abstract**

**Purpose:** Despite efficacy of current first-line interventions for Major Depressive Disorder (MDD), modest rates of treatment response and high relapse indicate the need to augment existing interventions. Following theory and initial research indicating the promise of mindful yoga interventions, this study examines mindful yoga as a treatment of MDD in young women, who are especially at risk for developing MDD.

**Methods:** This randomized controlled trial uses a sample of young adult females (18–34 years) to examine the efficacy and cost-effectiveness of a 9-week manualized mindful-yoga intervention added to treatment-as-usual (TAU) versus TAU alone in MDD. Primary outcome measures consist of clinician-rated (Hamilton Depression Rating Scale) and self-report (Depression-Anxiety-Stress Scales) measures of depression. Underlying mechanisms will be examined, including rumination, negative self-evaluation, intolerance of uncertainty, interoceptive awareness, and dispositional mindfulness. Assessments were conducted at pre-intervention and will be conducted at postintervention and 6- and 12-month follow-up.

**Results:** The baseline sample consists of 171 women of which 88 were randomized in the mindful yoga intervention and 83 controls. The mean age was 25.08 years (standard deviation [SD] = 4.64, range 18–34). The mean level of clinician-rated symptoms of depression was 18.39 (SD = 6.00, range 6-33), indicating moderate depression (Zimmerman, Martinez, Young, Chelminski, & Dalrymple, 2013). Fifty-three percent of participants were in a relationship and 17% had children. Fifty-six percent had a paid job for a mean of 22 hours per week (SD = 12.59, range 1–60), and 46% were currently in school or university. Most participants were living alone (25%), in student housing (18%), or with their partner (17%).

**Conclusion:** This trial will provide important information regarding the benefits of adding yoga-based interventions to TAU for young women with MDD and the mechanisms through which such benefits may occur.

P05.25

**Effects of a 12-Week Yoga Versus a 12-Week Educational Film Program on Symptoms of Restless Legs Syndrome and Related Outcomes: An Exploratory Randomized Controlled Trial**

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**Abstract**

**Purpose:** The goal of this exploratory randomized controlled trial (RCT) was to assess the effects of a yoga versus educational film program on Restless Legs Syndrome (RLS) symptoms and related outcomes in adults with RLS, a common and burdensome sleep disorder.

**Methods:** Forty-one community-dwelling, ambulatory non-pregnant adults with moderate to severe RLS were randomized to a 12-week beginner Iyengar yoga (n = 19) or educational film (EF) program (n = 22); yoga group
participants were asked to practice at home 30 minutes/day on nonclass days. Core outcomes assessed pre- and post-treatment were RLS symptoms and symptom severity (International RLS Study Group Scale [IRLS] and RLS ordinal scale), sleep quality, mood, perceived stress, and quality of life (QOL).

**Results:** Thirty adults (13 yoga and 17 EF), aged 24 to 73 (mean = 50.4 ± 2.4 years), completed the 12-week study (78% females, 80.5% white). Yoga and EF group participants attended an average of 13.0 ± 0.84 (81%) and 10.3 ± 0.3 classes (85%), respectively; yoga group participants completed a mean of 3.8 ± 0.3 (81%) homework sessions/week. Postintervention, both groups showed significant improvement in RLS symptoms and severity, perceived stress, mood, and QOL-mental health (Ps ≤ .04). Relative to the EF group, yoga participants demonstrated significantly greater reductions in RLS symptoms and symptom severity (Ps ≤ .01), and greater improvements in perceived stress and mood (Ps ≤ .04), as well as sleep quality (P = .09); RLS symptoms decreased to minimal/mild in 77% of yoga group participants, with none scoring in the severe range by week 12, versus 24% and 12%, respectively, in EF participants. In the yoga group, IRLS and RLS severity scores declined with increasing minutes of homework practice (rs = .7, P = .009 and .6, P = .03, respectively), suggesting a possible dose-response relationship.

**Conclusion:** Findings of this preliminary RCT suggest that yoga may be effective in reducing RLS symptoms and symptom severity, decreasing perceived stress, and improving mood and sleep in adults with RLS.

**P05.26**

**Acting With Awareness Moderates the Relationship Between Negative Affect and Alcohol Use**

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**Abstract**

**Purpose:** Negative affect (NA) consistently predicts alcohol use. In mindfulness-based relapse prevention, an evidence-based treatment, mindfulness skills such as acting with awareness (AA) are taught to help prevent alcohol relapse. The goal of this cross-sectional study was to examine whether AA moderates the relationship between NA and alcohol use in a large representative sample of American adults (N = 601).

**Methods:** The PROCESS V.3 macro for SPSS 26 was used to test the interaction between NA and AA in predicting alcohol use. The NA subscale of the PANAS was used as the predictor, with the alcohol use subscale of the Alcohol Use Disorders Identification Test (AUDIT) as the outcome, and the AA subscale of the Five Factor Mindfulness Questionnaire-Short Form (FFMQ-SF) as the moderator.

**Results:** Pearson zero-order correlations indicated a positive relationship between NA and AUDIT (r = .11, P = .006) and negative relationship between AA and AUDIT (r = −.10, P = .019). The interaction term generated evidence for a moderating effect of AA on the relationship between NA and AUDIT (β = .054, P = .0122). Simple slope analyses revealed that the relationship between NA and AUDIT is significant when AA is low (−1SD, β = .036, P = .012), but not when AA is high (+1SD, β = −.014, P = .480).

**Conclusion:** AA may be a protective factor against problematic alcohol use. One mechanism by which interventions such as mindfulness-based relapse prevention may work is by increasing AA. Further research should explore the role of mindfulness mechanisms on affective predictors of alcohol use in clinical substance use populations.

**P05.27**

**Pilot Feasibility and Acceptability of Mindfulness-Based Cognitive Therapy for Perinatal Women With Trauma History**

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**Abstract**

**Purpose:** Postpartum depression (PPD) can have significant consequences for mothers and infants. Mindfulness-based cognitive therapy (MBCT) during pregnancy is an effective preventative intervention for PPD. However, little is known regarding the efficacy and potential mechanisms of action of MBCT for women with a trauma history. In this pilot trial, we attempted to establish the feasibility and acceptability of conducting an intergenerational translational study of the neurobiological mechanisms of action of MBCT during pregnancy for women with trauma histories.

**Methods:** Pregnant women were recruited to participate in an MBCT group during pregnancy or treatment as usual (TAU). Maternal neuroimaging was completed 6 weeks postpartum, and infant neuroimaging was completed in
the first 4 weeks following birth. The Maltreatment and Abuse Chronology of Exposure (MACE) and the Client Satisfaction Questionnaire—8 (CSQ-8) were used to collect data on trauma history and participant satisfaction with their assigned group. Feasibility was calculated using percentage of attendance for greater than 4 MBCT sessions; acceptability was measured using the CSQ-8. Mean differences between groups on the CSQ-8 were tested using the Mann–Whitney U test.

**Results:** A total of \( N = 12 \) women completed the study. Eighty-three percent met clinical cutoff for trauma history on the MACE. Four (80%) participants assigned to MBCT completed at least 4 groups. Mean CSQ-8 scores for the MBCT group were significantly higher than TAU, \( U = 1.500, P = .008 \). All women and their infants eligible for an imaging session attended.

**Conclusion:** MBCT and maternal and infant neuroimaging are feasible and acceptable for pregnant women with trauma histories, who are at increased risk of PPD. These are promising results supporting further exploration of MBCT mechanisms at a neurobiological level from larger, randomized samples from this population to provide robust evidence to support this intervention.

P05.28

**A Multicenter, Parallel-Group, Randomized Controlled Trial on Eurythmy Therapy and Tai Chi in Chronically Ill Elderly With Increased Risk of Falling: A Trial Protocol**

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**Abstract**

**Purpose:** In elderly, multimorbidity and polypharmacy increase while sensory, motor, and cognitive functions decrease. Falls occur in 30% of elderly at least once per year, with injuries at 10% to 20%. Reducing falls and enhancing physical, emotional, and cognitive capacities are essential for healthy aging despite chronic disease. Eurythmy therapy (EYT) and Tai Chi train balance, mobility, and concentrative and sensory capacities.

**Methods:** In 8 trial sites, 550 outpatients aged 65 years and older with chronic disease and increased risk of falling (history of imbalance, Berg Balance Scale [BBS] score \( \leq 49 \)) will be randomly assigned (1:1:1) to receive either EYT or Tai Chi (provided twice, later once per week plus practice at home, for over 24 weeks) added to standard care or standard care alone. Standard care includes a detailed written recommendation on fall prevention and the visit of a primary care doctor. Patients living a reclusive life or economically disadvantaged patients will be particularly addressed. A motivation and communication concept supports patients’ compliance with trial procedures and practicing. Public and patient representatives are involved in the planning and conduct of the trial. Falls will be documented daily in a diary. Falls, injuries, and complications will be ascertained during monthly phone visits. The fall efficacy scale, BBS, cognition (MoCA), Mood (GDS-15), quality of life (Short Form 12), instrumental activities of daily living, use of medical and nonmedical services, and adherence will be assessed at months 3, 6, and 12 and inner correspondence with practices at month 6.

**Results:** Patient enrolment started in August 2019. The trial is funded by the Federal Ministry of Education and Research (BMBF 01GL1805) and registered at DRKS00016609.

**Conclusion:** Reduced fall risks and fear of falling and improved mobility, quality of life, mood, and cognition are relevant for elderly to cope with aging and diseases and to reduce health-care costs.

P05.29

**Effects of Mindfulness and Acceptance Interventions on Affect Tolerance and Sensitivity: A Systematic Review and Meta-analysis of Randomized Controlled Trials**

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**Abstract**

**Purpose:** In elderly, multimorbidity and polypharmacy increase while sensory, motor, and cognitive functions
Abstract

Purpose: Affect intolerance/sensitivity, defined as the inability to withstand negative emotional states, is a transdiagnostic mechanistic process implicated in the development and maintenance of numerous forms of psychopathology and negative health behaviors. Mindfulness and acceptance interventions are posited to directly improve affect intolerance/sensitivity; however, there has been no quantitative synthesis of this research.

Methods: Seven electronic databases were searched from inception to November 2018. Studies that included a randomized controlled trial (RCT), adults across any population, a mindfulness or acceptance intervention, and an affect intolerance/sensitivity outcome were eligible. Data were extracted by 2 independent reviewers. Risk of bias was assessed according to Cochrane. Hedge’s g values, 95% confidence intervals, P values, and Q-values were calculated for a series of random-effects models using Comprehensive Meta-Analysis (V.3).

Results: Twenty-five studies (pooled N = 1778), generally of moderate quality, were included. Most studies included Acceptance and Commitment Therapy (n = 8) and Mindfulness-Based Stress Reduction (n = 6). Affect intolerance/sensitivity was assessed via self-reported anxiety sensitivity (n = 9), distress tolerance (n = 7), and intolerance of uncertainty (n = 4). Most studies included those with anxiety psychopathology (n = 8), medical conditions, such as cancer (n = 4), or healthy adults (n = 4). There was a small-moderate, significant effect of mindfulness and acceptance interventions on improving affect intolerance/sensitivity from pre- to postintervention (Hedges’ g = -.35, 95% CI = -.50 to -.19, P < .001), with effects maintained up to 6 months (Hedges’ g = -.35, 95% CI = -.61 to -.00, P < .01). There was a significantly larger effect for studies with inactive compared to active controls. There was a slightly larger effect for longer (≥8 sessions) versus shorter interventions (<8 sessions), though this difference was not significant.

Conclusion: Mindfulness and acceptance interventions may be effective for improving affect intolerance/sensitivity, with effects maintained up to 6 months. Future work aimed at optimizing these interventions to maximally engage affect intolerance/sensitivity is warranted.

P05.30

Feasibility Study of a Modified Yoga Program for Elderly Adults

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Abstract

Purpose: Managing chronic pain is difficult. This is particularly true in older adults, where prevalence of is up to 50%. Yoga has been shown to be effective for improving balance, physical mobility, and quality of life in elders ≥65 years; however, no studies have examined yoga for improving pain and anxiety in this population. We conducted a feasibility study among adults in assisted and independent living to examine whether yoga could be a viable pain management strategy.

Methods: We recruited adults (≥65 years of age) in assisted or independent living with chronic pain (≥3 on a 10-point scale and lasting for ≥3 months) and who had no current yoga practice. The intervention included 10 weekly 60-minute gentle yoga classes led by a certified yoga instructor with experience teaching elderly adults. Participants filled out validated questionnaires investigating pain (Brief Pain Inventory), anxiety and depression (Hospital Anxiety and Depression Scale), other measures relevant to pain, and questions about feasibility at weeks 5 and 10.

Results: Twenty-four participants enrolled (87.5% women) and 20 completed the intervention. Average age was xxx and all participants were white. Pain severity decreased from 4.6 (SD = 1.3) to 4.1 (SD = 1.5) and pain interference decreased from 3.4 (SD = 2.1) to 2.8 (SD = 1.4), though these decreases were not statistically significant (P > .05). Anxiety decreased from 5.7 (SD = 3.8) to 4.3 (SD = 3.1), and a clinically and statistically significant decrease (P = .005). There were no statistically significant differences in fatigue, depression, sleep, or physical function. Yoga was well tolerated, with adverse events related to transient musculoskeletal pain. Participants reported being somewhat likely to recommend yoga to a friend and quite a bit likely to do yoga again; 4/20 reported practicing yoga outside of class.

Conclusion: Among assisted and independent living elderly adults, yoga was well-tolerated and improved anxiety but not pain after participation in a 10-week yoga program.
Multiple Therapeutic Benefits of Tai Chi for Older Adults With Chronic Low Back Pain: Insights From a Qualitative Analysis

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Abstract

Purpose: To assess qualitative findings on the perceived benefits of Tai Chi among older adults (65+ years) with chronic low back pain participating in a pilot feasibility trial.

Methods: Tai Chi intervention group participants were invited to attend a focus group session 52 weeks after randomization. They were asked to describe their experience of Tai Chi class attendance and the benefits of their practice. Transcripts were read and coded to identify major themes and detailed subthemes. All emerging themes were reviewed by the study team and discussed until consensus was achieved.

Results: Eighteen older adults attended the focus group. Five major themes were identified: physical benefits, body awareness, mental-emotional benefits, social benefits, multiple benefits, and integration of Tai Chi into daily activities. Improvements in pain, balance, flexibility, leg strength, and posture were the most common benefits reported by participants. Increased body awareness led to simple postural adjustments that facilitated pain coping. Mental-emotional benefits included greater mindfulness, a sense of relaxation, and mental clarity. Social benefits included commitment to attending class which in turn strengthened motivation to practice. Cross-cutting benefits involved integrating skills into one's daily activities with resultant increased functional independence and improved quality of life.

Conclusion: This qualitative analysis demonstrates the multiple and nuanced nature of the benefits that older adults living with chronic low back pain experience from engaging in a Tai Chi intervention.

Effect of Sukshma Vyayama Joint Loosening Yoga on Aromatase Inhibitor-Induced Arthralgia in Breast Cancer Patients: A Feasibility Study Conducted on Facebook

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Abstract

Purpose: Aromatase inhibitor (AI) therapy causes joint pain in up to half of women, and up to 20% become non-compliant with treatment due to pain and discomfort. This pilot study investigated the efficacy of sukshma vyayama yoga in improving AI-induced joint pain and evaluated the feasibility of delivering the intervention on Facebook.

Methods: Breast cancer patients undergoing treatment with AIs with self-reported arthralgia were recruited via an institutional review board-approved announcement posted in 2 closed breast cancer support groups on Facebook to participate in a yoga study delivered on Facebook. Participants completed BPI, DASH, PRAI, and WOMAC questionnaires before and after the study. Intervention consisted of 12 joint loosening exercises performed in a chair, once daily for 12 minutes, Monday to Friday for 4 weeks. Asynchronous video demonstrations were available in a secret Facebook group and viewing confirmed by typing “done” (timestamped) in comments.

Results: A total of 200 women responded worldwide; 38 met the inclusion criteria/consent, 26 completed the online consent, interventions, and pre/post questionnaires. Participants based in the United States, Canada, and United Kingdom. Paired simple t tests results showed significant (P < .05) improvement in all the pain measures and quality of life parameters after yoga intervention compared to baseline.

Conclusion: This study provides the first evidence that it is feasible to teach sukshma vyayama to patients on Facebook and that the intervention significantly improves AI-induced arthralgia. Teaching yoga via social media may provide better access to this therapeutic modality to patients at all points in the cancer care continuum globally. Variable pre mean post mean %change P value BPI_PSS 4.26 ± 1.79 2.3 ± 1.45 46.00% P < .05 BPI_PIS 3.9 ± 2.32 1.81 ± 2.00 −53.58% P < .05 DASH 30.54 ± 15.26 13.72 ± 14.86 −55.07% P < .05 PRAI 2.69 ± 1.55 1.36 ± 1.13 −49.44% P < .05 WOMAC1 6.76 ± 3.67 3.24 ± 2.20 −52.07% P < .05 WOMAC2 4.04 ± 1.76 2.40 ± 1.15 −40.59% P < .05 WOMAC3 22.64 ± 13.11 13.00 ± 8.83 −42.57% P < .05.
**P05.33**

**Interceptive Thermo-Fasciatherapy to Reverse an Alzheimer Diagnosis: A Case Study**

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**Abstract**

**Purpose:** Male, 67, has Alzheimer family history, participated in protocols at Douglas Mental Health University Research Center. Late 2016, received an Alzheimer diagnosis, took combination therapy (Memantine & Rivastigmine/Exelon patches), anxiety medication, and nearly some for 2 Alzheimer risk factors: hypertension and hyperglycemia. He presented stiff cervical/lumbar areas, right eye/scalp intense pain, stuttering, snoring, anxiety, and extreme afternoon fatigue. In youth, experienced traumas (head, emotional), regular migraines, and daily sugar cravings into adulthood.

**Methods:** In weekly 1-hour sessions, I manually provided firm, supportive, holding pressure on body parts. He was supine on grounded/infrared mats, described interoceptive sensations to raise body-awareness, used nose in-breaths, and deployed throat out-breaths to relax fascia and release muscle/nervous tensions. When sensations stop, I change location for another cycle.

**Results:** The first 2 sessions, he felt as if “fresh water poured into his brain.” Concurrently, sugar cravings stopped, a liking for fruits/vegetables developed and lost 5 kg. The fifth week, he relaxed the cervical/lumbar areas. The eighth week onward, he most probably released traumatic pent up energy using vigorous and repetitive body-wide contractions/releases (Figure 1). Over a 6 month period, he noticed many improvements: hypertension/hyperglycemia returned to normal; reduced anxiety and eye/scalp pain; better sleep, energy, speech, mood, and memory tests. His MD also noticed, scheduled a fluorodeoxyglucose PET scan for glucose metabolism and, with a 99% confidence level, concluded: “Your brain is amyloid-β deposition free and healthy,” reversed the Alzheimer diagnosis, stopped Alzheimer medications, Deprescribed anxiety medication, and encouraged him to continue with fascia-therapy. A 21 month follow-up FDG-PET scan confirmed initial results.

**Conclusion:** Evidence suggests weekly interoceptive thermo-fasciatherapy sessions improved this individual’s quality of life and cognitive functions. Further studies are needed to clarify the role of daily sugar cravings as a natural response to correct insufficient glucose supply to the brain.

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**P05.34**

**Acceptability of an Online Mind-Body Intervention for Parenting Stress: Mixed-Methods Results From a Randomized Controlled Trial**

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**Abstract**

**Purpose:** Parents of children with learning/attentional disabilities (LAD) and autism spectrum disorder (ASD) are at elevated risk for chronic stress. The types of stress and treatment needs differ between these parent groups. We adapted our evidence-based mind–body intervention (SMART-3RP) for parents of children with LAD and ASD, delivered via videoconferencing. Preliminary results from our wait-list randomized pilot trial suggest the adapted program is feasible and efficacious in improving stress coping; however, we wanted to have an in-depth understanding of its acceptability. The purpose of this analysis is to (1) explore participants’ feedback regarding the virtual SMART-3RP groups and (2) compare feedback across LAD and ASD parents.

**Methods:** The SMART-3RP is an 8-week mind–body group intervention with 1.5-hour sessions delivered via synchronous videoconferencing. Participants were 1:1 randomized to immediate or delayed SMART-3RP (separate groups for LAD and ASD) and completed a feedback questionnaire postintervention (N = 33 LAD, N = 37 ASD; 93% females, 88% white, M_age = 45.99, SD = 6.75).

**Results:** Participants reported the intervention had the right number of sessions (69%), right session duration (83%), and right amount of structure (83%). They felt comfortable during sessions (89%) and found it helpful to learn mind–body skills (89%). There were no significant differences between ASD and LAD parents other than a trend for more ASD parents reporting sessions were too long (22% ASD vs 6% LAD, x^2 = 5.67, P = .06). Qualitative themes were similar across parents and included that video delivery had some technical challenges but enabled participation; group support and mind–body skills were helpful; and further SMART-3RP sessions or psychotherapy are needed.

**Conclusion:** LAD and ASD parents similarly found a synchronous video-based mind–body resiliency program to be acceptable in content and structure. Technology limitations
notwithstanding online delivery were very satisfactory and overcame obstacles to participation. Suggestions for optimizing video delivery include participant instructions to use headphones and mute themselves when not speaking.

P05.35

**Dyadic Integrative Exercise for Persons With Dementia and Their Care Partners**

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**Abstract**

**Purpose:** In the absence of disease modifying treatments for dementia, nonpharmacological interventions are vital for enhancing the lives of persons with dementia (PWD). The Paired Preventing Loss of Independence through Exercise (PLIE) study is examining the effects of a unique integrative group movement program that targets preserved abilities and neural mechanisms in PWD and includes their care partners (CP). The intervention includes 1-hour community-based classes with 5 dyads, 2 days/week for 12 weeks, and 3 monthly home visits. We present results from a randomized controlled study examining feasibility, efficacy, and satisfaction.

**Methods:** Seniors with mild to moderate dementia and their CPs were enrolled and randomized to receive either an immediate or delayed start to the Paired PLIE program with outcomes measured at baseline, 12 weeks, and 24 weeks and anonymous evaluation surveys sent after withdrawal or completion. Feasibility was assessed based on enrollment and percent completion. Efficacy was assessed by calculating standardized effect sizes comparing change during Paired PLIE versus change during control period (difference-in-differences). Satisfaction was assessed based on enrollment and percent completion. Efficacy was assessed by calculating standardized effect sizes comparing change during Paired PLIE versus change during control period (difference-in-differences). Satisfaction was assessed based on enrollment and percent completion. Efficacy was assessed by calculating standardized effect sizes comparing change during Paired PLIE versus change during control period (difference-in-differences). Satisfaction was assessed based on enrollment and percent completion.

**Results:** Thirty dyads (60 participants) enrolled and 24 (80%) completed the study. Effect sizes suggested improvements during Paired PLIE for PWD depressive symptoms (Cohen’s d = 0.27) and PWD quality of life (caregiver-rated, d = 0.28; participant-rated, d = 0.22). Satisfaction was high (mean 5-point Likert scale: 4.8), and participants were likely to recommend the program to others (mean 11-point Likert scale: 9.4). Most caregivers reported observing physical, emotional, and social benefits for their loved ones and themselves.

**Conclusion:** Paired PLIE is a promising integrative group movement program for PWD and their CPs that appears to be feasible and is associated with high levels of satisfaction and preliminary evidence of benefits to participant and care partner physical, emotional, and social well-being.

P05.37

**A Call to Action: Evidence for Tai Chi in the Treatment of PTSD**

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**Abstract**

**Purpose:** Posttraumatic stress disorder (PTSD) is categorized as a psychological disorder, although it has deleterious effects on physical health and has been increasingly considered a systemic disorder, affecting both the brain and the entire body. There is growing interest in using mind–body treatments, such as Tai Chi, to address both the physical and mental health symptoms of PTSD. We will review the extant evidence on the use of Tai Chi in the treatment of PTSD and hypothesize physiological and psychological pathways of action.

**Methods:** Electronic literature searches on PTSD and Tai Chi were conducted using PubMed, and 4 EBSCO databases (Psychology and Behavioral Sciences Collection, PsycINFO, PsycARTICLES, and SocINDEX). The search terms used for Tai Chi were qigong, qi gong, chi kung, chikung, tai ji, and tai chi. The PTSD search terms were posttraumatic, posttraumatic, PTSD, combat stress, soldier, warrior, veteran, and combat. Studies were included if they were (1) nonrandomized trials, (2) case studies, (3) observational studies, (4) qualitative research, or (5) quasi-experimental.

**Results:** Seventeen publications were identified through title review. Thirteen publications were removed after abstract screening: 8 were not empirical studies, 1 was not related to PTSD, 2 were both not empirical studies and not related to PTSD, and 2 were not related to Tai Chi. Four full text articles were assessed for eligibility and included.

**Conclusion:** The pilot studies reviewed provide strong anecdotal evidence to support the use of Tai Chi in the treatment of PTSD. Additional literature review identified several possible pathways by which Tai Chi can improve both psychological symptoms and physiological sequelae of PTSD. Hypothesized mechanisms for further study include (1) arousal reduction, (2) improved body awareness, (3) behavioral activation and social interaction, (4) reduced chronic pain, (5) improved functional connectivity and changes in brain structure, and (6) positive adaptations in the neuroendocrine system.
A Short- and Long-term Evaluation of a University-Wide Interdisciplinary Mind–Body Skills Program

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Abstract

Purpose: Positive short-term effects of mind–body skills programs on participant well-being have been reported in health professional students. With expansion of a university-wide mind–body program across 10 colleges, both short-term and longitudinal potential benefits on well-being had yet to be established in a diverse student group. The purpose of this study was to report on mental and emotional well-being of a diverse group of students immediately following a mind–body course compared to controls, and to determine whether program effects were sustained at 1-year follow-up.

Methods: A cross-sectional pre–post survey was administered online via SurveyMonkey to participants of a 9-week mind–body skills course and a control group at a public university in Spring 2017 to 2019. One-year follow-up was completed on a subset of participants/controls. Students were assessed on validated measures of stress, positive/negative affect, mindfulness, resilience, empathy, and burnout. Student scores were analyzed between groups and over time using multivariate and bivariate analyses.

Results: In this survey, 201 participants and 179 controls completed evaluations before and after the 9-week course (79% response rate; 73% females, 72% white, mean age = 25 years). Then, 29 participants and 24 controls from a Spring 2018 group were assessed again 1 year later (61% response rate; 74% females, 73% white, mean age = 24 years). Participants’ well-being significantly improved on all but one measure (burnout/emotional exhaustion) immediately following the course compared to controls (P < .05). Within the longitudinal group of participants, only improvements in mindfulness remained elevated at 1-year (pre-M = 44.5; post-M = 48.7; follow-up M = 50.12, P < .05) while all other well-being measures returned to baseline scores.

Conclusion: While participation in this mind–body skills program improved indicators of well-being immediately following the 9-week course, sustained effects at 1-year follow-up were only seen for mindfulness. Future programming should focus on developing and implementing mind–body skills booster sessions to enhance the longitudinal benefit of participation in the program.

Effect of a Single Audio-visual Brain Entrainment Session on Heart Rate Variability: A Clinical Trial With 100 Adult Volunteers

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Abstract

Purpose: The objective of this study was to investigate the effect of the Audio-visual Brain Entrainment (ABE) on heart rate variability.

Methods: Sample size consisted of 100 adult volunteers (50 males and 50 females) with no hearing disabilities. ABE was delivered with a BrainTap headset (New Bern, NC, USA) in a 20-minute session. Session consists of binaural beats at 18 to 0.5 Hz, isochronic tones at 18 to .05 Hz, and visual entrainment through light-emitting diode lights at 470 nm flickering at 18 to 0.5 Hz. Heart rate variability (Dinamika HRV, Advanced Heart Rate Variability Test System, Moscow, Russia) was assessed at baseline and after ABE session.

Results: ABE significantly (1) increased heart rate variability: HRV index (a low HRV is associated with an increased risk of cardiovascular disease – P < .001, 21.8%) and RRNN (RR normal-to-normal intervals; a marker of overall HRV activity – P < .001, 6.8%); (2) increased parasympathetic activity markers: RMSSD (Root Mean Square of the Successive RR interval Differences – P < .0001, 32.2%), NN50 (the number of pairs of successive NN (R-R) intervals that differ by more than 50 ms – P < .0001, 50.6%), pNN50% (the proportion of NN50 divided by the total number of NN (R-R) intervals – P < .001, 51.6%), HFnu (high-frequency band: index of modulation of the parasympathetic branch of the autonomic nervous system – P < .0336, 37.1%), and LFnu (low-frequency band: general indicator of aggregate modulation of both the sympathetic and parasympathetic branches of the Autonomic Nervous System – P < .0048, 45.1%), and (3) decreased stress index (P < .001, 38.4%) and heart rate (P < .0001, 6.2%).
Conclusion: A single ABE session with the BrainTap Headset significantly increased heart rate variability and parasympathetic activity as well as decreased stress index and heart rate.

P05.40

MINDING-GOALS: Effects of a Web-based, Interactive, Mind–Body Intervention in the Management of Hypertension

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Abstract

Purpose: Hypertension is the most common chronic health condition among adults in the United States. Despite effective medications, 40% of treated patients do not meet blood pressure (BP) goals. This discrepancy, in part, reflects low patient adherence to lifestyle recommendations, such as physical activity, weight and diet, and medication nonadherence. The purpose of this study was to evaluate an online mind–body behavior program for BP control.

Methods: This was a pilot randomized control trial of 76 primary care patients aged 21 to 79, with a diagnosis of hypertension, uncontrolled BP (systolic BP [SBP] ≥ 145 mmHg or diastolic BP [DBP] ≥ 90 mmHg, and at least one other cardiovascular risk factor. The control group received the “Goal-oriented Online Access to Lifestyle Support” (GOALS) program, a successful online program that has promoted weight loss and adapted for BP reduction. The MINDING-GOALS program incorporated a mind–body component to GOALS which included 4 mindfulness methods: (1) body scan, (2) sitting practice, (3) walking meditation, and (4) mindful exercise. The intervention lasted 16 weeks and patients were followed for up to 12 months.

Results: Of 39 and 37 in the control and intervention group, respectively, baseline characteristics were similar except that the intervention group had twice the number of black participants. The control group completed a mean of 8.4 versus 7.7 lessons. Compared to the control group, there was a nonsignificant decrease in mean SBP (149.1 mmHg to 132.2 mmHg, P = .5), a decrease in DBP (88 mmHg to 81 mmHg, P = .6), and a decrease in weight (205 lbs. to 199.7 lbs., P = .3). No difference was seen in the mindful awareness scale and medication adherence based on pill recall.

Conclusion: The results show that a web-based platform to deliver mindfulness may lower BP and reduce weight although the effects are not fully driven by improving mindfulness. No change in medication adherence was seen likely due to high baseline adherence.

P05.41

A Cry in the Wilder-city: A Qualitative Analysis of Nature’s Effects on Well-being as Expressed in Urban Park Bench Journal Entries

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Abstract

Purpose: With the increase of planned urban green spaces to support health and well-being, there is a need to examine the impact of these green spaces on individual well-being. This qualitative study examines user well-being within 8 urban parks in the Washington, DC area that were developed by the TKF Foundation of Annapolis, MD.

Methods: Each site has specific elements (a portal, a path, a bench on which to reflect, and a journal on which to record thoughts and feelings) that offer certain sensory and internal experiences. In addition, these sites have been curated by a firesoul (a local person who sought funding for—and was involved in—design and management of the site) over time. In the first phase of this study, journal entries left at 8 of the sites encompassing entries of more than 1000 individuals were analyzed using content analysis and the overarching themes were identified.

Results: Five major themes included: (1) Therapeutic experiences in the site, including positive emotional and physical experiences such as references to healing, reduction of stress, finding peace and solace, renewal of wholeness, empowerment and self-agency, and transformation. (2) Confessions or sharing of a secret, of an authentic self, or of personal failings and a wish and plan to change. (3) Celebration, honoring, memorializing, or marking of a particular moment in time. (4) Existential interpretation of cycles of nature. (5) Concern for others/feeling connection with them.
Conclusion: The journal entries suggest that these specifically designed park sites are effective as nature-based interventions that seek to alter the environment to promote nature interactions. In addition, the themes elucidate how parks influence human well-being through multiple pathways. Further research, focusing on individual and community well-being, is in progress with the community members who developed, managed, and now use these urban park sites.

P05.42
A Closer Look at Yoga Nidra: Sleep Lab Analyses (Feasibility and Effects on Sleep, the Autonomic Nervous System, and Self-Reported Anxiety)

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Abstract
Purpose: In this pilot study, the guided meditation technique, Yoga Nidra, was tested for feasibility as an intervention for insomnia. Feasibility questions including acceptability of intervention conditions, credibility of Yoga Nidra as a treatment for insomnia, and appropriateness of our measurement tools were investigated, along with the impact of Yoga Nidra on sleep onset, the autonomic nervous system (ANS) and self-reported anxiety.

Methods: Feasibility was measured using recruitment/retention data and questionnaires. Sleep and brainwave patterns were measured using electroencephalography. ANS tone was measured via heart rate variability and respiratory rate. Anxiety was measured using self-report surveys. Our population included 22 adults, aged 18–45, with difficulty falling asleep. Each participant completed 2 visits. Half of the population was randomized to practice Yoga Nidra at the second visit.

Results: Excellent feasibility was demonstrated, with 136 inquiries, 64 screened, and 22 participants (age 32 ± 7) enrolled in under 3 months. Strong acceptability was demonstrated by a low dropout rate (5%) and high comfort/tolerability ratings (>50% at each visit). Our study provided proof-of-concept data that Yoga Nidra reduced acute anxiety by 20%, and similar to other meditative practices, it altered electroencephalography-measured alpha power in the occipital lobe (11% increase) and reduced respiration rate by 12%, relative to control. Sleep was detected during/after Yoga Nidra, supporting our hypothesis that this practice may promote sleep. Lastly, participants reported reductions in pain during/after Yoga Nidra, along with enhanced relaxation following Yoga Nidra (5% physical and 4% emotional) versus lying quietly (which decreased relaxation).

Conclusion: Our results successfully demonstrated expected biological and psychological changes (decreased anxiety and respiration rate, increased alpha brainwaves, sleep production), suggesting Yoga Nidra may be a promising tool to combat insomnia. This study provides evidence that repeating this work in larger populations would be valuable for confirming effects of Yoga Nidra on the ANS, sleep, pain, and anxiety.

P05.43
First Impressions of Yoga Nidra: Investigating Personal Experience Through Qualitative and Quantitative Measures

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Abstract
Purpose: In this study, qualitative and quantitative methods were used to explore participant experience of the guided meditation technique, Yoga Nidra, as it relates to sleep and relaxation.

Methods: Mood was assessed using the Positive and Negative Affect Schedule (PANAS) before and after a 30-minute Yoga Nidra practice (recorded by its creator, Satyananda Saraswati). Information on current insomnia (Insomnia Severity Index, ISI), sleep practices, and mind–body practices was collected at intake. Following Yoga Nidra, focus group interviews addressed domains of inquiry, including experiences before/during/after the practice; challenges; and likelihood of adopting the practice for insomnia.

Results: Our sample included 25 people, 70% females, age 41 ± 11 years, from the general population of Oregon and Hawaii. Pre-intervention ISI scores revealed 72% of our population to have at least subclinical insomnia (44% of whom showed moderately severe clinical insomnia) and 58% of the population had a regular mind–body practice (58% for >5 years). Average positive and negative affect were within 1 point of the instrument average before Yoga Nidra, and nearly a full standard deviation lower, afterwards (average change in PA and NA: 22% and 30%, respectively). Focus group discussions are still being analyzed. Within the first 14 participants, 6 people discussed physical relaxation, 3 mental, and 8 emotional (reduced...
irritation and anxiety). Eight participants mentioned a trance-like state or feeling of disconnect with the physical body. Six reported sleeping or near sleeping. Self-reported challenges included lying still, understanding the recording, and interfering thoughts. Eleven people said they would be willing to try the practice at home, for insomnia. **Conclusion:** This study provides evidence that Yoga Nidra appears tolerable for individuals suffering from insomnia and that it may produce mental, emotional, and physical relaxation. Feedback from these focus groups has been used to inform the design of our other Yoga Nidra research studies and will continue to inform future designs.

**P05.44**

**Are There Gender Differences Between Mindfulness and Stress?**

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**Abstract**

**Purpose:** Mindfulness refers to nonjudgmental awareness of the present moment. Although more women practice mindfulness meditation in the United States, and previous studies have found inverse associations between trait mindfulness and stress, it is unclear if self-rated mindfulness or the link between trait mindfulness and stress differs by gender.

**Methods:** Using an anonymous online survey study, we tested if Rowan University students (n = 534, 65.0% females, 67.2% white, median age = 19 years, range = 18–56) showed significant differences in average scores on self-report measures of trait mindfulness and stress across males and females. We also tested whether the association between trait mindfulness and stress differed by gender. We hypothesized that the correlation between mindfulness and stress in female students will be significantly stronger compared to male students, such that female students with higher trait mindfulness also have lower stress. We used the Cognitive Affective Mindfulness Scale (CAMS-R) to measure trait mindfulness and the Perceived Stress Scale (PSS) to measure stress. Independent samples t tests compared mean scores across gender. Pearson correlations were used to test the association between mindfulness and stress. Fisher’s Z tested for differences between correlations across gender.

**Results:** Males had a significantly higher average score in trait mindfulness (P = .002) and females had a significantly higher average score in stress (P < .001). Nonetheless, correlations between trait mindfulness and stress in males (r = .643) and females (r = .697) were both strong, and did not significantly differ (P = .303).

**Conclusion:** Higher trait mindfulness strongly correlated with lower stress levels, but contrary to our prediction, the strength of the relationship did not differ between genders. Therefore, mindfulness interventions, which are already known to both reduce stress and increase mindfulness, may be equally useful for male and female college students—an important topic for future research.

**P05.45**

**Virtual Reality Bones™ and Feldenkrais® Movements Compared to Core Stabilization Biofeedback and Motor Control Exercises: Comparative Effects on Chronic Nonspecific Low Back Pain in an Outpatient Clinical Setting: A Dissertation Study and Randomized Controlled Trial**

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**Abstract**

**Purpose:** Chronic back problems continue to be a leading cause for disability in all of medicine and are the number 1 symptom disorder for consulting integrative medicine practitioners. Feldenkrais® practitioners aim to clarify new functional interrelationships towards an improved neuroplasticity-based change in the cognitive construct of one’s own background body schema. These phenomena have also been found to clinically correlate to chronic pain through concurrent distortions in cortical representation (of body schemas or maps). The Feldenkrais Method® (FM) is a comprehensive approach being manifested through manual contact (FI®) techniques and movement experiences (ATM®) and has been anecdotally purported to improve symptoms and functions in Chronic Non-specific Low Back Pain (CNSLBP). However, there is little scientific evidence to support superior treatment efficacy.

**Methods:** A randomized controlled trial (RCT) compared a novel Virtual Reality Bones™/Feldenkrais® Movement (VRB/FM) intervention against more conventional protocols for Core Stabilization Biofeedback/Motor Control Exercises (CSB/MCE). N = 30 participants with CNSLBP were assigned to either the experimental group (VRB/FM @ N = 15) or the control group (CSB/MCE @ N = 15). Known confounding biopsychosocial variables were controlled via stratified-random assignment on the FABQ.
Treatment outcome measures included VAS-PAIN, RMDQ, PSFS, and Timed Position Endurances Tests—including Flexion/Extension Ratios at baseline, 2 weeks, 4 weeks, and 8-weeks. Statistical analysis was conducted using Wilcoxon rank-sum and paired, 2-tailed t test.

Results: The VRB/FM group demonstrated greater improvement in all treatment outcome measures as compared to the matched CSB/MCE control group.

Conclusion: This is the first RCT study to demonstrate that a Feldenkrais Method®-based approach being combined with Virtual Reality Bones™ can be more efficacious for the treatment of CNSLBP than the current and accepted physical medicine standard of isolated Core Stabilization Biofeedback/Training and Motor Control Exercises. Future multisite RCT studies with larger sample sizes are therefore recommended.

P05.46

Lower Self-Efficacy Is Associated With Anxiety and Depressive Symptoms Among Breast Cancer Survivors: A Cross-sectional Analysis

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Abstract

Purpose: Breast cancer survivors commonly experience posttreatment symptoms. Self-efficacy, the perceptions people hold about their own capabilities, promotes positive health behaviors and may affect whether individuals employ symptom management strategies. The purpose of this study was to evaluate possible associations between self-efficacy and posttreatment symptom severity in breast cancer survivors. We hypothesized that lower self-efficacy would be associated with poorer sleep quality, greater fatigue and pain, and increased symptoms of depression and anxiety.

Methods: This was a secondary analysis of baseline data (n = 237) from a randomized clinical trial of acupressure for persistent cancer-related fatigue (NCT01281904). Separate multivariable linear regression models were used to investigate the association between self-efficacy and each dependent variable (fatigue, sleep quality, pain severity and pain interference, depressive symptoms and anxiety), as measured by the General Self-Efficacy scale (possible scores: 10–40), Brief Fatigue Inventory, Pittsburg Sleep Quality Index, Brief Pain Inventory, and Hospital Anxiety and Depression Scale, respectively. Models were adjusted for age, race, income, breast cancer stage, and history of chemotherapy or hormone therapy.

Results: Participants had a mean age of 59.8 ± 9.7 years, were predominantly white (90.3%), were diagnosed with early stage breast cancer (stage 0 or 1, 57.4%), and had a mean General Self-Efficacy (GSE) score of 32 ± 4.4, slightly higher than population norms. In adjusted models, GSE was negatively associated with depressive symptoms (β = −0.276; 95% CI: −0.366, −0.185) and anxiety (β = −0.057; 95% CI: −0.079, −0.034). No association was observed between GSE and fatigue, sleep quality, pain severity, or pain interference.

Conclusion: Lower general self-efficacy is associated with increased symptoms of depression and anxiety. Longitudinal studies should examine general self-efficacy as a predictor of mental health outcomes after breast cancer. Clinical trials of mind–body interventions for improving mental health in breast cancer survivors should explore the role of self-efficacy.

P05.47

Mindfulness Is Directly Related to Global Well-being and Self-Esteem and Inversely Related to Perceived Stress and Depressive Symptoms in Urban, Latino Adolescents

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Abstract

Purpose: Mindfulness shows association with psychological health in multiple populations but has been understudied in Latino adolescents. Therefore, our objective was to determine cross-sectional associations between mindfulness and other measures of positive or negative mental health traits.

Methods: Sample was composed of predominantly Latino adolescents (95% of n = 190) recruited from several Los Angeles metropolitan area high schools (mean age: 14.7 ± 0.6 years; 68% females). Mindfulness was assessed by averaging values of the 14-item Mindful Attention Awareness Scale for Children (Cronbach’s alpha = 0.874). Perceived stress and depressive symptomatology were assessed by summation of the 14-item Cohen’s Perceived Stress Scale (Cronbach’s alpha = 0.790) and the 20-item Center for Epidemiological Studies- Depression Scale (Cronbach’s alpha = 0.785), respectively. Global well-being was assessed by the single-item Arizona Integrated Outcomes Scale, and
self-esteem by averaging values of the Rosenberg's 10-time self-esteem scale (Cronbach's alpha = 0.891). Analyses include unadjusted, bivariate Pearson correlations and linear regression models, adjusted for a priori covariates of age, sex, and ethnicity.

**Results:** Mindfulness was directly related to positive mental health traits: global wellbeing ($r = .397$, $P < .001$; Beta $= 8.92 \pm 1.57$, $P < .001$) and self-esteem ($r = .521$, $P < .001$; Beta $= .50 \pm 0.06$, $P < .001$). In addition, mindfulness was inversely related to negative mental health traits: perceived stress ($r = -.587$, $P < .001$; Beta $= -4.77 \pm 0.50$, $P < .001$) and depressive symptoms ($r = -0.216$, $P = .003$; Beta $= -1.89 \pm 0.72$, $P = .009$).

**Conclusion:** In a population of urban, predominantly Latino adolescents, trait mindfulness is associated with overall psychological health based on multiple validated measures. This suggests mindfulness-based interventions might be of use to improve psychological health in this understudied population at risk of multiple health disparities.

**P05.50**

Decreased Inflammation Following Mindfulness Training: Findings From a Randomized Waitlist-Controlled Trial of Young Adult Cancer Survivors

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**Abstract**

**Purpose:** To examine the role of mindfulness training on changes in inflammatory responses (e.g., C-Reactive Protein [CRP] and Interleukin-6 [IL-6]) in a sample of young adult cancer survivors.

**Methods:** Young adult cancer survivors were randomized to either 8-weeks of mindfulness-based stress reduction (MBSR; $n = 42$) or a wait list control group ($n = 44$). Two-thirds of the treatment group also received an additional 8 weekly mindfulness-themed texts or email messages. Whole blood spots were collected at baseline and 16-weeks using a finger prick approach. Analysis of CRP and IL-6 was done with a validated ELISA protocol. Kruskal-Wallis nonparametric tests were used to estimate differences in ranks across groups due to skewed distributions.

**Results:** There were no statistically significant group differences in CRP or IL-6 values at baseline, nor were any significant group differences in IL-6 detected at 16 weeks. However, there was a significant difference in CRP by study arm at the 16-week assessment ($H(2) = 6.896$, $P < .01$), with a mean rank of 25.8 for mindfulness participants, and 37.9 for wait list control participants. Baseline
and 16-week median CRP values for the treatment group were 1.146 and .48400, respectively, while control group values were 1.321 and 1.490, respectively. Both groups experienced some normal attrition between baseline and 16 weeks. The treatment group lost 13 and the control group lost 12 individuals. Both groups had the same number of individuals with elevated CRP (>3) drop out (n = 4) in each group.

**Conclusion:** This study examined the role of mindfulness training on 2 biomarkers of inflammation (CRP and IL-6) in a randomized wait-list controlled trial of MBSR with young adult cancer survivors. While IL-6 did not demonstrate significant group differences at the 16-week follow up, CRP did, in favor of the treatment group. Interpretive caution should be exercised given the small sample size of this study.

**P05.51**

**Energy Medicine for Hand and Wrist Pain: A Large Pilot Study**

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**Abstract**

**Purpose:** The objectives of this within-subject pilot study were to: (1) evaluate feasibility and acceptability; (2) assess appropriate measures for definitive trial; and (3) collect preliminary data on the effects of energy medicine for participants with hand and wrist pain.

**Methods:** Energy practitioners were vetted to purportedly eliminate or reduce hand or wrist pain using energy medicine techniques. Participants completed baseline assessments and then received one 30-minute energy medicine session. Measures were repeated immediately after the session and again 3 weeks later. Measures included subjective pain (Pain Numeric Rating Scale), sleep quality (Sleep Quality Scale), overall well-being (Arizona Integrative Outcomes Scale), compassion (Dispositional Positive Emotions Scale- Compassion subscale), interconnectedness (Cloninger Self-Transcendence Scale, Inclusion of Nature in Self, Inclusion of the Other in Self), as well as nerve conduction velocity, heart rate, heart rate variability, and electrocardiography coherence between the practitioner and participants.

**Results:** Seventeen practitioners completed sessions on 193 participants from April to September 2019. Subjective current pain significantly improved over all 3 sessions (repeated measures analysis of variance P < .000005; Pre-3.7 ± 2.3, Post-1.6 ± 1.9; 3-week-2.5 ± 2.4; scale is 0–10, 0 being no pain). Sleep quality (P = .01), compassion (P = .001), and self-transcendence (P < .00005), interconnectedness with nature (P = .0021), and interconnectedness with others (P = .0045) improved. There was a decrease in heart rate (P < .00005) and an increase in high frequency heart rate variability (P = .009). There was an increase in overall coherence (P = .05) and a trend in overall phase coherence (P = .07) in the electrocardiography signal between the healer and the participant. The other measures showed no significant changes.

**Conclusion:** Feasibility and acceptability were confirmed and measure collection did not disrupt the healing environment. While this pilot study was not powered to definitively test hypotheses, the results warrant further studies.

**P05.52**

**Outcome Expectations and Chronic Widespread Pain: Relationship Between Perceived Benefits of Exercise and Characteristics of Patients With Fibromyalgia**

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**Abstract**

**Purpose:** Despite the well-established benefits of exercise, implementation as a treatment for fibromyalgia remains a challenge. The outcome expectancy of a treatment is identified as a determinant of adherence to and engagement with exercise. While in chronic pain there is a correlation between greater motivation to exercise and higher outcome expectation for exercise (OEE), little is known about factors influencing OEE in fibromyalgia. We examined the associations between OEE (baseline and longitudinal) and demographic, physical, and psychosocial variables in fibromyalgia patients.

**Methods:** This study is a secondary analysis of data obtained from a single-center, 52-week, randomized comparative effectiveness trial of Tai Chi versus aerobic exercise for participants with fibromyalgia (n = 226). OEE was assessed with the 9-item Outcome Expectations for Exercise Scale, where a higher value indicates stronger expectation for a positive outcome. Univariate analyses assessing the relationship between participant characteristics (demographics, physical performance, outcome expectancy, self-efficacy, and other psychosocial factors) and high OEE (≥4) were performed using logistic regression.
Variables achieving a significance level of .10 were included in the multivariable model using backward selection. 

**Results:** Participants had mean age of 52 years and body mass index of 30 kg/m², 92% were females, 61% were white, and 35% had a college degree. In univariate analyses, lower symptom severity, higher self-efficacy, better mental health, better perceived health status, and better function were associated with higher OEE. Multivariable model revealed that participants with higher self-efficacy (OR = 1.19, CI = 1.03, 1.37) and function (6-minute walk; OR = 1.01, CI = 1.00, 1.01) were likely to have higher OEE. No significant change in OEE was detected over the course of the study. 

**Conclusion:** Our study found that higher OEE was significantly associated with greater self-efficacy and physical performance. Baseline OEE was found to be high and remained stable for up to 1 year, showing promise for long-term exercise engagement in fibromyalgia patients.

**P05.53**

**Effective Recruitment Strategies in an Exercise Trial for Patients With Fibromyalgia**

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**Abstract**

**Purpose:** Recruitment of fibromyalgia populations into long-term clinical trials involving exercise interventions is a challenge. We evaluated the cost and randomization yields of various recruitment methods used for a fibromyalgia trial in an urban setting. We also investigated differences in participant characteristics and exercise intervention adherence based on recruitment source. 

**Methods:** We recruited individuals with fibromyalgia in the greater Boston area to a clinical trial using a range of strategies. We used the American College of Rheumatology 1990 and 2010 diagnostic criteria to determine eligibility. We compared cost and yield of 6 recruitment strategies as well as described baseline characteristics, and attendance rates of participants across strategies. 

**Results:** Our recruitment resulted in 651 telephone pre-screens, 272 in-person screening visits, and 226 randomized participants. Advertisements in a local commuter newspaper were most effective, providing 113 of 226 randomization participants, albeit high cost ($212 per randomized participant). Low cost recruitment strategies included clinical referrals and web advertisements, but they only provided 32 and 16 randomization participants. Community-based strategies including advertisement and flyers recruited a more racially diverse participant sample than clinic referrals and mailing or calling patients. There was no observed difference in attendance rates among participants recruited from various strategies. 

**Conclusion:** Newspaper advertisement was the most effective and most expensive method for recruiting large numbers of individuals with fibromyalgia in an urban setting. Community-based strategies recruited a more racially diverse cohort than clinic-based strategies.

**P05.54**

**The Cost of Health Resource Use in Patients With Fibromyalgia**

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**Abstract**

**Purpose:** Few studies have assessed the economic burden of fibromyalgia syndrome in the United States, even though it is a common rheumatologic disorder. This study estimates annualized costs of fibromyalgia care from the health-care utilization data of a fibromyalgia clinical trial. We also assessed the association between cost and overall fibromyalgia impact severity. 

**Methods:** We analyzed secondary data from a 52-week randomized trial comparing Tai chi and aerobic exercise therapy among 226 adults with fibromyalgia. Data on medication use, physician visits, and medical/surgical procedures in the 6 months prior to intervention commencement were collected using the validated Health Assessment Questionnaire. Medication costs were estimated by assigning average wholesale price from Micromedex Redbook, accounting for strength, number of pills, and frequency of use. Health facility utilization costs were estimated by assigning Medicare-derived reimbursement rates to doctors’ visits, hospitalizations, and medical/surgical procedures. Fibromyalgia severity was established using revised Fibromyalgia Impact Questionnaire scores: mild 0 – <39; moderate 39 – <59; severe 59–100 (Bennett et al., 2009). A generalized linear model assessed the association between costs and fibromyalgia overall impact, adjusting for age, self-
reported pain, use of narcotics and antidepressants. All costs are in U.S. dollars, all P-values are 2-tailed.

**Results:** In total, 225 participants completed the HAQ questionnaire. Baseline mean age was 51.7 ± 12.1. 92.5% were females; 51% and 59% respectively reported narcotic and antidepressant use. Mild, moderate, and severe fibromyalgia categories were 18.64%, 33.92%, and 44.93% respectively. Average 6-month health-care cost was $5637.00 ± 9373.73. Costs by severity impact were $3953.83 ± 3540.74; $4705.79 ± 6780.70; and $6949.59 ± 12 180.64 respectively for mild, moderate, and severe fibromyalgia. No statistical differences were noted with severity categories, but anti-depressant users had 2 times higher health-care costs (P < .001).

**Conclusion:** Fibromyalgia patients have annualized average health-care costs of $11,274 (6-month cost multiplied by 2) and patients on anti-depressants use 2 times higher health-care resources than those not using antidepressants.

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**P05.55**

**Group Outdoor Health Walks Using Activity Trackers: Measurement and Implementation Insight From a Mixed-Methods Feasibility Study**

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**Abstract**

**Purpose:** Physical inactivity has recognized consequences for individual and public health. Outdoor walking groups aim to promote wellbeing or prevent chronic health conditions by modifying individual behavior. Motivation of physically inactive adults to participate and measurement of health-related benefits are ongoing challenges. Activity trackers have the potential to promote increased physical activity and provide accurate measures of physical activity. Innovative measures from integrative medicine may be applicable to health outcomes in nature-based intervention studies. We present results of a feasibility study of a 12-week group outdoor health walk (GOHW) that incorporated activity trackers and the use of a modified holistic health and wellbeing measure, the Self-Assessment of Change (mSAC).

**Methods:** A convergent mixed methods design was used to assess participant involvement, physical activity, and holistic health and wellbeing. Thirteen older adults (63–81 years old, 76% females) were recruited to and remained involved throughout the program. Walker level data included: pre–post self-report questionnaires, daily step counts, and in-depth interviews. Program delivery information included: weekly checklists, written reflections from those delivering the intervention, stakeholder meeting minutes, and a final report.

**Results:** Activity trackers did not entice doctors to signpost walkers to the GOHW. Activity tracker usage complicated program delivery but motivated walkers to join the group and be more active—through step count feedback and group interaction. By week 12, all participants met national physical activity guidelines. Clinically significant changes in holistic health and wellbeing on the mSAC were observed for: sleeping well, experiencing vibrant senses, feeling energized, focused, joyful, calm, and whole.

**Conclusion:** The study demonstrated the feasibility of using activity trackers to motivate engagement in nature-based health walks in previously inactive individuals. The mSAC provides a promising measure for nature-based health research. We provide a model as guidance for the design of future longitudinal large-scale studies of nature-based interventions such as group outdoor health walks.

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**P05.56**

**Integrative Health Immersion Retreats in Nature: An Observational Study With 12-Month Follow-up**

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**Abstract**

**Purpose:** Integrative health immersion retreats (IHIR) in natural settings are increasingly common. Limited research suggests that these multimodal retreats improve quality of life and mood. This study examined short- and long-term effects of an immersion retreat in the California redwoods on holistic well-being and nature connection. Participants in the 5-day IHIR learned self-care, stress reduction, creativity, and relationship-building. They ate plant-based meals, engaged in mind–body–spirit disciplines, and spent time in the natural environment.

**Methods:** The 30 self-selected participants and staff (ages 28–77, 63% women) were coping with common life challenges: job change, burnout, academic stress, divorce, marriage, starting a family, contemplating retirement, grappling
with prejudice, emancipating, aging well. Outcomes included validated scales measuring aspects of nature connection and bio-psycho-social-spiritual well-being, as well as short written answers. Analysis included change over time on quantitative scales (pre–post, pre–3 months, pre–12 months) and thematic analysis of qualitative short answers at 12 months.

Results: Postretreat, participants experienced less perceived stress and more positive emotions, social support, spiritual transcendence, and connection with nature. Participants endorsed vibrant senses, feeling empowered, and having the ability to let go and forgive. Feelings of connection, calmness, joy, wholeness, and balance also improved. At 3 months, participants still experienced improvement in perceived stress, emotional support, feeling more whole, and balanced. At 12 months, perceived stress remained significantly improved, as were both positive and negative emotions, emotional support, and 15/16 items on the holistic Self-Assessment of Change scale. At 12 months, participants remembered the power of the natural setting, their experience of community, their self-growth, and the “great food.” They felt that the retreat had changed them personally.

Conclusion: Our results suggest that IHIRs have long-lasting effects on the perceptions of stress, emotions, emotional support, and holistic well-being of generally healthy individuals. These results pave the way for more rigorous randomized controlled trials of integrative health immersion retreats.

P05.57
Yoga for State Anxiety Reduction in University Students
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Abstract
Purpose: The purpose of this study is to investigate the effects of a 1-hour yoga class on immediate measures of state anxiety and affect within a population of university students.

Methods: Students at a medium-sized university in the northeast region of the United States voluntarily attended a 1-hour yoga flow class put on by the university’s campus recreation department. Participants completed surveys, measuring their anxiety and effect, both before and immediately following the class. Participants self-reported on both the State Trait Anxiety Inventory (STAI) and Positive and Negative Affect Scale (PANAS). Demographical and related questions were included on the initial questionnaire.

Results: Fifty-nine students participated, from various academic years and majors. Results revealed that the yoga intervention significantly reduced students’ state anxiety by 25%, improved their positive affect by 21%, and decreased their negative affect by 25%. In addition, 62% of participants reported relaxation or stress reduction the greatest benefit from taking the class.

Conclusion: In conclusion, this research demonstrated that participation in a single yoga class immediately improved affect and reduced anxiety, thus providing a healthy option for anxiety management in university students.

P05.59
Psychological Mechanisms Driving Stress Resilience in Mindfulness Training: A Randomized Controlled Trial
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Abstract
Purpose: Mindfulness interventions have been shown to reduce stress; however, the mechanisms driving stress resilience effects are not known. Mindfulness interventions aim to teach individuals how to: (a) use attention to monitor present moment experiences with (b) an attitude of acceptance and equanimity. A randomized controlled dismantling trial (randomized controlled trial [RCT]) was conducted to test the prediction that the removal of acceptance skills training would eliminate stress reduction benefits of a mindfulness intervention.

Methods: This preregistered RCT randomly assigned stressed community adults to 1 of 3 conditions: (a) Monitor and Accept (MA) mindfulness training, a standard 8-week Mindfulness-Based Stress Reduction (MBSR) intervention that provided explicit instruction in developing both monitoring and acceptance skills; (b) Monitor Only (MO) mindfulness training, a well-matched 8-week MBSR intervention that taught monitoring skills only; or (c) No Treatment (NT) control. Stress and nonjudgment were measured using ecological momentary assessment (EMA) for 3 days at baseline and 3 days at postintervention.
Results: Consistent with predictions, MA participants increased in nonjudgment and decreased in both stress ratings and the proportion of assessments that they reported experiencing feelings of stress in daily life, relative to both MO and NT participants.

Conclusion: This RCT provides one of the first experimental tests of the mechanisms linking mindfulness interventions with stress resilience. These findings suggest that acceptance skills training may be a necessary active ingredient and support the value of integrating acceptance skills training into stress reduction interventions.

P05.60

Optimal Format to Assess Intervention Fidelity in Mindfulness Research

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Abstract

Purpose: Intervention fidelity is a critical issue in Mindfulness-Based Intervention (MBI) research. The field has been limited by the absence of tools to evaluate teacher skill, a potentially central element of intervention fidelity. The MBI: Teacher Assessment Criteria (MBI:TAC) was developed to measure teacher competency and is emerging as an important method of measuring MBI teacher proficiency. To date, the MBI:TAC has been conducted with video recordings, which have important logistical limitations and possible Hawthorne effects in the research setting. We sought to evaluate the feasibility of obtaining reliable MBI:TAC ratings using audio-only recordings instead.

Methods: MBI teachers trained in using MBI:TAC rated audio-only recordings of Mindfulness-Based Stress Reduction (MBSR) sessions that had been previously rated using video. We calculated absolute agreement intraclass correlation (ICC) coefficients to assess interrater reliability for audio ratings and compared them to the ICCs of video ratings. We also interviewed 4 raters individually to assess their experience rating sessions recorded in both formats. We conducted qualitative thematic analysis of interviews; 2 team members independently coded transcripts and jointly reconciled coding differences. The full team identified key themes.

Results: Eight MBI:TAC raters provided an average of 1.7 ratings of 18 teachers recorded with audio. For the 6 MBI:TAC domains, very preliminary individual rater ICC coefficients adjusted for session number ranged from 0.47 to 0.72. Raters emphasized the importance of visual information, particularly when assessing less experienced teachers. There was no consensus whether raters’ perceived accuracy was lower when using audio versus video. Some raters posited that audio sessions seemed more difficult than video due to less experience using this format.

Conclusion: ICC coefficients were generally similar to those obtained with video recordings, though further data are needed. Qualitative data suggest that raters found audio-only ratings more challenging. Audio-only recordings may be feasible for MBI:TAC ratings.

P05.61

Temporal Dynamics of Daily Life Stress, Affect, and Several Affect Regulation Strategies, in Patients With (Chronic) Mood and Anxiety Disorders Before and After a Mindful Yoga Intervention

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Abstract

Purpose: Patients with chronic mood and anxiety disorders experience many life stressors and are more reactive to these stressors. Mindful yoga represents an intervention that might reduce stress reactivity. However, little is known about the different affect regulation processes by which mindful yoga might reduce stress reactivity.

Methods: In this study, we examined within-person temporal associations between stressful experiences, affect and 4 potential affect regulation processes: rumination, fear of emotion, mindfulness, and body awareness, before and after a mindful yoga intervention. Using experience sampling methodology, 12 patients with chronic mood and anxiety disorders completed 5 daily assessments for 15 days before and after a 9-week mindful yoga intervention. Autoregressive moving average models were used to assess mean-level change from pre-to-postintervention and vector autoregressive models to assess change in the temporal associations.
Results: We found a positive change in affect balance before and after the training in 9 out of 12 participants. Also, for most individuals we found positive changes in the proposed affect regulation processes from pre-to-postintervention. Of the processes, fear of emotion showed changes from pre-to-postintervention for most individuals, followed by mindfulness, body awareness, and then rumination. Considering the dynamic relationships between stress, the 4 proposed affect regulation processes and affect balance, we found individual differences in which the pathways changed and how they changed.

Conclusion: To our knowledge, this is the first study to examine processes of change within a person before and after a mindful yoga intervention. In general, individuals seem to improve with regard to affect balance and the affect regulation processes. However, in the context of daily life stress, change seems to be difficult and complex, and it remains difficult for many individuals to preserve a better affect balance with regard to the proposed affect regulation processes.

P05.62

The Interpersonal Mindfulness Program for Health-care Professionals: A Feasibility Study

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Abstract

Purpose: The Dutch Center for Integrative Psychiatry (CIP) provides mindfulness and compassion training for patients and health-care professionals since 2004. In 2018, a new Interpersonal Mindfulness Program (IMP) was developed and offered to mental health-care workers. This program presents a methodical way for those who have already followed a mindfulness training, to further deepen mindful presence, empathy, and compassion in the interpersonal domain. We examined the feasibility of this program and its effects on mindfulness, self-compassion, empathy, stress, and professional quality of life compared to a control group.

Methods: The training consisted of 9 weekly 2.5-hour sessions and daily home practice (45–60 min). Twenty-five participants (mean age 51.4 years (SD 10.8) with mindfulness experience participated in the IMP training, and 22 controls (mean age 47.5 years (SD 10.4) were recruited. Participants and controls completed self-report questionnaires before and directly after the IMP training concerning levels of mindfulness, self-compassion, empathy, stress, and quality of life. Participants also completed an evaluation form about the training.

Results: On 3 measures, self-compassion, empathy, and compassion fatigue, the IMP training had a significantly effect in a positive direction, with partial eta squared values of 0.119, 0.109, and 0.104, respectively, meaning effect sizes between medium and large. On the FFMQ subscale “nonreactivity to inner experience” and on the SCS subscale “isolation,” the training had a significantly positive effect with partial eta squared values of 0.093 and 0.088, respectively, meaning medium to large effect sizes. No effect was observed on mindfulness, stress, and compassion satisfaction. Satisfaction with training was 8.2 (SD 0.7) and with teachers 8.4 (SD 0.7). Five participants reported some mild adverse reactions.

Conclusion: IMP appears feasible for health-care professionals and seems to induce positive effects. Further research on the effectiveness and mechanisms of change of the IMP training in larger samples is needed.

P05.63

Interprofessional Resilience, Work Engagement, Perceived Stress, and Rates of Burnout Improved via a System-wide Mindfulness Offering at a Large Academic Medical Center

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Abstract

Purpose: Health-care provider (HCP) burnout transcends clinician job title and role, and thus, intervention strategies designed to address burnout need to be interprofessional in both scope and practice. This research tested pre–post changes in measures of burnout, resilience, perceived stress, and work engagement for interprofessional HCP faculty and students participating in Mindfulness in Motion (MIM), a novel 8-week multimodal evidenced-based intervention delivered onsite.

Methods: Our team expanded a Graduate Medical Education (GME) pilot of MIM to target interprofessional resiliency within our academic health center by bringing
together resident physicians, resident chaplains, attending physicians, medical center faculty, and hospital administrative/managerial clinical staff.

**Results:** The 2017 to 2019 faculty/student role demographic categories (n = 180) included 30% physicians, 9% chaplains, 3% pharmacists, 17% registered nurses, 7% advanced practice nurses, 3% dietitians, 5% other clinical staff, and 26% nonclinical health-care staff. These cohorts demonstrated significant 16.1% reduction in burnout, while significantly increasing resilience scores pre/post 8-week intervention. Total burnout was determined by scores on the subscales of emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA) of the Maslach Burnout Inventory (MBI). By 8-week intervention end, there was a highly significant decrease in the in the emotional exhaustion (P < .0001) and depersonalization score (P < .0001), with highly significant increase in the personal accomplishment (P < .0001) MBI subscales as compared to baseline. In addition, resilience, as measured by the Connor Davidson Resiliency Scale (CDRS) significantly increased (P < .0001). There was also a significant increase (P < .0001) in the total Utrecht Work Engagement Score (UWES) and a highly significant decrease in scores on the Perceived Stress Scale (PSS; P < .0001).

**Conclusion:** MIM significantly reduced burnout and perceived stress, for interprofessional faculty and staff, while increasing resiliency and work engagement in a large academic health-care system. This study illustrates the potential for increasing the health and wellness of trainees, faculty, and staff, via this interprofessional endeavor, teaching effective mindfulness skills, and strategies.

**P05.64**

A Lens Into the Psycho-social Changes Resulting From Mindfulness Programming for Health-care Professionals: What Changes First, and What Is the Progression of Change?

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**Abstract**

**Purpose:** After several years of implementing Mindfulness in Motion (MIM) programming in a large Academic Medical Center, quantitative results consistently showed significant changes in burnout, perceived stress, resiliency, and work engagement by the end of the 8-week intervention. Yet, self-compassion was the significant qualitative change most voiced by research participants.

**Methods:** To test which (if any) of these changes preceded the others, we compared interprofessional health-care professionals on these outcome variables between 2 cardiac surgical critical and progressive care units with similar patient acuity, providing MIM to one unit (n = 8), while other unit (n = 24) served as control. Assessments of perceived stress, burnout, work engagement, resilience, self-compassion, and self-transcendence were performed 1 week before the start of the 8-week intervention, 1 week after, and at 9 months. Measures utilized: Perceived Stress Scale (PSS), Depression Anxiety Stress Scale (DASS), Maslach Burnout Inventory (MBI), Utrecht Work Engagement Scale (UWES), Self-Compassion Scale (SCS), and Self-Transcendence Scale (STS).

**Results:** One week after the 8-week intervention, there was a highly significant change in the intervention group total self-compassion score (P < .01) compared with the control unit, yet no other significant changes occurred. Individual, monthly mindfulness booster sessions were held for the intervention group with the intention of sustaining any benefits garnered by the health-care professionals. At 9 months after the study began, there were significant improvements in total work engagement (P = .04), depersonalization (P = .02), perceived stress (P = .04), and interpersonal self-transcendence (P = .02), with highly significant sustained improvements in self-compassion for the intervention group compared to controls.

**Conclusion:** Results from this study indicate that for some highly stressed groups of health-care professionals, self-compassion may be the first variable to change: it may precede other important changes and that for the other benefits of mindfulness training to occur, longer, sustained mindfulness training may be needed to render changes typically seen in 8-week mindfulness interventions.

**P05.65**

Mindfulness-Based Cognitive Therapy for Recurrent Depression: Effectiveness in a Real-World Health-care Setting and Considerations for Implementation

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**Abstract**

**Purpose:** Depression is a highly prevalent and recurrent mental health disorder (Kessler, 2003). Mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale,
2013) is an evidence-based group treatment that utilizes eastern meditative practices and cognitive-behavioral principles to treat recurrent depression. The treatment aims to provide participants with the understanding and skills to recognize and free themselves from patterns of depression-related negative thinking. The treatment has been shown through multiple randomized controlled trials (RCTs) to reduce depressive symptoms and risk for future depressive relapse (Kuyken et al., 2008) as well as symptoms of anxiety (Hofmann et al., 2010). Despite this, little research is being conducted at later stages of the translational journey, namely effectiveness in real-world healthcare settings. Real-world mental health services are normally designed to address the needs of patients experiencing more acute difficulties and may be unable to uphold the stringent exclusion criteria of RCTs.

**Methods:** The current analyses utilized pre- and posttreatment data from 5 cohorts of MBCT participants and aimed to examine the effectiveness of MBCT implemented in a large Mid-Western academic medical center. Patients with a history of depression and the absence of any comorbid disorders that would significantly interfere with treatment (eg, primary substance abuse, psychosis, or bipolar I) were referred from outpatient providers within a large academic medical center.

**Results:** Repeated measures analyses of variance for treatment completers (N = 29) revealed significant improvements in depression, anxiety, mindfulness, self-compassion, and flourishing over the 8 weeks of treatment (all P < .05). Furthermore, decreases in depression were related to proposed mechanisms of change of increased mindfulness (r = -.59, P < .001) and self-compassion (r = -.36, P < .001). Decreases in anxiety were unrelated to these constructs (all P > .05).

**Conclusion:** These findings have important implications for implementation of MBCT within real-world healthcare settings. Considerations related to comorbid anxiety and program development will be discussed.

**P05.67**

**Effectiveness of App-Based Relaxation Exercises in Patients With Chronic Neck Pain (Relaxneck)—A Pragmatic Randomized Trial**

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**Abstract**

**Purpose:** Chronic low back pain (cLBP) is a common condition for which clinical guidelines recommend using effective nonpharmacological treatments instead of opioids. Yoga for cLBP has substantial evidence supporting its use and possible differential effects by gender and age. A recent clinical trial with 150 military veterans found that yoga participants reported significantly greater improvements in disability, pain and other outcomes. We explored whether sociodemographic subgroups responded differently to yoga in that trial.

**Methods:** Disability was measured with the Roland-Morris Disability Questionnaire (RMDQ) as a continuous and binary variable (30% score reduction is considered clinically significant). Patient characteristics (gender, age, and “homeless in the last 5 years”) that were significantly associated with reduced RMDQ were entered into the overall model in addition to yoga group assignment.

**Results:** Yoga group assignment remained significant throughout. Gender was marginally significant when added to the model (P = .062). History of homelessness was not significant. Age was significant (P = .024) and gender became a less relevant predictor when age entered the model (P = .167). The change in RMDQ score was 0.008 lower for each additional year of age. Women were significantly younger than men in the overall sample (48.0 vs 55.5, P = .002) and trended toward a higher rate of clinical improvement in the whole sample (56% vs 36%, P = .091) and in the yoga group (77% vs 51%, P = .090).

**Conclusion:** Younger age, and to some extent female gender, were associated with a higher rate of clinical improvement in disability after a yoga intervention for veterans with cLBP. Future research should examine these variables and examine whether these relationships are influenced by veteran or nonveteran status.
**Abstract**

**Purpose:** The aim of this pragmatic randomized trial was to evaluate whether app-based relaxation exercises including audio-based autogenic training, mindfulness meditation, or guided imagery are more effective in the reduction of chronic neck pain (NP) than usual care alone.

**Methods:** Participants aged 18 to 65 years, owning a smartphone, having chronic neck pain and a previous week's average neck pain intensity \( \geq 4 \) on the numeric rating scale (NRS) were randomized into either an intervention group practicing app-based relaxation or a usual care group. In both groups, follow-up data were collected through app-based diaries and surveys. The primary outcome was the mean NP intensity during the first 3 months based on daily measurements. Secondary outcomes included NP based on weekly measurements, pain acceptance, neck pain-related stress, sick leave days, pain medication intake, and adherence measured until 6-month follow-up. For primary analysis, analysis of covariance adjusted for baseline NP intensity was used.

**Results:** Participants in both groups (intervention \( n = 110 \), control \( 110 \), mean age \( 38.9 \pm 11.3 \) (SD)), baseline NP of \( 5.7 \pm 1.4 \) showed a decrease in mean NP during the first 3 months (intervention \( 4.1 \pm 2.9 \) and control \( 3.8 \pm 2.4 \)). For the primary outcome, no significant difference between groups could be observed during the first 3 months (group difference \( 0.3 \pm 0.2 \), \( P = .231 \)). Also secondary outcome measures did not differ significantly between the 2 groups. The number of participants practicing exercises at least 10 minutes per week dropped from 106 in week 1 (mean exercises \( 5.7 \pm 2.9 \)) to 38 in week 12 (3.4 \( \pm 2.4 \)), and to 30 in week 26 (3.0 \( \pm 1.7 \)).

**Conclusion:** The study app was not effective in reducing chronic NP and keeping participants engaged in exercising. Future studies should elaborate whether an app that includes a more detailed behavioral change strategy, information, and visual elements would be more effective in a self-care setting.

**Imagine HEALTH: Changes in Physical Activity and Dietary Intake Following a 12-Week, Cluster RCT Lifestyle Intervention Using Guided Imagery to Reduce Obesity-Related Disease Risk in Urban, Predominantly Latino Adolescents**

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**Abstract**

**Purpose:** We previously showed that individually delivered guided imagery (GI) improved physical activity (PA) outcomes in obese Latino adolescents. The objective is to determine primary lifestyle behavioral outcomes (PA and dietary intake) from a RCT lifestyle intervention using group GI.

**Methods:** 232 high school students (154 F/78 M; age \( 16.4 \pm 0.6 \); 94% Latino; 40% obese/overweight) were randomized into 1 of 4 intervention arms: (1) nonintervention control (C); (2) lifestyle education (LS); (3) LS + stress reduction GI (SRGI); and (4) LS + lifestyle behavior GI (LBGI). Group lifestyle education class sessions (2/week) and GI sessions (1/week, conducted in the facilitated group process of “council”) were held after school for 12 weeks. Primary Outcomes: change in accelerometer-measured time spent in sedentary behavior and PA and dietary intake (diet recall), adjusting for overweight status. Statistical analyses: (1) intention to treat (ITT), across-group differences in mean change at 12 weeks; and (2) ad hoc: proportion of individuals showing any improvement in PA measures in each group.

**Results:** The ITT analysis showed no significant between-group differences in mean PA or dietary outcomes. For C, LS, SRGI, LBGI, respectively, percent of subjects who increased time spent in moderate-to-vigorous PA was 22, 50, 39, 12 (\( P = .013 \)); percent of subjects who decreased time spent in sedentary behavior was 33, 62, 54, 29 (\( P = .035 \)). Adherence to protocol (defined as attendance of 75% of intervention sessions) was poor in all groups.

**Conclusion:** There were significant between group differences in the proportion of subjects who decreased sedentary activity and increased moderate-to-vigorous physical activity, favoring the SRGI and LS groups. The null findings of the intervention in ITT analysis are difficult to interpret given poor session attendance, generally due to multiple, conflicting after-school activities. Further analyses are needed to detect potential subgroups helped by the intervention, as well as results at longer term follow-up.
Abstract

Purpose: As migraine medications are often limited by inefficacy, side effects, and cost, a demand for nondrug treatments exists. Mindfulness Based Stress Reduction (MBSR) teaches mindfulness meditation/yoga over 8 weekly classes with a structured curriculum. Since stress is the most commonly reported migraine trigger, MBSR may be especially helpful as a nondrug intervention. The objective is to elucidate potential mechanisms of how mindfulness impacts the pain experience and quality of life in adults with migraine through structured qualitative analyses.

Methods: We conducted a double-blinded, randomized controlled trial of MBSR versus headache (HA) education for migraine. Prior to randomization, participants were trained with quantitative sensory testing to distinguish pain intensity and unpleasantness. Of 96 randomized, 71 participants (MBSR n = 33; HA education n = 38; 7 cohorts) completed semistructured interviews after classes ended. Interviews were audio recorded and transcribed. The research team (1) developed transcript summaries using a standardized template based on the interview guide with 12 key domains; (2) aggregated data into a matrix organized by key domains and cohort; and (3) resolved discrepancies and discussed emerging patterns weekly.

Results: Preliminary findings suggest that most MBSR participants reported: (1) shifting out of “auto-pilot” mode in daily life; (2) decreased reactivity to stress in daily life, relationships, and with migraines; (3) attenuation of pain unpleasantness; and (4) greater self-awareness and self-compassion. Additional MBSR benefits included group benefit with decreased migraine stigma and sense of isolation; use of mindfulness as an acute migraine treatment; disruption of maladaptive patterns of thinking; less fear of migraine; positive lifestyle changes; and clinical migraine improvements.

Conclusion: Qualitative interviews provide rich insights into MBSR experiences of participants with migraine. Mindfulness meditation may meaningfully improve well-being, quality of life, and perception of migraine pain and pain experience with less stigma. Future research will help clarify factors that contribute to mindfulness benefits.

P05.70LB

Meditative Interventions and Immune Function: A Systematic Review and Meta-analysis

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Abstract

Purpose: The primary purpose of this systematic review and meta-analysis was to examine the effects of meditative interventions on immune function. The secondary purpose was to examine potential moderating effects of the type of immune measure, intervention, and sample.

Methods: Medline, PsycINFO, and PubMed databases were searched through June 2019 for meditative interventions with immune measures. Studies were eligible if the intervention included a formal meditation component and a measure of immunity or cell-aging. Of the identified 1131 relevant reports, 84 articles met eligibility. Publication bias and risk of bias were assessed.

Results: A total of 6461 participants were represented in the meta-analysis. Overall, meditative interventions increased immune function (g = .25); this effect was larger than that for control conditions (g = .03). For the meditative interventions, the average effect sizes were significant for all sample types and meditative intervention types, and the magnitudes of these effect sizes were similar. An examination of categories of immune function revealed that, although the average effect size was not significant for leukocytes, significant effect sizes were revealed for inflammatory mediators, telomeres, antibody/immunoglobulins, and NF-κB. A meta-regression revealed that longer interventions were associated with greater increase in immune function, Z = 2.40, P = .02.

Conclusion: Meditative interventions appear to offer favorable immune benefits among healthy individuals and those with physical and psychological disorders. Whereas immune benefits were observed with all types of meditative intervention, the meta-analyses suggest different types of
meditative interventions may exert different effects on specific types of immune functions. Meta-regression suggests that longer meditative interventions are associated with greater effects on immune function. Future meditative intervention research is warranted to examine this dose-response question with regard to the duration needed to influence immune biomarkers.

P05.71LB

A Pilot Randomized Controlled Trial of Meditation and Music Listening Versus Enhanced Usual Care for Subjective Cognitive Decline: Feasibility and Preliminary Efficacy

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Abstract

Purpose: Findings from our recent RCT suggest that meditation and music listening (ML) improve cognitive and psychosocial outcomes in older adults with subjective cognitive decline (SCD), although the lack of a usual care group has limited conclusions. In this pilot RCT, we assessed the feasibility and preliminary efficacy of a simple Kirtan Kriya meditation (KK) and ML versus an enhanced usual care (ECU) program in older adults experiencing SCD, a strong predictor of Alzheimer’s disease.

Methods: Forty participants with SCD were randomized 1:1:2 to a KK, ML, or EUC program. KK and ML participants were asked to practice 12 minutes/day for 3 months; EUC participants were given a comprehensive educational packet regarding healthy aging and strategies for improving maintaining brain health. At baseline and 3 months, we measured memory and cognitive functioning, stress, mood, sleep, quality, and health-related quality of life (QOL) using well-validated instruments. Feasibility was assessed using measures of retention, adherence, treatment expectancies, and participant satisfaction, as well as information from daily logs and exit questionnaires. KK and ML groups demonstrated similar changes in cognitive and psychosocial measures and were pooled for analysis of outcomes.

Results: Thirty-two participants (80%) completed the study, with retention highest in the EUC group (P < .05). KK/ML participants performed an average of 6.0 (0.4) practice sessions/week, and EUC participants, a mean of 7.5 (0.6) brain health activities/week. Treatment expectancies were similar in all groups. Despite limited power and very active engagement by the EUC group, participants assigned to KK or ML showed greater improvements in memory functioning (Memory Functioning Questionnaire, Ps ≤ .025), cognitive performance (Trail Making Test-B), perceived stress, QOL, and multiple domains of mood (Ps < .09) relative to the EUC group.

Conclusion: Findings of this pilot study suggest incorporation of an EUC program is feasible and acceptable, and further support the promise of meditation and music listening for enhancing cognitive function and psychosocial status in adults with SCD.

P05.72LB

Interceptive Awareness and Central Sensitization in Chronic Low Back Pain

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Abstract

Purpose: In approximately 25%–55% of nonspecific chronic low back pain (NScLBP) patients, central sensitization is a causal mechanism in the development and maintenance of patient-reported pain. Central sensitization is defined as a persistent state of high reactivity in the central nervous system that amplifies the pain experience and results in pain hypersensitivity. Central sensitization in NScLBP patients is modulated by individual differences in interoceptive awareness. Maladaptive forms of interoceptive awareness, such as pain catastrophizing and kinesiophobia, predict central sensitization by activating the sympathetic nervous system, which, in turn, contributes to and sustains central sensitization. Less is known about the effects of skillful interoceptive awareness.

Methods: In a cross-sectional study, 20 adults (7 NScLBP and 13 healthy controls) completed self-report measures of clinical pain, symptoms of central sensitization, and interoceptive awareness. Participants then underwent an evoked pain paradigm while time-locked EEG activity was recorded. Three blocks of 30 electrical stimuli were applied on the nondominant hand. Lack of habituation in the amplitude of pain-related evoked potentials following the 3 blocks indicated central sensitization. Nonparametric correlations and linear regression analyses were conducted.

Results: Among NScLBP patients, self-reported symptoms of central sensitization were positively associated with pain disability (r = .86) and pain intensity (r = .83), and negatively associated with factors on the Multidimensional Assessment of Interoceptive Awareness-2 scale, including Attentional Regulation (r = −.66), Body Listening (r = −.40), and Emotional Awareness (r = −.63). Physiological
measurement of central sensitization was negatively correlated with Attentional Regulation ($r = -0.74$) and Body Listening ($r = -0.72$). Further, when controlling for sex and chronic pain status, a regression analysis revealed that Attentional Regulation ($P = 0.05$) predict the presence of cortical pain habituation, indicating central sensitization. **Conclusion:** Skillful interoceptive awareness was inversely associated with both self-reported symptoms and a physiological measurement of central sensitization. Targeting skillful interoceptive awareness may be an important mechanism in treating NScLBP.

**P05.73LB**

**A Qualitative Study of the Acceptability and Feasibility of Yoga Among Women in Substance Use Disorder Recovery**

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**Abstract**

**Purpose:** While there is preliminary evidence for the effectiveness of trauma-informed yoga practices among women who have experienced violence, less is known about how best to deliver yoga to women in substance use disorder (SUD) recovery (e.g., contextual factors to consider in intervention development, as well as women’s preferences for self-care practices). Understanding the lived experience of women in SUD recovery as well as perceptions and experiences of yoga among women in recovery aids in contextualizing intervention development and implementation. **Methods:** This formative, exploratory study included 17 semi-structured interviews informed by the Whole Health Resilience model in a qualitative research design. The study focused on 8 settings that deliver substance use treatment and/or recovery services (e.g., hospital, community-based treatment centers, peer-support groups such as Narcotics Anonymous and Alcoholic Anonymous), as well as prison re-entry programming. Additional participants were recruited online through a yoga teacher’s group and through snowball referrals. Demographic and Adverse Childhood Experiences (ACEs) questionnaires were administered. The interviews were recorded, transcribed, and analyzed via hybrid thematic analysis. **Results:** The interest in yoga for self-care in SUD recovery was positive (from moderate interest “I wouldn’t mind trying it” to strong interest “I’m really interested in it”). Overall, themes developed included facilitators to yoga uptake such as beginner classes, motivation, and reassurance that body type (e.g., weight) and physical injuries (e.g., spinal injuries, knife wounds, among others) would be addressed. Novel findings included perceptions of yoga’s benefits for stress reduction, yet not for reduced craving. Barriers included environmental factors such as money, time, and caretaking responsibilities. There was mixed evidence of trauma-informed yoga teaching practices in the community settings. **Conclusion:** Further research of trauma-informed mind–body practices for women in SUD recovery is warranted, for not only SUD and trauma outcomes but also in the interest of culturally adapting interventions in local settings.

**P05.74LB**

**mHealth Platform for Self-Management of Hypertension: A Feasibility Trial**

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**Abstract**

**Purpose:**

**Background:** Hypertension affects millions of Americans. OWL-H (Our Whole Lives for Hypertension) is a mobile health (mHealth) web-based platform that teaches mindfulness and evidence-based strategies to improve self-management of hypertension. The primary goal of this pilot was to evaluate the feasibility of OWL-H and cooking classes in the self-management of hypertension. **Methods:** We conducted a pre–post intervention study with 2 cohorts to assess the feasibility of a 9-module lifestyle modification program and mind–body activities (body scan, meditation), accompanied by 3 cooking classes over 8 weeks among patients with hypertension. Outcome data, collected at baseline and 8 weeks, included demographics, usage and attendance, self-efficacy in home measurement of blood pressure, and satisfaction in using OWL-H for hypertension self-management. In the statistical analysis, we used descriptive statistics and qualitative methods. **Results:** Among the enrolled 24 participants, the median age was 58 years, 88% were females, and 54% reported a household income of less than $30,000. Participants who were not confident in taking their blood pressure reduced from 8.3% at baseline to 4.8% on follow-up at 8 weeks. Out of 9 modules, the average number of modules accessed was 4 (min = 0; max = 9). Out of 24 participants, 11 attended all 3 cooking classes, while 3 attended only 1 class. Of the
participants that logged on to OWL-H, the minimum completed mind–body practices was 0, the maximum was 40, and the mean was 7. Eighty-three percent of participants reported that they were “Very Satisfied” with using OWL-H to help manage their hypertension.

**Conclusion:**

**Conclusions:** The mHealth platform for hypertension self-management, OWL-H, and accompanying cooking classes are a potential tool to educate patients on factors that can help reduce their hypertension.

**P05.75LB**

**State Mindfulness, Trait Mindfulness, and Response to Mindfulness Training: Is There a Genomic Signature?**

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**Abstract**

**Purpose:** The purpose of this study was to advance the emerging field of “Mindfulomics” by testing whether there are functional genomic signatures of state mindfulness, trait mindfulness, and response to mindfulness training.

**Methods:** Open trial of an 8-week Mindfulness-Based Stress Reduction (MBSR) program, using a pretest posttest design, with 30 healthy adults. Next-generation sequencing (Illumina RNAseq) using whole blood samples was used to assess a targeted panel of 168 genes involved in regulating stress and inflammatory-related cell signaling pathways. State mindfulness was operationalized by comparing a 15-min mindful breathing task to a 15-min quiet rest period with eyes closed. Trait mindfulness was operationalized by comparing “high” versus “low” trait mindfulness scores at baseline, based on median split. Response to mindfulness training was tested by comparing pre–post MBSR changes in gene expression.

**Results:** For both state mindfulness and trait mindfulness, no statistically significant differences were found in Conserved Transcriptional Response to Adversity (CTRA) or individual gene expression. Regression models controlling for age, sex, BMI, and immune cell subsets confirmed null results. Many effect sizes, however, were in the medium range or higher (Hedge’s g > .50). Mixed-effects regression models revealed no statistically significant differences in CTRA or individual gene expression post-MBSR, on average. Correlational analyses, however, found that individual differences in psychological response to MBSR were significantly associated with changes in gene expression. Specifically, reduced stress (beta = .46, P = .006) and decreased anxiety (beta = .37, P = .035) both predicted lower CTRA global scores and higher CTRA antiviral factor scores following the MBSR course.

**Conclusion:** Based on effect sizes from a small-scale pilot study, we conclude that state mindfulness, trait mindfulness, and mindfulness training can all plausibly impact stress- and inflammatory-related gene expression. Individual differences in psychological response to mindfulness training may best characterize participants who exhibit anticipated changes in gene expression.

**P06: Education Research**

**P06.01**

**Attitudes of Internal Medicine Residents Toward Integrative Medicine and Needs Assessment to Provide Integrative Medicine Content at the MedStar-Georgetown University Hospital**

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**Abstract**

**Purpose:** While the interest of physicians in Integrative Medicine (IM) is increasing, there are limited studies that explore this interest among internal medicine residents. In this study, we surveyed the attitudes toward IM and evaluated the need to offer IM content to internal medicine residents at the MedStar-Georgetown University Hospital and its affiliates.

**Methods:** The study is based on a 3-step conceptual framework outlining Attitudes, Knowledge, and Behavior of internal medicine residents. In this first step, we used the IM Attitudes Questionnaire. Additional questions about the residents’ background knowledge in IM and their interest to learn more about the field were formulated. Finally, demographic data were collected according to Institutional Review Board recommendations. The survey was distributed electronically between May and July of 2017 and data analyzed using descriptive statistics.
Results: Fifty-nine completed surveys were collected from 23 females and 36 males. Respondents include 58% White non-Hispanic, 30.5% Asian/Pacific Islanders, 3.5% Black non-Hispanic, 2% Hispanic, and 7% mixed race. Among the residents, 83% reported that they had previously heard of IM but only 51% had visited an IM practitioner. When asked if they are interested in learning about IM, 86% replied yes. The preferred format to deliver content was equally reported as Lecture Series or Seminar/Grand Rounds (49%), followed by CME and online minicourses. The modalities and therapies that the residents expressed most interest in learning more about were as follows: Acupuncture (42%), Dietary Supplements (39%), Mind–body Medicine (39%), Functional Medicine (32%), Yoga and Meditation (32%), and Integrative Nutrition (31%). While assessing the respondents’ view on IM training, 32% of participants agreed that doctors who know about IM in addition to conventional medicine generate improved patient satisfaction.

Conclusion: Internal medicine residents expressed positive attitudes toward IM and a need to learn about this field while in residency. Implications and recommendations are discussed.

Methods: The members of the task force identified massage therapists who worked in hospitals as well as hospitals known to have HBMT programs and a survey was distributed to those. These individuals were also asked to identify others who might be interested in participating in the project. The purpose of the survey was to assess various elements of HBMT programs such as educational/experience requirements, employment model, orientation, and supervision.

Results: Thirty-two of 37 hospitals (87%) completed the survey. The Task Force considered the high response rate and the extent to which respondents provided in-depth information to the open-ended questions as evidence of the need for specific competencies for safe and effective massage therapy for hospitalized patients. In addition to the survey, the task force used a Delphi technique to engage survey participants and other experts in the field to shape the initial draft of the competencies.

Conclusion: As these competencies are shared with hospitals, massage therapists, and massage educators, the Task Force members expect that additional development of the competencies will take place as various groups implement them.

P06.02

Hospital-Based Massage Therapy Competencies

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Abstract

Purpose: An increasing number of hospitals are offering massage therapy at the bedside. Given the complexities of the hospital environment and the wide range of patient conditions, it is reasonable that a high level of competence be required to practice responsibly in this setting. The Hospital-Based Massage Therapy (HBMT) Task Force of the Academic Collaborative for Integrative Health was formed to explore the need for a set of standard competencies for the practice of massage therapy in hospital environments and to develop a peer reviewed set of competencies for this practice. The task force facilitated the formation of a standard set of competencies. This session will be used to review the competencies and discuss how they can be applied by hospitals, schools, and massage therapists.

P06.03

Battling Burnout and Building Bridges: Evaluation of an Interprofessional Integrative Health Education Program

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Abstract

Purpose: Multiple professions play a role in supporting the health and wellness of a patient. An Integrative Health (IH) foundation across professions will improve patient care. Health professionals at risk or experiencing burnout negatively affect the patient experience as well as being unhealthy for the professional. The Integrative Health & Lifestyle program (IHeLp) was designed to support an interprofessional IH team approach, enhance student well-being, increase wellness behaviors, and decrease burnout risk as a professional. A 5-year evaluation was conducted to assess the impact on students completing a 6-month, mostly online, interprofessional, IH and wellness education program.
Methods: Participants completed an evaluation of the online program upon completion (n = 241). To assess impact validated burnout, emotional intelligence, overall well-being, attitudes toward interprofessional learning and teams, and wellness behavior measures were completed prior to starting the program, upon completion, and 30-day follow-up.

Results: Almost all participants rated the content as meeting or exceeding expectations (90%-100% based on unit). Participants rated IHeLp as personally enriching (100%), professionally enriching (98%), transformative (97%), would recommend the program to others (96%), and felt able to apply the content (97%). Pre–post program improvements (n = 85) were observed for burnout, emotional intelligence, overall well-being, attitudes toward interprofessional learning and teams, and wellness behaviors (diet, mind–body practices, sleep, and exercise). Improvements in burnout, attitudes toward interprofessional teams, diet and sleep behaviors were maintained at the 30-day follow-up (n = 49).

Conclusion: High satisfaction in an online interprofessional educational program both personally and professionally can support a student’s health, wellness, and interest in working interprofessionally from an integrative perspective. Providing both IH/wellness content and required self-care assignments throughout the 6-month program improved wellness, emotional intelligence, overall wellbeing, and burnout. Providing appropriate education and training for all health professionals in an integrative approach is important to support attitudes and openness to interprofessional team approaches to care.

P06.04

Primary Care Physicians Perceptions of Integrative Medicine and Changes in Referrals

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Abstract

Purpose: Primary Care Providers’ (PCP) serve as main referral source for Integrative medicine (IM) clinics, but may not enough knowledge or experience to refer. We hypothesized that single exposure to IM education and experience with acupuncture, massage or both may influence PCP perceptions and their referrals to our IM clinics.

Methods: Eligible UH clinicians were primary care physicians, nurse practitioners, or physician assistants who spent 20 or more hours per week providing direct patient care. Interested study eligible clinicians met with study personnel for consenting and baseline questionnaire completion. After completion of their education session, subjects were able to choose the intervention (massage or acupuncture or both) that fit their schedule.

Results: A total of 28 PCPs (20 females) consented and enrolled in the study. Although 25% (7) reported receiving training in IM in medical school, about 50% reported receiving brief IM training since medical school. When asked “how often is massage useful in the treatment of chronic pain?”: 50% and 74% rated Often/Always before and after the study respectively and 83% reported that the education on massage was persuasive. When asked “how often is acupuncture useful in the treatment of chronic pain?”: 36% and 65% rated Often/Always before and after the study respectively and 91% reported that the education on acupuncture was persuasive. Finally, using IM referrals tracked in the electronic health record, we found that 20% of PCPs referred in the 3 months before the study and which increased to 36% of PCPs in the 3 months after the study. There was a corresponding 120% increase in number of unique patients referred.

Conclusion: These data suggest that a single exposure to education and experience with acupuncture, massage or both can significantly increase PCP referral intent and moderately improve the number of PCPs referring and the number of unique patients referred for IM.

P06.05

Frame Your Life: Creating a Mindful College Experience From the First Semester on Campus

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Abstract

Purpose: The college years are among the most stress-inducing for students, and stress can bring with it a host of negative consequences. In particular, freshman (first-year) college students tend to experience even greater stress, as the transition from high school to college can be particularly distressing. The first year of college can be a time of great personal, social, and professional growth and is a critical period of time to develop the habits/mindsets integral to identity postgraduation. This research assessed the impact
that taking a first-year Mindfulness seminar, with both online and in-person elements, had on students’ perceptions of stress and resilience. This course sought to help freshman frame not only their college experience but see the college years as integral to framing how they wanted to live the rest of their lives.

**Methods:** Twenty-three first-year college students at a large public university in the Midwestern United States registered for this academic course and elected to be in this educational research study. Participants completed measures of perceived stress and resilience at the same time points pre- and postcourse; additionally, they answered 8 weekly qualitative questions on the course website on topics related to the impact of mindfulness on their daily life.

**Results:** The Perceived Stress Scale indicated a highly significant reduction ($P = .0038$) in students’ perceived stress after the 8-week mindfulness course; results from the Connor–Davidson Resilience Scale indicated a highly significant ($P = .0009$) increase in students’ resilience. Qualitative responses reflected student learning of the need for meaning and purpose, perspective taking, the value of being in the present, the role that we have allowed technology to play in our lives, and the importance of focused attention.

**Conclusion:** Participants were exposed to the theory and practice of mindfulness through a curricular offering that had a significant impact on their perceived stress and resilience.

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**P06.06**

**Addressing Well-being Needs of Patients and Medical Students with a Health Promotion Integrative Health Elective Pathway**

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**Abstract**

**Purpose:** Medical schools struggle to teach both the needed skills for assisting patients with health behavior change and for providing advice about integrative health therapies. At the same time, students are at high risk for poor self-care and burnout. Curricular programs may be able to address patient care as well as health of students.

**Methods:** The University of Utah implemented multiple elective pathways to allow a more in-depth field of knowledge. The Health Promotion and Integrative Health Pathway includes 300 hours of education including core courses and a variety of electives through all 4 years, including an interprofessional Culinary Medicine course. The goal is physicians who are able to champion healthy lifestyles, preventive medicine, and wellness at the level of themselves, their individual patients, and their community. Graduating students are surveyed regarding their confidence in assisting patients with health behavior change as well as their own health habits.

**Results:** Prior to pathway implementation, students had moderately high levels (strongly agree or agree on a 5-point Likert-type scale) of comfort discussing health behaviors (75% nutrition, 88% physical activity, 88% sleep, and 88% stress), counseling patients about integrative modalities (76%), and helping patients change health behaviors (76%) but less comfort with natural products (38%). The majority of students (75%) felt that they championed a healthy lifestyle for themselves. Their health habits suggested room for improvement: 60% ate at least 2 cups of vegetables daily, 30% met the CDC recommendations for physical activity, and 72% slept 7 to 9 hours nightly. Completion of a 1-credit culinary medicine class (10/91 students) did not significantly change comfort in discussing topics, although health behaviors were slightly better. Pathway students report more positive attitudes toward these topics.

**Conclusion:** By combining curriculum with services targeted at medical student well-being, we hope to optimize not only the medical student experience but also their future patients.

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**P06.07**

**Student Well-being and Mindfulness Knowledge Following an Online Academic Mindfulness Course**

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**Abstract**

**Purpose:** Education in mindfulness-based interventions is being increasingly incorporated into academic programs for health professions students. Our institute offers a Mind–Body Health and Healing Certificate program, for which we recently developed a new graduate-level online course, “Mindfulness for Healthcare Providers.” Given that mindfulness training is best taught experientially, this course included a strong personal practice component and may therefore have dual benefits of improving students’ mindfulness knowledge and their personal well-being. The purpose of this study is to (1) describe a new online
academic mindfulness course and (2) explore changes in students’ well-being and mindfulness knowledge from before to after the course.

**Methods:** Twenty-three students enrolled in the course (96% females, 91% white, \( M_{\text{age}} = 33.13, \) standard deviation (SD) = 14.10; 48% nursing students, 48% speech-language pathology students), which was a 13-week online-only elective including an overview of mindfulness-based interventions, applications to specific patient populations, review of the evidence, interactive discussion boards, and guided meditation recordings for personal practice (~40 minutes/day). Students were invited to complete self-report measures of psychological well-being and a mindfulness knowledge check before \((n = 22)\) and after the course \((n = 18)\). Qualitative data were extracted from postcourse discussion posts \((n = 22)\).

**Results:** Among \(n = 11\) students with pre–post data, burnout rates decreased from before (68%) to after the course (36%), and there were medium-sized improvements in positive affect \((d = .64)\) and small-medium improvements in perceived stress \((d = .30)\), mindful awareness \((d = .20)\), and empathy \((d = .15)\). Qualitative themes included improved emotional well-being and stress management, increased mindfulness, improved patient care skills, and time barriers to ongoing practice. Mindfulness knowledge scores increased from before \((Mean = .36, SD = .11)\) to after the course \((Mean = .79, SD = .17)\). Website usage data and student grades will be analyzed in January 2020.

**Conclusion:** It was feasible to teach graduate students about mindfulness interventions through an online course. Improvements in personal and professional well-being were reported. Next steps and lessons learned will be discussed.

**P06.08**

**Attitudes and Comfort With Use of Integrative Medicine in Fourth Year Medical Students After a 2-Week Experiential Elective**

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**Abstract**

**Purpose:** Nationally, there is increased interest and use of Integrative Medicine (IM) approaches and therapies by patients and thus a need for medical trainees to be competent in IM to help guide patients. Increasingly, there is a push to incorporate IM into medical education to bridge this need. This study evaluates medical students’ attitudes, interest, and comfort with the use of IM before and after an experiential elective.

**Methods:** A 2-week IM elective was offered for fourth-year medical students in 2018 and 2019. It included didactics and experiential sessions on evidence-informed IM therapies and healing systems. Students were assessed before and after the elective on their prior experiences with IM, comfort using IM personally, comfort discussing IM with patients, and attitudes toward IM. Univariate analysis and paired t test were used for analysis.

**Results:** Twenty-three students participated with 20 completing the questionnaire; 85% had used IM therapies for their own health, most commonly for pain, anxiety, and athletic injury. Most common modalities were supplements, massage, meditation, and yoga. All students reported little-to-no training in IM prior to medical school and that their medical education in IM was inadequate thus far. Students were highly interested in learning about IM therapies. After the elective, students were significantly more comfortable using IM therapies personally and discussing IM therapies with patients \((P < .0001)\).

**Conclusion:** Our study emphasizes the strong interest among medical students toward IM education for personal use and to care for patients. The elective significantly increased students’ comfort with using IM for personal use and discussing IM with their future patients. This study suggests value for immersive IM electives for medical students to increase confidence to provide IM infused care. More research is needed to determine the optimal elective structure, length, and IM topics to include to optimize the impact.

**P06.09**

**Massage Therapy Education Needs: Qualitative Analysis of Massage Education Stakeholder Views on Foundation Training, Continuing Education, and Employment**

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**Abstract**

**Purpose:** Apply qualitative data analysis methods to massage education stockholder views systematically collected
during the 2017 Alliance for Massage Therapy Education (AFMTE) Educational Congress; attendees reported what should be stopped, started, continued and done more in massage education regarding foundation and continuing education, and employment.

**Methods:** Collected comments (n = 647) were arranged high to low by forum participants’ assigned value points. Four independent reviewers conducted multiple readings and attended biweekly meetings to finalize a coding framework. Two researchers applied the coding framework to all comments; disagreements were reconciled by the lead researcher. Theme development sought to provide an overarching assessment of what massage education stakeholders deemed most needed to progress the massage field. Member checking for developed themes occurred during the 2019 AFMTE Congress with a REDCap delivered agreement slider scale for each theme (0 = totally disagree to 100 = totally agree).

**Results:** Four themes developed related to (1) tension regarding qualifications and inconsistent practices in the massage field; (2) need for the massage field to elevate its education, policies, and practice; (3) the existence of bias and competitive narratives/motivations within the sample and those in the massage field; and (4) desire for wage dignified and valued employment environments for massage therapists. Sixty-seven education stakeholders participated in member checking and confirmed themes (median agreement values = 77, 89, 81.5, and 95, respectively).

**Conclusion:** Massage education stakeholders provided critical reflection on common practices within massage education and employment. Feedback items within developed themes point to several massage field-derived practices and “behaviors” that may (1) threaten the field’s ability to integrate into health care, (2) reinforce negative public and/or related health professionals’ views of the massage field generally and with regard to therapist training and competencies, or (3) limit the extent to which a massage therapy career is viable and sustainable. More opportunities are needed for massage field stakeholders to provide critical profession related feedback.

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**Abstract**

**Purpose:** Training the next generation of learners in evidence-based integrative health (IH) is critical. To expand education of evidence-based and experiential IH practices and principles, an undergraduate Integrative Health and Wellness Certificate was developed at a large public university. The purpose of this abstract is to describe the development and evaluation of the certificate.

**Methods:** Research on nationwide IH educational programs and current university-wide IH-related courses already available began in 2016. Two foundational courses (Fundamentals of Integrative Health and Medicine and Science and Practice of Mind–Body Medicine) were designed based on core IH principles and piloted starting in 2018. A mixed-method survey was administered to students following the piloted foundational courses assessing student experience and impact. Responses were examined using descriptive statistics and thematic analysis.

**Results:** These 2 foundational courses received high interest among students, with wait-lists for both. Fifty-three students completed the survey assessing their experience in at least one of the courses (response rate = 71.6%); 90.6% of students rated their overall experience as excellent. Students reported the course as “experiential,” “eye-opening,” “directly applicable to their life,” “interactive,” and “evidence-based and informative”; 98.1% shared a high probability of changing the way they focus on personal wellness due to the class through regular meditation (39.6%), exercise including yoga (35.8%), eating habits (35.8%), and self-care/stress reduction (20.8%); 92.4% of students would highly recommend the course. Following the success of these piloted courses, the IH certificate program was formalized in 2019, with additional required classes in personal nutrition, exercise physiology, and positive psychology.

**Conclusion:** The introduction of 2 foundational IH courses as part of a new certificate program proved successful and further strengthened the value proposition of this new educational offering. This IH certificate will allow students from various disciplines to have foundational principles of IH to advance both personal and community health and the field.
Abstract

Purpose: Nonpharmacologic approaches to pain management are essential among the current epidemics of opioid abuse and undertreated pain. The relationship between pain and metabolic dysregulation cannot be overlooked. Reports have also shown how insufficient nutrition education often makes clinicians hesitant to recommend eating habits or dietary supplements to patients. Nutrition-based interventions hold promise for reducing or eliminating pain across multiple populations. We hypothesized that a certification course for multidisciplinary health-care professionals would positively increase their familiarity and confidence in nutritional approaches to pain.

Methods: Supplemental to a previous pilot study involving 115 participants, a 6-hour continuing education course was designed to address key concepts of nutritional pain management, including the potential role of diet in augmenting pain (inflammatory, nutrient deplete, and obesogenic diets) and in reducing pain (reduction of inflammation and weight and nutrient deficiency). The course offered practical ways to introduce a health-promoting diet, evidence-based nutrients, and dietary supplements to those with systemic inflammation and pain conditions. Participants were administered pre-and postworkshop validated surveys on knowledge, confidence, and prior training in nutritional pain management.

Results: Precourse surveys from 413 indicated that the majority (88%) had very little to no previous education on nutrition and dietary supplements. Postcourse surveys reveal participants’ knowledge, confidence, and comfort utilizing nutrition to manage pain improved significantly \( (P < .001) \), across all 6 items. Qualitative survey results indicated that education on supplements—including probiotics and vitamins—was most beneficial to participants. The majority (91%) felt well educated after the course.

Conclusion: Multiple practitioners should be aware of the role of diet in the amelioration and exacerbation of pain. This continuing education course for multiple disciplines significantly improved their knowledge and comfort in providing nutritional counseling for managing pain. Thus, a single workshop is useful to enhance clinical knowledge and increase utilization of an often overlooked but vital, nonpharmacological approach to pain.

Integrative Medicine Providers’ Perceptions of Palliative Care Conversations—A Collaboration Between Integrative Medicine for the Underserved and Palliative Care

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Abstract

Purpose: Integrative medicine (IM) providers treat patients of all ages, at all stages of life. Many IM modalities are well suited to end-of-life (EOL) care; however, IM providers’ comfort with EOL conversations and the adequacy of their training for EOL conversations is unknown. Our goals were to determine (1) how comfortable providers feel talking to patients about EOL issues, (2) how effective providers felt that their formal education had been at teaching this skill, and (3) providers’ perceptions of the importance of this skill in their fields.

Methods: We surveyed 29 IM providers in an institutional review board-exempt study at the June 2018 IM4US conference in Washington, DC.

Results: Most respondents (64%) reported that they are comfortable talking to patients about EOL issues; 70% of respondents felt comfortable modifying their goals from cure-focused to care-focused. However, just 36% of respondents felt that their formal education had been effective at teaching these goals from cure-focused to care-focused. However, just 36% of respondents felt that their formal education had been effective at teaching these skills; 93% responded that it is important for practitioners in their fields to skillfully talk to their patients about EOL issues.

Conclusion: Despite providers’ perceptions of inadequate formal training in conducting EOL conversations with their patients, the majority of providers responded that they are at least somewhat comfortable in discussing EOL and comfort-focused care with their patients. The majority recognized the importance of conducting EOL discussions skillfully with their patients, but only one-third of practitioners felt that they had sufficient training. Because the vast majority of IM providers acknowledge the importance of skillful EOL discussions, further research is required to determine the best way to integrate EOL education into IM curricula and whether formal education can effectively teach these skills so that more IM providers are comfortable with EOL discussions and goal setting in their life-limited patients.
Feasibility of a Train-the-Trainer Model for Dissemination and Uptake of Culinary Medicine Education

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Abstract
Purpose: The aim of this project is to increase the ability of faculty to deliver a culinary medicine and service-learning education program to medical trainees. In 2016, an academic-community partnership between Northwestern Osher Center and Common Threads led to the development of a unique elective (Cooking Up Health) in which trainees learn about nutrition and cooking and then go into underserved communities to teach elementary school children about healthy habits. Previously reported data show that participants note increased confidence in and attitudes toward nutrition and obesity counseling. Requests from other sites led to our creation of a training through which attendees can bring culinary medicine to their home institution. By sharing this work, we believe we can impact on the nutrition-competence of future health-care providers, the wellness of students during their training, and improve the health of children and families in communities.

Methods: Our goal was to provide other institutions access to a well-researched and vetted course and the tools needed to maximize likelihood of successful implementation. To see whether this was feasible, we hosted workshops in 2018 (13 faculty from 8 institutions) and 2019 (12 faculty from 7 institutions). Workshops were cocurated and taught by academic and community partners. The agenda consisted of participation in a mock culinary medicine class including hands-on cooking, interactive activities, and brainstorming steps to completion. Evaluation of the workshops was conducted using pre- and postsurveys in Qualtrics and follow-up surveys 6 and 12 months later.

Results: Postworkshop evaluations showed participants gained confidence in ability to implement the elective and high likelihood of recommending the course and the training. Perceived barriers to success were financial resources and time in the curriculum.

Conclusion: It is feasible to use a Train-the-Trainer model to disseminate culinary medicine education content. Additional follow-up is needed to assess success of implementation efforts.

The Perception of Difficulties in the Inclusion of Cam Approaches and Uses in Conventional Medicine

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Abstract
Purpose: The purpose of the research was to study the subjective perception of difficulties in the inclusion of cam approaches to conventional medicine. The larger purpose of this pilot study is to gain further insights and wisdom on the reasons beneath cam approaches, and therapies are so difficult to merge with conventional medicine. The innovation shift that I am proposing is to study these obstacles from the cam professionals perspective.

Methods: A nonprobabilistic, descriptive study of consecutive cases for convenience was implemented; 21 cam professionals were surveyed by a Likert-type questionnaire specially designed for the study; 10 categories were analyzed: epistemology, certification, legal, health insurance, statistics data, therapeutic outcomes, education, interdisciplinary, language, and demographic context.

Results: We found that for the 61.9% of cam professionals the mayor difficulty is both the epistemology dimension and the lack of health insurance. For the 38.1% of cam professionals, the lack of formal certification is a difficulty as well; same percentage was found for the interdisciplinary dimension. Regarding the absence of statistics data of cam approaches in South America, especially in Argentina, we also found that this dimension was rated as an important difficulty in 47.6% of cam professionals. Finally, therapeutic outcomes, language, and demographic context were not significant.

Conclusion: The survey informs that there are 2 mayor perceived difficulties in the inclusion of cam to conventional medicine: on the one hand, the epistemology and the lack of health insurance. For the 38.1% of cam professionals, the lack of formal certification is a difficulty as well; same percentage was found for the interdisciplinary dimension. Regarding the absence of statistics data of cam approaches in South America, especially in Argentina, we also found that this dimension was rated as an important difficulty in 47.6% of cam professionals. Finally, therapeutic outcomes, language, and demographic context were not significant.

Decreasing Burnout: A Narrative Medicine Curriculum for Millennials

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Abstract
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Abstract
Purpose: Medical students are utilizing different resources and technologies to learn. These resources are different from traditional teaching methods. Additionally, they have different stressors affecting their wellness. The narrative medicine curriculum was crafted to teach millennials about the use of social media as a medical professional and to decrease burnout. Our goal is to evaluate the curriculum's efficacy with those topics in mind.

Methods: Students enrolled in the Narrative Medicine Elective took a pre-elective survey and a postelective survey. The surveys included the abbreviated Maslach Burnout Inventory to evaluate for burnout and questions regarding social media use as a medical professional. The results of the survey were used to evaluate the curriculum and suggest changes for improvement.

Results: The curriculum decreased emotional exhaustion from 9.59 to 6.6 and depersonalization from 7.91 to 2.93 with a P value of .005 and <.005, respectively. Personal accomplishment was unchanged from 14.18 to 13.93 (P value .774). Using a Likert-type scale from 0 (not confident) to 4 (very confident), comfort with social media as a medical professional increased from 1.95 to 2.93 (P value .027).

Conclusion: For medical students in the millennial age range, the current narrative medicine curriculum is effective in decreasing feelings of burnout with respect to emotional exhaustion and depersonalization and in improving confidence with social media. Based on this information continued efforts to improve the curriculum for personal accomplishment and to identify teaching modalities for these medical students are in progress. Other institutions may benefit from a similar curriculum.

P06.16LB

Topical Wintergreen Essential Oil as a Unique Cause of Salicylate Toxicity
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Abstract
Purpose: The aim is to recognize the importance of obtaining a detailed medication history including prescribed medicines, herbal medicines, and supplements and to recognize the potential deadly complications of a commonly used herbal medicine.

Methods: Case vignette of a hospital admitted patient.

Results: A 30-year-old obese Caucasian female presented with intractable nausea and vomiting, coffee ground emesis, generalized abdominal pain, diarrhea, and tinnitus for 1 day. She was diagnosed with salicylate toxicity leading to metabolic acidosis requiring hemodialysis and acute blood loss anemia prompting transfusion of 1 unit packed red blood cells and upper endoscopy with findings of hemorrhagic gastritis. Subsequent history revealed Young Living wintergreen essential oil use, application of undiluted oil topically on hands, chest, and hair daily over a 3- to 4-month period totaling 10 bottles containing 15-mL wintergreen essential oil each. Poison control confirmed wintergreen essential oil use the likely cause of the salicylate toxicity.

Conclusion: This study recognizes the importance of an herbal medicine and supplement history.

P06.17LB

Lacking Theory: Case Reports’ Potential for Massage Therapy Theory Development
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Abstract
Purpose: Pain is a leading reason why people utilize massage therapy, and massage for chronic back pain specifically has received much attention. Despite extensive research in these areas, the massage field has little associated theory and no recognized foundational model linked to practice generally or within pain contexts. While theory is included in some research and foundation massage education texts and curricula, the extent to which theory is considered in day-to-day practice is unknown. Case reports allow massage therapists to disseminate their practice experiences and rationale in terms of theoretical basis for treatment approach and results. This project sought to examine published case reports as a preliminary evaluation of theory application in massage therapy practice for chronic low back pain.

Methods: A content analysis was conducted on peer-reviewed and massage clinician derived case reports focused on chronic low back pain. Included articles were part of a published reporting guidelines audit from 2016. Each included case report was examined for references to theory as a part of treatment decision-making or results discussion.

Results: Six case reports met eligibility criteria and were examined for mention or reference to theory. One case directly referenced a scientific pain theory (gate control), 2 cases made indirect references to an unidentified theory, 2 included unclear references to potential theoretical explanations, and 1 made no theory references.
Conclusion: Little theory was included in massage therapist derived case reports focused on chronic low back pain perhaps reflecting a lack of conscious theory use in treatment planning or results attribution in therapeutic massage practice. While not definitive due to limitations in this effort’s methods, consideration of these findings may prompt a discussion among the massage field about theory’s role in its development and application in practice in addition to the potential for case reports to inform theory development and refinement.

P06.18LB

Yoga Class as an Adjunct to Anatomy Lectures to Improve Anatomy Test Scores
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Abstract
Purpose: The purpose of the study was to determine whether a yoga class synced with anatomy lectures would aid in the process of learning anatomy in the first year of medical school.
Methods: First-year medical students in anatomy voluntarily enrolled in the study. At time of enrollment, an intake survey was completed and the participant was randomized into a wait-list or yoga group. The yoga group participants engaged in 1 hour/week yoga sessions focused on topics synced with anatomy lecture topics. The wait-list group was given the opportunity to participate in the same yoga sessions after completion of their anatomy course. Each yoga session began with a presurvey including a modified version of the DASS21 and closed with a similar postsurvey. Prior to each exam stress levels of both groups were assessed using the PSS-4 scale. Exam scores from both yoga group and wait-list group were obtained from their 4 anatomy exams. This is an on-going study and 2 out of 3 years have been completed. Institutional review board approval was obtained for this study.
Results: To date, 64 participants have been enrolled, and 77% of participants identified as kinesthetic learners. Test scores between the yoga group and wait-list group were not statistically different. Stress levels (determined by modified DASS21) immediately after yoga sessions decreased an average of 30%. However, stress levels measured using PSS-4 prior to exams showed no statistical difference between the 2 groups.
Conclusion: Medical students identifying as kinesthetic learners are yearning for teaching styles other than traditional lectures, and so additional resources should be available for those students. Although preliminary data show that 1 hour/week of yoga is insufficient for improving scores on medical school anatomy exams, yoga is beneficial in decreasing stress levels in medical students.

P07: Health Services Research

P07.01

Predictors of Headache/Migraine and the Use of Mind–Body Medicine in U.S. Children: A Population Based Analysis of the 2017 NHIS Data
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Abstract
Purpose: Chronic headache is characterized by the presence of pain in the region of the head for at least 15 days per month for more than 3 months. The aim of this study was to analyze differences in sociodemographic characteristics and health related factors as well as the prevalence of mind–body medicine use among U.S. children suffering from headaches and/or migraine.
Methods: This analysis is a secondary analysis of data from the 2017 U.S. National Health Interview Survey. Sociodemographic and clinical characteristics were compared between individuals with and without headaches using χ² tests. To test potential clinical predictors, a backward stepwise procedure with a logistic regression statistic was used, and adjusted odds ratios with 95% confidence intervals were calculated.
Results: Children with headaches had a higher age, more often were females, non-Hispanic White or Hispanic, and were originated in the south of the United States. Moreover, children suffering from headaches could most of the time not spend enough money for healthy meals and were more likely to be sad or depressed in the past
12 months. The prevalence of complementary medicine use among U.S. children suffering from headaches was 18.8%. The most frequent used therapy was yoga (57.2%) followed by spiritual meditation (31.1%) and mindfulness meditation (24.0%).

**Conclusion:** The use of mind–body medicine among children suffering from headaches was high. While yoga was the most frequent used therapy other movement-oriented therapies like tai chi or qigong were not used by children with headaches and/or migraine.

**P07.03**

**Breast Cancer and Use of Complementary Therapies in the Chilean’s National Health Survey 2017**

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**Abstract**

**Purpose:** Breast cancer in Chile is the main cause of death by cancer in women. It is 1 of the 82 conditions that counts with universal access to treatment in the public and private health-care sector because of the Law of Explicit Guarantees in Health (GES). Breast cancer package of services in Chile does not include complementary therapies (CTs), despite that some of them are incorporated into some evidence-based clinical guidelines. The aim is to compare the use of CT in people with and without breast cancer diagnosed ever in life.

**Methods:** Analyses from the last Chilean National Health Survey (2017) that through a complex sampling allows to estimate the national prevalence of chronic diseases and health conditions of people over 15 years old, as well as the use of services, in a sample of 5514 people.

**Results:** 1.2% of women has or had breast cancer, mean age of 66 ± 10.4 years old; 95.3% received allopathic treatment related to GES, 86% of them received surgery. Those with breast cancer use more CT (36.4% vs 5%) and also significantly use more homeopathy (26.2% vs 11.2%) and natural medicine (38.1% vs 23.1%) than people without this condition. There is no difference in the use of acupuncture, Bach’s flowers, Reiki, Chiropractic, and other CT. The use of each type of CT is mediated by the educational level. Those who received CT perceived more benefits in homeopathy and herbs and less in acupuncture and Bach’s flowers. Excluding Bach’s flowers, most people would like to have access to these services in the public service of health, to guarantee continuity of care and treatment.

**Conclusion:** Despite the restrictions in access, people with breast cancer tend to use CT. Nevertheless, those with the most scientific evidence (acupuncture) are less used. We should explore the reasons of it. Some economic reasons are probably at the base.

**P07.04**

**Telemedicine Use in Complementary Medicine Consulting: A Survey of Homeopaths and Naturopaths in Ontario, Canada**

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**Abstract**

**Purpose:** Telemedicine, defined as the use of online and telephone-based technologies in health service delivery, holds great potential for the delivery of care in both conventional biomedical care and in traditional, complementary, and alternative medicine. These technologies have promise for reaching underserved populations, providing access to nonlocal specialists, and being convenient for patients. This research aims to investigate the extent of, rationale for, as well as strengths and challenges associated with, telemedicine-based consulting by homeopaths and naturopaths.

**Methods:** Using a census-based approach, state-regulated homeopaths and naturopathic doctors in Ontario, Canada were surveyed using the online Qualtrics survey tool. Survey questions captured demographic and socioeconomic data of respondents as well as opinions regarding respondents’ motivations behind telemedicine use.

**Results:** The survey was conducted between October 2018 and January 2019; 183 homeopaths and 366 naturopaths responded to the survey, representing an overall response rate of 34.8% and 32.7%, respectively, from our primary (e-mail-based) recruitment strategy. Among homeopath respondents, 63.4% reported having performed a homeopathic consultation with a patient using face-to-face online video in the past 6 months. For homeopath respondents who reported telemedicine use, the average proportion of their consultations devoted to face-to-face online video was 18.8%. In contrast, only 32.7% of naturopathic respondents reported having performed a consultation with
a patient using online video in the past 6 months, with 8.6% of their consultations devoted to online video consultations. There were no significant differences in use of telemedicine with regard to gender, geographical location, age, or income.

**Conclusion:** Face-to-face online video is used by more than half of homeopaths in Ontario, Canada. Ontario homeopaths are nearly twice as likely to engage in online video consultations as naturopaths. Future analysis of the data will explore the motivations behind telemedicine use amongst homeopaths and naturopaths in Ontario.

**P07.05**

**Smart Phone App-Based Platform Evaluation of Low Back Pain Program**

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**Abstract**

**Purpose:** A healthy back curriculum is an ongoing collaborative wellness program sponsored by a community hospital and a community organization. Objective was to collect quality improvement data of the low back pain program by a Health Insurance Portability and Accountability Act compliant smart phone app-based platform and to evaluate the feasibility for the app to be used for program evaluation and research purposes.

**Methods:** Participants in the 12-week healthy back curriculum session from September 2018 through December 2018 downloaded a proprietary app on their smartphones. Subjects were prompted to complete baseline and 12-week follow-up health-related quality of life validated questionnaires for low back pain (minimal data set per National Institutes of Health Task Force on Research Standards for Chronic Low Back Pain and Roland-Morris Disability Questionnaire). Participation in the program evaluation was voluntary, and no incentive was provided to complete the surveys.

**Results:** Fifteen subjects completed enrollment surveys on the smart phone app-based platform. Eight subjects completed follow-up surveys. Seven participants were lost to follow-up. Fifty percent (4/8) of those who completed follow-up surveys had at least 30% improvement in average pain over the previous week (0–10 scale, with 0 describing no pain and 10 describing worst pain imaginable) at the end of the 12-week exercise program relative to average pain over the previous week at baseline.

**Conclusion:** The smart phone app-based platform enabled evaluation data to be viewed as it was collected, decreased administrative effort of data collection, and facilitated an efficient route to data analysis compared to pen-and-paper methods. Higher compliance of participants completing the data sets over time would improve the utility of the application.

**P07.07**

**Acupuncture Utilization Patterns and Quality of Life Outcomes for Migraine/Headache: Findings From the PRIMIER Study and the BraveNet Collaborative**

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**Abstract**

**Purpose:** Acupuncture is a beneficial treatment of migraine and possibly other forms of headache. This study describes utilization patterns and outcomes for migraine/headaches, for acupuncture as a component of other integrative medicine services.

**Methods:** This study is a subgroup analysis of PRIMIER (Patients Receiving Integrative Medicine Interventions Effectiveness Registry), an observational cohort study that enrolled 4954 patients from August 2013 to October 2017 across 17 U.S.-based Integrative Medicine sites. For this subgroup analysis, we analyzed patients with a self-reported history of headache or migraine who completed at least 2 of surveys within the first year of enrollment and had evaluable EHR data. Here, we report on the association of acupuncture for migraine/headache with changes on the PROMIS-29, a validated survey instrument for patient reported outcomes (pain interference and intensity, physical function, anxiety, depression, sleep quality, fatigue, and social functioning).

**Results:** Acupuncture was provided at almost all (15, 88.2%) sites. We identified 205 patients reporting headache/migraine (mean age = 45, 89% females, 90% white),
of whom 58 (28.3%) received acupuncture at baseline. Acupuncture was the second most common service for headache/migraine (after IM physician consults), accounting for 11.3% to 24.4% visits across all time points. The median number of visits was 2 (range, 1–9 visits). Participants reported elevated baseline scores on the fatigue, anxiety, and pain interference. We observed improvement in pain interference at 6 months (LS mean = −2.24, \( P = .0012 \)), social functioning at 4 (LS mean = 1.43, \( P = .0240 \)), 6 (LS mean = 1.42, \( P = .0283 \)) and 12 months (LS mean = 2.45, \( P = .0002 \)), and fatigue at 4 (LS = −1.41, \( P = .0479 \)) and 12 months (LS mean = −1.54, \( P = .0409 \)). No other changes were observed.

Conclusion: For patients with migraine/headache, improvements were observed for some quality of life measures. Future research should explore variations in acupuncture “dose” with quality of life outcomes.

P07.08

Misaligned Expectations on Integrative Medical Service for Diabetes and Diabetic Kidney Disease: A Comparative Focus Group Series of Patients and Physicians

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Abstract

Purpose: Despite increasing volume of evidence on the efficacy of integrative medicine (IM), we continue to encounter patients covering the use of IM which imposes a threat to clinical management. Discrepancy of perspective between patients and physicians over IM research and service provision remains unclear. We sought to explore the barriers and recommendations regarding IM service implementation among diabetes patients and physicians.

Methods: A 10-group, 50-participants semistructured focus group interview series was conducted. Twenty-one patients with diverse severity of disease, comorbidities, and education levels and 29 physicians (14 western medicine [WM] and 15 Chinese medicine [CM]) with diverse clinical experience, academic background, and affiliation were purposively sampled from private and public clinics. The perspectives were qualitatively analyzed by constant comparative method with grounded theory approach.

Results: Seven subthemes regarding barriers toward IM were identified including finance, service access, advice from medical professionals, uncertainty of service quality, uncertainty of CM effect, difficulty in understanding CM epistemology, and access to medical records. Patients underreported the use of CM and disregarded medical advice due to the concern over neutrality of medical advice and mutual understanding among both WM and CM physicians. Practical issues including inconvenience of access to service, frequent follow-up, use of decoction and long-term financial burden were identified as key obstacles among patients. Regarding research design, WM physicians emphasized standardization and reproducibility, while CM physicians emphasized personalization. Some CM-related outcome measurements were suggested as abstract and noncommunicable by patients and WM physicians. Physicians from both sides acknowledged the discordance in epistemology should be addressed by a more pragmatic approach in clinical evaluation.

Conclusion: Further assessment on IM should be pragmatic to balance between standardization, reproducibility, and real-world practice. Evidence-based IM programs should merge with existing infrastructure. Treatment modality should be user-friendly and affordable for patients with chronic condition.

P07.09

Analyzing Complementary and Substitute Relationships Between Korean and Western Medicine Service Use of Outpatients

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Abstract

Purpose: The purpose of this study was to analyze complementary and substitute relationships between Korean medicine and western medicine service use of outpatients
using the data from Korea medical panel survey invested in 2015 comparing to conducted study in 2009.

**Methods:** Invested subjects were 18,130 individuals used outpatient medical service from the 2015 Korea health panel data set. General characteristics and medical utilization of all subjects and Korean medicine and western medicine use by disease group were analyzed descriptively. \( \chi^2 \) analysis was conducted to analyze the factors that affected Korean medicine and western medicine service use of outpatients, and logistic regression analysis was conducted to analyze the complementary or substitute relationships between outpatient’s choice of Korean medicine and western medicine use. Additionally, we conducted logistic regression analysis by the 7 disease groups.

**Results:** The rate of subjects in over 65 years group used both Korean medicine and western medicine together raised on 2015 compared to 2009. Also, the odds ratios of substitute relationships between Korean medicine use and western medicine service use raised and the results of complementary and substitute relationship analysis by disease groups differed. Musculoskeletal diseases, injuries, addictions, and external diseases were used to substitutes in both 2009 and 2015 in relationship of substitute between Korean medicine use and western medicine use; however, nervous system diseases were used to relationship of substitute in 2015 contrasted to relationship of substitute in respiratory and skin system diseases in 2009.

**Conclusion:** The result includes a combination of social aspects such as the increasing incidence of chronic disease due to the aging in recent, policy aspects such as the collaborative pilot project between Korean medicine and western medicine, economic aspects such as lower total cost of the collaborative treatment, and scientific aspects such as the demonstration of the effects of the collaborative treatment.

### P07.10

**Attitudes Toward Professional Collaboration: An International Survey**

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**Abstract**

**Purpose:** Collaboration between different systems of traditional, complementary (T&CM) and conventional medicine (CM) is a stated objective of the World Health Organization. Individual T&CM practitioners appear to be the primary driver for intra- and interprofessional collaboration (IPC) within and between T&CM and CM with little formal presence within T&CM professional associations and educational institutions. To understand this gap, this study explored attitudes, desire, and perceived barriers (AD&PB) that these bodies have toward IPC.

**Methods:** National associations and educational institutions from 9 professional health-care professions (Ayurveda, Chiropractic, CM, Homeopathy, and Acupuncture/Traditional Chinese, Anthroposophic, Integrative, Naturopathic and Osteopathic Medicine) were surveyed via a 28-item Survey Monkey questionnaire exploring representative AD&PB towards IPC between T&CM and between T&CM and CM. The survey was sent to 692 potential participants (483 national organizations and 209 educational institutions) between February and April 2018.

**Results:** Response rate from T&CM bodies was varied (6%–35%). Descriptively, there was a high degree of agreement on both the perceived benefits and obstacles with IPC; >80% indicated that the benefits of IPC included opportunity for best practices and preventive medicine and patient choice (treatment and health outcomes); >80% also indicated that communication and philosophical differences in health care are primary obstacles.

**Conclusion:** There is agreement on the perceived value and barriers on engaging in IPC that result in diminished desire and capacity within T&CM professions. The results of this study emphasize the need for T&CM bodies to address existing attitudes, articulate a strategy, and develop education, training and guidelines for IPC.

### P07.11

**A Tool to Facilitate Collaborative Research Among the Integrative Health and Medicine Professions**

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**Abstract**

**Purpose:** The Academic Collaborative for Integrative Health (ACIH) supports activities and projects in education, clinical care, research, and policy that are transforming our
health-care system into one that creates comprehensive health and well-being. The Research Working Group (RWG) of ACIH investigated the creation of a directory of researchers that would facilitate collaboration in integrative health research by identifying individual researchers and institutions by their areas of interest and expertise. With such a research directory, researchers could more easily find each other, ultimately with the goal of catalyzing awareness, collaboration, and networking.

**Methods:** RWG members explored the key elements of developing an online research directory through a series of e-mail and virtual meetings. Currency, accuracy, accessibility, and ability to moderate inclusions were identified as priorities. Pros and cons of developing our own platform, establishing a website-based “directory,” or using an existing platform were considered. RWG members then experienced and shared their assessment of Google Forms and ResearchGate as existing web-based platforms.

**Results:** After iterative consensus-based discussions evaluating several options under a strengths and risk-based lens, the RWG decided to create a networking space on ResearchGate. Metrics regarding readership, project collaboration and connections (social networking) will help evaluate the success of this initiative.

**Conclusion:** Researchers who wish to take advantage of this networking opportunity must first join ResearchGate and then join as a member of the “Academic Collaborative for Integrative Health Researcher Network Project.” The Integrative Health Researcher Network Project thus serves as a hub for web-based networking with other like-minded integrative health and medicine researchers on ResearchGate.

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**P07.12**

**Personalized Nutrition Intervention: Machine-Learning Algorithm at the Intersection of Gaming, Medicine and Behavior Change**

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**Abstract**

**Purpose:** Many people are addicted to foods that ultimately cause disease. The leading causes of death in the United States are heart disease and cancer, both largely preventable by making behavioral changes. These attitudes are greatly influenced by our education. Regardless of the efforts made by various institutions to educate people about healthy behaviors, compliance is still low, and the number of deaths from these diseases is on the rise. We now know that the health status of a mother, not only at the moment of pregnancy, but also years before she becomes pregnant, greatly influences the health of her children. In other words, an obese or overweight woman will most likely give birth to a child that is predisposed to obesity, which raises his or her risk of death from chronic disease. Hence, an early intervention is recommended.

**Methods:** Newtrima, an app in development, functions as a personalized virtual health and wellness space for women. It integrates baseline dietary recalls with other health metrics, such as microbiome and DNA profiling, and generates an avatar. This way women are interactively educated about healthy behaviors while using game as a learning tool. Thus, they vicariously learn what is suitable for them, by engaging with their own avatar that is programmed to deliver the optimal education for each individual.

**Results:** Periodically, women do behavioral check-ins, including 24-hour dietary recalls, which are not only measuring the success of this method but are also helping the machine-learning algorithm to become more personalized.

**Conclusion:** Currently, nutrition education (when existent) is taught as an all-size-fits-all model. This approach does not deliver sustainable, long-term results. Furthermore, people who seek to learn more about healthy behaviors have to navigate through a myriad of conflicting information that is not well understood or trusted. A paradigm-shift from all-size-fits-all to a tailor-made model is apparent.

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**P07.13**

**Trait Mindfulness Predicts Diabetes Distress in U.S. Veterans**

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**Abstract**

**Purpose:** U.S. Veterans with diabetes often experience emotional distress including diabetes-distress (DD) that can lead to poor diabetes self-care and suboptimal glycemic control contributing to higher rates of diabetes-related morbidity and mortality than in the general U.S. population. Mindfulness is recognized as a beneficial factor in Veterans with depression and posttraumatic stress disorder, but little is known about mindfulness in Veterans with diabetes. The purpose of this study was to examine the associations between of mindfulness and glycemic control (A1C) with DD in Veterans.
Methods: Veterans (n = 128) were recruited from an urban Veterans Affairs (VA) health-care system. Participants completed validated measures on mindfulness (Mindful Attention Awareness Scale [MAAS]) and DD (Problem Areas in Diabetes Questionnaire [PAID]). A1C, a 3-month estimate of glycemic control, was obtained from the medical record. Univariate linear regression was used to examine the association between DD with mindfulness and with A1C.

Results: Veterans were generally older (60.8 ± 10.3 years) white (66.4%) males (91.4%) who were obese (body mass index 33.81 ± 5.98 kg/m²) and had a diabetes duration of 13.07 ± 10.56 years and A1C of 8.67 ± 1.57% (cut point for reasonable glycemic control ≤8%). Mean MAAS score (4.30 ± 0.93) was consistent with the normative score in community adults, and mean PAID score was 37 ± 20.42 (cut off for emotional burn-out ≥ 40). Regression models showed that MAAS was significantly negatively associated with DD, coefficient = −9.35 (95% CI: −12.96, −5.74; R² = 18.1%, P < .0001) but A1C was not associated with DD coefficient = 1.17 (95% CI: −1.17, 3.51; R² = 0.1%, P = .325).

Conclusion: Trait mindfulness was a predictor of lower DD in Veterans. However, contrary to a large body of research in the general population, DD was not associated with glycemic control in Veterans. Further study of independent predictors of A1C in Veterans is needed to develop mindfulness-based strategies for improving glycemic control, diabetes outcomes, and overall well-being in this population.

P07.14

Perceived Peer Support Among Palliative Care Colleagues and the Effect of Appreciation Focused Monthly Gatherings

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Abstract

Purpose: An interest in resilience among health-care professionals continues to rise as burnout rates climb. Strategies to reduce burnout and drive professional fulfillment include a focus on collegiality and sense of community. Perceived peer support has been linked to burnout and fulfillment. This project assesses the impact of monthly appreciation focused gatherings on perceived peer support and well-being needs among palliative care providers.

Methods: Wellness Champions from the Palliative Medicine Program at University of Utah participated in a year-long structured quality improvement program focused on improving professional well-being. Pre/postsurvey data included the Stanford fulfillment, peer support, burnout, stress, and a needs assessment.

Results: Pre-intervention well-being assessment (15 participants) demonstrated low emotional exhaustion (16.7% vs institution 30%), but perceived appreciation and support from peers was low. Half of respondents (49.9%) reported that explicit appreciation by coworkers and 33% reported explicitly expressing appreciation. The needs assessment highly ranked collegiality efforts, closely followed by work flexibility and support. Priorities were echoed in responses to the qualitative question “What could help this team be a better place for you to work?” Based on results, leadership endorsed monthly “wellness gatherings”. Gatherings occurred during the last 1.5 hours of a work day. Location and activity varied (from wine and cheese at a botanical garden to volunteering). Each gathering ended with an appreciation/gratitude exercise. Funding was provided by a Resiliency Center grant. Six-month follow-up data are pending.

Conclusion: Addressing well-being can be challenging. Using a data-driven approach to consider the unique needs of groups can lead to increased buy-in. Pre/postmeasurement can allow ongoing process improvement to modify programs to best meet the needs of faculty and staff. Perceived peer support is known a driver of burnout. Measures that can improve support may have substantial downstream impact on patient experience, cost, and quality of care.

P07.15

Cross-sectional Analysis of Spirituality and Substance Use Among Sexual Health Clinic Patients

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Abstract

Purpose: Spirituality may play an important role in preventing risky substance use. The purpose of this study was to explore spirituality and anger toward God as they relate to substance use.

Methods: Patients (N = 339; M age = 28; 67% African American) receiving care at a publicly funded sexual health clinic completed a baseline survey. Alcohol-related consequences were measured using the Short Inventory of Problems—Revised and spirituality and religious attitudes were measured by the Attitudes toward God Scale.
Cluster analysis determined whether distinct groups would emerge based on 2 dimensions (CG = comforted by God, AG = anger towards God) of the ATGS-9. Group differences were examined using multivariate ANOVA controlling for baseline characteristics. Bonferroni correction was used for post hoc comparisons of estimated marginal means.

**Results:** The cluster analysis resulted in 4 distinct groups and demonstrated adequate model fit. An examination of ATGS-9 response patterns revealed the following characteristics of the 4 groups: (1) high spirituality and positive attitudes toward God, (2) moderate spirituality and positive attitudes toward God, (3) moderate spirituality and negative attitudes toward God, or (4) low spirituality and neutral attitudes toward God. Significant mean differences were present among the 4 groups (F = 8.96, P < .001). Specifically, participants with moderate levels of spirituality and negative attitudes (eg, anger towards God) reported greater levels of alcohol related consequences (M = 10.2) compared to those with high spirituality and positive attitudes (M = 3.2), moderate spirituality and positive attitudes (M = 3.9), and those with low spirituality and neutral attitudes (M = 4.4).

**Conclusion:** Alcohol-related consequences were prevalent among patients who reported negative religious attitudes, such as anger towards God. Although the current analysis cannot determine causality, it highlights that spirituality may play an important role in health behavior, particularly among at-risk minority populations.

**P07.16**

**Integration of Acupuncture Into a Total Joint Replacement Program: A Practice-Based Research Evaluation**

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**Abstract**

**Purpose:** Beneficial outcomes have been reported from using acupuncture as an adjunct therapy, but there are few studies on acupuncture for postsurgical joint replacement patients. Our study focused on whether adjunctive acupuncture integrated into a total joint replacement program could contribute a nonpharmacological component for pain management.

**Methods:** Clinical personnel provided acupuncture referrals in the electronic health record for patients admitted to University Hospitals Ahuja Medical Center and scheduled for TKR or THR on a Monday between May 6, 2019 and July 15, 2019. A licensed acupuncturist approached referred patients individually on the afternoon of surgery (day 0), the morning on the day after surgery (day 1) or both. Pre- and postscores for pain, anxiety, and stress were obtained by the acupuncturist verbally using a standard 11-point numeric rating scale. Similarly, anxiety and stress scores were obtained using the same methodology. After acupuncture, patients were also asked “How would you rate the impact of acupuncture on your visit?” on a 5-point Likert-type scale.

**Results:** As an interim analysis of this IRB approved retrospective record review, 102 patients offered acupuncture as part of clinical services and 75% (79/102) elected to receive acupuncture. There was an average reduction in postacupuncture pain scores of 1.0 points from 3.52 to 2.52. The average reduction in postacupuncture anxiety scores was 0.91 points from 1.63 to 0.62. Postacupuncture stress scores were on average 0.69 points lower than the preacupuncture score from 1.36 to 0.62. Finally, the point of care question scores averaged 4.53, which is equally divided between somewhat positive and very positive responses.

**Conclusion:** Results suggest that adjunctive acupuncture is a viable choice for reduction of pain, anxiety, and stress post TKR/THR. Additional results will be available at presentation. Importantly, referring clinical personnel and patients reported strong enthusiasm for acupuncture as an adjunct for enhanced pain management.

**P07.17**

**“Be Fit”—A Pilot Hospital Employee Wellness Program**

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**Abstract**

**Purpose:** Elevated low-density lipoprotein cholesterol¹ and impaired fasting glucose² are significant risk factors for cardiovascular disease, the most prevalent cause of mortality in the United States; 42% of females and 34% of males in the United States have elevated cholesterol. Over the
last 8 years, the Center for Integrative Medicine and Wellness has been utilizing a proprietary nutrition plan, the “modified Mediterranean diet” to significantly reduce weight, cholesterol, and fasting blood glucose in our patients. In June 2018, an exercise portion with structured, semipersonal training sessions for 60 minutes 2× per week was added to the program. We now present an interim analysis of the results of the first 25 participants of this program.

**Methods:** A list of the initial 25 participants of the Be-Fit program from June 1, 2018 to December 31, 2018 was generated from the electronic medical record. Inclusion criteria: Body mass index (BMI > 30 kg/m² or BMI > 25 kg/m² and BP > 140/90 or on BP meds), total cholesterol > 200 mg/dL or on lipids lowering medication, fasting blood glucose (> 100 mg/dL), or current smoker. Exclusion criteria: Pregnancy and children under the aged of 18 years. Data entered into the data collection tool (age and sex of patient-only identifiers). Statistical analysis of paired mean variables using the SPSS program was performed.

**Results:** Four were males and 21 were females. Average age = 50. All nonsmokers, 7 with HTN, 6 with Dm-2, 15 FH hyperlipidemia BMI 29.5 – 31.5, 140/90 or on BP meds), total cholesterol 210 – 230 mg/dL, or on lipids lowering medication, fasting blood glucose ( > 100 mg/dL), or current smoker. Hba1c: 5.6%. Fasting blood glucose 103 – 120 mg/dL. Hba1c: 6.3 – 7.0%

**Conclusion:** This interim analysis clearly indicates that the initial phase of the hospital-sponsored Be-Fit program has resulted in clinically meaningful reductions in weight, BMI, fasting blood glucose, and total cholesterol.

**P07.18**

Assessing the Feasibility of Rural Primary Care Residency Training for Licensed Naturopathic Physicians in the Northwest

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**Abstract**

**Purpose:** Naturopathic physicians (ND) are uniquely situated to address areas of unmet health-care need in Oregon and Washington as primary care providers (PCPs). In both states, NDs have a broad scope of practice and are licensed as independent practitioners once graduating from their programs. However, with a larger role in the health-care system, the need for postgraduate residency training becomes more important for clinical success and patient safety. This study aimed to assess the feasibility of developing a residency program for licensed naturopathic physicians in rural community health centers (CHCs) of Oregon and Washington.

**Methods:** Semistructured interviews were conducted with leadership at 8 CHCs. Six of the centers were rural, 2 of which already employed NDs. Two urban centers that employed NDs as PCPs were included because they offered valuable insight to the study. The investigators independently reviewed the notes from each site visit and coded them for prominent themes through inductive reasoning analysis.

**Results:** Consensus was met for the following themes: onboarding and mentorship; increasing the diversity of clinical training for NDs; financial structure; length of residency; and addressing clear health-care needs in the community. Several key opportunities for naturopathic primary care residencies in rural communities were identified. These opportunities include the need for PCPs in rural communities, the desire for nonpharmacologic management of chronic pain, and the prevention of morbidity from complex conditions like diabetes and cardiovascular disease. Barriers to the development of rural primary care residencies for NDs include lack of Medicare reimbursement, differing awareness of the ND scope of practice, availability of dedicated mentors, and the fitness of naturopathic interns’ clinical training for rural primary care.

**Conclusion:** These results may serve as guideposts for the future development of naturopathic primary care residencies in rural community health centers.

**P07.19**

Identifying and Addressing Food Insecurity Within a Family Medicine Residency Clinic

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**Abstract**

**Purpose:** We created and implemented a program to identify and address Food Insecurity within our patient population in Metro Detroit. Our primary objective was to identify Food Insecurity within our patient population while...
Feasibility of Care Coordination: Preventative Care and Patient Perceptions in an Integrative Concierge Primary Care Practice

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Abstract

Purpose: Chronic diseases are leading drivers of healthcare costs in the United States. Coordination of care is largely underutilized in the primary care setting to manage patients with chronic disease leading to continued fragmentation of care and increased healthcare burden. Existing data on coordination of care in an integrative health primary care practice are limited. The purpose of this study was to determine the feasibility of incorporating a nurse primary care coordinator (PCC) into an integrative health primary care concierge practice.

Methods: This prospective 6-month trial was conducted at Duke Integrative Medicine, an integrative health primary care concierge practice. Eligible participants were Duke Integrative Primary Care practice members with 1 year membership. Participants (n = 30) received 3 phone calls from a PCC over 6 months. PCC phone calls addressed members’ health management. The primary aim was feasibility, measured by the completion of 3 phone calls facilitated by the PCC. Secondary aims included change in patient satisfaction and the number of additional healthcare visits and services utilized by study participants during the 6-month intervention. Magnitude of change over time was assessed using a test of symmetry, implemented in the SAS (v4) FREQ procedure.

Results: Adherence to the intervention was high: 93% of individuals completed 3 required study intervention phone calls; 57% completed 3 phone calls with the PCC. Patient satisfaction (n = 28) improved over baseline for frequency of communication with primary care physician (P = .05), frequency of communication with nursing staff (P = .01), coordination of care (P = .01), and member experience (P = .01). The PCC intervention led to 35 additional clinical care visits (40% were preventative care).

Conclusion: Primary care coordination by a nurse was a feasible intervention that increased patient satisfaction and led to additional preventative clinical care visits.
Abstract

Purpose: Previous studies indicate that those with prior exposure (nonnaive) to integrative medicine modalities (e.g., acupuncture, tai-chi, meditation) may have more robust therapeutic responses than those with no prior exposure (naive). Using existing data within the Patients Receiving Integrative Medicine Effectiveness Registry (PRIMIER), we explored whether naive participants have differential patient-reported outcome measures to integrative medicine therapies than nonnaive participants.

Methods: Linear mixed-models were used to compare change scores of naive (n = 352) and nonnaive (n = 2283) treatment groups at 2 months, 4 months, 6 months, and 12-months for PROMIS measures: Anxiety, Depression, Sleep Disturbance, Pain Interference, Pain, Physical Function, Fatigue, Quality-of-Life (QOL), and Social Supplement. The Perceived Stress Scale (PSS) and Patient Activation Measure (PAM) were also included. Least square means were calculated from model estimates.

Results: Both naive and nonnaive treatment groups indicated statistically significant improvements over baseline measures at 12 months for PROMIS Anxiety, Depression, Sleep, Fatigue, Social, PSS, and PAM (P < .01). Between-group differences indicated that the naive treatment group had a significantly greater reduction in PROMIS Fatigue 95% CI [−3.5 −1.3] than the nonnaive treatment group 95% CI [−1.5 −0.4] at 12 months (P < .05). Compared to the nonnaive group, the naive treatment group had significant improvements in change score for PROMIS Physical Function at 4 months (P < .01); QOL at 4 and 6 months (P < .05); Sleep and Pain Interference at 6 months (P < .05); and Fatigue at 12 months (P < .05).

Conclusion: Patients without prior exposure to integrative medicine therapies may have greater benefit than those with prior exposure. Further comparison of naive treatment groups to nonnaive treatment groups in randomized controlled trials is warranted. Caution should be used when interpreting patient reported outcome measures in studies that include both naive and nonnaive patients.

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Health Coaching in an Integrative Health Primary Care Concierge Practice: A Midpoint Analysis

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Abstract

Purpose: Health coaching is a patient-centric approach to facilitating self-management of health behaviors across acute and chronic health conditions through goal setting. Despite the positive benefits of health coaching in clinical settings, few studies have evaluated its integration into an integrative health primary care practice. The purpose of this study is to assess the feasibility of incorporating health coaching into a primary care integrative health concierge practice.

Methods: Patients of Duke Integrative Primary Care (DIPC) who are established members were eligible to participate in this 6-month clinical study. Interested patients (n = 30) that scored a level 2 or level 3 on a baseline Patient Activation Measure (PAM) and self-identified as being interested in coaching were offered enrollment. In May 2019, the first cohort (n = 15) of patients began receiving health coaching. Board-certified health coaches delivered 9 coaching sessions per participant over 3 months. Health coaching sessions occurred over the telephone or in person at DIPC. The primary outcome of the study is feasibility, defined as the total number of sessions attended by all participants. Secondary outcome measures include 3-month and 6-month change from baseline in PAM, PROMIS Global, and a patient satisfaction survey. Paired t-tests were used to compare baseline and 3-month PAM and PROMIS scores.

Results: Mid-point analysis indicates 100% of coaching sessions attended by the first cohort. Mean PAM score improved from 59.8 ± 5.8 (level 3) at baseline to 71.3 ± 1.3 (level 4) at 3 months, P < .05. PROMIS Global Physical Health T Score increased from 46.7 ± 7.2 (good) at baseline to 50.2 ± 7.1 (very good) at 3 months, P > .05. PROMIS Global Mental Health T score increased from 48.6 ± 6.4 (very good) at baseline to 51.1 ± 7.3 (very good) at 3 months, P > .05.

Conclusion: Preliminary results suggest that health coaching in an integrative health primary care concierge practice is a feasible and effective strategy to improve patient activation and physical and mental health.

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Getting Ahead: An Novel, Integrative Health Approach to Tackling Poverty in Primary Care

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Abstract

Purpose: Poverty remains a recalcitrant determinant of health. Clinicians, working in a health system that increasingly commodifies and fragments care, frequently see the results of upstream health determinants but are not supported to meaningfully address them. Getting Ahead is a promising approach to helping people to move out of poverty by exploring how economic class impacts interactions at the individual, organizational, and community levels.

Methods: Cohorts of patients ranging in age from 18 to 83 work together at a community health center in Cleveland, for sixteen 2.5-hour sessions exploring their own and their community’s experience of poverty. Participants begin by creating a mental model of life now and then continue with a facilitated exploration of the causes of poverty, the hidden rules of economic class including language, theories of change, and individual and community resources. Participants then create individual and community future stories.

Results: During Getting Ahead, clinicians are afforded unparalleled insight into their patients’ lives creating powerful context for improved health. Participants in the first 4 Getting Ahead cohorts have returned to high school, enrolled in GED completion programs, set boundaries in unhealthy relationships, obtained employment in multiple settings, engaged in a neighborhood painting project, obtained driving permits, quit smoking, maintained sobriety in the setting of significant social stressors, and sought independent living arrangements. There are measurable outcomes including life stability, optimism, hope, perceived stress, 11 areas of resource acquisition, development of a future orientation, and improved preventive health care.

Conclusion: The application of Getting Ahead in clinical settings offers a promising integrative health approach by addressing poverty in a health-care setting. Innovations in services that offer opportunity for development of a future orientation have the potential to yield creative, community-driven solutions to poverty in which the state of well-being in body, mind, and spirit can be fully realized for individuals and communities.

P07.23

Expansion and Further Validation of Markov Model Results on the Cost-Effectiveness of Nonpharmacologic Therapies for Chronic Low Back Pain

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Abstract

Purpose: The results of a decision analytic (Markov) model were recently published showing the 1-year effectiveness and cost-effectiveness (societal and payer perspectives) of adding 17 nonpharmacologic interventions for chronic low back pain from 10 randomized trials to usual care. That model and its results illustrate a proof of concept; that such modeling can be done and provide useful results. This study further tests this model by adding the results of 7 additional interventions from 5 trials.

Methods: As before, the model includes 4 health states: high-impact chronic pain (substantial activity limitations); no pain; and 2 others without activity limitations, but with higher (moderate-impact) or lower (low-impact) pain. We followed previous methods to estimate intervention-specific transition probabilities for these health states using individual patient-level data and where required, previously developed prediction models. We also used the same quality-adjusted life-year weights; health-care costs (based on 2003–2015 Medical Expenditure Panel Survey data); and lost productivity costs for each health state as in the original model.

Results: The new studies added 2 new arms for acupuncture: 1 more cost-effective and 1 less cost-effective than the 2 existing acupuncture arms. The new studies also added 2 new arms for yoga. Both were less cost-effective than the one we had in the model, which could be expected given the extreme benefits shown in the existing study. The studies also added 2 group cognitive behavioral therapy (CBT) arms with remarkably similar cost-effectiveness. The results for the CBT and MBSR arms also compared favorably with other published cost-effectiveness results for that study based on actual changes in health-care utilization.

Conclusion: Modeling leverages the evidence produced from clinical trials to provide more information and better comparability than is available in the published studies. This study illustrated the benefit and feasibility of adding additional studies to the model.

P07.25

Paradigm-Specific Risk Conceptions, Patient Safety, and the Regulation of Traditional and Complementary Medicine Practitioners: The Case of Homeopathy in Ontario, Canada

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Abstract

Purpose: The results of a decision analytic (Markov) model were recently published showing the 1-year effectiveness and cost-effectiveness (societal and payer perspectives) of adding 17 nonpharmacologic interventions for chronic low back pain from 10 randomized trials to usual care. That model and its results illustrate a proof of concept; that such modeling can be done and provide useful results. This study further tests this model by adding the results of 7 additional interventions from 5 trials.

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Conclusion: Modeling leverages the evidence produced from clinical trials to provide more information and better comparability than is available in the published studies. This study illustrated the benefit and feasibility of adding additional studies to the model.
Abstract
Purpose: The statutory regulation of traditional and complementary medicine providers has been identified by the World Health organization as a strategy for enhancing patient safety. However, the concept of risk is neither static nor epistemologically neutral. Conventional biomedicine’s risk conceptions are substantially rooted in principles of scientific materialism, while many traditional and complementary medicine systems have vitalistic epistemic underpinnings that give rise to distinctive safety considerations. This study investigates the statutory negotiation of differential risk conceptions in the context of traditional and complementary medicine’s professional regulation.

Methods: Elaborating a theoretical concept of “paradigm-specific risk conceptions,” this work employs Bacchi’s post-structural mode of policy analysis (“What’s the Problem Represented to Be?”) to critically analyze risk discourse in government documents pertaining to the 2015 statutory regulation of homeopathic practitioners in Ontario, Canada. This case is of particular salience given that homeopathy’s epistemic framework is widely considered biomedically implausible.

Results: The Ontario government’s preregulatory risk assessment for occupational homeopathy took an epistemically inclusive approach which emphasized homeopathy-specific risk conceptions. Such homeopathy-specific concepts, epistemically rooted in vitalism, extend beyond materialist constructions of adverse events and clinical omission to address potential harms from biomedically implausible, homeopathic notions of “proving symptoms,” “aggravation,” and “disruption.” Although the province’s new homeopathy regulator subsequently articulated safety competencies addressing such vitalistic concepts, the tangible risk management strategies ultimately mandated for practitioners exclusively addressed risks epistemically consistent with scientific materialism. This policy approach substantially echoes the implicit biomedical underpinnings evident in Ontario’s broader legislative context but leaves a significant policy gap regarding the primary safety issues originally articulated to justify homeopaths’ statutory regulation.

Conclusion: To optimally preserve patient safety and full informed consent, regulators should favor a pragmatic, epistemically inclusive approach that actively negotiates paradigm-specific risk conceptions from both biomedicine and the traditional or complementary medicine occupational group under governance.

P07.26

A Survey of Acupuncture-Providing Registered Massage Therapists in Ontario, Canada: Motivation, Training, and Practice Characteristics
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Abstract
Purpose: An increasing number of massage therapists in several countries are providing acupuncture to their clients but little is known about this practice. This study aims to characterize the motivations, training backgrounds, practice patterns, and clinical experiences of massage therapists who perform acupuncture.

Methods: The authors used a cross-sectional, online survey design involving acupuncture-providing registered massage therapists (RMTs) in the province of Ontario, Canada, where acupuncture is included in massage therapy’s scope. Analysis involved descriptive statistics and thematic content analysis of qualitative findings.

Results: The survey response rate was 33.7% (n = 212), representing 25.5% of all Ontario RMTs rostered to practice acupuncture. Participant demographics mirrored the profession as a whole, except that providers were on average several years older than other RMTs. Most respondents (72.7%) had completed over 200 hours of training in acupuncture; most trainings included clean needle technique (96.8%), clinical supervision (93.5%), traditional Chinese medicine content (83.4%), and a final examination (96.8%). Respondents typically used acupuncture in about one-third of their sessions (mean 32.3%, standard deviation [SD] 5.0) with an average of 10.5 weekly clients (SD 14.3). Acupuncture-providing RMTs had been initially motivated by acupuncture’s potential effectiveness for musculoskeletal conditions (97.2%), a wish to attract more clients (61.3%), and physical fatigue from delivering manual therapies (48.3%). Most reported being more likely to achieve excellent clinical results (84.9%), experience greater professional satisfaction (79.9%), and attract or retain clients (64.8%) since using acupuncture. A minority also reported earning a higher income (34.6%) and experiencing more adverse events in practice (21.5%). Qualitative responses added explanatory nuance to numeric results.

Conclusion: The use of acupuncture by massage therapists represents an emerging trend that holds promise in enhancing clinical care, professional stability and provider longevity. Additional research is needed to establish international standards for safe and effective acupuncture practice in this practitioner group.
Effects of Inpatient Integrative Medicine on Readmission Rates and Length of Stay
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Abstract
Purpose: UCLA East-West Medicine is an integrative medicine specialty service which utilizes both “western” and traditional Chinese medical techniques to improve patient health and well-being. Recently, a full-time physician-led inpatient program has been established to provide integrative East-West (EW) medicine consultations at the 281-bed UCLA Santa Monica Hospital. This study seeks to quantify the effectiveness of inpatient EW medicine by evaluating the effect of the new inpatient integrative medicine consultation service on readmission rates and hospitalization lengths of stay.

Methods: EW consultations were identified through chart review. Patients were included in the study if they had been admitted within the 2 years prior to their first EW consultation, which allowed us to calculate baseline length of stay (LOS) and 30-day readmission rates for this patient population prior to EW consultation. Hospitalization/admissions dates and expected and observed length of stay data were obtained from electronic health records through Vizient software. To account for admission complexity, observed LOS was normalized against expected LOS to determine an O/E ratio. A total of 266 unique patients and 1702 admissions were analyzed. Of the 1702 admissions, the 326 that included an EW consultation were compared against the 1376 that did not.

Results: The average O/E ratio before EW involvement was 1.15847, and the average O/E after EW involvement was 1.34381 (P = .006). The baseline 30-day readmission rate for this population prior to EW consultation was 38.44%. The rate of 30-day readmissions for admissions that included an EW consultation was 25.15% (P < .0001).

Conclusion: Patients for whom EW consultation is requested tend to have greater than average LOS and readmission rates. EW consultations reduced 30-day readmission rates but increased LOS. This supports further investigation into the value of integrative medicine in the inpatient setting.

Contributing to Global Health—Development of a Consensus-Based Research Strategy for a Whole Medicine and Health System, Anthroposophic Medicine
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Abstract
Purpose: Whole medicine and health systems like traditional and complementary medicine systems (T&CM) are part of the health care around the world. One key feature is the focus on patient-centered and multimodal care and the integration of intercultural perspectives in a wide range of settings. The authentic, rigorous, and fair evaluation of such a medical system, with its inherent complexity and individualization, imposes methodological challenges.

Methods: To develop a research strategy for a specific T&CM system, anthroposophic medicine (AM), we used a 3-phase consensus process with experts and key stakeholders, consisting of pre-meeting methodological literature and AM research review and interviews, face-to-face consensus meetings, and postmeeting feedback and review.

Results: AM covers many medical specialties in outpatient and inpatient, primary, secondary, and tertiary care; in health education and pedagogy. It is integrated with conventional medicine in the public health-care system. It applies specific medicines, nursing techniques, arts therapies,
eurythmy therapy, rhythmical massage, counseling, and psychotherapy. A research strategy focuses on (I) efficacy and effectiveness—divided into evaluation of the multimodal and multidisciplinary medical system as a whole, a reasonable amount of confirmatory randomized controlled trials on exemplary therapies and indications, the wide range of interventions and patient-centered care strategies with less extensive formats like well-conducted small trials, observational studies, high-quality case reports and series; (II) safety; (III) economics; (IV) evidence synthesis; (V) methodologic issues; (VI) biomedical, physiological, pharmacological, psychological, anthropological, and nosological issues as well as innovation and development; (VI) patient perspective and involvement, public needs, ethics; (VII) educational matters and professionalism; and (IX) disease prevention, health promotion, and public health.

Conclusion: The research strategy may provide transparent and comprehensive insight into potential benefits or risks of AM and can serve as a framework for an evidence-informed approach for a variety of stakeholders and collaborating networks with the aim of improving global health.

**P07.30**

**Naturopathic Approaches to Cancer Screening and Prevention: A Qualitative Study**

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**Abstract**

**Purpose:** Research suggests that patients receiving care from both CAM providers and MDs or DOs experience higher rates of breast and cervical cancer screening than those receiving care from MD/DOs alone. We explored practices of cancer screening and prevention among naturopathic doctors (NDs) in Maine to identify opportunities for collaboration between MD/DOs and NDs and to improve access to cancer screening and prevention.

**Methods:** We conducted semistructured interviews with 16 out of Maine’s 37 licensed NDs, eliciting practices of cancer screening and prevention as well as experiences collaborating with MD/DOs. Transcribed interviews underwent inductive-deductive coding and were analyzed for content and themes via the constant comparative method.

**Results:** Cancer screening practices varied among NDs, but no participants were opposed to cancer screening. Most participants believed their primary role was in cancer prevention rather than screening. All were accustomed to working with MD/DOs, referring patients to them when needed. Many NDs reported acting as a bridge to obtaining cancer screening and other medical care for patients who would otherwise avoid MD/DOs. Generally, naturopathic principles are consistent with routine cancer screening though participants suggested that patient preference and individual risk may impact the forcefulness of their recommendations. Despite an overall willingness to recommend cancer screening, participants referred to several barriers to screening and to working with MD/DOs including perceived prejudicial attitudes from MD/DOs and concerns over cost and insurance coverage for cancer screening.

**Conclusion:** Licensed naturopathic doctors assist people in providing individualized care plans founded in nutrition and lifestyle and providing health care to some who may feel disconnected to conventional medical providers. Our findings suggest that, with support, NDs can help to ensure appropriate cancer screening, particularly among patients who avoid conventional medicine. Encouraging better communication between NDs and MD/DOs has potential to improve access to cancer screening and prevention.

**P07.32**

**Use of Cannabis in Patients With Inflammatory Bowel Disease in Germany**

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**Abstract**

**Purpose:** Legalization of medicinal cannabis opens up potential new applications, for example, in inflammatory bowel disease (IBD). The aim of the present study was to examine the prevalence of use and experiences with the use of cannabis in German patients with IBD.

**Methods:** In early 2019, 1000 IBD patients were surveyed about the use of conventional and complementary
procedures, including the use of and experience with medicinal cannabis. Prevalence and associations with sociodemographic and health characteristics were analyzed using SPSS.

Results: Of 1000 enrolled participants, 412 respondents participated in the study (mean age 49.1 ± 17.0 years, 55.8% women. 43.8% ulcerative colitis and 54.3% Crohn’s disease). A total of 71 participants (17.2%) said that they had used cannabis for recreational purposes in the past, and 11 participants indicated current recreational use (2.7%); 17 participants each (4.1%) said that they currently used cannabis or have used it to treat their IBD in the past. Cannabis users reported lower quality of life and higher anxiety or depression than nonusers. Current users reported greater efficacy of cannabis than former users, with the biggest effects reported for pain, appetite, and mood. The most common side effects included marijuana high, drowsiness and a dry mouth, the main reasons for stopping the treatment were lack of (legal) acquisition, as well as the absence of symptoms. A majority of patients did not inform their treating physicians about the cannabis use.

Conclusion: The use of cannabis in the treatment of IBD is not very common and is not discussed by the majority of users with the treating physicians. Further research is needed to generate evidence for the therapeutic use of (medicinal) cannabis in IBD.

P07.34

Integrative Therapies to Pediatric Inpatient in Bone Marrow Transplantation Center: Experience With Written Narratives

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Abstract

Purpose: Bone marrow transplantation (BMT) has been used in children as treatment for an increasing number of hematological diseases and solid tumors. Pediatrics requires complex multidimensional interactions between physicians, multidisciplinary team, patient, and family, especially in long hospitalizations such as in BMT. Integrative therapies (ITs) teach inpatients and caregivers tools for self-care, stress, and anxiety management, helping to elicit the relaxation response. Experience report of the Integrative Medicine (IM) Group in compassionate care for children and their families during BMT using a qualitative approach in a private tertiary hospital.

Methods: Since 2013, 123 pediatric patients underwent BMT; 80% of those were between ages of 0 to 11 (mean ages was 6) and 57% were males. The median length of hospital stay was 44 days. For nonmalignant diseases, indication of BMT was 63% (77). Immunodeficiencies predominated in nonmalignant diagnosis in 35% (27). Malignant diseases prevailed ALL 35% (16), solid tumors 26% (12), and lymphoma 15% (7). The IM Group is part of the hospital’s multidisciplinary team, IT sessions take place in the patient’s room by hided body therapists. Techniques such as yoga, touch therapy, empathic listening, and play are used with compassionate care for inpatients and their families. Sessions last 40 minutes, 3 times a week. They were invited to write a narrative about IM care voluntarily.

Results: In written narratives, parents reported words like “peace,” “love,” “tranquility,” “inner silence,” “gratefully,” “relaxation,” and “calm.” IT go beyond symptom management and are related to bonding, autonomy, and building a sense of security.

Conclusion: Qualitative approach evidenced the effectiveness of intervention from the point of view of those involved in care process. IT with compassionate care offers noncognitive paths to achieve peaceful inner state, may be able to elicit sensations of wellbeing, relax and calm, helping patients and families positively in long hospitalizations and dealing better in BMT.

P07.35

Drawing Parallels Between Complementary and Alternative Medicine Professions Regulated Then and Now

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Abstract

Purpose: This study seeks to explain the regulation of complementary and alternative medicine (CAM) health professions, through the comparison of 4 distinct examples in Ontario, Canada including chiropractors, naturopaths, homeopaths, and traditional Chinese medicine (TCM) practitioners. These 4 professions were specifically selected to analyze whether parallels could be drawn between those that were regulated nearly 100 years ago and those that were regulated less than 6 years ago.
Methods: This study analyzes the agenda setting and policy development stage of the policy process, or in other words, what happened between stakeholders before each of these CAM professions achieved regulation. Alford’s model of dominant, challenging and repressed structured interests (DSIs, CSIs, and RSIs, respectively) is used to describe the competition that took place between various players within the health-care system and their position in the health policy process. Alford’s theory serves to explain these relationships between and among members of both conventional and CAM professions.

Results: Parallels could be drawn between the CAM practitioners regulated in the 1920s and those recently regulated. Each of the 4 CAM professions has existed as a RSI at some point in their history, however, over the last century, and has sought to align themselves with various (or even become) CSIs in order to be recognized as a regulated health profession.

Conclusion: While exceptions certainly exist, this analysis would suggest that beyond time and financial resources, unregulated CAM professions may increase their likelihood of becoming regulated if they (1) gain popularity/strong support from patients or the general public; (2) organize themselves sufficiently that they pose a direct threat to 1 or more scopes of practice desirable by the DSIs; and/or (3) are willing to adopt standards in education, training, and ethics that may (initially) reduce their scope of practice or profession’s membership or slow their profession’s growth.

P07.36

Utilization Patterns of Integrative Medicine Modalities Among Patients With Obesity in the PREMIER Study

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Abstract

Purpose: Obesity is associated with increased burden of disease and use of allopathic medicine. Previous studies suggest that adults with obesity are less likely to use integrative medicine (IM) modalities than normal weight adults. Using data from a large observational study of IM clinics, we sought to determine which IM modalities were used by patients with obesity and to examine their changes in patient-reported outcomes over time.

Methods: The PRIMIER (Patients Receiving Integrative Medicine Interventions Effectiveness Registry) study enrolled 4954 patients from August 2013 to October 2017 across 17 U.S.-based IM sites. Recruited patients completed online surveys, including the PROMIS-29, a validated survey instrument for patient reported outcomes (physical function, pain interference, and fatigue), and patient activation measure (PAM). We analyzed a subgroup of 636 patients with a body mass index (BMI) ≥30 kg/m² who completed 2 or more surveys and evaluable EHR data over 1 year of follow-up. We assessed their baseline conditions, modality use, and change in self-reported patient outcomes over time.

Results: Patients with obesity had a mean BMI of 35.9 (standard deviation ± 5.4) kg/m², age of 51.8 (± 13), were 81% females, 83% white, and 9% black. Patients completing their baseline survey were most likely to report being seen for chronic pain (22%), acute pain (10%), a wellness visit (9%), and fibromyalgia/myofascial pain (7%). The most common modalities used at baseline were IM physician consult (35%), followed by acupuncture (28%), chiropractic care (11%), nutritionist visit (10%), and supplements/herbs/vitamins (9%). Patients with obesity showed significant improvements from baseline to 12 months in physical function (P = .0375), pain interference (P = .0057), fatigue (P = .0001), and patient activation (P ≤ .0001).

Conclusion: IM patients with obesity in a large cohort study were most likely to be seen for pain and most likely to utilize physician consults and acupuncture. Overall, there was a significant change in patient-reported outcomes.

P07.37

Veteran Perceptions of Care Delivery and Research Methods in a Lot Clinical Trial of Hiropractic for Low Back Pain: A Qualitative Analysis

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Abstract
Purpose: Low back pain (LBP) is a common condition among military veterans seeking treatment in Department of Veterans Affairs (VA) health-care facilities. As chiropractic services within VA expand, well-designed, pragmatic trials, and implementation studies of the clinical effectiveness and program uptake of such interventions are needed. This study evaluated veterans’ perceptions of the feasibility of care delivery and research processes in a pilot trial conducted in preparation for a federally funded, large-scale, multisite, pragmatic randomized clinical trial of chiropractic dosage for LBP in VA.

Methods: The design was a qualitative study within a single-arm, pilot trial of chiropractic care for LBP conducted within 2 VA chiropractic clinics (NCT032547219). We conducted semistructured in-person or telephone interviews with trial participants near the end of their participation in the 10-week trial. Interviews were audiorecorded, transcribed, and analyzed using inductive and deductive qualitative strategies. Qualitative content analysis explored the acceptability and feasibility of trial methods and informed recommendations regarding VA-based chiropractic care.

Results: Twenty-four of 40 veterans completed interviews (response rate 60%). Findings provided critical information for planning a VA-based clinical trial of chiropractic care and offered insights into the current delivery of chiropractic services in this setting. Care delivery themes included treatment scheduling challenges (wait times, treatment frequency, and staffing); doctor–patient relationships with VA chiropractors (active listening, adjusting ability, self-care recommendations, and understanding VA culture); and health-care communication within VA (interprofessional communication and electronically mediated patient communications). Clinical trial planning suggestions focused on improving the relevance, burden, and timing of selected outcome measures; enhancing on-line data collection via REDCap; refining participant recruitment (altruism and incentives); and creating a healing clinic environment.

Conclusion: Our evaluations highlighted veterans’ perceptions of the benefits of VA-based chiropractic services, identified areas for improvement in service delivery, and offered suggestions for conducting a large-scale, veteran-focused clinical trial of chiropractic care.

P07.38
Utilization of Complementary and Integrative Health Services in Veterans With Moderate-to-Severe Chronic Pain in VA: Where Can We Do Better?

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Abstract
Purpose: In response to the opioid epidemic, Veterans Affairs (VA) accelerated implementation of Whole Health (WH) and Complementary and Integrative Health (CIH) services for veterans. We describe CIH utilization patterns in veterans with moderate-to-severe chronic pain.

Methods: From August 15, 2018 to August 15, 2019, at 5 VA health-care systems across the United States, we used the VA electronic health record to categorize CIH utilization in veterans with moderate-to-severe chronic pain (Numeric Rating Scale ≥ 5): (1) any CIH utilization; (2) CIH clinical services (eg, acupuncture, chiropractic); (3) CIH wellness services (eg, meditation, biofeedback, Yoga, etc); (3) WH Coaching; and (4) other CIH services. We describe sociodemographic and other factors associated with CIH utilization.

Results: Among 34 848 veterans with moderate-to-severe chronic pain, over one-quarter (N = 10 389, 27%) had used any CIH services. Of these, CIH wellness services (eg, Yoga, Tai Chi, etc) were the most frequently used (15%), followed by WH coaching and education (13%) and 8% had used more CIH clinical services (eg, chiropractic, etc). CIH utilization varied by veteran subpopulations. Women versus men, younger versus older, and urban versus rural veterans used more CIH services. Veterans prescribed opioids most frequently were the least likely to utilize any CIH, but when they did, they used CIH clinical services (eg, acupuncture; chiropractic) than wellness services. In contrast, veterans with pain not prescribed opioids used more CIH wellness services and WH coaching than CIH clinical care. Nearly one-third of veterans with chronic pain and 1 or more mental health problems used some form of CIH.

Conclusion: A large proportion of veterans with chronic pain, including those with comorbid mental health problems, are using CIH. Nevertheless, VA needs to improve access to CIH among rural and older veterans and to encourage veterans prescribed opioids to use more active CIH modalities as part of their pain care plans.
Adverse Events Attributed to Traditional Korean Medical Practices: 1999 to 2016

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Abstract

Purpose: In many countries, medical practices that are categorized as traditional, complementary, and/or alternative are common and the focus of current advocacy. Although some traditional medical practices appear beneficial, many remain untested and there is little relevant monitoring or control. Our knowledge of the adverse effects of such practices is therefore very limited. This hampers the identification of the safest and most effective traditional practices and medicines.

Methods: Adverse events recorded in the Republic of Korea between 1999 and 2010—by the Food and Drug Administration, the Consumer Agency or the Association of Traditional Korean Medicine—were reviewed. Records of adverse events attributed to the use of traditional medical practices, including reports of medicinal accidents and consumers’ complaints, were investigated.

Results: As part of the national system of pharmacovigilance, Food and Drug Administration collects data. Only 5 adverse drug reactions were recorded by the Administration in 1988, but the number of such adverse events recorded each year has since grown, from 148 637 between 1999 and 2002 to 228 939 in 2016. Between 1999 and 2016, Consumer Agency received complaints from consumers—about drugs and other medical treatments in general. Over the same period, the percentage of each year’s resolved disputes that were related to traditional Korean medicine—2.2% (6 of 271) in 1999 and 2.6% (20 of 761) in 2010 and 4.2% (32 of 762)—showed little variation.

Conclusion: In the Republic of Korea, traditional medical practices often appear to have adverse effects, yet almost all of the adverse events attributed to such practices between 1999 and 2010 were missed by the national pharmacovigilance system. The Consumer Agency and the Association of Traditional Korean Medicine should be included in the national pharmacovigilance system.

Chronic Pain Management in Integrative Group Medical Visits: Increasing Access to Nonpharmacologic Approaches in Safety-Net Settings

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Abstract

Purpose: Major U.S. medical associations and government agencies have called for expanded access to complementary and integrative health (CIH) for chronic pain, yet lack of insurance reimbursement has been a major barrier to CIH implementation. In response, some safety-net clinics have begun implementing integrative group medical visits (IGMVs). These models aim to ameliorate health-care disparities through combining CIH, peer support/education, and standard primary care. We used multisited qualitative research to understand conditions that make IGMVs for chronic pain feasible in safety-net settings and identify conditions that limit their expansion.

Methods: We draw on data from 2 qualitative research projects and conducted at organizations serving ethnically diverse, low-income, multilingual patient populations. We conducted 114 hours of ethnographic observations of IGMVs at 11 clinics in the San Francisco and Boston areas and interviewed 30 IGMV staff and 25 patients. Field notes and interviews from each project were coded separately using grounded theory methods. After data collection was completed, we analyzed overlapping codes from the 2 data sets to understand implementation of IGMVs for pain management.

Results: We found 3 conditions that made IGMVs for chronic pain feasible in safety-net settings: (1) the current opioid crisis, (2) uncertainty surrounding chronic pain and its treatment, and (3) clinicians with specific commitments to IGMVs. IGMVs have been spearheaded by individual clinicians rather than organizational or policy changes, and as such, their expansion has been limited. Two conditions characterized this restricted expansion: (1) uncertainty about who could benefit most from particular treatments and (2) continued stratification of CIH access. Despite these constraints, IGMV patients and staff responded to varying levels of institutional support with mutual innovation.

Conclusion: Our research points to the potential of IGMVs for treating chronic pain and decreasing opioid use while demonstrating that IGMVs continue as an innovation by individual providers rather than broad reforms.
P07.43

**Current Status of North Korean Traditional Medicine Research—Using Bibliometric Analysis of a North Korean Traditional Medical Journal: Korean Medicine**

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**Abstract**

**Purpose:** The health-care system in North Korea is not working properly due to lack of financial resources and medicines. As the using of traditional medicine “Korean medicine” which is relatively less affected by sanctions, and related to the ideology of the regime has been increased in North Korea. The aim is to analyze the current status of North Korean traditional medicine research through the analysis of a North Korean traditional medical journal: KOREAN MEDICINE.

**Methods:** To research output, we conducted a bibliometric analysis of KOREAN MEDICINE research from 2016 to 2019. This includes 999 papers in 14 issues of the Journal of KOREAN MEDICINE published from past 3 years. We analyzed the papers and structurally extract information regarding the papers to create data. The main items of data are research purpose, research method, disease, treatment, Western medicine, and number of study subjects. We analyzed what research has been conducted according to each year, each treatment, and each disease.

**Results:** In North Korea’s Journal of KOREAN MEDICINE, the most researches on diseases of the digestive system (KCD K00-K93) accounted for 21.3%. Next, musculoskeletal disorders (KCD M00-M99) were 16.9%. The most common intervention was nondrug therapy (55.9%), drugs (40.0%), and diagnostic methods (4.1%). The purpose of the study was 81.6% of the studies to find out the therapeutic effect, and 48.5% of the study methods had a control group; 17.4% of traditional medicine studies were on treatment or diagnosis in collaborative with western medical therapies.

**Conclusion:** North Korea is actively using traditional medicine to prevent deterioration of health, and research is also active. North Korean traditional medicine research seems to be trying to develop new therapies, including traditional acupuncture and moxibustion, as well as electronic devices, pharmacopuncture, needle-embedding acupuncture, and Spa therapy. There is also active research in collaborative practice between traditional Korean medicine and western medicine.

P07.44

**Standardization of Integrative Therapy Terms for Clinical Documentation: A Data-Driven Approach**

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**Abstract**

**Purpose:** The purpose of this research is to evaluate the representation of integrative therapies within the most comprehensive international standardized clinical healthcare terminology, Systematized Nomenclature of Medicine-Clinical Terms (SNOMED CT).

**Methods:** Integrative therapy terms were extracted from multiple sources and organized using the National Center for Complementary and Integrative Health (NCCIH) and former National Center Complementary and Alternative Medicine (NCCAM) classification structures. Validated terms were mapped to SNOMED CT.

**Results:** A total of 1209 integrative therapy terms were extracted. After removing duplicates and nonvalid terms, 579 terms were included in the analysis and 243 (42.0%) of the terms were mapped to SNOMED CT. Across NCCIH and NCCAM classifications, natural products (48%) had the most terms represented in SNOMED CT, while whole systems of care (34%), within NCCAM, has the least.

**Conclusion:** Integrative therapies are partially represented in SNOMED CT. NCCIH and NCCAM classification structures show differing levels of detail of terms represented within SNOMED CT. Mapping integrative therapy terms to standardized terminologies such as SNOMED CT has numerous benefits such as improving data capture and supporting sharable data exchange between clinical documentation and data used for research. This is an initial step to understanding representation of integrative therapies and implications for designing clinical systems to support and facilitate integrative nursing practice. Future research will focus on validating and comparing the mapping of integrative therapies with current clinical data and develop recommendations for integrative therapies not represented by SNOMED CT.
Different Consumption Patterns and Perceived Helpfulness of Traditional Medicine, Complementary, and Alternative Medicine in Inflammatory Bowel Disease Across 4 South Asian Regions

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Abstract

Purpose: The use of complementary and alternative medicine (CAM) in Inflammatory Bowel Disease (IBD) is common in western countries but not many data in South Asia. Traditional medicine (TM) is recognized by World Health Organization as one of CAM, we aim to compare the consumption patterns and perceived helpfulness of TM, CAM in IBD in 4 South Asia regions.

Methods: This is a cross-sectional survey conducted from April 2018 to February 2019 in Hong Kong (HK), Kunming (KM), Hangzhou (HZ), and Thailand (TH). Subjects with IBD were invited to answer the questions about their demographics, consumption of TM and CAM treatment for IBD, and the corresponding helpfulness. Statistical tests were used for the comparison across 4 regions.

Results: One-third (205 of 633) of subjects participating in the survey had received or taken TM or CAM for IBD in which 37.7%, 42.0%, 16.3%, and 17.5% subjects in HK, KM, HZ, and TH were users, respectively. There were significant differences in age, education, income, disease type and status, hospitalization, use of 5-ASA, steroid, immunosuppressants and biologics (all \(P < 0.05\)) of TM, or CAM users across 4 regions. The consumption patterns of TM or CAM such as manipulation (\(P = 0.08\)), homeotherapy (\(P = 0.02\)), acupuncture (\(P = 0.04\)), massage (\(P < 0.01\)) probiotics (\(P = 0.06\)), meditation (\(P = 0.06\)), taichi (\(P = 0.01\)), visualization (\(P = 0.03\)), and prayer (\(P = 0.03\)) were significantly varied. Among all treatments, TM (52.7%), probiotics (26.8%), vitamins/minerals (17.1%), and acupuncture (17.1%) have perceived highest helpfulness.

Conclusion: Although KM, HK, and HZ are cities in China, the consumption in HZ was even lower than Thailand, whereas the consumption rate in KM was the top followed by HK. The characteristics of TM or CAM users for IBD were different across 4 South Asia regions. TM, probiotics, vitamins/minerals, and acupuncture were perceived with the highest helpfulness which is in line with the consumption rates.

Patients’ Ongoing Use of Provider-Based Care for Chronic Spinal Pain: An Example of Ongoing Chiropractic Care

Patricia Herman

Abstract

Purpose: Several provider-based nonpharmacologic therapies are now recommended for chronic low-back pain (CLBP). However, health-care and coverage policies provide little guidance or evidence regarding the long-term use of provider-based care. As evidence on how patients use ongoing chiropractic care, we present the results of 4 studies that examine patients’ treatment goals, willingness-to-pay for pain reduction, predictors of visit frequency, and its impact on outcomes.

Methods: Observational data were collected on patients every 2 weeks for 3 months, and at baseline for chiropractors, from a large U.S. sample of chiropractic patients with nonspecific CLBP and CNP. Analytic techniques such as multilevel modeling were used to account for data nesting.

Results: Our analytic samples ranged from 1557 (91.2% of all surveyed) to 1665 (97.5%) patients with CLBP and/or CNP. The majority (70%) of these patients have a goal of pain management rather than cure. They are willing to pay $46 per month per 1-point reduction in current pain for CLBP and $37 for CNP. Comparing these estimates to patients’ actual use of chiropractic care indicates these patients are “buying” perceived pain reductions from what their pain would have been without seeing their chiropractor—that is, they value maintenance of their current mild pain levels. Patients’ visit frequencies vary by their level of function, stage (start, ending) of care, and (for CLBP) having chiropractic coverage. Visit frequency also varied by their chiropractor’s treatment approach and years of experience. Finally, there was a slight improvement in pain and function
over the 3-month period, but only visits > once per week were associated with significantly better improvement.

**Conclusion:** These patients value pain management and being able to maintain their current mild pain levels. Patients with worse function may need more visits per month, but only more-than-weekly visits significantly improve rather than simply maintain outcome levels.

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**P07.47**

**Integrative Approaches to Pediatric Chronic Pain in an Urban Safety-Net Hospital: Cost Savings, Clinical Benefits, and Safety**

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**Abstract**

**Purpose:** Chronic pain experienced by children and adolescents represents a significant burden in terms of health, quality of life, and economic costs to U.S. families. In 2015, the Boston Medical Center (BMC) Interdisciplinary Pain Clinic initiated an Integrative Medicine (IM) team model to address chronic pain in children. Team members included a pediatrician, child psychologist, physical therapist, acupuncturist, and massage therapist. Children were referred to the pain clinic from primary care and specialty services within BMC, which is the largest safety-net hospital in the northeastern U.S. For this observational assessment, consent and assent were obtained from parents and pediatric patients. Individualized treatment plans were recommended by the IM team.

**Methods:** Self-reported survey and electronic medical record data were collected about socioeconomic demographics, pain, use of medical and IM services, and quality of life. We compared health and quality of life indicators and costs of care for each participant from the year before entering our study with these same indicators for the subsequent year.

**Results:** Eighty-three participants were enrolled. Participants ranged in age from 4 to 22 years (mean 14.7 years). Eighty percent of the group were females. Forty-two percent of the sample were White; 30% were Hispanic/Latino, and 28% were African-American. Primary types of pain were abdominal (52%), headache (23%), musculoskeletal (18%), and other (7%). Quality of life indicators improved (P = .049) and pain interference decreased (Wilcoxon P = .040). Major economic drivers of cost were Emergency Department (ED) visits, in-patient hospitalizations, and consultations with medical specialists. For the 46 participants who completed the project, the following cost savings were noted: $27,819 (surgical procedures), $17,638 (ED visits), $25,033 (hospitalizations), and $42,843 (specialist consults). No adverse events were reported by any of the participants.

**Conclusion:** Our experience demonstrated that the use of IM approaches in an interdisciplinary team approach is safe, feasible, and acceptable to families.

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**P07.48LB**

**Conventional and Complementary Health-Care Utilization Among U.S. Adults With Cardiovascular Disease or Cardiovascular Risk Factors: A Nationally Representative Survey**

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**Abstract**

**Purpose:** Cardiovascular diseases (CVD) and their risk factors need guideline-oriented treatment to provide the best benefit for patients. These guidelines include recommendations for regular checkups, realized by general medical practitioners. Additionally, individuals with CVD/CVD risk factors tend to use complementary methods for their condition. There is limited information on the association between complementary health-care utilization and the adherence to recommended conventional health care.

**Methods:** In this cross-sectional analysis of the nationally representative 2017 National Health Interview Survey (NHIS; n = 26,742; response rate 80.7%), we examined the prevalence of conventional and complementary health-care utilization within the last 12 months in individuals with CVD and/or CVD risk factors and the interactions between the 2 categories of health care.

**Results:** Of all participants, 38.1% reported risk factors for CVD and 13.2% a CVD diagnosis (groups show an overlap). Overall, prevalence of visits to conventional and complementary medicine providers and the use of mind–body medicine was high within the analyzed population. Individuals with CVD and/or CVD risk factors using complementary health care were as likely or more likely to consult general practitioners (CVD: odds ratio
[OR] = 1.22, 95% confidence interval [CI] = 0.98–1.51; CVD risk: OR = 1.30, 95% CI = 1.13–1.49) and medical specialists (CVD: OR = 1.38, 95% CI = 1.19–1.61; CVD risk: OR = 1.58, 95% CI = 1.43–1.76) than those not using complementary health care. Those using complementary health care were as likely to adhere to medical checkup as those not using complementary health care. **Conclusion:** Complementary medicine use seems to be positively associated with a higher adherence to conventional health care and recommended checkups.

**P07.49LB**

**Development of a Multistakeholder-Informed Integrative Health-care Service Delivery Model**

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**Abstract**

**Purpose:** Despite the growing interest in integrative health care (IHC) across the globe, there has been little investigation into the preferences of diverse stakeholder groups for an IHC model of care. Our work served to examine the understanding, attitudes and preferences of health consumers (HC) and health-care providers (HCP) for an IHC service delivery model, and to translate these learnings into an operational framework for IHC.

**Methods:** Using a cross-sectional study design, we invited adult HCs and HCPs from any nursing, medical, allied, traditional, and complementary medicine discipline across Australia, to complete a 55-item online questionnaire.

**Results:** The survey was completed by 409 respondents. There was a shared understanding of, and positive attitude toward IHC among HC and HCPs. In terms of an IHC service delivery model, respondents advocated for the provision of diverse health care and support services across multiple centers, to individuals mainly presenting with chronic/terminal conditions. There was a preference of services to be charged as fee-for-service, paid using a split payment system, and managed by a customized team of clinicians following triage by a nonmedical staff member. These results were translated into an operational framework for IHC.

**Conclusion:** This study presents for the first time, an operational framework for an IHC service delivery model that is informed by the preferences of diverse stakeholder groups. Translating this framework into other jurisdictions is a logical next step of this work.

**P07.50LB**

**Sunscreens Formulated in the Home May Be an Effective and Economical Alternative to Commercial Sunscreens**

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**Abstract**

**Purpose:** Because many consumers cannot afford to purchase/routinely apply commercial sunscreens, with more consumers adversely affected by the effects on sunscreen costs of Food and Drug Administration’s (FDA) proposed restrictions on ultraviolet (UV) filters, and due to increased consumer concerns regarding the safety of sunscreen ingredients, this study was conducted to determine the efficacy and cost of sunscreens made in the home.

**Methods:** Homemade sunscreens were formulated using a readily available base recipe consisting of almond oil, coconut oil, beeswax, and red raspberry seed oil (RRSO). After heating, increasing percentages of zinc oxide (ZnO) and/or titanium dioxide (TiO2), both mineral UV filters considered safe by FDA were added. The amount of UV radiation transmitted through 24 home-formulated and 4 sun protection factor (SPF) 30 commercial mineral sunscreens was measured using an Oriel SOL-UV-6 solar simulator and a Solarmeter Standard UVA+B digital radiometer. Costs of the sunscreens were compared.

**Results:** Twelve home-formulated sunscreens tested (those with higher percentages of ZnO and/or TiO2, all within FDA safety limits) had mean UV transmission values lower than the mean transmission values of 3 of the 4 commercial sunscreens, and several homemade sunscreens had UV transmission values equivalent to the best-testing commercial sunscreen. The cost of 8 oz of the 12 best-performing homemade sunscreens ranged from $4.12 to $6.97; the cost of 8 oz of the 4 commercial sunscreens ranged from $21.04 to $58.00.

**Conclusion:** These data provide preliminary information on the efficacy and cost-effectiveness of home-formulated sunscreens, which could lead to improved sun protection availability to those who cannot afford to routinely apply sunscreen, and thus could potentially decrease the incidence of photocarcinogenesis in these individuals.
Interestingly, although the primary effectiveness of the homemade sunscreens was undoubtedly due to the ZnO and/or TiO2, a minor part of the UV transmission blockage may have been due to base ingredients; coconut oil, almond oil, and RRSO have SPF values reported from 4.6 to 50.

P07.51LB

Outpatients’ Treatment Needs and Service Satisfaction: Questionnaire Survey Targeting Patients in Breast Department of Beijing University of Chinese Medicine Third Affiliated Hospital

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Abstract

Purpose: The survey aimed to understand outpatients’ treatment needs and service satisfaction and provide references for promoting traditional Chinese medicine (TCM) medical practice.

Methods: We conduct a questionnaire survey over December 2019 to February 2020 in breast department of Beijing University of Chinese Medicine Third Affiliated Hospital. The questionnaire comprised items concerning outpatients’ chief complaints, diagnosis, motivations for turning to TCM and this department, treatments they believe benefit themselves, and satisfactions about medical conditions, professional ethics, health promotion, privacy protection, medical cost, and so forth.

Results: The response rate was 100%, for a total of 51 usable protocols. The chief complaints were mainly about pain and masses associated with breastfeeding. The diagnosis is mostly related to lactation with 25 patients diagnosed as breast engorgement, 6 patients as acute mastitis, and 5 patients as breast abscess and cracked nipples, respectively. The items topping in the patients’ concerns were the dispersal of masses and pain, followed by the influences on breastfeeding and nipples problems. The predominant reasons for turning to TCM were beneficial effect and references. Some patients also wanted to receive TCM balancing bodies and they would not like antibiotics, hormone, and antituberculous medicine as interventions. And the first 3 items about why patients preferred to this department were focused on national key disciplines, other patients’ references and satisfied treatment effect. In addition, 89.2% patients believe tuina helping milk efficiently removal benefits themselves most, followed by Chinese herbs intake orally and percutaneously. The satisfaction rates were above 90%. The unsatisfaction complaints centered on less staff allocation, demand for a green channel with fever patients, systematic health education, and perfecting facilities.

Conclusion: Most patients are in lactation and concern about their conditions. Given the particular physical conditions, we should provide them with more humanistic treatment by optimizing staff allocation, perfecting facilities, and offering education periodically.

P07.52LB

How to Approach Mold, Mycotoxins, and Indoor Pathogens for Hypersensitive Patients

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Abstract

Purpose: With the growing number of individuals impacted chronic illnesses, there is a high demand for making sure their homes are not inhibiting the patient’s ability to heal from continued exposure to certain indoor pathogens.

Methods: This work finds how indoor pathogens impact a building, what best practices for inspections, testing, and remediation for hypersensitive patients look like, and how to implement preventative measures and air purification.

Results: Overview of mold, mycotoxins, and other indoor pathogens: What it needs to grow, how fast it can grow, and what can be done to initially prevent mold growth. Learn how these contaminants and others travel throughout the home. What a Thorough Environmental Assessment Should Include: Discuss the elements of a proper inspection specifically designed for hypersensitive individuals. Sampling Methodologies and Overview of How to Interpret Samples: Overview of when and how sample types should be collected including air, surface, Environmental Relative Moldiness Index, Health Effects Roster of Type Specific Formers of Mycotoxins and Inflammagens—Second Version, and Mycotoxin. Review example lab reports discussing what they mean and how it applies to individuals with environmentally acquired illnesses. Protocols and Examples of Remediation: A guide to proper remediation for individuals with hypersensitivity, how to identify a remediation company, and what expectations the patient should have when going through the remedial process. Mold
Prevention and Air Purification: Examples of air purifier technologies that focus on the 3 elements of constant air cleaning and cleaning steps that should be taken to manage potential exposures.

**Conclusion:** This presentation is aimed to help medical practitioners understand how to advise their patients on best practices when mold, mycotoxins, and other indoor contaminants are a concern.

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**P07.53LB**

**Integrative Health Promotion in Primary Care: Perspectives of Providers in the WWAMI Region**

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**Abstract**

**Purpose:** This project was designed to guide future education and research to help promote integrative health practice within primary care.

**Methods:** A descriptive cross-sectional study design was used involving administration of a 19-item survey focused on familiarity with integrative care approaches, experience referring to or co-managing care with an integrative practitioner, perceived barriers to integrative care at the clinic, and education needed to support increased integrative health practice. The survey was distributed to primary care providers (medical doctors, doctors of osteopathic medicine, physician assistants, nurse practitioners) through the WWAMI region Practice and Research Network (WPRN), serving the states of Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI). Eleven clinical sites participated across 3 states: Washington, Wyoming, and Idaho.

**Results:** Two hundred eighteen providers (45% response rate) completed the survey. Eleven clinical sites participated across 3 states: Washington, Wyoming, and Idaho. Two hundred eighteen providers (45% response rate) completed the survey. Results indicated that providers (a) were familiar with a wide variety of integrative health approaches, chiropractic was most familiar (73%) and the least were ayurveda (23%) and curanderismo (8%); (b) talked with patients about the possible benefits of, or recommended, an integrative approach at least some of the time (75%); and (c) had minimal overall experience co-managing patient care with an integrative health practitioner (42% had ever). On the clinic level, approximately 57% indicated clinic leadership support for integrative health services, and 81% knew of at least 1 integrative approach being offered. Respondents wanted to learn about the safety/efficacy of integrative approaches (78%), local practitioners to refer to (83%), and about providing an integrative approach themselves (51%).

**Conclusion:** In summary, while there was overall support for and familiarity with integrative care, more education on integrative approaches is needed to support integrative care services and referral among primary care providers.

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**P07.54LB**

**Patient Perspectives on Development of a Mobile Health Application to Improve Dietary Supplement Tracking and Reconciliation**

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**Abstract**

**Purpose:** To assess patients’ views on facilitators and barriers to using a mobile health application (mHealth app) to collect and share dietary supplement (DS) information with their health-care providers. Patient views will inform the creation of a mHealth app to improve DS patient–provider communication and DS tracking and reconciliation in the electronic medical record (EMR).

**Methods:** Utilizing a health behavior theory conceptual model, we conducted 3 focus groups with members of patient advisory groups from several academic medical departments. We asked questions about DS safety, provider communication, and comfort with technology use. Sessions were recorded and transcribed for coding, then content was organized into themes to predict future mHealth app utilization.

**Results:** Focus group participants (N = 15) included 8 women and 7 men; all were > 45 years old with at least a college education. There was 1 Asian American and 14 White Participants. Participants were concerned about DS safety and inaccurate recording in the EMR. Reasons included (1) doctor’s reluctance to discuss DSs; (2) time constraints of medical visits; (3) doctor’s lack of training regarding DS, prompting a desire for providers with enhanced DS.
training (e.g., pharmacists, dietitians, naturopathic doctors). In discussing development of the mHealth app to remedy DS tracking and reconciliation, additional key concerns included (1) preserving and enhancing patient’s health autonomy; (2) accessibility for the disadvantaged; and (3) privacy. Advantages regarding a mHealth app include (1) enhancing patient-provider communication; (2) providing reliable DS information; and (3) integrating DS information in the EMR to identify safety concerns, such as drug-supplement interactions.

**Conclusion:** Overall, participants believe their DS information is inaccurately represented in the EMR leading to safety issues, which negatively impacts overall quality-of-care. An app to simplify and improve DS entry and reconciliation was of interest, as long as it maintained health autonomy and privacy.

### P07.55LB

**Participating in Meditation and Tai Chi Improves Physical Functioning, Anxiety Levels, and Ability to Participate in Social Role Activities over Time: VA PRIMIER**

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**Abstract**

**Purpose:** The Department of Veterans Affairs (VA) is dedicated to providing a Whole Health approach to care, including offering complementary and integrative health (CIH) services. BraveNet is an Agency for Healthcare Research and Quality-registered practice-based research network of 17 leading civilian integrative health practices. PRIMIER is BraveNet’s prospective, nonrandomized, observational evaluation. The VA and BraveNet partnered to conduct PRIMIER among Veterans participating in any CIH approach at 2 VA medical centers. This report primarily provides results from Veterans but also compares to results from civilians on patient-reported outcomes.

**Methods:** Veterans involved in any CIH approach were invited to participate in a patient-reported outcomes (PROMIS-29) repeated survey at 5 time points: baseline, 2, 4, 6, and 12 months. Surveys were completed in person, by telephone or mail, as needed. Mixed hierarchical models reporting least square means with repeated variables were used to test the hypothesis that participating in any CIH approach would improve Veterans’ overall health, controlling for age, male sex, site, participation in other CIH approaches, and surveys completed.

**Results:** A total of 401 surveys were received from 119 Veterans (72% male, age range: 29–85 years) across the 5 time points. Veterans completed an average of 3.4 surveys. Physical functioning scores significantly improved at 2, 6, and 12 months with participation in meditation over time. Veterans’ anxiety was improved at 2 and 6 months when they received Tai Chi. Participation in social role activities improved at 2 months when involved in Tai Chi. Comparison to the civilian PRIMIER results will be presented.

**Conclusion:** Knowing that meditation and Tai Chi improve outcomes among Veterans should allow for clinicians, Veterans, and family members to use this knowledge to improve patient–clinician communication about engaging in CIH treatment approaches. Our ability to compare PRIMIER results across Veterans and civilian populations will provide essential knowledge for the CIH field.

### P07.56LB

**Costs Associated With Mindfulness Meditation and Cognitive Behavioral Therapy for Insomnia in Alzheimer’s Disease Caregivers**

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**Abstract**

**Purpose:** Of 5 million Alzheimer’s Disease (AD) caregivers in the United States, 60% experience insomnia. The ongoing CARES trial evaluates the noninferiority of mindful awareness practices for insomnia (MAP-I) versus cognitive behavioral therapy for insomnia (CBT-I) among AD caregivers with insomnia (N = 99). This analysis estimated costs associated with each intervention.

**Methods:** Micro-costing was used to itemize and abstract costs of each intervention. Personnel, patient time, supplies,
and equipment were inventoried, and unit costs were applied. Caregiver time costs, including travel time, were based on US Labor Bureau home health aide national mean hourly wages; instructor and staff costs were based on the trial’s institutional hourly wages. Group, per-participant, and total intervention costs were calculated with and without booster session costs to reflect real-world implementation. Program costs assumed 50 participants distributed over 7 groups. Sensitivity analyses evaluated robustness of estimates.

**Results:** Per-participant, group, and program costs for the CBT-I intervention were $3991, $14 157, and $99 477, respectively, and for MAPS-I were $1891, $9846, and $69 214. Compared with CBT-I, MAPS-I provided cost-savings of $2100 per participant, $4311 per group, and $30 263 per program. When costs for booster programs were excluded, MAPS-I provided savings of $1249, $2613, and $18 375. For both interventions, the highest fixed cost category was instructor background training and the highest variable cost categories were instructor and participant time. Results were most sensitive to CBT-I and MAPS-I instructor salaries and background training costs. When salaries were assumed equal and background training costs were excluded, MAPS-I provided program savings of $14 736 compared with CBT-I.

**Conclusion:** Mindfulness-based interventions for AD caregivers with insomnia may save up to $1800 per caregiver when compared with CBT-I, the current treatment standard. With this potential for cost savings, results of the ongoing noninferiority CARES trial are critical for increasing insomnia treatment dissemination and improving outcomes among the AD caregiver population.

**P07.58LB**

**Evidence-Based Evaluation of Safety of Genetically Modified Food—A Report on Adverse Events of Carcinogenesis**

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**Abstract**

**Purpose:** One in 3 American adolescents meet the criteria for anxiety, and suicide is the second leading cause of death globally among 15- to 29-year-olds. Research supports connections between breathing manipulation and emotional states, and tolerances to endogenous carbon dioxide (CO₂) levels and anxiety. We observed students’ short and long-term anxiety and CO₂ tolerance (CO₂T) during a slow-breathing program at a rural Pennsylvania high school.

**Methods:** A 6-week, slow-breathing program was administered to 26 10th- to 12th-grade students in 2 health/physical education (HPE) classes. Three times/week, an HPE teacher led students through 5 minutes of 5-second inhales, 5-second breath holds, 10-second exhales, and 5-second breath holds. The State-Trait Anxiety Inventory (STAI) Trait (“overall” anxiety) Scale was administered at the beginning and end of the 6 weeks. The short version of STAI-State (“in-the-moment” stress) Anxiety Scale and a timed-exhale CO₂T measure were administered once/week before and after the breath practice.

**Results:** Of 26 students, 20 (73%) completed all 6 weekly state anxiety and CO₂T measurements; 6 completed 5 of 6; and 1 completed 4 of 6. After 6 weeks, 73% (n = 19) of participating students showed improved trait anxiety scores (mean 12.3% improvement). Before versus after the breathing exercises, state anxiety, and CO₂T scores improved among all participants: A weekly average of 12% and 11%, respectively; A 6-week average of 15% and 8.6%, respectively. From weeks 0 to 6: Mean daily (pre-and-post breathing practice) CO₂T scores improved on average 30%; Both pre- and post-breathing CO₂T scores improved by 44% and 37%, respectively.

**Conclusion:** A 6-week high school program of thrice-weekly, 5-minute group slow breathing was feasible and was associated with short- and long-term adaptations to stress and endogenous CO₂. Prospective studies are warranted to confirm the potential benefits of simple, low-cost approaches such as these toward ending the stress management crisis among today’s youth.
Abstract

Purpose: To assess the incidence of adverse effects/events of genetically modified (GM) food consumption by an evidence-based evaluation of safety of GM food.

Methods: The Cochrane library, PubMed, Embase, and 4 Chinese electronic databases were searched from January 1, 1983 to October 4, 2019. Clinical studies and animal in vivo studies were included. The whole study focuses on the incidence of adverse effects/events of GM food consumption and it is still ongoing, and data extraction has not been completed yet. This abstract focuses on adverse events on carcinogenesis which has been selected through full-text screening. The baseline information was collected based on NoteExpress 3.0.

Results: Of the 9328 citations, 172 articles with 22 kinds of GM food were included after 432 full-text reading. However, no human clinical study met the inclusion criteria. Finally, only 2 mouse/rat feeding studies have been reported to trigger cancer/tumor. Seralini GE 2012, which has been retracted but republished, did a long-term toxicity study on a Roundup-tolerant GM maize (from 11% in the diet), cultivated with or without Roundup, and Roundup alone for 2 years in rats. It found that females in the treatment groups almost always developed large mammary tumors more often than and before controls. As for males, 4 times more large palpable tumors than controls were presented which emerged up to 600 days earlier. Velimirov A 2008 revealed a life term study where mice in the 3 groups were fed with transgenic maize NK603xMON810 (from 33.0% in the diet), control isoline diet and GM-free Austrian corn reference diet, respectively. The survival rate was not significantly different, while cancer (leucosis) was the common cause of death.

Conclusion: A majority of studies failed to detect adverse events of carcinogenesis, while animal studies occupy the lowest hierarchy of evidence. Further clinical trial such as cohort study is still warranted.

P08: Research Methodology

P08.01

Micro-Course on Natural Product Case Reports: Guidance for Publication

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Abstract

Purpose: The purpose is to deliver guidance on “best practices” for clinical case report publications that include observations related to the use of natural products (eg, dietary supplements, herbal medicines). This guidance is necessary to improve the level of detail in case reports such that these observations from practice can more easily inform future research.

Methods: We applied current pedagogical models in online education to the delivery of a micro-course focused on the publication of case reports, with a specific emphasis on case reports reporting on natural products. Unified guidance for case reports on natural products was created by reviewing published intervention guidelines, checking for redundancy, and synthesizing relevant elements. Published guidelines related to natural product reporting was mostly in the context of clinical trials, including TIDieR (Template for Intervention Description and Replication), extensions to CONSORT (Consolidated Standards of Reporting Trials) checklist for herbal interventions and Chinese medicine herbal formulas, the CARE (Case Report) explanation and elaboration document, and the SPIRIT (Standard Protocol Items: Recommendations for Interventional Trials) Statement.

Results: An online training micro-course focused on natural product case reports was developed on the Moodle learning management system that includes: recorded videos, landmark publications, and a resource library. Experiential activities encouraging application of the recent material are available. Learners also have access to CareCapture, a REDCap-based template designed to organize the process of case report development. Learners are able to track their progress using embedded evaluation aids. Video content includes an overview video to case reports and a video focused on natural products with an emphasis on required elements to publish.

Conclusion: Improving the quality of published case reports on natural products may be one strategy to develop
research hypotheses and improve interprofessional knowledge related to natural products. Online education tools provide one strategy to assist in the dissemination of this important training.

P08.03

High-Performance Liquid Chromatography Analysis of Chinese Herbal Medicine Botanical Tincture for Irritable Bowel Syndrome Clinical Trial

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Abstract

Purpose: Botanical tincture (BT) is an alcohol and water extract of 8 Chinese Herbal Medicines (CHMs). Objective was to assay major chemical components for each botanical present in BT that may be tested over time per United States Food and Drug Administration (FDA) regulatory requirements for this FDA-approved Investigational New Drug for irritable bowel syndrome (IBS).

Methods: BT contains 8 botanicals mixed together in a permeable mesh bag container extracted in 40% to 60% alcohol at a ratio of 1 part botanical:5 parts alcohol (1 g botanicals/5 ml alcohol). For the analysis, each botanical was extracted individually in 40% to 60% alcohol at a ratio of 1 part botanical:5 parts alcohol. Botanical products in the permeable containers were removed after 1 week. All tincture samples were evaporated 10 times (10:1). The samples were filtered through a 0.45 micrometer polyvinylidene-fluoride (PVDF) syringe filter before being injected for analysis. A Waters Alliance 2690 high-performance liquid chromatography (HPLC) system linked with a photodiode array detector (PDA) mass spectrometer equipped with electrospray ionization (ESI) source was used for chromatographic and mass spectrometric (MS) analysis.

Results: Eight compounds were identified through HPLC-PDA-ESI-MS by comparing ultraviolet (UV) spectra and high-resolution mass number. Since major components had different UV absorption characteristics, 3 different chromatograms were extracted with 3 different wavelengths.

Conclusion: A method to assay major chemical components for each botanical in BT may be used for quality control and stability testing of BT, an experimental drug to treat IBS symptoms.

P08.02

Standardization, Personalization, and Real-world Practice in Pragmatic Trial for Integrative Medicine: The Methodological Design of a Semi-individualized Randomized Controlled Trial for Diabetic Kidney Disease

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Abstract

Purpose: Pragmatic trials have been advocated across different specialties in the past few decades in a hope to generate real-world evidence to inform decisions in clinical practice. Although pragmatism in clinical trials has been introduced for more than 50 years, the balance between flexibility in trial design and scientific rigor remains a key challenge to the trial design. Also, the discordance in epistemology between conventional and traditional medicine warrants special attention in trial design to reflect real-world practice of different streams of medicine.

Methods: We gathered the perspectives of patients and physicians of conventional and traditional medicine, evaluation of previous service program, and data from registry-based study to inform the design and evaluation of SCHEMATIC, an on-going semi-individualized pragmatic randomized controlled trial evaluating a Chinese medicine clinical protocol for diabetic kidney disease, a medical condition currently with no specific treatment (NCT02488252).

Results: The methodological design including intervention, outcome measurement, flexibility of protocol, and hierarchy of analysis were based on and optimized by expert consensus, preliminary data from previous service program and qualitative stakeholder analyses. The trial design closely resembled real-world practice of integrative Chinese-western medicine and was merged into the existing infrastructure of public out-patient clinics which can be easily translated to routine clinical service. The first half of SCHEMATIC subjects have completed the study and the attrition is well-controlled.

Conclusion: Expert consensus, stakeholder analysis, real-world registry-based data, and pilot programs are key to the
design and translation of pragmatic clinical trials for integrative medicine.

**P08.04**

**A Confirmatory Factor Analysis of the PROMIS 4-Item Sleep Disturbance Measure among Law Enforcement Officers**

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**Abstract**

**Purpose:** Poor sleep has been shown to negatively impact overall health and functioning. Law enforcement officers (LEOs) are at an increased risk for poor sleep and related negative outcomes due to occupational stressors. Poor sleep quality has been shown to negatively impact LEO health, performance, and community safety. The Patient-Reported Outcomes Measurement Information System-Sleep Disturbance (PROMISTM SD) was developed to assess self-reported perceptions of sleep including perceived quality, satisfaction, and difficulties falling asleep.¹ Existing validation studies have found good psychometric properties within the general population; however, due to the unique stressors of law enforcement, and because current research on sleep disturbance in LEOs is limited, further validation of this measure for this specific population is necessary.

**Methods:** The primary goal of this study was to evaluate the validity and reliability of the 4-item PROMIS-SD in a sample of LEOs (n = 111).

**Results:** Confirmatory factor analysis suggest that the original one-factor solution provides an excellent fit to the data, SB²(2) = 11.20, P = .003; goodness-of-fit index = .99, comparative fit index = .97, root mean square error of approximation (RMSEA) = .26. Although the RMSEA value is indicative of poor fit, RMSEA can be artificially inflated for models with low degrees of freedom.² The 4-item PROMIS-SD demonstrated good reliability (α = .85) and evidence of convergent validity via correlations in the expected direction with the Five Facet Mindfulness Questionnaire (r = -.09; P = .37), Organizational Police Stress Questionnaire (r = .29; P = .002), and Operational Police Stress Questionnaire (r = .37; P < .001).

**Conclusion:** Results suggest that the 4-item PROMIS-SD is a valid and reliable measure of sleep disturbance among LEOs. Implications for clinical and research use of the 4-item PROMIS-SD in law enforcement and other first responder populations will be discussed.

**P08.05**

**Health Coaching for Obesity and Type 2 Diabetes Mellitus: Literature Review and Research Quality Appraisal**

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**Abstract**

**Purpose:** Health coaching (HC) promotes healthy lifestyles and may be particularly helpful for clients, patients, and employees with chronic disease. The HC research on obesity and type 2 diabetes (T2DM) is particularly extensive and holds significant clinical promise. This literature, however, is relatively early in development and sometimes lacks acceptable consistency and rigor. The purpose of this article is to review HC studies for obesity and T2DM while assessing the quality of this literature. In the process, we have developed a research scoring system that we apply to the reviewed studies.

**Methods:** A comprehensive review of the health coaching literature was completed to reveal randomized controlled trials for obesity and T2DM. Most studies were identified as part of the Health Coaching Compendium, but more recent papers were also searched and included. General findings for obese and T2DM clients/patients were compiled. A comprehensive quality assessment scoring system for HC research was devised with both research design and HC intervention criteria. Highlights of 3 studies exemplifying desirable HC research qualities for obesity and T2DM are presented.

**Results:** Clinical results for health coaching for obese and T2DM clients/patients are provided and discussed. Preliminary results of reviewed studies suggest that HC is inconsistently defined, applied, and monitored so that health outcomes and potential benefits significantly vary. Highlights of the 3 highest scoring obesity and T2DM studies are presented to illustrate HC best practices and allow other researchers to replicate their methods and findings.

**Conclusion:** Health coaching is a promising and important approach to clients/patients, particularly those with obesity and/or T2DM. To achieve the best health outcomes, however, clarification of HC best practices must be achieved through well designed and effectively applied HC research.
These are essential for the growth, development, and acceptance of HC in the current health-care system.

P08.06

Utilizing Design Thinking to Sculpt an Innovative Presurgical Meditation to Lower Patient Anxiety: Integrative Medicine in Action

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Abstract

Purpose: The problem we seek to improve via this funded research study is patient anxiety in preoperative settings. Preoperative anxiety affects patient experience and has been found to be a predictor of severe postoperative pain and chronic pain after surgery, shown to influence the success and quality of a patient's recovery.

Methods: Utilizing a design thinking approach, 4 former patients were interviewed to assess perception of the level and source(s) of anxiety in the preoperative area, and what might address these issues. Based upon the user interviews, a 10-minute guided meditation was audio recorded and placed on a tablet to either deliver the meditation or silence for the patient. Research methodology success also depends on the health-care professional staff in the preoperative arena. Based upon a preoperative nursing staff focus group, researchers and nurses in tandem designed the flow of the protocol to be seamless, sensitive to the typical preoperative work flow. Participants will be surgical patients in the Perioperative Environment of the Department of Orthopaedics. Ortho Trauma Surgery sees 3 to 4 patients daily, with 2 to 3 patients being eligible for the study (an ability to speak and understand English, conscious of upcoming surgery). Approximately 200 patients will be offered participation in this pilot research to help reduce preoperative anxiety. Half will be randomly assigned to the control group (silencing headphones), and the other half will be randomly assigned (through randomization software) to the experimental (audio meditation) group, with vital signs and anxiety levels recorded pre/post intervention. Depending on patient willingness to participate, we expect between 60 and 100 in each group.

Results: Study commences December 1, 2019. Results will follow.

Conclusion: The preoperative procedures developed and optimized to conduct implementation of this study, including the guided meditation, could have tremendous applications for other preoperative environments and external health-care organizations, as research design was based upon user input.

P08.07

Analysis of Feasibility and Value of Gathering Missing Data of RCTs Published in China: A Qualitative Study on the Telephone Interview

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Abstract

Purpose: The reports of randomized controlled trials (RCTs) published in China have been considered of low quality, due to misunderstanding and misuse of methodology, and so on. Articles published in China play an essential role in the area of TCM. In addition, the absence of research details makes it difficult to conduct secondary research. We try to evaluate the feasibility of the telephone interview for obtaining missing information of clinical trials.

Methods: This research is based on a systematic review of Chinese herbal medicine for adverse effects induced by chemotherapy in people with breast cancer. We included RCTs identified in Chinese National Knowledge Infrastructure (CNKI), Chinese Biomedical Literature (CBM), Chinese Science Journal Database (VIP), and Wanfang. Two researchers independently screened. Disagreements were discussed and reached consensus. We included 440 studies. Telephone interviewers made efforts to contact the study authors and recorded the details of the telephone interview.

Results: The investigators conducted telephone interviews with the authors of 440 studies, researchers contacted 131 study authors, and 309 did not. Among the authors contacted, 47 of them refused to answer, and 84 of them were interviewed. Among the interviewed studies, 18 (22.43%)
were RCTs, 54 (64.29%) were non-RCTs, and 12 (14.29%) were still uncertain. In the non-RCT studies, there were 42 (79.25%) retrospective studies, and 11 (20.75%) used incorrect methods of randomization. After the telephone interview, 63 items in ROB assessment changed from unclear to high/low risk, which accounts for 84% of the original unclear items.

**Conclusion:** When publishing an article, it is necessary to report whether a retrospective case study or a prospective randomized controlled trial. The telephone interview may be useful in filling the missing data, but the proportion of the interviewed studies is not high. How to deal with the articles whose authors we can’t reach is the focus of future research.

**P08.08**

**Clinical Research Missing Data Imputation Method: A Methodological Review**

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**Abstract**

**Purpose/Objectives:** Missing data in clinical trials not only increase the complexity and difficulty of statistical analysis but also lead to bias in the results of the analysis. Missing data are ubiquitous in clinical trials, but current methods are not systematic and have not received sufficient attention from researchers in China, especially the lack of systematic guidance for filling in the missing data in clinical trials of Chinese medicine. We hoped to collect suggestions from published methodological papers to proposed methods for dealing with missing data in the analytic phase and improve the quality of the Chinese medicine research.

**Methods:** Published studies were comprehensively searched from their inception to September 2019: Chinese National Knowledge Infrastructure Database (CNKI), Chinese Science Journal Database (VIP) Chinese Science, Wanfang Database, SinoMed Database (see Figure 1). We systematically evaluated the methodological study on the missing data imputation published since the establishment of the database.

**Results:** A total of 99 methodological studies were included. For methodological issues missing data, it can be divided into 2 major categories, including the method to deal with particular type of clinical trial and presentation of data imputation methods comparison. The results showed that multiple imputation is widely recognized to deal with missing data in this study.

**Conclusion:** This article provides insights on the type of missing data, traditional methods, and multiple imputation as alternative methods to deal with missing data, including their shortfalls and advantages. We recommend more consideration to the use of multiple imputation methods to reduce the incidence of biased conclusions. Of course, for the sake of caution, in the clinical research statistics of traditional Chinese medicine, it is better to adopt different methods according to different types of missing data. If necessary, use multiple missing data processing methods for analysis, comparison, and sensitivity analysis to confirm its reliability.

**P08.09**

**How Do You do a Comprehensive Search for Randomized Controlled Trials in Traditional Chinese Medicine That Published in Chinese?**

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**Abstract**

**Purpose:** With the increasing amount of randomized controlled trials (RCTs) of traditional Chinese medicine (TCM), authors make more effort for specific drugs or therapies. To share experience in searching comprehensively for RCTs in TCM published in Chinese to reduce the manpower needed for research synthesis.

**Methods:** We compared search strategies that were based on subject words (strategy 1) and those based on TCM journals (strategy 2). We chose TCM journals from the catalogue of Chinese core journals. We searched the Chinese National Knowledge Infrastructure (CNKI) database (most commonly used Chinese database) by using both strategies. We selected the top 500 records for manual screening. We compared the 2 search methods for inclusion rate. After screening the articles manually, we used TCM words to search on in articles retrieved from strategy 2, to compare the differences between the articles in both strategies.

**Results:** We got 11 184 records using strategy 1 and 2291 records using strategy 2, and the top 500 records were selected into group 1 and group 2. A total of 426 RCTs (85.2%) were included in group 1 and 437 RCTs (87.4%) were included in group 2. We found that 276 RCTs (63.16%) in group 2 used words about TCM as subject words. Manual screening was easier when using strategy 2.
Conclusion: Many RCTs in TCM from TCM journals did not use TCM words in the abstract, and Strategy 2 shows a little higher inclusion rate, so we can use strategies that were based on TCM journals when searching Chinese RCTs of TCM. More high-quality journals should be found if initial retrieval records are not enough. Exclusive words should be considered carefully when searching CNKI database.

P08.10

The Components of Complex Interventions for Health Care: A Qualitative Synthesis

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Abstract

Purpose: Our main aim in this synthesis was to derive new conceptual understandings of complex interventions’ components.

Methods: We conducted a systematic search for qualitative studies on components of complex interventions in July 2019. MEDLINE, Embase, Cochrane library, Chinese National Knowledge Infrastructure (CNKI), Wan Fang, Chinese Science Journal Database (VIP), and Sino Med were searched. Meta-ethnography was used to analysis data. The first, second-order constructs were extracted from the initial studies. Then, the second-order constructs were translated across the included articles to form the third-order constructs.

Results: Thirty-six studies met the inclusion criteria. Most of the complex interventions were nonpharmacological intervention, only 1 for traditional Chinese medicine. The qualitative data collection methods were mainly individual interviews, focus group, and observation. Among these studies, cancer accounted for 22%, following mental health for 14% and stroke for 8%. The remaining studies dealt with dementia, diabetes, respiratory related diseases, low back pain, childhood obesity, chronic diseases, chronic musculoskeletal conditions, multiple sclerosis, critical illness, intimate partner violence, and childhood psychological development. These studies were conducted mainly in United Kingdom, which accounted for 50%. The remaining studies were conducted in Ireland, Sweden, Germany, France, Belgium, Spanish, Italy, United States, Canada, China, and Chile. Finally, 6 third-order constructs were developed: implementation, psychological support, biological support, cognitive and behavioral support, environmental support, and social support. These 6 dimensions were interrelated and inseparable. Moreover, 18 main themes emerged from the codes. We also found a focus theme: humanistic care.

Conclusion: Our study shows that the components of complex interventions embody the biological-psychological-social-environmental-cognitive behavior medical theory, which will provide a reference for building complex intervention elements in the future. The complex intervention model may help with the development of outcome indicators for clinical trials. Further systematic research on the outcomes of complex interventions needs to be carried out.

P08.11

Survey of Attitudes Toward Medical Cannabis Use Among Older Adults

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Abstract

Purpose: Medical cannabis by prescription is increasingly available in states like Arkansas, yet few data exist regarding its acute and chronic effects in older adults. This study determined initial feasibility of conducting cannabis research in older adults by surveying their attitudes about cannabis use, level of functioning, and interest in participating in a cannabis study.

Methods: Electronic flyers with link to the online survey in REDCap were emailed to registrants in ARResearch.org (research participant registry) and posted on social media sites. Information collected included demographics, medical/psychiatric history, substance use history, interest in cannabis use, current medications, activities of daily living, and interest in participating in research that involves getting cannabis. Descriptive statistics summarized the data; chi square tests examined whether any factors influenced interest in cannabis research.

Results: Survey data collection is ongoing. Thus far, 700 ARresearch registrants were invited to participate in the survey on 17 October, 2019. Within 24 hours, 40 surveys by those >50 years (avg 57.5 years, 60% female, 85% C/15% AA/2.5% H) were completed. Sixty percent, 42.5%, and 80% of respondents were interested in medical cannabis use, nonmedical cannabis use, and research participation involving cannabis,
respectively; 80% reported prior nonmedical cannabis use; and 87.5% reported using at least one prescribed medication, with common indications being pain in extremities (25%), high blood pressure (30%), and mood disorder (35%). Those interested in research involving cannabis were more likely to have at least one medical prescription ($P < .02$).

**Conclusion:** Preliminary results suggest high levels of interest in cannabis research participation; however, high prevalence of prescribed medication use may contraindicate participating in a study involving cannabis. These preliminary findings suggest that feasibility of cannabis research in older adults may be complicated by current medical conditions common among older adults. Study designs will need to consider these factors to optimize study rigor and participant safety.

**P08.12**

**Chinese Herbal Formula for the Patients With Idiopathic Pulmonary Fibrosis: An Overview of Systematic Reviews**

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**Abstract**

**Purpose:** No evidence has been verified that western medicine can significantly alleviate the main clinical manifestations and improve quality of life (QoL) of patients with idiopathic pulmonary fibrosis (IPF). Chinese herbal formula (CHF) is widely prescribed as an adjuvant medicine to treat the disease in China currently. Nevertheless, clinical practice has not been informed by evidence from relevant systematic reviews (SRs). Therefore, this overview aims at summarizing available evidence from SRs on CHF for the therapy of IPF.

**Methods:** A systematic search was employed in 8 databases from their inception until June 2019 for SRs. The primary outcomes we focus on include St. George’s Respiratory Questionnaire (SGRQ) scores, traditional Chinese medicine (TCM) symptom (dyspnea, cough) scores, and adverse events. The research screening, data extraction, and methodological quality assessment were conducted by 2 individuals separately, and disputes were adjudicated by a third senior reviewer. Methodological quality of SRs was assessed according to AMSTAR 2 and quality of evidence was graded using the GRADE approach.

**Results:** About 10 SRs were included. Most of the SRs suggested that CHF had promising benefits for cases with IPF, such as improving St. George’s Respiratory Questionnaire (SGRQ) scores, and TCM symptom scores like cough and dyspnea with few adverse reactions. However, the overall quality of evidence in the SRs affected the reliability of the results. Moreover, evaluation of methodological quality was poor. The main flaws of the methodology quality included the following: not providing an explicit statement of prior design, performing an incomplete article search, not accounting for excluded studies fully, providing an unsatisfactory discussion of any heterogeneity observed in the results, not carrying out an adequate investigation of publication bias, not reporting potential sources of conflict of interest.

**Conclusion:** Current SRs indicated potential benefits of CHF for the treatment of IPF, especially in improving QoL and symptoms. However, high-quality evidence is warranted to support the application of CHF in treating IPF.

**P08.13**

**The International Cohort on Lifestyle Determinants of Health (INCLD Health) Study**

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**Abstract**

**Purpose:** The World Health Organization estimates that 60% of factors related to health and quality of life are associated with lifestyle. What constitutes a “healthy lifestyle” is not universally agreed upon by all segments of society despite recommendations from government organizations and health-care experts. Students enrolled in
complementary and integrative health (CIH) programs represent a unique population of adults who are likely to be high utilizers of CIH and thus may provide valuable insights into the impact of their behaviors on health outcomes.

**Methods:** The International Cohort on Lifestyle Determinants of Health (INCLD Health) is a longitudinal cohort study designed to assess health behaviors and practices among adults studying CIH. The aims of the study are (1) to evaluate the impact of dietary and nutrition-related practices, especially those emphasized in CIH communities (eg, fermented foods, local produce) on microbiome populations, overall quality of life, and health status; and (2) to identify possible relationships between stress and stress management on sleep, mood, quality of life and health status. Clinical examinations occur at baseline, 6 months, 1 year, and then annually thereafter. Measures include biometrics; serum and salivary biomarkers of cardiovascular risk, reproductive health, and physiological stress response; nutritional status measured by a digital food frequency questionnaire and a supplemental “specialty diet” questionnaire; the Perceived Stress Scale; PROMIS-29 quality of life assessment; and a developmental Multidimensional Index of Wellness (MI Wellness); plus 16S RNA microbiota sequencing.

**Results:** INCLD Health was institutional review board-approved in late 2018, and recruitment began in September 2019. To date, over 200 students have expressed interest, and examination visits are active. Cross-sectional baseline data for the cohort to date will be presented.

**Conclusion:** The INCLD Health Study is a unique cohort of international adults that will evaluate self-care behaviors and the use of CIH practices in relation to short- and long-term health.

**P08.14**

Objective and Subjective Validation of a Self-care App to Improve Student Athlete Well-being

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**Abstract**

**Purpose:** Interventions validated by objective and subjective outcome measures are urgently needed to improve mental health, sleep, and well-being of student athletes, in light of recent evidence for their vulnerability in these domains. The study presented in this poster assesses the feasibility of a self-care app, My Wellness Coach (MWC), in student athletes. This motivational-based app focuses on 7 domains of health, including Movement, Nutrition, Spirituality, Resilience, Relationships, Sleep, and Environment. The goal is to evaluate the impact of the app on student athlete health and well-being outcomes using a combination of data from wearable devices, sweat biomarkers, such as cortisol, and standardized well-being surveys.

**Methods:** Student athletes in varsity sports, club sports, redshirt year, transitioning from sport, and adaptive athletics were recruited for a 12-week health promotion program using the MWC app to promote behavior change. Participants completed well-being surveys, an exercise lab session, and wore a WHOOP heart-rate variability, activity and sleep quality monitoring wrist-worn device for 3 days at baseline, 4-weeks, and 12-weeks. User experience surveys were completed at 4 and 12 weeks.

**Results:** Positive improvements in mental health, sleep, and well-being were reported by the participants. The high adherence to the protocol in the selected target population provides enthusiasm for extending the study to additional high stress/performing populations and the greater student and other populations.

**Conclusion:** Positive improvements in mental health, sleep, and well-being were reported by the participants. The high adherence to the protocol in the selected target population provides enthusiasm for extending the study to additional high stress/performing populations and the greater student and other populations.

**P08.16**

A Mapping Review of Systematic Reviews and Meta-analysis on Chinese Herbal Medicines for Ulcerative Colitis

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Abstract

**Purpose:** To identify, describe, and organize the current available evidence about Chinese herbal medicine on ulcerative colitis.

**Methods:** We performed a search of the PubMed, The Cochrane Library, Chinese CBM (Chinese Biomedical Literature) Database, China National Knowledge Infrastructure, Chinese VIP Information, and Wanfang Database to identify systematic reviews (SRs) with or without meta-analysis published between establishment of databases and July 2019. Two independent literature reviewers assessed eligibility and extracted data. Methodological quality of the included systematic reviews was assessed using AMSTAR 2. We used tables and a bubble plot to display the results.

**Results:** The map is based on 58 SRs that met eligibility criteria. The quality of the included SRs showed critically low quality. The corresponding results mostly favored the intervention arm. The oral administration and enema with Chinese and Western medicine was the intervention most widely studied. Oral combined enema is the most widely used route of administration in the trials. We defined the clinical efficacy in detail, including clinical effectiveness, total effective rate, cure rate, significant efficiency and ineffective. Compared with conventional western medicine, 56 studies reported positive outcomes. The other 2 studies reported no difference in clinical efficacy compared with conventional medicine of western medicine. There were 33 studies reporting safety outcomes, 7 of which reported a negative incidence of adverse reaction rate, with the rest being positive. Safety outcomes were not reported in 24 studies. Publication bias was not investigated in 11 studies. There were 27 that did not report funding support, and 14 of them were dissertations.

**Conclusion:** This evidence mapping was built on the basis of SRs, which qualified by the AMSTAR 2 tool as of critically low quality. Further evaluation of the effects of Chinese herbal medicine alone or in combination with Chinese and Western medicine and multiple administration routes is necessary.

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**Abstracts**

**P08.22**

**A New Study Design Approach for Complementary Alternative Medicine Clinical Trials: A Methodological Study**

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**Abstract**

**Purpose:** To explore the characteristics of clinical studies used objective performance criteria. We hoped to provide more information about it for subsequent clinical researchers.

**Methods:** We searched PubMed, Cochrane Library, and Embase for all articles which uses objective performance criteria in the international (see Figure 1). Full-text screening and data extraction were conducted by two review authors (MKY and MY). We extracted relevant information such as the article baseline, the study baseline, the objective performance criteria, the outcome index, and so on.

**Results:** A total of 51 papers were included. The first article using the objective performance criteria was published in 2001, no related articles were detected during the period 2002 to 2009 (see Figure 2). In addition, 26 articles (26 of 51, 51.0%) were published in 2017 to 2018, IF = 201.23. From 2001 to 2018, 40 single-arm clinical trials, 4 retrospective studies, 2 observational studies, 2 randomized controlled trials, 2 diagnostic trials, and 1 prospective case summary analysis were published. Studies with cardiovascular disease and peripheral vascular disease accounted for 86% (see Figure 3), and studies on the effectiveness or safety of medical devices accounted for 76.5% of all. Regarding the objective performance criteria, the objective performance criteria was mostly derived from the data of clinical trials of other similar products (29 of 51, 56.9%), national standards (10 of 51, 19.6%), and meta-analysis of multiple clinical studies.

**Conclusion:** The objective performance criteria can often be an effective alternative in situations where comparisons cannot be achieved. However, there were different ways to use the objective performance criteria in different studies. However, there were currently few methodological studies on the objective performance criteria. In existing studies, the objective performance criteria was widely used in many kinds of trials such as in single-arm clinical trials, retrospective, observational studies, randomized controlled trials, and prospective case summaries. More than half of the objective performance criteria were determined by the previous randomized controlled trial.
Methods to Improve the Retention of Participants in Clinical Trials: A Methodological Review

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Abstract

Purpose: We hoped to collect suggestions from published methodological papers to improve the subject retention and the quality of the clinical trials.

Methods: Published studies were comprehensively searched from their inception to April 2019: PubMed, the Cochrane Library, Embase, Chinese National Knowledge Infrastructure Database (CNKI), VIP Chinese Science and Technique Journals Database, Wanfang Database, SinoMed Database (see Figure 1).

Results: A total of 52 methodological studies were included (see Table 1). Moreover, 19 different subject-dependent factors affecting subject retention and 15 methods of improving subject retention were detected and outlined (see Table 2). Our research also finds that there is no scientific, systematic, and overall evaluation system for the methodological research on retention; and the critical role of such quality assessment indicators is ignored in clinical trials, such as the number of centers, the type of disease, and the specific details of the trial treatment (the frequency of follow-ups, the frequency of blood draw, etc).

Conclusion: The shedding and missing data on the retention for clinical trials have greatly undermined the value of clinical trials. The strategies used to improve the retention of participants in clinical trial vary from disease to disease, from country to country, and from trial to trial. Our study divided the factors that influence the retention and the method of improving the retention into recruitment, informed consent, and follow-up phases. At the same time, we made recommendations. In particular, investigators need to pay attention to factors about whether the subject is fully informed, the disease, randomness, and drug. These may affect the retention. We also suggested that in clinical trials, researchers should pay attention to methods such as motivational interviews to improve the retention.

Core Outcome Sets of Integrity of Modern and Traditional Chinese Medicine on Treatment of Chronic Hepatitis B

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Abstract

Purpose: To develop the Core Outcome Set (COS) of traditional Chinese medicine (TCM) for chronic hepatitis B (CHB) (TCM-COS-CHB), whose frame includes the core outcome domains, outcomes, the instruments measuring outcomes, and the time points of measurement.

Methods: A systematic review of randomized controlled trials (RCTs) on hepatitis B participant sample was conducted, and the main data were extracted including general information about the identity of the reference, specific information regarding the study and information pertaining to the potential outcomes and their measures and measuring time. And then, 2 rounds of expert panels were implemented. At the first meeting, participants were firstly asked to complete the ratings about the importance of various potential domains and outcomes in 2 rounds of questionnaires, and then to review and make a consensus relating to the core domains and underlying outcomes. A consensus meeting was conducted to rate specific outcome instruments identified and measuring time.

Results: Nine hundred sixty literatures were included in the systematic review, and 123 outcomes with their measuring time and 20 instruments were identified. The results of expert panel were that the domains and their own outcomes were serum indexes (including alanine aminotransferase, aspartate aminotransferase, gamma-glutamyl transpeptidase, total bilirubin, direct bilirubin, A, G, alpha fetoprotein, prothrombin time, prothrombin activity, international normalized ratio), virus index (5 index of hepatitis b, quantitative level of HBVDNA), quality of life (CLDQ), safety indexes (renal function test, blood routine test [RT], urine RT, stool RT, electrocardiogram), imaging indicators (ultrasounds of liver and spleen), the adverse reaction/adverse events, and TCM patterns. The measuring time points were baseline, treatment periods of 1st, 3rd, 6th, and 12th month, and the follow-up of sixth month. However, the consensus of instruments has not been reached due to different equipment, methods applied in different researches.

Conclusion: TCM-COS-HBV representing the minimum outcome set at least to be measured in the clinical trials.
of TCM treatment for CHB patients was established by the consensus and could be recommended in the RCTs.

**P08.25**

**Analysis of the Randomized Controlled Trials of Chinese Medicine Non-Drug Therapy for Essential Hypertension Based on the Comparison Between 2 Research Institutions in the Community and Hospital**

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**Abstract**

**Purpose:** To investigate current status and characteristics of randomized controlled trials (RCTs) of Chinese medicine nonpharmacological therapy for essential hypertension (ESH) in community health-care institution (communities), compared with the hospital.

**Methods:** We searched RCTs for ESH in Chinese databases published in 2013 to 2018. Then, we compared publication, demography and RCTs design characteristics of RCTs in communities and hospitals.

**Results:** A total of 85 studies (85 RCTs) were included. In addition, 19 RCTs were carried out in the community while 66 RCTs in the hospitals. Moreover, 68% (13 of 19) RCTs in community gathered in Shanghai, Guangzhou, Beijing, and Hangzhou, 4 high-income cities. The mean sample size of community and hospital were 144 and 102. There were 11 kinds of interventions in community studies, including auricular acupoint pressing, traditional Chinese medicine comprehensive nursing, message, and so on. There are 8 kinds of interventions in hospital RCTs, such as acupuncture, auricular pressing and traditional Chinese medicine comprehensive nursing. The community auricular pressure treatment course (m69d, 95% confidence interval [CI]: 28–117 days) was higher than the hospital (m25d, 95% CI: 16–36 days). Studies in the community 26% (5 of 19) reported follow-up, which was higher than in the hospital 5% (3 of 66). Compared with hospitals, community studies use fewer safety indicators 11% (2 of 19), more syndromes indicators 37% (7 of 19), quality of life 32% (6 of 19), and outcomes indicators of hypertension 11% (2 of 19).

**Conclusion:** Compared with hospitals, RCTs for ESH in the communities may have the large sample size, long duration of intervention, and easy follow-up, and are beneficial to the observation of outcome indicators such as improvement in syndromes, quality of life, and outcomes of hypertension. However, the number of RCTs studies in the community is lower than that of hospitals. The types of TCM interventions and safety indicators are limited, which may be related to the limited traditional Chinese medicine health technology and resources in the community. In the future, government departments and research institutions need pay attention to the development and research of Chinese medicine in the community.

**P08.26LB**

**Assessing Equality of Delivery Mode for Mindfulness Programming: In-Person Versus Partial-Video Delivery**

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**Abstract**

**Purpose:** The demand for pragmatic and evidenced-based programming to address Healthcare Professional (HCP) burnout has grown exponentially. At a large academic health system in the Midwest, Mindfulness in Motion (MIM) (one such Mindfulness program meeting these criteria) has consistently produced significant positive outcomes pre-post 8-week intervention on measures of burnout and perceived stress, while significantly improving work engagement and resilience. Over the last 18 months, the waitlist for MIM has had an average of 250+ participants. To address the need for large scale dissemination of MIM, videos were created and facilitators were trained to deliver the videos and to conduct the community-building portion of MIM. The purpose of this research was to determine if in-person delivered MIM yielded significantly different results compared to partial-video delivered MIM.

**Methods:** Each MIM cohort was conducted with a trained intervention fidelity checker. Participant outcomes of cohorts of in-person delivered MIM (n = 137) were compared to participant outcomes of partial-video delivered MIM (n = 83) cohorts. Paired t-tests were performed on all outcome measures to determine if significant differences in outcome measures were detected based on method of intervention delivery.

**Results:** Fidelity checks reflected a 100% adherence rate to intervention protocol. Utilizing the Perceived Stress Scale, there was a nonsignificant difference (P = .0764) between...
the 2 delivery modes. Maslach Burnout Index subscales showed nonsignificant differences in emotional exhaustion ($P = .3513$) and personal accomplishment ($P = .4600$); however, depersonalization yielded significant differences ($P = .0023$) between the 2 delivery modes. The Connor Davidson Resilience Scale showed a nonsignificant difference ($P = .4920$) for outcomes using delivery mode as the independent variable, as did the Utrecht Work Engagement Scale ($P = .3392$).

**Conclusion:** Scalability, afforded by partial video-delivery of an effective/pragmatic mindfulness intervention to increase health and wellness outcomes, is vital to address the current HCP burnout crisis. In-Person versus Partial-Video Delivery yielded similar results on all but 1 variable.

**P08.27LB**

**Characteristics of Systematic Reviews of Yoga Interventions: A Bibliometric Analysis**

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**Abstract**

**Purpose:** Yoga is a popular mind–body practice often used for treatment or prevention of health conditions. Many randomized controlled trials (RCTs) and systematic reviews (SRs) of these yoga interventions have conducted in recent years. We aimed to comprehensively identify and describe the characteristics of all available yoga SRs.

**Methods:** We searched 8 databases from inception to November 19, 2019; 2 authors independently screened and selected records for inclusion. We extracted bibliographic data and research topics for all protocols and reviews. For completed SRs focusing solely on yoga, we extracted information on conclusions (positive, neutral, negative).

**Results:** We identified 319 ongoing and completed SRs of yoga interventions; 157 (49%) focused solely on yoga and 162 (51%) included searches for yoga as part of a broader intervention class (eg, exercise). SRs were published in 2003 to 2019; 171 (54%) were published in 2016 or later. SRs originated from 32 different countries; 81 (25%) originated from the United States. SRs were most often published in specialty journals ($n = 158$; 50%), complementary and alternative medicine journals ($n = 70$; 22%), or SR journals ($n = 60$; 19%). The most common topics were psychiatric ($n = 71$), cancer ($n = 38$), musculoskeletal ($n = 36$), cardiovascular ($n = 32$), metabolic ($n = 19$), and neurological ($n = 19$), while the most common populations specified were women ($n = 42$), older people ($n = 15$) and young people ($n = 11$). Most SRs focused on yoga stated that yoga had positive effects; only 1 SR had clearly negative conclusions.

**Conclusion:** Many SRs of yoga are conducted as part of a review of a broader class of interventions. There are several SRs of yoga for some conditions (eg, chronic low back pain, breast cancer) and there is likely extensive duplication of SRs covering identical research questions. We will present further information on the characteristics of yoga SRs and suggest how these results taken together may inform the research agenda in yoga RCTs and SRs.

**P09: Other Research**

**P09.01**

**Synergism in Hippocratic Wound Infection Theory and the Antimicrobial Efficacy of the Barbarum Plaster Against Staphylococcus aureus and Pseudomonas aeruginosa**

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**Abstract**

**Purpose:** Traditional medical systems such as Greco-Roman, Traditional Chinese, Ayurveda, Greco-Arabic/Persian, or Unani medicine offer a wealth of knowledge that could be useful if revisited and modernized for our 21st century health-care system. Although ancient wound infection remedies rely on an interaction among ingredients to create an effect larger than the sum of the individual ingredients, empirical tests tend to focus on the efficacy of individual ingredients, resulting in an ineffective analysis and negative outcome of ancient treatments. This interdisciplinary study focused on the analysis of the wound infection protocol in the Hippocratic Corpus through the theory of synergism as illustrated in the barbarum plaster and the
evaluation of the influence and modification of Hippocratic ideas as represented in Celsus’ De Medicina.

**Methods:** First, ancient manuscripts describing wound healing have been reviewed and classically analyzed. Second, the mixture (barbarum plaster) was experimentally reconstructed in the laboratory and tested on *Staphylococcus aureus* and *Pseudomonas aeruginosa* biofilms using an in vitro synthetic wound model of soft tissue infection. Descriptive statistics were used.

**Results:** The classical analysis of ancient texts revealed that the barbarum plaster had been described as an effective treatment of open wounds for centuries. The reconstruction and application of the mixture led to a significant inhibition of growth of in vitro bacterial biofilms, using the synthetic wound model of soft tissue infection. When compared to antibiotics (ie, ampicillin), the barbarum plaster was shown to possess superior antimicrobial potency.

**Conclusion:** Through the classical analysis, synergistic concepts were found to be integrated within the foundation of ancient Greek and Roman wound theories, and the barbarum plaster was found to be considered the most effective treatment in Celsus’ De Medicina. This pilot study highlighted ancient physicians’ knowledge of ingredient interactions and demonstrated a need to call on ancient medical sources for the introduction of new antimicrobial agents.

**P09.02**

**Exploring the Impact of Hospital-Based Integrative Therapies on Symptom Management and Well-being Support**

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**Abstract**

**Purpose:** Hospitalized patients experience distress related to disease symptoms, side effects of treatments, and hospital-related stressors. Medications countermeasure these problems, but a purely pharmacologic approach is incomplete. Although there is evidence that integrative therapies are effective in managing certain symptoms and side effects, the body of knowledge is limited, especially among pediatric inpatients. This observational, pragmatic, convergent mixed-methods study seeks to determine the impact of an existing inpatient integrative therapies service by exploring what patients seek to address during sessions and how well the interventions address those concerns.

**Methods:** Although the integrative therapies team conducted usual care an immunocompromised pediatric unit, the study team extracted data from practitioner progress notes. Quantitative data is being analyzed to examine how pain and other concerns are influenced by the interventions. Thematic analysis of patient and caregiver comments is underway to deepen the understanding of the impact of the provided therapies on the patient experience.

**Results:** Preliminary analysis of data collected from 72 participants during the 15 month study period is promising. Participants who reported pain were evaluated pre- and post-session using a validated, age-appropriate 0- to 10-point scale. The mean postsession pain reduction for participants aged 5 to 17 years was 3.3, while participants aged 18 to 26 years experienced a mean reduction of 2.4 (*P* <.0001). Participants who reported concerns such as nausea or anxiety were asked at the end of the session whether the issue was “the same, worse, better, or gone.” Among 350 observations, burden was improved or resolved by the end of most sessions, with no improvement reported in only 3 observations (*P* <.0001); furthermore, burden was never increased postsession. Emerging themes identified by the qualitative analysis include functional gains, enhanced somatic awareness, improved self-efficacy, and demonstrable benefits despite obstacles such as session interruptions, lack of initial patient/family buy-in, and inability of some patients to communicate verbally with integrative practitioners.

**Conclusion:** TBD.

**P09.03**

**The Concept of Qi in Tai Chi and Qigong: Pseudoscientific, but So What?**

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**Abstract**

**Purpose:** Qi, often translated as “vital energy,” is a central concept in Tai Chi and Qigong that has puzzled physicians, scientists, and patients in the West. Qi is not falsifiable by the scientific method and thus cannot be subject to scientific inquiry. Understandably, scholars in various disciplines have criticized it as “pseudoscientific.” Even as medical research reveals the health benefits of Tai Chi and Qigong, many wonder how to treat this foreign and seemingly outdated concept when promoting these meditative practices. Integrative health professionals must be equipped to discuss this concept intelligently. Although some Tai Chi and Qigong practitioners insist on the existence of Qi,
more skeptical thinkers suggest that a scientific understanding should replace this “superstitious” idea. Both sides, however, should consider a few subtle, clarifying points often missing from the discussion. First, as an ancient metaphysical concept, Qi is not intended to be subject to modern scientific scrutiny, and science’s inability to verify its existence does not affirm its nonexistence. In fact, under the philosophical system of idealism, Qi cannot be said to be less real than things that are verifiable by science. Similarly, under the instrumental and pragmatic view of science, health professionals and scientists should be cautious not to declare what is metaphysically real or not real but instead what is useful and not useful. Second, even though Qi may be pseudoscientific, it remains useful and indispensable to the correct practice of Tai Chi and Qigong. Tai Chi and Qigong practitioners routinely imagine and perceive the flow of Qi to guide their movements, breathing, and mental activity. As such, Qi and related metaphysical concepts serve as a useful mental model during practice, and belief in their existence may be viewed as an “expedient means” to allow one to achieve one’s health goals.

Methods: NA.

Results: NA.

Conclusion: NA.

P09.04

Costus pictus a Potential Therapeutic Adjuvant for Diabetes Mellitus With NSAID-Gastroenteropathy: A Whole System Approach for Drug–Herb–Disease Interactions

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Abstract

Purpose: Diabetes is a complex multifactorial disease. The prevalence of diabetes throughout the world is increasing, nearly half (46%, 415 million) of the adult population is living with diabetes and the majority of them are with Type 2 Diabetes Mellitus (T2DM). T2DM-mediated alterations in the pharmacokinetics-pharmacodynamics (PK-PD) of the drugs are responsible for the lack of rationalized therapeutic management of it. Because of this, the majority of the T2DM cases progress to associated comorbidities depending on patient related factors. Therefore, transdisciplinary and clinically translational approaches are required to address such issues.

Methods: We used system approach taking T2DM and T2DM associated gastroenteropathic complications as a case example. We developed a clinically simulated animal model of T2DM with NSAID-induced gastroenteropathy at different phases of T2DM.

Results: Metformin fails to manage T2DM and T2DM significantly exaggerated the NSAID-gastroenteropathic complication that increases with respect to its progression. T2DM significantly increases the systemic exposure of metformin with respect to its progression and/or presence of NSAID-gastroenteropathy. Post T2DM 60-day metformin treatment was able to prevent significant rise in area under curve (AUC0-∞) and maximum concentration (Cmax) and decreases clearance (CL) and volume of distribution (Vd), unlike 0- and 120-day (with and without NSAID-gastroenteropathy). Therefore, based on our previous experiences and literature, we selected Costus pictus as a potential lead with multi-targetability to manage this complex multifactorial disease. Phytoconstituents of C. pictus also holds an ability to target altered Cytokines-Hormones-Neurotransmitters-Transporters interplay. C. pictus efficiently prevented T2DM progression to NSAID-induced gastroenteropathy along with altered PK-PD of metformin.

Conclusion: These in vitro–in vivo studies for therapeutic adjuvant potential of C. pictus with metformin in diabetic rats with gastroenteropathic complications show beneficial drug(s)–herb(s)–disease(s) interactions. The degree of therapeutic rationalization may be increased with respect to different phases of T2DM and/or associated comorbidity.

P09.08

Intensive, Multidisciplinary Lifestyle Modification Program (IM Fit) for Overweight/Obese Cancer Survivors: A Preliminary Report

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Abstract

Purpose: Overweight/obesity is associated with increased risk of cancer recurrence, increased severity of treatment-related effects, and decreased functional health. Lifestyle modification, including proper nutrition, physical activity,
and stress management, improves multiple health outcomes in cancer survivors. We developed and implemented an intensive lifestyle modification program for overweight cancer survivors through our Integrative Medicine Center.

**Methods:** The program consisted of 12-weekly 4-hour group sessions and 3 individual sessions with a clinical psychologist, dietitian, and physical therapist. Eligibility criteria was body mass index (BMI) > 25. Assessments included measures of psychosocial health, physical function, and nutritional intake, as well as weight and body composition at pre- and postintervention. Paired t tests were used to examine change from pre- to postintervention. Program implementation and data collection is on-going.

**Results:** Twenty-nine participants were included in IM Fit with a dropout rate of 10%. Program completers were mostly female (92%), with an initial mean BMI of 35.5 (range: 25.8–61.8), mean age of 62.7, with most common cancer history being breast cancer (62%). Participants average weight loss was 8.4 lbs (range ±2.2 to −23.3), with a significant reduction over time between pre weight (mean = 211.3, SD = 57.3) and post weight (mean = 202.9, SD = 54.4), P < .01. Approximately 75% of program completers completed pre/post assessments. Overall, average activity significantly increased from 862 min/week to 1915 min/week, P < .01. Paired t tests also showed significant reductions in servings per week of white bread, chips, and desserts, with an increase in servings of beans. Depression and anxiety scores decreased (improved) by approximately 3 points, P < .01.

**Conclusion:** Delivering a multidisciplinary, outpatient lifestyle modification program was feasible and demonstrated positive changes in physical, nutritional, and emotional health. The IM Fit program provides a framework for the inclusion of a formal lifestyle modification program as part of oncology care.

**P09.09**

**Nurse-Led Relaxation Intervention During Ostomy Changes**

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**Abstract**

**Purpose:** Ostomy changes can be stressful for both patient and registered nurse (RN), potentially impacting patient and nurse satisfaction. NYU Langone Health built a new hospital in 2018. We used the new technology to teach nurses how to modify the hospital environment to reduce stress and anxiety for themselves and their patients during ostomy changes.

**Methods:** This program was implemented over a 7-week period. A preintervention survey was conducted to assess RN perception of ostomy changes and their perception of patients’ responses at baseline. RNs were educated on how to access relaxation videos, how to utilize the videos to create a soothing environment, and how to perform relaxation breathing techniques with patients. A postintervention survey was conducted to assess impact of the intervention on the RN and their perception of patients’ responses.

**Results:** Results showed lessened stress for the RN during ostomy changes and that nurses perceived their patients’ stress, anxiety and anticipatory anxiety to also decrease when using the intervention.

**Conclusion:** Results demonstrate that incorporating relaxation breathing, imagery, and music to create a healing environment during the ostomy change process may decrease the stress of the RN and that nurses perceive it to improve patient experience.

**P09.11**

**Ayurvedic Bio-cleansing Method (Panchakarma) for Management of Skin Conditions: An Evidence-Based Report**

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**Abstract**

**Purpose:** This work is aimed at reviewing the research pertaining to the Ayurvedic bio-cleansing methods (Panchakarma) in the management of skin disorders.

**Methods:** Literature search was conducted using the term Ayurveda OR Panchakarma AND skin conditions OR Kushta. The studies published in English language till 2019 September were included in the review. The search engines used for this review were PubMed, MEDLINE, CINAHL, and Cochrane Center Registry of Controlled Trials. References of selected articles were searched for any additional studies. Additional search was conducted for possibilities of understanding the mechanism of action of bio-cleansing method based on recent scientific developments.

**Results:** Literature search provided 14 citations. We have included case reports, case series, as well as randomized clinical trials for the purpose of this review. These studies indicate that Ayurveda interventions can be used for the
management of different skin conditions. Majority of the published studies indicate that Ayurvedic bio cleansing has been shown to have beneficial results on treating eczema and psoriasis. Detailed explanation is available in classical textbooks Ayurveda regarding the use of Panchakarma for the skin conditions. Ayurveda offers a multimodal approach to the treatment of skin diseases with herbal supplements and Panchakarma therapies (bio cleansing and rejuvenation) coupled with yoga to restore the harmony of the body, mind, and self. This work explains Ayurvedic pathology of skin conditions and theoretical and practical application of Panchakarma in Dermatology as well as evidence that supports its use in skin diseases. This review systematically discusses and enumerates Ayurvedic protocols for management of skin condition using bio-cleansing methods, from classical text books of Ayurveda as well as effectiveness of these therapies from scientific research.

**Conclusion:** Information from the classical textbook of Ayurveda and scientific evidence indicate that Ayurvedic bio cleansing may be helpful in the management of the skin conditions.

**P09.12**

**Stibium Metallicum Praeparatum 6x as a Potential Prevention Option of Chemotherapy-Induced Peripheral Neuropathy**

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**Abstract**

**Purpose:** Chemotherapy-induced peripheral Neuropathy (CIPN) is one of the most limiting side effects of cytotoxic cancer therapy and often leads to adaptations in the chemotherapeutic protocol. Despite a high incidence of CIPN, up to 83% of patients treated with paclitaxel, no agents are recommended for the prevention of CIPN. Based on expert consensus, Stibium 6x is applied in anthroposophically extended medicine to prevent and to treat CIPN. The aim of this pilot study is to assess the incidence of CIPN in patients undergoing a cytotoxic cancer therapy and receiving Stibium 6x as a preventive therapy.

**Methods:** We conducted a prospective observational study between January 2017 and August 2019 at the outpatient clinic of the Institute of Complementary and Integrative Medicine at the University of Bern, Switzerland. All patients starting a therapy with Stibium 6x to prevent CIPN and willing to participate in the study were included. CIPN was evaluated at each visit of the patient using a short-form of the EORTC QLQ-CIPN20, a 20-item questionnaire that assesses the severity of neuropathy symptoms experienced by patients.

**Results:** In total, 50 patients were included, of which 8 (16.0%) patients were lost to follow-up. Among the 42 remaining patients, 23 (54.8%) developed CIPN symptoms during the chemotherapy. Among the 16 (32.0%) patients treated with paclitaxel, 3 (18.8%) were lost to follow up, and 8 (61.5%) developed CIPN symptoms during the chemotherapy.

**Conclusion:** This study shows an overall incidence of CIPN of 54.8% and an incidence of 61.5% in patients treated with paclitaxel. As compared to the high incidence usually described in patients treated with paclitaxel, the lower incidence observed in this study suggests that Stibium 6x may be beneficial as a treatment option to prevent CIPN. This study will be used for the planning of a randomized controlled clinical trial.

**P09.13**

**Acupuncture for Chronic Hepatitis B**

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**Abstract**

**Purpose:** To assess the benefits and harms of acupuncture versus no intervention or sham acupuncture in people with chronic hepatitis B.

**Methods:** We included randomised clinical trials comparing acupuncture versus no intervention or sham acupuncture in people with chronic hepatitis B. We presented the pooled results as risk ratios (RRs) with 95% confidence intervals (CIs). We assessed the risks of bias using risk of bias tools. We evaluated the certainty of evidence using GRADE.
Results: We included 8 randomised clinical trials with 555 randomised participants. All included trials compared acupuncture versus no intervention. All trials used heterogeneous co-interventions applied equally in the compared groups. All trials were assessed at overall high risk of bias, and the certainty of evidence for all outcomes was very low due. None of the included trials aim to assess patient-centred outcomes. We are uncertain whether acupuncture, compared with no intervention, has an effect regarding adverse events considered not to be serious (RR: 0.67, 95% CI: 0.43–1.06; I² = 0%; 3 trials; 203 participants) or detectable HBsAg (RR: 0.64, 95% CI: 0.11–3.68; I² = 98%; 2 trials; 158 participants). Acupuncture showed a reduction in detectable HBV-DNA (a non-validated surrogate outcome; RR 0.45, 95% CI 0.27 to 0.74; 1 trial, 58 participants; very low-certainty evidence), alanine aminotransaminase serum level (MD = −21.35, 95% CI: −33.60 to −9.09; I² = 81%; P = 0.0006; 4 trials; 275 participants), and aspartate aminotransferase serum level (MD = −18.31, 95% CI: −35.44 to −1.18; I² = 94%; P = 0.04; 4 trials; 275 participants).

Conclusion: The clinical effects of acupuncture for chronic hepatitis B remain unknown. In view of the wide usage of acupuncture, any conclusion that one might try to draw in the future should be based on data on patient and clinically relevant outcomes, assessed in large, high-quality randomised sham-controlled trials with homogeneous groups of participants and transparent funding.

P09.14

Analysis of the Citation of Evidence in Traditional Chinese Medicine Clinical Pathway

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Abstract

Purpose: The clinical pathway originated in the United States. Since the introduction of China in the late 20th century, it has developed rapidly. The Traditional Chinese Medicine clinical pathway has started later than the Western medicine clinical pathway. This research aims at analyzing the citation of evidence in Traditional Chinese Medicine Clinical Pathway and provides suggestions for the revision of the clinical pathway of traditional Chinese medicine.

Methods: Search published Traditional Chinese Medicine clinical pathways from the website of the National Administration of Traditional Chinese Medicine. Two reviewers independently extracted the information including publish time, TCD code of the disease, evidence being cited and its publish time, and so on. Cross-checking the information correctly, analyze the number and type of referenced evidence, the time interval between clinical pathway and referenced evidence, and so on.

Results: As of June 2019, a total of 405 Traditional Chinese Medicine clinical pathways had been released. The clinical pathways involve internal, surgical, gynecological and pediatric diseases. Moreover, 405 pathways all refer to evidence, and each pathway cites a median of 3 evidence. More than 90% of the pathways cited evidence in the diagnostic and therapeutic evaluation sections, and less than 2% of the pathways cited evidence in other therapies and rehabilitation and nursing parts. Types of evidence cited: mainly standard indicator, guideline, textbook, consensus opinion, ancient book, and clinical research. Standard indicator's citation frequency is the highest (683), followed by clinical practice guideline (488) and textbook (236). Evidence timelessness: 89.25% of the evidence reported publication time. Time interval between standard indicator and pathway is the longest.

Conclusion: The published Traditional Chinese Medicine clinical pathways are formulated based on evidence, but the citation rate of evidence in the different parts of pathway is quite different, some clinical pathway does not report the evidence cited normatively. And some evidence is less timesensitive.

P09.15

The Analysis of Disease Spectrum of Traditional Chinese and Western Medicine Clinical Pathways in China

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Abstract

Purpose: Clinical pathways play an important role when promoting the diagnosis-related groups (DRGs) payment system. China has already published a series of clinical pathways separately in traditional Chinese medicine and in western medicine, which seem to be not suitable for the current
integrative medical system. Therefore, it is important to analyze and compare all the published traditional and western clinical pathways, and the analysis of disease spectrum can help to understand the possible dominant diseases of traditional and of western medicine, and to provide references for developing future integrative clinical pathways on disease selection.

Methods: We searched the websites of Chinese Medical Association (https://www.cma.org.cn/art/2016/12/9/art_41_18009.html) and National Administration of Traditional Chinese Medicine (http://www.satcm.gov.cn/) to obtain the clinical pathways published before May 2019. Two authors independently extracted the basic characteristics including title, involved disease, publication institution, and publication date. Two authors classified the clinical pathways based on 10th revision of the International Classification of Diseases (ICD-10) system. Descriptive analysis was performed to analyze publication trend and disease spectrum.

Results: A total of 1212 western clinical pathways involving 20 disease categories were obtained from 2009 to 2017. The top 3 disease categories were cancer, digestive system, and circulatory system diseases. Moreover, 418 Chinese medicine clinical pathways involving 18 disease categories were published from 2010 to 2018. The top 3 disease categories were digestive system diseases, congenital malformations, deformation, chromosomal abnormalities, and genitourinary system diseases. For the 2 categories perinatal period originated conditions and factors affecting health status and exposure to health-care institutions, only western medicine clinical pathways were available. The number of western clinical pathways is higher than Chinese clinical pathways; however, there are some diseases which only have Chinese clinical pathways but not western medicine pathways.

Conclusion: The disease spectrum covered by current clinical pathways involving blank filed and dominant diseases should be considered for future integrative clinical pathways development.

P09.16

Reporting of Protocol Rationale and Content Validity in Randomized Clinical Trials of Tai Chi: A Systematic Evaluation

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Abstract

Purpose: Mind–body exercise interventions are typically multimodal, complex, and pluralistic, and few have been developed with the goal of therapeutically targeting a specific medical population. It is thus important that clinical trials evaluating mind–body interventions provide some justification for the use of the specific protocol being evaluated. This article reports the results of a systematic review of the quality of reporting of protocol rationale and content validity for using a specific Tai Chi protocol in a randomized controlled trial (RCT).

Methods: Electronic literature searches were conducted using PubMed/MEDLINE, EBSCOhost, and the Cochrane Library from inception through June 2015. Search terms were Tai Chi, Taiji, Tai Chi Chuan; searches were limited to English-language RCTs. Inclusion and exclusion of trials were reported in accordance with the PRISMA guidelines. We assessed the level of reporting with respect to Tai Chi protocol validation using a 5-point grading system based on whether (1) a specific protocol was mentioned, (2) rationale for the specific protocol was stated and supported, and (3) formal evaluation for content validity was conducted.

Results: There was significant heterogeneity in the quality of reporting related to protocol rationale and content validity. Moreover, 171 publications were identified. Studies met between 0 and 4 validity criteria (out of possible 5, more indicating better quality), with a mean of 2.52 (±SD 1.2), median of 3. Twenty (12%) trials did not mention a specific Tai Chi protocol, 10 (6%) trials met 0 of 5 criteria, and 47 (31%) studies met 4 of 5 criteria. Formal validity assessments were employed in only one trial.

Conclusion: The poor quality of protocol rationale and content validity reporting limits our ability to accurately evaluate the evidence of Tai Chi as a therapeutic intervention. The development of formal guidelines for developing
and reporting intervention validity for multimodal mind–body exercises like Tai Chi is recommended.

**P09.17**

**International Standardization of Traditional Chinese Medicine**

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**Abstract**

**Purpose:** Traditional Chinese Medicine (TCM) has been widely practiced in nearly 200 countries and regions and over one-third of the world population has tried TCM. So the international standardization of TCM has gained more and more concerns. However, there is lack of an overall blueprint. This study aims to explore the current situation of the international standardization of TCM and proposes an overall planning for the future.

**Methods:** Search the websites of 2 main TCM international standardization platforms, World Health Organization (WHO) and International Organization for Standardization (ISO) and collect information from some countries and regions. Then analyze the data based on the contents of the international deliverables.

**Results:** WHO published 9 guidelines in TCM and WHO Regional Office for the Western Pacific developed 5 guidelines and standards. Of all the 14 guidelines and standards, 8 related to the safety, quality and appropriate use of Chinese herbal medicine; 3 focused on the acupuncture, including acupoint location, clinical research and basic training and safety; the last 3 were for terminologies, methodologies on research and evaluation, and developing consumer information on proper use of traditional medicine. The 11th version of Classification of Diseases (ICD-11) released in 2018 and the conditions of TCM were added into. ISO-TC249 published international standards, mainly on the quality and safety, 24 were about the Chinese materia medica, 11 for acupuncture needles and other medical instrument, and 2 for terminological system of TCM. Moreover, 6 countries and regions have issued the pharmacopeia for TCM or Chinese materia medica, including China, Europe, Japan, Republic of Korea, Vietnam, and Hong Kong.

**Conclusion:** The quality, safety and safe use of the Chinese materia medica are the firstly concerned in the world, the quality, safety and safe use of acupuncture, and terminologies are followed, and the regulations of education and training are needed in the future.

**P09.18**

**The Study on Developing the Evaluation Scale for Gastrointestinal Heat Retention Syndrome in Children**

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**Abstract**

**Purpose:** Gastrointestinal heat retention syndrome (GHRS) refers to a condition that is associated with increased gastrointestinal heat caused by a metabolic block in energy. It is a state of digestive dysfunction, which is common in children. Symptoms are thick coating, dry stool, abnormal appetite, reduced frequency of defecation, restlessness at night sleep, and halitosis. GHRS is closely related to recurrent respiratory tract infection, pneumonia, and recurrent functional abdominal pain, and so on. However, there are no evaluation criterion to assess the degree of GHRS. This study is aimed to develop an evaluation scale for GHRS in children.

**Methods:** A cross-section study has been conducted in Beijing. Children with GHRS aged from 3 to 14 years old were enrolled. The information included general information, the degree of GHRS, and 38 symptoms of the subjects. In addition, 24 of the symptoms were classified into 4 grades by frequency or extent, while others were classified into 2 grades (the presence or absence of the symptoms). Five methods were used to select symptoms. Discrete tendency analysis, correlation coefficient analysis, Cronbach's a coefficient analysis, and factor analysis were used according to Classical Test Theory, and Samejima Graded Response Model was used according to Item Response Theory (IRT). If the symptoms were deleted by 2 or more methods, the symptoms were deleted.

**Results:** A total of 453 children were enrolled. Moreover, 7 symptoms, 10 symptoms, 2 symptoms, 5 symptoms, and 17 symptoms were, respectively, deleted by discrete tendency analysis, correlation coefficient analysis, Cronbach's a coefficient analysis, factor analysis, and IRT. In addition, 13 symptoms were deleted by 2 or more methods. The evaluation scale for GHRS consisted of 25 items, including red tongue, yellow fur, heat in the palms and soles, dry stool, difficult defecation, and insomnia with restlessness, and so on.
Conclusion: The evaluation scale for GHRS in children including 25 symptoms has been developed in this study.

P09.19

Efficacy of Cognitive Behavioral Therapy for Insomnia Among Breast Cancer Patients: A Meta-analysis

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Abstract

Purpose: Insomnia is highly prevalent among breast cancer (BC) patients. While cognitive behavioral therapy for insomnia (CBT-I) is the gold standard treatment for insomnia, this treatment poses unique challenges for BC survivors due to lasting difficulties of diagnosis, treatment, and survivorship. Although CBT-I is available in integrative oncology settings, its efficacy on reducing BC survivors’ insomnia remains unclear. Our review therefore aimed to assess the evidence for the therapeutic effects of CBT-I on insomnia in BC.

Methods: A literature review search of MEDLINE (PubMed), Embase (Elsevier), PsycINFO (EBSCO), Web of Science (Clarivate Analytics), and ClinicalTrials.gov was performed in August 2018. Randomized controlled trials (RCTs) that included BC patients with insomnia and at least 1 validated self-report measure of sleep quality were included in the review. Comprehensive Meta-Analysis Version 3.0 (Biostat, Inc., USA) was used for statistical analyses, and standardized mean differences (SMD) were calculated as the primary measurement.

Results: We included 13 RCTs (total N=1302, 7 studies involve phone or remote technology as delivery format, 5 with active control, 4 with long-term follow-up). Most CBT-I interventions incorporated at least 3 of the main components (sleep hygiene, stimulus control, and sleep restriction). Pooled effect sizes favored CBT-I at post-intervention (SMD=-0.802, 95% CI=-0.909,-0.695, P<.001), short-term follow-up (within 6 months, SMD=-0.663, 95% CI=-0.761,-0.565, P<.001), and long-term follow-up (after one year, SMD=-0.331, 95% CI=-0.506,-0.156, P<.001). In subanalyses, CBT-I remained similarly efficacious regardless of potential modifiers (comparison design, delivery formats, length/numbers of CBT-I sessions).

Conclusion: As an integrative oncology intervention, CBT-I is efficacious for reducing insomnia in women treated for BC, with medium-to-large effect sizes that persist after intervention delivery ends. Given the variability in the CBT-I components tested in RCTs, future studies should investigate the optimal integration of CBT-I components for managing chronic insomnia during BC survivorship.

P09.20

Attitudes and Perceptions of Massage Therapy Among Undergraduate Pre-Professional Health Students

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Abstract

Purpose: Determine attitudes and perceptions of a pre-professional health sciences student population toward massage therapy. In addition, we sought to determine indicators for negative or neutral massage therapy perception.

Methods: Cross-sectional survey study for undergraduate pre-professional health sciences students. The Attitudes Toward Massage scale (ATOM) was used and includes 2 subscales (healthful and pleasant) and 7 supplemental items pertaining to sexuality and gender preference of massage therapists. Additional questions collected lifetime massage consultation and usage.

Results: Massage therapy utilization prevalence was 35.6% (lifetime) and 18.6% (last 12 months) for the N=129 participants. Overall positive attitudes toward massage therapy was reported (mean=36.1±5.0). Participants who had used massage therapy in their lifetime or/and in the past 12 months expressed more positive attitudes toward massage than those who had not (lifetime: 37.7±4.8 vs 35.2±4.9; P=.008; past 12 months: 38.1±5.1 vs 35.6±4.9; P=.03). Participants who had never consulted a massage practitioner in their lifetime had higher proportions of negative/natural attitudes and perceptions toward massage (22.9% vs 8.7%; P=.04). Men were more likely to prefer a massage therapist of the opposite sex compared to women (38.9% vs 21.1%; P=.001).

Conclusion: Massage experience positively impacted massage attitudes and perceptions for pre-professional health students. While male therapists were generally perceived
well in our sample, when given the choice, both participant genders indicated preference for female massage therapists. These preferences may point to potential gender biases among those seeking to become health professionals. With the massage field working toward more integration into mainstream health care, gender biases could limit the extent to which patients are referred to male massage therapists or hinder career opportunities for male therapists. Further research is needed to understand how health professionals develop their perceptions and attitudes about massage therapy; particularly with regard to gender preferences and how gender bias may impact massage professionals and patient referrals.

P09.21

Complementary and Alternative Medicine Mention and Recommendations Are Lacking in Hypertension Guidelines: A Systematic Review

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Abstract
Purpose: Despite the therapeutic success of antihypertensive medications such as angiotensin-converting enzyme inhibitors, up to 25% of patients with hypertension have self-medicated with complementary and alternative medicine (CAM), meaning that health-care professionals should be mindful of such patient practices. Given this need coupled with the fact that the mention of CAM or the quality of CAM recommendations, if any, is unknown in clinical practice guidelines (CPGs) about the treatment or management of hypertension, this study sought to determine this.

Methods: We conducted a systematic review to identify CPGs about the treatment or management of hypertension. MEDLINE, Embase, CINAHL, and Guidelines International Network databases were searched, along with the National Center for Complementary and Integrative Health website, to identify published between 2008 and 2018. Two independent reviewers evaluated the quality of reporting for each guideline that provided CAM recommendations, and the specific section providing CAM recommendations, using the Appraisal of Guidelines, Research and Evaluation II (AGREE II) instrument.

Results: From 1387 unique search results, 18 guidelines on the treatment and/or management of hypertension were found; however, only a single CPG contained mention and recommendations of CAM. With regard to scaled domain percentages, this overall guideline scored better than the CAM section in every domain (overall, CAM): (1) scope and purpose (88.9%, 66.7%), (2) clarity of presentation (88.9%, 0.0%), (3) applicability (60.4%, 0.0%), (4) rigor of development (35.4%, 15.6%), (5) stakeholder involvement (66.7%, 16.7%), and (6) editorial independence (4.2%, 0.0%).

Conclusion: The quality of CAM versus overall recommendations could not be assessed in hypertension CPGs, the quantity of such recommendations is severely lacking in currently existing guidelines. Given that it is known that a high proportion of patients with hypertension self-medicate with CAM, current hypertension guidelines’ lack of CAM treatment or management recommendations reflects a large gap for both clinicians and patients.

P09.22

Few Complementary and Alternative Medicine Recommendations Exist in Multiple Sclerosis Clinical Practice Guidelines: A Systematic Review

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Abstract
Purpose: Up to two-thirds of individuals with multiple sclerosis (MS) use complementary and alternative medicine (CAM) therapies. Given the high prevalence, an evaluation of the prevalence of CAM in evidence-based clinical practice guidelines (CPGs) is absent from the literature. The objective of this research was to determine the mention of CAM, and assess the reporting quality of recommendations, among CPGs for MS.

Methods: We searched MEDLINE, Embase, CINAHL, and GIN databases systematically and also searched the National Center for Complementary and Integrative Health website for guidelines about the treatment or management of MS published between 2008 and 2018. Two independent reviewers identified whether a guideline provided CAM recommendations, and if so, both the entire CPG and the CAM-specific section were assessed with the Appraisal of Guidelines, Research and Evaluation II (AGREE II) instrument.

Results: From 147 search results, 12 unique CPGs were eligible, and 6 mentioned CAM of which 4 made recommendations regarding their use. Among the 4 CPGs, the
average scaled domain percentages from AGREE II were (overall, CAM): (1) clarity of presentation (90.3%, 83.3%), (2) scope and purpose (87.5%, 86.8%), (3) rigor of development (80.0%, 61.7%), (4) applicability (55.2%, 44.3%), (5) editorial independence (49.0%, 47.9%), and (6) stakeholder involvement (55.6%, 39.6%).

Conclusion: While the inclusion of CAM recommendations in MS guidelines does exist, they were only present in one third of all eligible guidelines. The quality of CAM recommendations versus overall recommendations was not assessed due to the low number of guidelines found. As it is commonplace for MS patients to seek CAM, while a few guidelines are available that provide clinicians and patients with CAM treatment guidance, a gap still exists as the majority of guidelines do not.

P09.23

Complementary and Alternative Medicine Recommendations in Clinical Practice Guidelines for Type 2 Diabetes Are Limited: A Systematic Review

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Abstract
Purpose: Between 25% and 57% of patients with diabetes report using complementary and alternative medicine (CAM). Health-care providers that attend to such individuals may refer to clinical practice guidelines in order to assist patients in making evidence-based decisions; however, the availability and quality of recommendations regarding CAM for type 2 diabetes (T2D) is uncertain. We therefore sought to identify, and evaluate the quality of, recommendations pertaining to CAM in guidelines for the treatment or management of T2D.

Methods: We conducted a systematic search of MEDLINE, Embase, CINAHL, and Guidelines International Network databases, as well as the National Center for Complementary and Integrative Health website, to identify T2D treatment or management clinical practice guidelines published between 2008 and 2018. Two independent reviewers evaluated the quality of reporting for each guideline that provided CAM recommendations, and the specific section providing CAM recommendations, using the Appraisal of Guidelines, Research and Evaluation II (AGREE II) instrument.

Results: Of 2467 unique search results, 17 guidelines proved eligible, 2 of which included recommendation for CAM. Among the 2 CPGs, the average scaled domain percentages from AGREE II were (overall, CAM): (1) scope and purpose (81.9%, 73.6%), (2) clarity of presentation (66.7%, 48.6%), (3) applicability (62.5%, 18.8%), (4) stakeholder involvement (61.1%, 33.3%), (5) editorial independence (45.8%, 45.8%), and (6) rigor of development (45.8%, 32.1%).

Conclusion: The inclusion of CAM recommendations is infrequent among T2D guidelines. The quality of CAM recommendations versus overall recommendations was not assessed due to the low number of guidelines found. Given that a high proportion of diabetes patients use CAM, current T2D guidelines’ neglect of CAM treatment or management highlights a major gap in guidance for clinicians and patients.

P09.24

Assessment of the ReCode Protocol: An Alternative to the Monotherapeutic Approach in Patients With Early Alzheimer’s Disease

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Abstract
Purpose: To explore and treat the networks of physiologic imbalance that contribute to Alzheimer’s Disease (AD) by using the ReCode Protocol, or Reversal of Cognitive Decline. Said program is the brain child of Dr Dale Bredesen, at Bucks Memory Institute, University of California, Los Angeles.

Methods: Thirty-three patients are followed by an interdisciplinary team of medical doctors, naturopathic doctor, nutritionist/health coach, and mind–body–spirit practitioner. The initial evaluation aims to identify potential driving factors; labs include comprehensive nutritional and metabolic assessment as well as toxicity and hormonal testing, including but not limited to: B12, Vit D3, Zinc:Copper ratio, homocysteine, fasting insulin, Hb A1c, thyroid panel, progesterone, pregnenolone, and cortisol. Patients complete cognitive and metabolic assessments every 3 to 6 months. The treatment protocol consists of 2 core components: (1) Universal life style optimization measures such as stress
reduction and mindfulness training, diet changes, and cognitive and physical exercises to enhance neuronal function and regeneration. (2) Individualized treatment of underlying drivers. Some common contributing factors include sleep apnea, heavy metal toxicity, and hormonal deficiencies. Treatment principles may vary from standard of care, for example, even subclinical hypothyroid (usually not treated due to lack of evidence) will be corrected with or without thyroid replacement.

**Results:** In addition to longitudinal MOCA data, we will present biomarkers in table format as well as relevant environmental exposures and contributing clinical diagnoses.

**Conclusion:** The purpose of this research is to empower patients, caregivers, and clinicians by showing that AD can be slowed or even reversed. As we come to better understand the metabolic and physiologic networks involved in AD, we can educate on and practice preventive AD care. In the era of personalized medicine, we hope to better understand how to approach and tailor personalized programs for AD. Furthermore, the idea of multiple drivers underlying 1 disease phenotype is a principle that can be applied beyond AD as well.

**P09.25**

**Enhancing Collaboration Through an Integrative Health and Medicine Organizational Awareness Perspective**

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**Abstract**

**Purpose:** The rise of Integrative Health and Medicine (IHM) in the last 2 decades has drawn attention from both the public and policy makers. Several IHM organizations have been working together to strengthen their impact. Collaboration can be further enhanced with knowledge about interprofessional IHM organizations. Here, we present an overview of IHM interprofessional organizations with a shared vision for advancing health and well-being. Our intention is to cultivate awareness of each organization’s distinct mission and goals, and enhance visibility among health-care users, policy makers, educators, practitioners, and the general public by creating a visual resource with information about these IHM interprofessional organizations.

**Methods:** This project was initiated by the Academic Collaborative for Integrative Health (ACIH) and put together by an interprofessional and interorganizational team who knew one another from involvement in the Integrative, Complementary, and Traditional Health Practices Section of the American Public Health Association. The idea for this visual was inspired by a research poster (Public Health through Integrative Complementary Traditional Health Practices—Vinjamury, Ndao, Sommers) and conversations with leaders from The Student Alliance for Integrative Medicine. We sought to include interprofessional organizations that were national or international in scope, representing multiple IHM disciplines, with a vision for advancing health and well-being.

**Results:** The visual was first produced as a pdf in May 2019. It is now posted on various IHM organizations’ websites, used as a handout at conference exhibit tables, and has been accepted for presentation at multiple conferences.

**Conclusion:** This collaborative resource is meant to be a launching point for building bridges toward enhanced coordination and partnerships. The act of creating this resource is in itself an example of interprofessional and interorganizational collaboration. We welcome broad sharing—download the pdf (https://integrativehealth.org/publications) and use freely.

**P09.26**

**Alterations in Heart Rate Variability associated with IBS or IBD: A Systematic Review and Meta-analysis**

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**Abstract**

**Purpose:** Approximately 20% of individuals are affected by Irritable Bowel Syndrome (IBS) globally, and another 5 million are affected by inflammatory bowel disease (IBD). Disruptions in the gut–brain axis in these conditions can increase inflammatory cytokines, affecting the integrity
and motility of the intestinal lumen as well as autonomic nervous system (ANS) function. Heart rate variability (HRV) can assess the state of the sympathetic and parasympathetic function of the ANS, but it remains unclear how HRV is associated with IBS and IBD. The purpose of this study is to systematically review the literature comparing HRV of subjects with IBS or IBD to HRV in healthy controls. 

**Methods:** We searched PubMed, CINAHL EBSCO, and the Cochrane Database for eligible studies up to December 2018, using medical subject headings and keywords for IBS, IBD, and HRV. We included any study that cross-sectionally compared a recognized measure of HRV between a group with either IBS or IBD and a group of matched healthy controls, prior to any intervention. Studies were screened and data extracted from included articles by 2 authors using predefined criteria. Random effects meta-analysis was performed for each outcome, with effect size reported as standardized mean difference (SMD).

**Results:** One hundred fifty-four studies were screened, 28 included for review (comprising n = 2384 participants), with n = 19 providing data suitable for meta-analysis. Analysis showed significantly lower high-frequency (HF) power in IBS patients compared to controls (7 studies; pooled SMD = 0.23 (0.02, 0.44), \( P = 0.03, \ i^2 = 37\% \) and in IBD patients compared to controls (4 studies; pooled SMD = 0.40 (0.10, 0.71), \( P = 0.009, \ i^2 = 25\% \)).

**Conclusion:** HF power HRV, representative of parasympathetic nervous system activity, is lower in both IBS and IBD, but conclusions are limited by the small number of studies that provide usable data as well as heterogeneity in primary study methods and measures.

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**P09.27**

Functional and Bodily Distress Syndromes: In Search for Common Causes and Effective Integrative Health Approaches

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**Abstract**

**Purpose:** Patients with functional syndromes often have exhaustive diagnostic evaluations, medical stigma, poor quality of life, and are commonly seen by integrative health practitioners. These conditions, such as irritable bowel syndrome, chronic fatigue syndrome, and fibromyalgia span many medical and surgical subspecialities, yet are often overlooked or managed as isolated and separate diagnoses. We reviewed the literature to explore possible common characteristics, root causes, and holistic treatment approaches to improve care for these patients.

**Methods:** We conducted a critical literature review of PubMed from 1990 to 2019 using common search terms related to functional syndromes and integrative medicine. Narrative synthesis and relational conceptual maps were used for analysis.

**Results:** A conceptual map was created that showed how functional syndromes and somatoform disorders span multiple and overlapping organ systems. A new research term “bodily distress syndromes” (BDS) is being used to re-group the syndromes by various symptom categories including cardiopulmonary/autonomic arousal, gastrointestinal arousal, musculoskeletal tension and general symptoms (brain fog, fatigue). BDS are believed to share predisposing (eg, childhood trauma), precipitating (eg, infection, emotional/physical trauma, chronic stress), and perpetuating factors (eg, illness worry, central nervous system sensitization). BDS patients tend to have better outcomes with integrative medicine therapies that involve active participation (eg, yoga, Tai Chi) compared to passive therapies (eg, acupuncture, manual therapies). Mainstream therapies that are more effective are central acting psychopharmacologic agents and psychological therapies including cognitive behavioral therapy and psychotherapy. A proposed common shared mechanism is dysfunctional emotional awareness and interoception—the sense of the internal state of the body, similar to posttraumatic stress disorder patients. We propose a novel therapeutic paradigm that blends mainstream therapies and integrative approaches focused on trauma healing, mind–body awareness and embodied movement practices.

**Conclusion:** There is increasing appreciation of the overlapping characteristics of functional syndromes. BDS grouping provides a larger view to potentially better evaluate, manage, and address root causes of these patients' syndromes with holistically focused integrative therapeutic approaches.

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**P09.28**

Safety Evaluation of Andrographis Paniculata Preparations Based on Clinical Research Literature

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Abstract

Purpose: To comprehensively evaluate the safety of Andrographis paniculata (AP) preparations.

Methods: Four Chinese databases (CNKI [Chinese National Knowledge Infrastructure], Wanfang, Chinese Science Journal Database [VIP], and SinoMed) and 3 English databases (PubMed, Embase, and Cochrane library) were searched. All types of clinical research which reported adverse drug reactions (ADR) or adverse events (AE) about AP preparations were included. Data related to ADR and AE were extracted and summarized. The quality of included studies were assessed, and causal determination of ADR and AE were conducted.

Results: We included 240 studies, including 109 randomized controlled trials (RCTs), 18 clinical controlled trials (CCTs), 4 case series (CSs), and 109 case reports (CRs). Five studies were about compound preparations. The remaining 235 were about injections (227 studies, 96.60%) and oral preparations (8 studies, 3.40%) made from extracts of AP. The AE incidence of injections was 3.84%. All serious AEs and ADRs were caused by injections. In RCTs, CCTs, and CSs, 9290 patients were treated with AP preparations, and 454 AEs occurred, which mainly manifested as gastrointestinal symptoms (42.19%), skin symptoms (26.79%), and other allergy symptoms. The total incidence of AE was 4.89%, and all of them were nonserious. In CRs, 156 AEs and ADRs occurred, which mainly manifested as anaphylactic shock (86 cases, 55.13%), skin symptoms (28 cases, 17.95%), and other allergy symptoms. Fifty-three of them were nonserious, and 103 were serious, which mainly manifested as anaphylactic shock and acute renal impairment. Most AEs and ADRs relieved after suspending the drug and receiving symptomatic treatment. Only a few serious consequences occurred after using injections, including 4 deaths and 1 vegetative state. Due to the limited information provided in studies, the causal association between most AEs and AP preparations could not be inferred. Only 8 cases could be inferred as ADRs. Most of the included studies were of low quality.

Conclusion: Various AEs of AP preparations have been reported in clinical studies, involving multiple systems, but only a few of them can be inferred as ADRs. Most of the AEs were nonserious and could relieve after suspending the drug and receiving treatment. All serious AEs and ADRs were related to injections. The standardization of reporting ADRs should be strengthened in the future.

Clinical Aromatherapy Pilot: “Scents”able Option

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Abstract

Purpose: To provide nurses evidenced-based tools for nonpharmacological relief of pain, anxiety, nausea and sleeplessness.

Methods/Background: Pediatric Nursing has limited resources to address nonpharmacological management of pain, anxiety, nausea, and sleeplessness. While nurses partner with Child Life to address specific encounters, there is a need for nurse initiated interventions to address pediatric symptoms. Recent literature supports the use of aromatherapy as a nursing administered intervention for pediatric patients.

Area of Focus: To evaluate the implementation of aromatherapy for inpatient gastroenterology and inpatient and outpatient oncology patients by nursing.

Project Process: Integrative Health, a CHOP program that supports holistic wellness, formed an interprofessional team to evaluate the evidence for safety and efficacy of aromatherapy. After a thorough search of the literature and consultation with key stakeholders, 2 different oils were selected and a vendor was chosen. Education in the form of a computer-based learning module and an in-person class was developed for a train-the-trainer approach. The trainers were responsible for training all nurses on the unit.

Results: A pilot was initiated from June 25, 2018 to October 18, 2018. At the end of October 2018, 95 evaluations were collected, focus groups were conducted and EPIC data related to patient outcomes were obtained. Results showed that 41% of patients rated the aromatherapy as very beneficial, 33% said somewhat beneficial, and 4% had complete resolution of symptoms.

Conclusion: Aromatherapy can be a safe and effective means for reducing pain, anxiety, nausea, and sleeplessness. Aromatherapy has been expanded to units within the hospital in collaboration with medical and nursing leadership.
P09.30

Do Music Sessions on an Inpatient Psychiatry Unit Have an Effect on Patients? A Pilot Study

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Abstract

Purpose: Psychiatric pharmacology agents, although remarkably effective, are known for their wide range of adverse effects. Thus, it is important to identify safe, effective ways to potentially augment such mental health treatments and minimize harm. UConn’s Inpatient Psychiatry Unit treats adult patients in an acute stabilization setting. We evaluated the impact of incorporating music in therapy group settings on our inpatient psychiatry unit. The study aimed to assess if music interventions would enhance patients’ therapeutic experience on the Unit.

Methods: This institutional review board-approved prospective pilot study evaluated music’s effect on patients admitted to our Psychiatry Unit. Self-report, paired pre–post surveys were implemented to collect data on patients’ responses to 3 different types of sessions: (1) recorded music, (2) live music, and (3) control (standard group therapy without music). Patients rated how they felt at the time of survey for 9 outcome measures.

Results: Twenty group sessions were conducted (7 recorded music, 8 live music, and 5 control) with 90 (53% male) patients participating in the study. Their characteristics and pre-session survey responses were similar across session types, excluding voluntary admission status. Adjusting for pre-session responses, we discovered significant differences among session types in mood — $F(2, 68) = 3.63, P = .032$ — and quality of life — $F(2, 67) = 3.63, P = .032$. These rating scales were more positive after live music sessions compared to control sessions.

Conclusion: Patients appeared to respond most positively to live music sessions when compared to either the recorded music or control sessions. The session type-specific differences were related to patients’ perceived mood and quality of life. This pilot study shows music had some efficacy in enhancing hospitalized psychiatric patients’ overall well-being. Future studies plan to explore whether music played to the entire milieu (versus small-group setting only) might further positively impact patients and/or psychiatry staff.

P09.31

Assessment of the Reporting Quality of Cost-Effectiveness Studies of Chinese Herbal Medicine Aidi Injection for Cancer Care

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Abstract

Purpose: To evaluate the reporting quality of cost-effectiveness studies of Chinese herbal medicine Aidi injection on cancer care.

Methods: We identified literature by electronic searches of the Chinese Network Knowledge Information (CNKI), Chinese Science Journal Database (VIP), Wanfang Data, SinoMed, PubMed database, The Cochrane Library, and Embase. We included the literature of Aidi injection (Chinese herbal medicine) on cancer care. Two researchers independently screened literature, extracted data, and assessed the quality based on the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement. A third reviewer helped with dealing the conflicts when necessary.

Results: Eleven cost-effectiveness studies in Chinese were included, focusing on lung cancer, liver cancer, ovarian cancer, and cervical cancer. Aidi injection was combined with chemotherapy, transcatheter arterial chemoembolization or radiotherapy in these studies. Three of them were synthesis-based estimates and others were single-based studies. All of them identified the study as economic evaluation, and most of them reported the base case population, interventions being compared and the outcomes used as the measure of benefit in the evaluation. Around half of the studies provided a structured abstract, a broader context, cost being evaluated, time horizon over costs and consequences, and key findings of the studies. Only a few of the studies reported methods part with settings, discount rate, measurement of effectiveness, resources and costs estimation, choice of model, assumption, and analytical methods. For results and others, the study parameters, characterising uncertainty and heterogeneity, funding, and conflict of interest were seldom reported.

Conclusion: The reporting quality was not satisfied and most of the studies were therapeutic effect evaluation combined with a simple cost-effectiveness analysis. Further studies with details on estimating resources and costs, model choice, assumptions, analytical methods, study...
parameters, characterizing uncertainty, and heterogeneity are needed, contributing to the health-care decision-making of Chinese herbal medicine Aidi injection.

P09.32

Exploration the Underlying Mechanism of Aidi Injection in Non-Small Cell Lung Cancer Based on Network Pharmacology

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Abstract

Purpose: To explore the underlying mechanism of Aidi injection in non-small cell lung cancer (NSCLC) based on network pharmacology.

Methods: In our study, we used the network pharmacological method to predict its underlying complicated mechanism of treating NSCLC. Firstly, we obtained relative compounds of Aidi injection based on studies had been reported and collected potential targets of these compounds by Pubchem and Pharmmapper database. Then, we built the NSCLC target database by TTD and Genecards. Based on the matching results between Aidi injection potential targets and NSCLC targets, we built a protein–protein interaction network to analyze the interactions among these targets and screen the hub targets by topology. Furthermore, ClusterProfiler, a package of R, was utilized for the enrichment analysis on GO and KEGG.

Results: A total of 10 active compounds and 40 predicted utilized for the enrichment analysis on GO and KEGG.

Conclusion: Aidi injection could intervene the NSCLC through the molecular mechanisms predicted by network pharmacology, involving cell proliferation, migration and invasion, tumor angiogenesis, and so on.

P09.34

Chinese Herbal Medicine for Treating AIDS-related Rashes: A Systematic Review of Randomized Trials

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Abstract

Purpose: To evaluate and compare the efficacy and safety of Chinese Herbal Medicine and its combination treatment with standard western medicine treatment for AIDS-related rashes.

Methods: Four Chinese and 4 English Databases in Chinese and English were searched for randomized controlled trials (RCTs) about Chinese Herbal Medicine treating AIDS-related rashes. The methodological quality of RCTs was assessed by the Cochrane risk of bias tool. A meta-analysis of articles that meet the inclusion criteria was performed using RevMan 5.3.

Results: Seventeen articles were included, covering 18 RCTs and involving 1528 patients. Result of Meta-analysis revealing: under type of Chinese Herbal Medicine (CHM) combined with standard Western medicine treatment versus standard Western medicine treatment, in respect of effective rate in CHM treating AIDS-related rashes, risk ratio (RR) = 1.61, 95% confidence interval [CI] = [1.36, 1.91]; in respect of Dermatology Life Quality Index (DLQI), RR = -3.30, 95% CI = [-3.78, -2.18]; in respect of incidence of adverse events, RR = 0.5, 95% CI = [0.05, 5.41]. Under type of CHM versus standard Western medicine treatment, in respect of the effective rate, RR = 1.19, 95% CI = [0.96, 1.47]; in respect of DLQI, RR = -5.9, 95% CI = [-8.97, -2.83]; in respect of incidence of adverse events, RR = 0.18, 95% CI = [0.04, 0.74]. Under type of CHM versus blank control, in respect of the effective rate, RR = 2.81, 95% CI = [1.6, 4.93]; in respect of DLQI, RR = 12.01, 95% CI = [-13.65, 37.67].

Conclusion: (1) CHM is effective in treating AIDS-related rashes and is superior to standard western medicine treatment (SWMT) when combined with SWMT, but we are uncertain of the rate when it comes to CHM versus SWMT. (2) CHM or CHM with SWMT has more advantages on the improvement of dermatology Life quality of patients, whereas if only using CHM can improve that quality is uncertain. (3) On the result of reducing the incidence of adverse events, CHM is superior to SWMT; however, CHM combined with SWMT comparing with SWMT is
uncertain. Due to the inferior quality of literature we included, the result obtained is low on reliability.

P09.36

Integrating Mindfulness at Boston Medical Center: A System-Level Approach to Reduce Stress and Enhance Vitality for Clinicians, Senior Leadership, and Employees

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Abstract

Purpose: Boston Medical Center is a private, not-for-profit, 487-bed academic safety-net hospital. Mindfulness-based stress reduction (MBSR), an evidence-based 8-week mindfulness course, has been shown to reduce stress and enhance vitality. The aim of this pilot program was to test the feasibility and effectiveness of an MBSR-variant course (adapted from Dr. Mick Krasner and Dr. Ronald Epstein’s Mindful Practice Program) on professional fulfillment, employee engagement, and burnout within a safety-net hospital setting.

Methods: We employed specific implementation strategies to maximize the course’s potential cross-functional impact. The program consisted of a series of 8-week 1.5 hour manualized sessions that combined practice of mindfulness techniques with facilitated group discussions on the applicability of mindfulness in health care, modifying to fit the participant demographics. Participants were asked to complete short questionnaires measuring professional fulfillment (PFI), burnout (MBI-10), and employee engagement pre, post-, and post-2 months following the intervention.

Results: Twenty-six clinicians from 15 different departments and divisions enrolled in the pilot course. Burnout among the clinician participants decreased from 56% to 25% and maintained at 25% following the course. Professional fulfillment increased from 19% to 56% and maintained at 56% following the course. Twenty-one administrators from 18 different departments enrolled in the second course. Employee engagement among BMC leadership increased from 47% to 93% (P value: .02). Burnout decreased from 27% to 13% (P value: .62). Professional fulfillment increased from 47% to 73% (P value: .23). Repeated measures analysis for the clinician cohort and follow-up data for BMC leadership and employees is being collected and will be ready for presentation in April 2020.

Conclusion: Key stakeholder engagement, program adaptation, and program champions were effective implementation strategies. An MBSR-variant program of 1.5 h/sessions without a retreat appears to be feasible and effective for decreasing burnout and increasing professional fulfillment for both clinicians and administrators. Furthermore, an MBSR-variant program seems to enhance employee engagement for administrators.

P09.37

Discontinuation of Antidepressants and Recurrence of Depressive Symptoms: A Qualitative and Quantitative Patient Perspective

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Abstract

Purpose: Many patients have difficulty during or after gradual discontinuation ( tapering) of antidepressant medication. Changes in clinical status during or after tapering can be related to withdrawal, relapse, or both. These changes can be sudden and nonlinear and therefore difficult to predict.¹ Investigating such changes is needed to better guide patients during tapering and to prevent relapse. The precise timing and shape of changes can be investigated using datasets that measure symptoms of depression and continue during the entire tapering period.

Methods: Fifty-six participants who were in full remission tapered their antidepressant medication. Depressive symptoms were measured weekly using the depression subscale of the Symptom Checklist-90 (SCL-90) for 6 months (26 measurements per participant; 1456 in total), and also 5 times a day using an experience sampling protocol for a period of 4 months (533 measurements per participant; 29 846 in total). Qualitative experiences of participants were inquired during 3 to 4 weekly phone calls in the research period and during an evaluation interview at the end of the study.

Results: A significant and clinically relevant increase in depressive symptoms compared to baseline was found in 59% (33) of participants (P < .05). Ten patients (18%) described the increase in depressive symptoms as sudden, which was confirmed by a significant rise in the SCL-90 score within one week (P < .005). Significant increases sometimes occurred in a timeframe of less than a day.

Conclusion: Both gradual and (very) sudden increases in depressive symptoms occur frequently after tapering.
antidepressants. Sudden increases also often seem to happen without a clear trigger. High-frequency measurements may help to better predict those at high risk for relapse during tapering, which has important clinical implications.

P09.38

The Feasibility of Intermittent Fasting and/or Glucose Administration Among Older Adults to Improve Health Outcomes

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Abstract

Purpose: Chronic pain drives maladaptive plasticity in brain regions involved in affective and somatosensory processing, posing significant treatment challenges. Pairing recognized complementary and integrative medicine (CIM) interventions with strategies that increase neuroplasticity and optimize the brain’s ability to learn may improve treatment outcomes. The purpose of this pilot study was to determine the feasibility and acceptability of intermittent fasting and/or glucose administration as potential CIM treatment optimization strategies in older adults with chronic pain. A growing body of evidence supports the role of IF to bolster neuroplasticity which may enhance CIM interventions in chronic pain and other health outcomes (eg, cognitive and metabolic functioning). This study was a first step in exploring intermittent fasting and/or glucose administration as noninvasive, nonpharmacological strategies to bolster CIM treatment response.

Results: Twenty-nine adults, aged 51 to 80 years, completed the study. Three participants were withdrawn due to nonstudy-related issues (n = 1 glucose administration; n = 2 control). Blood sugar levels across sessions indicated participant adherence to fasting schedules. Most participants (72.7%) reported that fasting was not difficult and 82% said that they would be willing to fast again for health improvement.

Conclusion: This study demonstrates the feasibility and acceptability of intermittent fasting and/or glucose administration as potential CIM treatment optimization strategies in older adults with chronic pain. A growing body of evidence supports the role of IF to bolster neuroplasticity which may enhance CIM interventions in chronic pain and other health outcomes (eg, cognitive and metabolic functioning). This study was a first step in exploring intermittent fasting and/or glucose administration as noninvasive, nonpharmacological strategies to bolster CIM treatment response.

P09.39

Group Acupuncture Therapy With Yoga Therapy for Chronic Pain in Underserved Population: Feasibility Pilot Study

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Abstract

Purpose: Acupuncture and yoga have both been shown to be effective in chronic pain. Our goal is to assess the feasibility of combining group acupuncture with modified yoga for chronic neck, back, or osteoarthritis pain in safety net setting.
**Methods:** Recruit 150 outpatients from referred primary care patients with chronic pain (lasting 3 or more months) from 3 primary care centers, affiliated with Montefiore Medical Group and Institute for Family Health in the Bronx and Harlem, respectively. Participants will receive 10 acupuncture sessions in a group setting. After the third acupuncture session, a Yoga therapy session will immediately follow at the same site in an adjacent room, for 8 sessions. Acupuncture will last 30 to 40 minutes and include palpation, acupuncture needling, Tuina, Gua Sha, and auricular treatment, utilized in AADDOPT-2 trial. Yoga will last 25 to 35 minutes and include specific focus on breathing, relaxation, stretching, and strengthening with a developing sense of positive self-efficacy. Yoga positions (asanas) will draw on those used in trials for upper body/neck pain, low back pain, and for knee osteoarthritis pain. Measures include Brief Pain Inventory (BPI) short form, pain-free days, Center for Epidemiologic Studies-Depression scale, Altarum Consumer Engagement Scale, and PROMIS-10; secondary measures include Patient Global Impression of Change (PGIC) and medication utilization. All patients will receive usual care. Clinically meaningful change is defined as 30% improvement in BPI.

**Results:** Sixty-one of 150 have completed informed consent and initiated care (40%). (Analysis of our preliminary data including demographic will be included in Congress presentation.) Challenges include telephone outreach during recruitment with lower socioeconomic participants and site coordination integrating acupuncture with yoga therapy.

**Conclusion:** Integrating group acupuncture with modified yoga is feasible for underserved chronic pain patients. Our pilot and lessons learned integrating care will help to inform the design and methodology of a larger pragmatic trial.

**Beyond Miracles: A Qualitative Study of the Healing Effects of Pilgrimage to Lourdes**

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**Abstract**

**Purpose:** Pilgrims have been visiting Lourdes, France, since 1858 when a vision of the Virgin Mary appeared. Today, Lourdes hosts 6 million visitors annually, many of them seeking healing. We sought to understand the experiences of these pilgrims: what they feel, what changes occur within them, and how they explain these experiences.

**Methods:** In June 2017, we spent 10 days carrying out fieldwork in Lourdes: interviewing “malades”—sick pilgrims—and the many volunteers and health-care professionals who support them. We spoke to over 60 people, amassing 33 interviews, 10 focus groups, 19 participant drawings, and extensive ethnographic notes. Using thematic analysis, we collaboratively identified key concepts and themes in this rich data set, following the “Consolidated criteria for reporting qualitative research” (COREQ).

**Results:** A key theme was connection and sense of community, both between volunteers and the malades they cared for, as well as bonding between the volunteers. Some had noetic experiences, connecting to something beyond the self. A schoolgirl said “I came and I prayed to Mary and then she touched me a lot and I felt like I was actually talking to her. And then I was compelled to come again.” Altruism was important: everybody gives to everybody else and seeks self-improvement, both at Lourdes and when they return home. One woman described “a time to reflect on how I could be different and improve myself.” People experienced changes in how they saw and accepted illness and in their self-perception. Lourdes offers the chance to reset oneself.

**Conclusion:** While many hope to be cured at Lourdes, instead they are often healed through other enriching elements of the experience. People do not visit purely in the hope of a miracle: their motivations are more complex and diverse, and healing can be experienced through connection, giving, and self-renewal.

**Integrating Massage Therapy and Physical Therapy in an Outpatient Pediatric Oncology Setting**

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**Abstract**

**Purpose:** Nonpharmacological-based pain therapies including massage therapy (MT) and physical therapy (PT) are an important component of integrative care models for pediatric cancer patients. **Objectives:** To integrate MT and PT with standard treatment in order to improve function, reduce pain, and alleviate stress in pediatric cancer patients. **Methods:** In September 2018, a pilot initiative offering MT half a day a week in the outpatient pediatric oncology clinic.
was implemented. Through multidisciplinary collaborations particularly with nursing and PT, the certified pediatric MT determined patients who would benefit from both therapies to optimize pain control, muscle strength, balance, and physical functioning. Massage interventions included massage, caregiver education, and instruction on self-massage. Follow-up encounters included assessment of symptoms, reinforcement of techniques and need for additional support.

**Results:** Fifty-one patients aged 24 months to 24 years; 209 total encounters, 3 to 10 patients per day. Indications: body pain, muscle tightness, nausea, stress, relaxation, supportive care. Patient/family feedback: “...helped her calm her anxiety about treatment and helped her back pain go away. I (mom) was happy to learn this technique so I can use it at home;” “It feels great, almost puts me to sleep. I look forward to them.” Clinical staff feedback: “I think having massage therapy in clinic has been extremely beneficial for our patients and their families. Many of our patients are in clinic for multiple hours ... it has been extremely easy to incorporate massage therapy into this structure.” 31/31 evaluations collected indicating massage therapy was a very supportive intervention. No adverse events.

**Conclusion:** This pilot has shown that it is feasible and beneficial to add pediatric MT into an outpatient oncology clinic. Integrating a complementary therapy such as MT with PT can help to improve pain, stress, and tight muscles. In addition, it is well received by patients, families, and medical team.

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**P09.43**

Implementation of PCORI-Funded Research Through Dissemination to Clinical Acupuncturists

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**Abstract**

**Purpose:** This protocol was developed as a result of the Society of Acupuncture Research's PCORI Engagement Award SAR 2019: Health Care Policy and Community Health: Closing the Loop. The overall objective of this study is to provide licensed acupuncturists in the United States with the results of Patient-Centered Outcomes Research Institute (PCORI)-funded research which will enhance clinical decision making. Licensed acupuncturists (LAc's) in the United States traditionally have little or no access to scientific literature. Dissemination of the PCORI website to the LAc's in the United States will provide them with basic knowledge about federally funded acupuncture research that they have not yet been exposed to. In addition to the results of PCORI-funded studies, the PCORI web pages are unique in that they include valuable additional information on the project and peer review. Giving the LAc's a clear path to the PCORI website will teach them that the federal government does indeed fund acupuncture studies and will make it easier for them to revisit the site in the future to search for additional studies.

**Methods:** We will disseminate results of PCORI-funded acupuncture studies and related scientific content to 24,000 licensed acupuncturists in the United States. LAc's receiving the PCORI content will be surveyed before and after on the value of the research being disseminated and the value of acupuncture research overall.

**Results:** Results of the original PCORI Engagement Award are in process, and manuscript will be completed by December 2019. PCORI implementation survey will be completed by January 1, 2020. Survey will be sent at the completion. Data on clicks and downloads from the PCORI study webpages will be collected and analyzed.

**Conclusion:** Supplying the LAc's with scientific evidence on the effectiveness of acupuncture in the clinic will enhance their clinical decision making by providing them with tools that will result in better health outcomes for patients of acupuncture.

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**P09.45**

Euphrasia Eye Drops as a Treatment Option in Preterm Infants With First Signs of Congestion of the Nasolacrimal Duct: A Randomized Double-Blind Controlled Trial

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**Abstract**

**Purpose:** This protocol was developed as a result of the Society of Acupuncture Research's PCORI Engagement Award SAR 2019: Health Care Policy and Community Health: Closing the Loop. The overall objective of this study is to provide licensed acupuncturists in the United States with the results of Patient-Centered Outcomes Research Institute (PCORI)-funded research which will enhance clinical decision making. Licensed acupuncturists (LAc's) in the United States traditionally have little or no access to scientific literature. Dissemination of the PCORI website to the LAc's in the United States will provide them with basic knowledge about federally funded acupuncture research that they have not yet been exposed to. In addition to the results of PCORI-funded studies, the PCORI web pages are unique in that they include valuable additional information on the project and peer review. Giving the LAc's a clear path to the PCORI website will teach them that the federal government does indeed fund acupuncture studies and will make it easier for them to revisit the site in the future to search for additional studies.

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**Conclusion:** Supplying the LAc's with scientific evidence on the effectiveness of acupuncture in the clinic will enhance their clinical decision making by providing them with tools that will result in better health outcomes for patients of acupuncture.
Abstract

Purpose: To investigate the efficacy of Euphrasia eye drops in preterm infants with congestion of the nasolacrimal duct (CND), as compared to placebo.

Methods: We conducted a randomized double-blind controlled trial at the Children University Hospital of Bern, Switzerland. Preterm neonates with first signs of CND, defined as white, yellow, or green ocular discharge with or without tearing and reddened eye were included. Infants were randomly assigned (1:1) to the Euphrasia arm or the placebo arm. Euphrasia or placebo was administrated at a dose of one drop in each eye 4 times a day over a period of 96 hours. If no ocular discharge was apparent for over 24 hours, the therapy was stopped. Success of treatment was defined as no ocular discharge at 96 hours and no use of topical antibiotic therapy.

Results: Between May 2011 and December 2016, 84 neonates were randomized. One neonate was excluded because it was born at full-term and 3 neonates were excluded because they had no ocular discharge at inclusion. Among the 80 remaining neonates (38 in the Euphrasia arm and 42 in the placebo arm), 48 (60.0%) were boys, the mean postnatal age was 21±16 days. Our results indicate no significant difference regarding the success of treatment at 96 hours between treatment arms (19 [52.8%] in the Euphrasia arm vs 21 [51.2%] in the placebo arm, \( P = .89 \)). Resolution of reddening was observed in 23 of 24 (95.8%) eyes in the Euphrasia arm and in 15 of 15 (100.0%) eyes in the placebo arm (\( P = .99 \)). Relapse tended to be lower in the Euphrasia arm (2 of 23 [8.7%] eyes vs 3 of 15 [21.4%] eyes in the placebo arm, \( P = .35 \)).

Conclusion: This study does not provide evidence for efficacy of Euphrasia on the CND. However, results suggest that Euphrasia may prevent relapse of reddening and thus improve the comfort of patients.

P09.46LB

Current Explorations of Nutrition and the Gut Microbiome: A Comprehensive Evaluation of the Review Literature

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Abstract

Purpose: The ability to measure the gut microbiome led to a surge in understanding and knowledge of its role in health and disease. The diet is a source of, fuel for, and influencer of composition of the microbiome.

Objective: To assess the understanding of the interactions between nutrition and the gut microbiome in healthy adults.

Methods: Data Sources PubMed and Google Scholar searches were conducted in March and August 2018 limited to English, 2010 to 2018, healthy adults, reviews. Data Extraction: A total of 86 articles were independently screened for duplicates and relevance, based on preidentified inclusion criteria.

Results: Research has focused on dietary fiber—microbiota fuel. The benefits of fiber center on short-chain fatty acids, which are required by colonocytes, improve absorption, and reduce intestinal transit time. Contrastingly, protein promotes microbial protein metabolism and potentially harmful by-products that can stagnate in the gut. The microbiota utilize and produce micronutrients; the bidirectional relationship between micronutrition and the gut microbiome is emerging.

Conclusion: Nutrition has profound effects on microbial composition, in-turn, affecting wide-ranging metabolic, hormonal, and neurological processes. There is no consensus on what defines a “healthy” gut microbiome. Future research must consider individual responses to diet.

P09.47LB

Whole Health Implementation Evaluation: Through the Eyes of Clinical Team Members and Administrative Informants

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Abstract

Purpose: The Whole Health Initiative is a redesign of health care that focuses on meeting Veteran-identified health plan goals rather than focusing on treating disease. The purpose of this article is to identify potential implementation barriers and facilitators for this patient-driven approach.

Methods: Purposeful and snowball sampling methods were used to identify 45 participants from 5 design sites and one flagship site. Semistructured interviews were conducted, and demographics collected from each participant. Data analysis was performed using a rapid assessment matrix approach.

Results: Majority of respondents reported the following to be the primary facilitators for Whole Health implementation: (1) providing education for staff and (2) establishing
collaborative relationships among staff at all levels. Barriers to implementation included (1) administrative barriers such as developing position titles, (2) clinical barriers such as time limitations with Veterans, and (3) a lack of policies and procedures such as having Whole Health templates for the health-care record. Respondents reported the following to be both facilitators and barriers: (1) leadership support such as communicating and providing resources and (2) having a progressive culture because Whole Health Implementation requires buy in from staff and Veterans. Suggestions to improve Whole Health implementation included (1) incorporating a faster hiring process and (2) establishing Whole Health as a service under the hospital director.

Conclusion: A cultural transformation is needed to implement Whole Health into service delivery in a large integrated health care system. Although whole health is a valued approach to care by clinical care team members and administrative leadership, support for such a large-scale transformation will require additional resources, training, and refined administrative processes for successful implementation.

P09.48LB

Patient-Specific “Immune Repair” Improves Glycemic Control in Diabetes Mellitus—Evidence for a Comprehensive Immunopathogenesis Hypothesis

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Abstract

Purpose: Antigen burden has been variably implicated in the loss of oral tolerance and induction/maintenance of diabetes. We hypothesized that identification of patient-specific antigen-burden, reduction of identified immune-reactant exposure, an alkaline diet, and micronutrient replenishment to enhance repair would improve homeostasis and glycemic control.

Methods: A 6-month community-based randomized controlled trial to compare conventional “best practices” diabetes management alone (control arm, 13 in each cohort) with a test group who, additionally carried out the above patient specific comprehensive “immune repair” protocol (test arm, 14 Type 1 and 13 Type 2 diabetics). Immunoreactant load was studied by an ex vivo lymphocyte response assay (LRA by ELISA/ACT). Glycemic control was assessed in terms of changes in HbA1c, glucose and insulin levels, and statistically analyzed in 27 patients with Type 1 and 26 patients with Type 2 diabetes.

Results: Immune reactivities were seen in almost all subjects. The most common single immune reactant was cow dairy (69% of Type 2 and 28% of Type 1 diabetics; \( P < .01 \); Figure 1). Average glycated hemoglobin levels fell in both type 1 (8.7% reduction in test vs 5.2% in control) and type 2 (13.3% reduction in test vs 2.6% in control; \( P < .05 \)) diabetics. The reduction in type 1 diabetics correlated with reductions in immune reactivities. Test subjects also reported fewer hypoglycemic episodes and reduced insulin requirement. Mean insulin levels reduced by 18% in test subjects as against 12% in controls with Type 2 diabetes—supporting the role of oral tolerance in insulin resistance.

Conclusion: Immune reactivities to acquired antigens in diabetes are significant and patient-specific. Protocols addressing individualized needs show promise in achieving improved glycemic control—goal of modern diabetes management. We propose a practical, comprehensive, integrated approach toward managing diabetes that could prove to be more cost and outcome effective than current conventional diabetes care alone.

P09.49LB

Competitive Market Landscape Analysis—Dietary Supplement Mobile Health Application

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Abstract

Purpose: Dietary supplements (DS) tracking and reconciliation in the electronic medical record (EMR) is infrequent and often inaccurate. Electronic tracking and reconciliation of DS is important for understanding how DS are being used in the health-care environment. Importantly, accurate DS information can be used to warn patients and providers about DS-drug interactions to decrease adverse events and increase DS appropriate use. A mobile health application (mHealth app) could improve fidelity of DS information providing point-of-care information to providers. We
conducted a market analysis of current DS mHealth apps to evaluate if current products were sufficient to track DS information.

**Methods:** We searched Apple and Google Play App sites using the terms, “supplement and tracking,” “dietary and tracking,” “medication and tracking,” and “medication and adherence.” An evaluation matrix was conducted to narrow down apps with DS barcode scanning ability and/or EMR interface.

**Results:** We reviewed hundreds of apps and identified 5 mHealth apps that met our inclusion criteria: Amlia, CareZone, DoseCast, MangoHealth, and Medisafe. Amlia, contained most elements we considered essential to an mHealth app, but is currently off-market for re-engineering. CareZone links to automated pharmacy eCommerce for medication adherence but lacks an EMR interface. DoseCast tracks adherence by linking medications to a pharmacy or provider but lacks an EMR interface. MangoHealth tracks adherence through manual entry, not barcode scanning. Medisafe tracks medication adherence through health data sharing with Human Application Program Interface between patients, providers, and pharmacies but lacks barcode scanning.

**Conclusion:** The market has an unmet need for DS tracking and reconciliation apps that possess all of these capabilities: (1) barcode scanning; (2) comprehensive DS database linkage; (3) DS list generation; and (4) EMR interface, to best meet the needs of patients and providers. Currently, no DS app meets all of proposed requirements.

P09.50LB

The Effects of Live Music Interventions on Self-Reported Pain and Anxiety Symptoms in Medical and Surgical Inpatients

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**Abstract**

**Purpose:** Previous data show that benefits of music therapy reducing distress in individuals with various diagnoses including oncology, palliative, hospice, postsurgical, post-stroke, pediatric, psychiatric, and more. We explore the effects of live music therapy on self-reported symptoms of pain and anxiety in patients receiving inpatient care with all admitting diagnoses in surgical and medical units.

**Methods:** Music therapy consults were provided for patients admitted to the hospital after needs were assessed by each patient’s primary team (medical doctor, advanced practice nurse, registered nurse, CM, SW). For patients experiencing pain and/or anxiety, a live music intervention was implemented by a music therapist from 2016 to 2020. Each session lasted 20 to 60 minutes, depending on the patients’ symptoms. Patients verbally rated pain and/or anxiety on a 10-point scale (0–10) pre- and post-intervention. Data were collected on consecutive patients.

**Results:** A total of 308 consecutive patients underwent music therapy while inpatient from 2016 to 2020, including various diagnoses from which 190 (62%) were females. In addition, 254/308 (82%) of total patients rated their pain, pre-intervention, at an average score of 6.8/10 and post-intervention at an average score of 4/10 (41% change from baseline). Moreover, 79/308 (26%) of total patients rated their anxiety pre-intervention at an average score of 7.0/10 and post-intervention at an average score of 3/10 (57% change from baseline); 54/254 (23%) of the patients in pain, and 9/79 (11%) with anxiety fell asleep during intervention. These patients had average pre-intervention scores of 6.7 (pain) and 7.3 (anxiety).

**Conclusion:** Our data show that live music interventions by a music therapist, when initiated by the patient’s primary team, for inpatients with various admitting diagnoses in medical and surgical units, showed improvement in pain (41% decrease) and anxiety (57% decrease) compared to their baseline. Randomized studies are necessary to further assess the impact of live music interventions on overall management of pain and anxiety in inpatient medical and surgical settings.

P09.51LB

Effects of an Individualized Worksite Wellness Program at a Small Integrative Health University: A Pilot Program

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**Abstract**

**Purpose:** This mixed methods quasi-experimental pre–post pilot intervention explored the feasibility and outcomes of an individually tailored 12-week integrative worksite wellness program that was built around health coaching and health education principles and included yoga, Qi Gong, acupuncture, meditation, and discounted sessions for massage and naturopathic appointments.

**Methods:** Fifteen Maryland University of Integrative Health employees participated in a 12-week worksite wellness program comprised of 3 hour-long health coaching/health education sessions and 1 free hour a week at work to spend on
their own wellness using integrative modalities available to staff. Pre- and postintervention and at 6-month follow-up, participants \( n = 15 \) filled out the 10-item validated Perceived Stress Scale (PSS), 5-item validated World Health Organization—Five Well-being Index (WHO-5), and 17-item mixed methods YOU Wellness Survey. Eight participants also took part in a 60-minute focus group post-intervention that was recorded, transcribed, and analyzed.

**Results:** From pre- to postintervention, scores on both the PSS and WHO-5 improved at a level demonstrating statistical significance. On the YOU Wellness Survey, statistically significant improvements were found in satisfaction with health and wellness, employment satisfaction, self-reported job productivity, and job morale from pre-to post-intervention. No significant differences were found between pre- and postfindings in regards to absenteeism. There was a slight decrease in number of days of missed work (4 or more days) due to not feeling well (26.7% pre to 13.3% post). This sample size was too small to determine trends of significance in presenteeism. Participants reported that 1:1 health coaching/education sessions, accountability, personal connection, and dedication of time to health were the most helpful components of the intervention.

**Conclusion:** Launching and implementing an individualized integrative worksite wellness program based on health coaching and health education techniques appears feasible in a small university for health care professionals. It may have a positive effect on stress, well-being, and job-related outcomes.

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P09.52LB

**The Outpatient Acupuncture Program in the Wellness and Integrative Health Center at the Huntsman Cancer Institute**

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**Abstract**

**Purpose:** The Linda B. and Robert B. Wiggins Wellness and Integrative Health Center (WIHC) at Huntsman Cancer Institute (HCI) provides services to cancer patients, cancer survivors, caregivers, and staff members. The WIHC offers compassionate support, diverse treatments, and wellness guidance to enhance one’s quality of life through evidence-informed practices. Located in Salt Lake City, Utah, HCI’s Wellness and Integrative Health Center has provided outpatient services to people affected by cancer since 2005 with the success of delivering over 25,000 visits annually in 2019. The outpatient acupuncture program collaborates with other health-care teams to reduce cancer symptoms and treatment-related side effects, including non-pharmacological pain management, to reduce the use of opioids.

**Methods:** The Acupuncture program was initiated in 2005 by Dr Pamela Hansen with a desire to provide nonpharmacological treatment options for people affected by cancer. In 2012, a full-time licensed acupuncturist, Annie Budhathoki, DAOM, LAc, was hired and continued to build the acupuncture. She trained and hired 5 acupuncturists to cover as needed until 2019. Due to an increase in growth, she was able to justify hiring another full-time licensed acupuncturist, Melissa Zappa, MSTOM, LAc. In the last 12 months, the outpatient acupuncture program provided over 3300 acupuncture treatments in the WIHC.

**Results:** These data will include the number of patient visits per week and year and the rate of growth of the program over the last 5 years. This poster will elucidate the outpatient acupuncture program development, implementation strategies, and collaborative insights—additional data presented on patient demographics and program utilization.

**Conclusion:** This poster outlines the outpatient acupuncture program growth. It will inform and present information about the robust nature of the acupuncture program within the Wellness and Integrative Health Center.

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P09.53LB

**Preliminary Results of a Scoping Review of Integrative Medicine Interventions in Underresourced Populations in the United States**

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**Abstract**

**Purpose:** This scoping review’s primary objective is to summarise and critically appraise the available evidence on Integrative Medicine (IM) practices in underresourced US populations and summarize data on outcomes.
**Methods:** This first-ever scoping review of IM clinical trials in underserved populations in the United States, included search terms: homeless, uninsured, native American, refugee, low income, poor, poverty, or underserved. Inclusion intervention criteria were Acupuncture, Oriental Medicine, Chinese medicine, Asian medicine, herbal medicine, chiropractic, massage therapy, naturopathic medicine, naturopathy, complementary medicine, alternative medicine, integrative medicine, Ayurvedic medicine, yoga, yoga therapy, ayurvedic medicine, ayurveda, homeopathy, certified professional Midwives, and direct-entry midwives. IM paradigms and components; study designs and methodology; controls; population; intervention and setting descriptors; modes of delivery; training of intervention providers; health outcomes; study funding; and innovative study features were systematically extracted.

**Results:** In this study, 47 articles through 2019; 40 unique research projects; 6 research projects with 2 to 3 papers were identified. Findings demonstrate that research in low-income/underserved populations should explore all social precursors of disease and a cascade effect, in which co-occurring vulnerabilities create fertile soil for both chronic and acute conditions. Data show relationships between social precursors and poor diet, lifestyle, and habits that exacerbate poor mental health and substance use, contributing to lower overall quality of life. Structural inequalities, discrimination, and lack of social support play major roles in the health status of the populations studied.

**Conclusion:** Data show that IM interventions are being implemented in 2 primary populations: magnifying prevention and risk reduction strengths of the paradigm for youth; and effective treatment for lifestyle-related chronic conditions in adults >45. The data draw attention to advantages and benefits of multimodal interventions for conditions that are multivariate in nature. Innovative features of IM study designs include a focus on empowerment/agency; attentional control; self-regulation/compassion; resilience and improved self-efficacy; as well as centering movement therapy and self-care skills.

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**P09.54LB**

**A Single-Arm Pilot Clinical Trial of a 4-Month Whole Systems Ayurvedic Nutrition and Lifestyle Intervention for Breast Cancer Survivors**

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**Abstract**

**Purpose:** Improving patient reported outcomes, including quality of life (QOL), for the estimated 16.9 million US breast cancer (BC) survivors is an important goal. We tested the feasibility and acceptability of a manualized intervention based on Ayurvedic medicine for BC survivors.

**Methods:** Eligible participants with Stage I-III BC, treated within the past year, received chemotherapy as part of their treatment, and were in remission when enrolled. The 4-month personalized Ayurvedic intervention included counseling on nutrition, lifestyle, yoga, and marma (acupressure) during 8 one-on-one visits with a practitioner. Feasibility and acceptability were the primary outcomes. Quality of life (QOL) (EORTC QLQ C30 BR23), sleep disturbance (GSDS), fatigue (LFS), depressive symptoms (CES-D), anxiety (STAI), stress (PSS), and spiritual well-being (FACIT) were measured prior to the intervention and at the end of month 4 as part of acceptability. Effect sizes (ES) were calculated along with paired t tests comparing baseline to end of month 4 timepoints.

**Results:** Participants (n = 32) had a mean age of 48 (SD = 10), and 66% had stage II BC. Retention at 4 months was 84%. Among those who completed the intervention (n = 27), adherence was high (99.5% visits attended). Large improvements were seen in QOL emotional functioning (ES: 0.84, P = .0002); QOL cognitive functioning (ES: 0.86, P = .0002); CES-D depressive symptoms (ES: -1.21, P = .0001); FACIT spiritual well-being/peace (ES: 0.86, P = .0007); and GSDS sleep disturbance (ES: -1.23, P = .00001). Moderate improvements were seen in QOL Global Health (ES: 0.65, P = .0027); QOL social functioning (ES: 0.47, P = .025), LFS energy (ES: 0.54, P = .011), LFS fatigue (ES: -0.68, P = .0019); STAI state anxiety (ES: -0.75, P = .0007); PSS stress (ES: -0.75, P = .0002); and FACIT spiritual well-being—meaning (ES: 0.50, P = .02). No adverse events were observed.

**Conclusion:** This novel Ayurvedic whole systems, multimodal intervention was feasible and acceptable for BC survivors. Meaningful improvements were seen in QOL and clinical symptoms that warrant further investigation with a larger randomized controlled trial to assess causality.

**P09.55LB**

**Development of a Pilot Inpatient Acupuncture Program at Huntsman Cancer Institute**

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1_UCSF Osher Center for Integrative Medicine, San Francisco, California

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**Conclusion:** This novel Ayurvedic whole systems, multimodal intervention was feasible and acceptable for BC survivors. Meaningful improvements were seen in QOL and clinical symptoms that warrant further investigation with a larger randomized controlled trial to assess causality.
Abstract

**Purpose:** History and aims of the pilot inpatient acupuncture program at Huntsman Cancer Institute, including program development, implementation strategies, and collaborative insights.

**Methods/Background:** In the Fall of 2018, after receiving an “Imagine Perfect Care Grant” from the University of Utah, The Linda B. and Robert B. Wiggins Wellness and Integrative Medicine Center at Huntsman Cancer Institute began the inpatient acupuncture program. Inpatient (IP) acupuncture treatment occurs on a case-by-case basis on all inpatient floors of the Huntsman Cancer Hospital. The IP acupuncture program actively integrates with the Supportive Oncology, Pain Management, and Nursing teams. IP acupuncture collaborates with other health-care teams to reduce cancer symptoms and treatment-related side effects including, nonpharmacological pain management.

**Results:** Dr Annie Budhathoki, a full-time acupuncturist in the Wellness Center, advocated for and developed IP acupuncture treatment. Dr Budhathoki volunteered her time to create and implement the pilot program now offered 4 days per week. Patients, caregivers, nurses, social workers, advanced practice clinicians, and physicians initiate an order for IP acupuncture visits. An attending physician or an advanced practice provider place orders in a patient’s electronic medical record (EMR), and the acupuncturist gets notified through and EMR system called EPIC.

**Conclusion:** Future aims of the program include expansion of access and availability to acupuncture in the inpatient setting; funding for additional resources including more hours, additional staff; data collection and future research on the effectiveness of acupuncture for acute postsurgical pain, nausea, insomnia, digestive issues, and anxiety in an inpatient setting. Information presented in this poster will include program development, implementation strategies, and collaborative insights—additional data presented on patient demographics, pain scores, and program utilization.
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