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Oral Abstracts

Hospital-Based Integrative Medicine

OA01.01

ACUpuncture In The Emergency Department for Pain Management (ACUITY): A BraveNet Multi-Center Feasibility Study

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Abstract

Background: Pain accounts for up to 78% of Emergency Department (ED) patient visits and opioids remain a primary method employed by ED providers for treating acute pain despite risks of addiction and adverse effects. While prior acupuncture studies are promising, preparation for a future, definitive randomized control trial (RCT) requires successful conduct of a feasibility pilot to refine study protocol/procedures for a future, definitive RCT.

Methods: ACUITY is funded by National Center for Complementary and Integrative Health (U01AT010598).

Our objectives are to: conduct a multi-site feasibility RCT, examine feasibility of data collection, develop/deploy a responsive acupuncture intervention and assess feasibility/implementation (barrier/facilitators) in the three EDs across the BraveNet Practice Based Research Network: Case Western Reserve University/University Hospitals, Vanderbilt University Medical Center and University of California-San Diego. Participants are recruited and randomized to Acupuncture (n=83) or Usual Care (n=82) in the ED. The target population are adults presenting with acute non-emergent pain (e.g., musculoskeletal, back, pelvic, non-cardiac chest, abdominal, flank or head) of ≥ 4 on a 0-10-point Numeric Rating Scale. Pre-, post- and discharge measures will assess pain and anxiety. One and four-week follow-ups will assess outcomes, post-ED opioid use and adverse events. Opioid utilization in the ED will be extracted from patients' electronic medical records. Three weeks after their ED visit, acupuncture recipients will be asked to participate in a brief qualitative interview. ED providers will be interviewed about their perspectives/experiences related to acupuncture in the ED and implementation of the study.

Results: Recruitment began on 5/3/21. As of 10/28/21: 70 patients have enrolled, the responsive acupuncture intervention has been developed/deployed and ~10 qualitative interviews were conducted. Final results will be available at time of presentation.

Conclusion: Successful conduct of the feasibility RCT provides the framework for conducting a future, multi-site, definitive RCT (UG3/UH3) of acupuncture in the ED in BraveNet PBRN Clinic-affiliated EDs.

OA01.02

Battlefield Acupuncture use in Multimodal Perioperative Anesthesia Care

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reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE

and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

Abstract

Background: Ease of application, low cost, and minimal side effects suggest battlefield acupuncture (BFA) may be an attractive and effective anesthetic modality. Opioid use for postoperative pain has been linked to an increased hospital stay, increased morbidity, and mortality, and ultimately higher healthcare costs in the US. The study hypothesis is that BFA for general surgery and urology cases under general anesthesia (GA) will decrease opioid requirements, postoperative pain, and incidence of Post-Operative Nausea and Vomiting (PONV) in comparison to control patients not receiving BFA.

Methods: This study was IRB and VA approved. Upon consent patients were randomly assigned to BFA (n=36) or control allocation (n=36). Control group received sham acupuncture. Inclusion Criteria were patients Aged 18-100, ASA 1-4, scheduled to undergo general surgery and urology cases under GA. Measured variables included opioid requirements in Milligrams Morphine equivalent (MME), Post-operative pain measured by Visual Analog Score (VAS), PONV, and anxiety scores in the first 24-hour postoperative period. Statistical analyses included students-t-tests (unpaired) and repeated measures ANOVA. Statistical significance was designated as $p < 0.05$.

Results: The median 24-hour opioid requirement measured in Morphine Milligram Equivalent was significantly lower in the BFA group compared to the sham acupuncture group (17 [± 15.3] vs 36.5 [± 22.9], $p = 0.001$). Pain intensity reported by patients at 6 hours, 12 hours, 18 hours, and 24 hours post-operatively was lower in the BFA group compared to controls. The incidence of postsurgical nausea and vomiting was significantly lower in patients receiving BFA compared to patients receiving sham acupuncture (2.7% vs 39.5%, $p < 0.001$).

Conclusion: In this clinical trial, a significant reduction in postoperative opioid use, post-operative pain, and postoperative nausea and vomiting was observed in patients who underwent BFA compared to controls. BFA appears to be a clinically effective method in reducing post-operative opioid use and pain.

OA01.03

Inpatient Integrative Medicine sees a Dramatic Reduction of 30-Day Readmissions; Findings from the New Inpatient East-West Medicine Service at UCLA

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Abstract

Background: The prevalence of inpatient integrative medicine consult services is increasing among academic healthcare institutions. The diversity of services between institutions, as well as the novel nature of such interventions, makes it challenging for

healthcare administrators to determine the cost/benefit of adding such a program to their institution. The main purpose of this study was to examine the performance of the new UCLA East-West (EW) consult service as measured by 30-day readmission rates and lengths of stay.

Methods: This is a retrospective observational case-control study with participants matched to themselves, conducted at the University of California, Los Angeles (UCLA) Santa Monica Hospital. Patients who had received an EW consultation during the inaugural 20 months of the program (2018-2020), and who had been hospitalized in the prior two years from the date of their first EW consult. 30-day readmission rates and lengths of hospital admission were compared between the hospitalization that included an EW consult (which included the use of acupuncture and/or trigger point injections when appropriate) and any prior admissions during the two years prior to that EW consult. Secondary outcomes included quantitative analysis of average number of treatments and qualitative assessment of integrative treatment(s) received, conditions treated, and reasons EW treatment may have been deferred during a consult.

Results: 165 unique patients met the study criteria. EW consultation was associated with clinically relevant, statistically significant decreased 30-day readmission rates (33.0% vs. 4.6%, $p < 0.001$, OR 0.10, 95% CI 0.06-0.17). This effect was similar when limiting the analysis to pain related admissions (32.3% vs. 3.4%, $p < 0.001$, OR=0.07 95% CI 0.03-0.16). Hospital admissions with EW consults were found to have a statistically significant increased length of stay (7.03 vs. 5.40 days, $p < 0.001$).

Conclusion: EW medicine, an example of integrative medicine, correlates with a reduced risk of 30-day readmission and with modestly increased lengths of stay.

OA01.04LB

Inpatient Acupuncture Pilot for Coronary Artery Bypass Graft Surgery

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Abstract

Background: Coronary Artery Bypass Graft (CABG) surgery is associated with anxiety, postoperative pain and nausea. Although several studies suggest acupuncture may be helpful in perioperative care, more information on implementation and effectiveness for CABG patients is needed.

Methods: A pilot QI project of acupuncture for 30 CABG patients was proposed and accepted by the Department of Cardiothoracic Surgery leadership and staff. Starting mid-January 2022 patients scheduled for CABG were offered perioperative acupuncture. Patients needed an INR < 3.0 . Treatment was

provided by licensed acupuncturists. Patients who remained intubated and in the ICU post-operatively were not treated. We assessed pain, nausea, and anxiety using a 0-10 numeric rating scale immediately before and after each treatment. Patient satisfaction was gathered through open-ended questions.

Results: In the first five weeks of the program, 20 CABG patients were offered acupuncture services and 14 (70%) accepted. Thirteen patients received one pre-operative treatment; of these four reported anxiety and a mean 27% reduction post-treatment. Seven patients were not treated post-operatively either due to ICU hospitalization and intubation, acupuncturist availability, or patient declining. Of 6 patients treated postoperatively, they received a median of 2 daily treatments (range 1-3). All reported pain which decreased pre-post treatment from mean 6.9 (SD 2.2) to 4.9 (SD 2.9). Two patients reported post-operative nausea; one reported resolution and the other no change. Similarly, two patients complained of anxiety with one experiencing resolution and one no change. No serious adverse events were noted. Patient feedback was overall positive, for example: "Can't believe how relaxed and comfortable after just 20 minutes of treatment" and "Amazing to have available").

Conclusion: Early findings suggest acupuncture may be acceptable and helpful for reducing pre-operative anxiety and post-operative pain in patients undergoing CABG surgery. We anticipate reporting complete data on the full pilot at the meeting.

Non-Pharmacological Approaches to Chronic Low Back Pain

OA02.01

Association Between Chiropractic Spinal Manipulation and Emergency Visits in Adults With Non-urgent Low Back Pain: Retrospective Cohort Study

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Abstract

Background: Low back pain (LBP) is the most common symptom prompting chiropractic spinal manipulative therapy

(CSMT). In addition, LBP is the most common reason for non-urgent emergency department (ED) visits, which are associated with unwanted patient care outcomes. We examined the association between CSMT and ED visits in adults with non-urgent LBP, with the hypothesis that receiving CSMT is associated with reduced odds of a subsequent ED visit through 12 months post-diagnosis, after adjusting for confounders.

Methods: We queried a national 75-million-patient network of major health care organizations (TriNetX) on August 12, 2021, providing data from 2004-2021. Patients age 18-65 with newly-diagnosed non-urgent LBP were included, while appropriate ED visit indications were excluded. Cohorts were formed according to receipt or absence of CSMT. Covariates associated with ED visits were adjusted for using propensity score matching (PSM). The odds ratio (OR) of an ED visit over 3-, 6-, and 12-months' follow-up was calculated.

Results: 1.15% of 1.3 million patients received CSMT. After PSM and excluding previous ED visits, 9,855 (CSMT) and 10,851 (non-CSMT) patients remained. The OR for an ED visit was significantly lower in the CSMT compared to non-CSMT cohort through all follow-ups, pre- and post-PSM ($P < 0.0001$). The OR (95% CI) for an ED visit was 0.41 (0.36-0.47) over 3 months, 0.59 (0.52-0.66) over 6 months, and 0.79 (0.72-0.87) over 12 months, post-PSM.

Conclusion: These results showed that adults receiving CSMT for new non-urgent LBP had significantly reduced odds of a subsequent ED visit through 12-months' follow-up. These real-world findings are a marker of care value in those receiving CSMT, and support CSMT as a first-line option for LBP in the absence of urgent complaints. Increased CSMT utilization could be associated with a broader reduction in ED visits, and should be explored with a randomized controlled trial.

OA02.02

Thoracolumbar fascia mobility (shear strain) over a course of chiropractic care for chronic low back pain

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Abstract

Background: Chronic low back pain (CLBP) is associated with reduced thoracolumbar fascia mobility calculated as shear strain (SS) using musculoskeletal ultrasound (MSK-US) data. We conducted a single-group trial to explore if SS

improves in persons with CLBP who receive a course of multimodal chiropractic care comprising spinal manipulation, education, exercise, manual therapies, and advice.

Methods: This proof-of-concept trial recruited adults self-reporting CLBP for at least 1 year. MSK-US data were obtained bilaterally with transducers placed lateral to L2-3 with participants resting prone on a motorized table flexing the lower extremities to 15°, over 5 cycles at 0.5 Hz. MSK-US data and clinical outcomes (numeric pain rating scale, Roland-Morris Disability Questionnaire and PROMIS Pain Interference) were collected over a period comprising twice-weekly visits of multimodal chiropractic care. The highest SS of 3 cycles on each side was averaged to a single value at each timepoint for each participant. Mixed models were used to analyze all data over time. Estimated mean changes at 8 weeks are reported from the models.

Results: Twenty participants who completed the entire 8-weeks of chiropractic care were included. Eleven were female, mean age was 41 years (22-61) and mean BMI was 28.8 (SD 6.2). Pain severity improved a mean (95% confidence interval) of 2.7 (1.8-3.6), pain disability improved a mean of 4.1 (2.3-5.8) and pain interference improved a mean of 6.8 (3.9-9.6). Mean baseline SS was 58.9% in females and 52.6% in males. The mean change in SS was 3.3% (-10.1-16.7) for females and 1.6% (-16.4-13.1) in males.

Conclusion: Higher SS in females is consistent with prior research. Though clinically meaningful improvements in clinical outcomes were observed, SS may not robustly change over an 8-week course of multimodal chiropractic care. Longer term SS changes and their relationship with clinical outcomes and gender differences, require further investigation.

OA02.03

Early Engagement in Nonpharmacological Care Shortens the Duration of Follow-Up for Low Back Pain in the Veterans Health Administration

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Abstract

Background: We assessed how engagement in non-pharmacological care (NPC), including complementary and integrative health, for veterans with low back pain (LBP) affects downstream service use in the Veterans Health Administration. We sought to identify the proportion of veterans with new LBP visits receiving NPC in

months 1-3, and the impact of such care on time to final LBP follow-up.

Methods: Patients were included from the Musculoskeletal Diagnosis Cohort with an index outpatient visit for LBP between October 1, 2016 and September 30, 2017, preceded by one year without a LBP visit, and with at least one follow-up visit for LBP in the year after index. Groups were defined as having “very early engagement” (month 1) or “early engagement” (month 2-3) with at least one visit during that time to clinics commonly providing NPC. The comparison group had no visits to these clinics during months 1-3. We used a time-to-event analysis with univariable Cox proportional hazards regression to model the effect of very early or early engagement on the time to final LBP follow-up visit.

Results: Of included patients (n=44,175), 13.1% had very early engagement and 16.7% had early engagement in NPC. In months 1-3, most NPC follow-ups occurred in physical therapy (22.0% of 116,054 total visits) or chiropractic clinics (3.6%). The very early (median index to final follow-up: 88 days, HR = 1.27, 95% CI: 1.23-1.30) and early (median: 48 days, HR = 1.52, 95% CI: 1.48-1.56) groups had a significantly shorter time to final follow-up than the comparison group (median: 109 days).

Conclusion: Only a minority of veterans receive NPC for LBP in the first 3 months after incident visits, yet those who did had shorter duration of LBP follow-up care across the first year. Further investigation is needed to better understand and optimize NPC in LBP care.

OA02.04

Comparative Efficacy of Different Exercise Interventions in Chronic Non-Specific Low Back Pain: A Systematic Review and Network Meta-Analysis

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Abstract

Background: To investigate the comparative efficacy of different exercise interventions in patients with non-specific chronic low back pain (NSCLBP).

Methods: Randomized controlled trials (RCT) investigating the effects of exercise in patients with NSCLBP were included. Pain intensity and back-specific disability were defined as primary outcomes. Outcomes were analyzed separately for short-term (≤12 weeks from randomization), intermediate-term (12 weeks to 12 months from randomization) or long-term (more than 12 months from randomization) effects. Medline, Scopus,

Central, PEDro, SPORTDiscus, opengrey.eu, clinicaltrials.gov, and who.int/trialsearch were searched up to 20th November, 2019. Network meta-analysis (NMA) was conducted using a Bayesian Markov chain Monte Carlo framework.

Results: 70 RCT assessed pain intensity at short-term, 22 at intermediate-term, and 6 at long-term. Compared with no intervention, motor control stabilization (standardized mean difference [SMD]=-1.2; 95% Credibility Interval [CrI]=-1.7;-0.76), pilates (SMD=-1.7; 95%CrI=-2.3;-0.99), muscle strengthening (SMD=-0.9; 95%CrI=-1.5;-0.28), and yoga (SMD=-0.9; 95%CrI=-1.5;-0.28) performed best for short-term pain reduction. In the intermediate-term, only muscle strengthening (SMD=-0.86; 95%CrI=-1.8;-0.017), and motor control stabilization (SMD=-1.3; 95%CrI=-2.7;-0.082) significantly reduced pain. There was no significant pain reduction in the long-term. 70 RCT assessed back-specific disability at short-term, 23 at intermediate-term and 3 at long-term. Compared to no intervention, motor control stabilization (SMD=-1.5; 95%CrI=-2.1;-0.96), pilates (SMD=-0.88; 95%CrI=-1.6;-0.20), and muscle strengthening (SMD=-0.87; 95%CrI=-1.6;-0.20) reduced short-term disability. Only muscle strengthening (SMD=-1.4; 95%CrI=-2.7;-0.089) significantly reduced intermediate-term disability. A NMA was not possible regarding long-term disability because there were too few studies. **Conclusion:** The results of this NMA show that some forms of exercise can significantly reduce pain and disability in the short term compared to no intervention. In particular, motor control stabilization, muscle strengthening and pilates have been shown to be effective. However, these effects do not usually last longer than three months. Patients need to stay active to maintain the positive effects. Further studies that also assess long-term data are needed.

Employee Wellness and Medical Student Training Programs

OA03.01

Utility of Health Coach Training for Medical Students From the Lens of Clinical Clerkships

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Abstract

Background: The Class of 2023 of the Meharry Medical College (MMC) received 132 Health Coaching (HC) instruction hours their first year that focused on patient-centered

communication skills, motivational interviewing and processes to support sustainable behavior change. The objective of this cross-sectional research was to identify these students' perceptions of the helpfulness of that HC training, frequency of HC skills used in clerkship, preparedness to use HC skills, and the most and least important HC skills as they train in clinical clerkships. We also assessed differences between perceptions of helpfulness, use frequency and preparedness by clerkship and by professional interest (primary care, specialty care, or undecided).

Methods: Participants were primarily non-Hispanic (95%), Black (74.3%) or Asian (9.4%) with a mean (SD) age = 26.4 (2.59) years. Over half were male (55%). Disseminated through email via a REDCap link, the survey included demographics, 48 11-point numerical rating scales (NRSs) assessing helpfulness, use frequency and preparedness for each skill. Students were given 10 minutes of dedicated class time to complete the survey.

Results: Although 83% (97 of 117) responded, data from 74 could be analyzed after removing those with clear response bias (positive or negative) or multiple unanswered sections. Active listening, asking-open ended questions to obtain information or the patient's perspective, and demonstrating empathy were rated as most important. Least important was leading a mindful moment. Using one-way ANOVAs, 5 of 18 skills showed differences in use frequency across clerkships ($p < 0.025$, two-tailed), while 15 showed no differences. Preparedness for two skills showed differences ($p < 0.025$, two-tailed), depending on care interest.

Conclusion: Most HC skills have broad applicability. The patient-centered communication skills of HC training were helpful for clerkships, and align with residency directors' ranking of the most important communication skills. Further research is needed to explore the generalizability of these findings.

OA03.02

Moving Mindfulness through the Necessary Research Steps to Instill Organizational Buy-In for Employer-Sponsored Resiliency Training

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Abstract

Background: Mindfulness in Motion (MIM) is an evidenced-based intervention that significantly reduces Healthcare Professional (HCP) burnout and perceived stress, while significantly

increasing work engagement and resilience. In a sequential series of studies in a large health system conducted over 15 years, MIM is now a system-supported resiliency-building program offered to any employee free of charge, during work time.

Methods: The necessary research steps showing, 1. psycho-social impact of such programming, 2. bio-behavioral markers of intervention success, 3. Non-inferiority of creator versus trained-facilitator delivery, 4. sustainability of results beyond program completion, and, 5. virtual delivery showing equivalent outcomes, were assessed using pre/post analysis with $p < 0.05$ considered significant. Steps 1,3-5 utilized established quantitative measures: Perceived Stress Scale (PSS), Maslach Burnout Inventory (MBI), Connor-Davidson Resiliency Scale (CDRS), and Utrecht Work Engagement Scale (UWES). All participants were interprofessional healthcare employees.

Results: Results correspond to each step as follows: 1) Psycho-social quantitative measures mentioned above were significantly reduced (MBI, PSS) or increased (CDRS, UWES) ($p < 0.0001$) ($n=267$). 2) Levels of salivary alpha amylase were significantly reduced by 40% in an RCT ($n=32$) as compared to controls, 3) Outcomes from MIM creator lead ($n=137$) cohorts were compared with trained facilitator delivery ($n=83$) yielding non-significant differences ($p=0.0764$) for PSS, UWES, and CDRS. 4) Results were sustained on average 12.2 months post-MIM ($n=66$): compared to pre-MIM, MBI, PSS, and CDRS were significantly sustained ($p=0.0047$) while UWES was not fully sustained ($p=0.4008$). 5) Pre-COVID cohorts ($n=124$) were compared with virtual delivery COVID-era cohorts ($n=99$) and all measures between groups were non-significant ($p=0.1519$), except for PSS ($p=0.0405$) yielding a significant difference.

Conclusion: Results achieved in the last 15 years illustrate MIM as a highly effective, scalable, sustainable intervention, which when delivered virtually, obtains the same positive results. This supports the expansion of MIM to a multitude of professions, instilling organizational buy-in for employer-sponsored resiliency training.

OA03.03

The Relationships Among Race, Gender, and Resiliency in Medical Students: A Longitudinal Analysis

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Abstract

Background: Resiliency in medical students is critical to their well-being and success in managing the prevalent

adversities of a career in healthcare; however, there is limited data depicting the progression of resiliency throughout medical school and the associated relationships among race, gender, and resiliency. The purpose of this study was to examine resiliency over time during medical school, including differences by race and gender, in order to inform wellness programming.

Methods: Medical students at a Midwestern University participated in an online, annual student wellness survey for 5 years (2016-2021). The 6-item Brief Resiliency Index was used to measure resiliency. Students were categorized by race (white/non-white) and gender (male/female), and descriptive and bivariate analyses were performed.

Results: The class of 2021 took the survey as incoming medical students ($N=178$) and at the end of each subsequent year: 2018 ($M1=183$), 2019 ($M2=113$), 2020 ($M3=164$), 2021 ($M4=88$), with 715 total survey responses (Mean age=24, female=48%, non-white=33%). Resiliency declined during medical school; incoming students (Mean=23.1) reported significantly higher resiliency than M2s (Mean=21.4, $p=0.01$), M3s (Mean=20.7, $p=0.00$), and M4s (Mean=21.4, $p=0.02$). Overall, white students reported higher resiliency (Mean=22.3) than non-white students (Mean=20.9, $p < 0.05$) with a high effect size. White students had significantly higher resiliency than non-white students as incoming students (Mean=23.7 vs. 22.0, $p=0.00$), M1s (Mean=22.5 vs. 21.1, $p=0.03$), and M2s (Mean=21.9 vs. 20.2, $p=0.05$). Overall, females reported significantly lower resiliency (Mean=21.3) than males (Mean=22.4, $p=0.00$), with a significant difference in M1 (Mean=22.7 vs. 21.4, $p=0.03$).

Conclusion: This study suggests that race and gender play a significant role in medical student resiliency, particularly in the preclinical years, and that the current learning environment may not be conducive to improving resiliency over time. Consistent resiliency programming is critical to prepare students, especially non-white and female students, for the challenges they will face as future physicians.

OA03.04LB

Evaluation of a Remote Reiki Program for Frontline Healthcare Workers in the UK

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Abstract

Background: To conduct a pragmatic effectiveness trial of a Reiki program for healthcare professionals who have been negatively impacted by the COVID-19 pandemic.

Methods: Reiki Medic-Care is a non-profit organization that provides remote Reiki to National Health Service healthcare professionals in the UK. Healthcare professionals (e.g., physicians, nurses) negatively impacted by the COVID-19 pandemic were eligible to sign up for the Reiki program and were invited to participate in the research study. Each participant was assigned eight Reiki practitioners who gave them remote Reiki for 20 minutes for four consecutive days. Participants' stress, anxiety, pain, sleep quality and overall wellbeing were evaluated with 7-point numerical rating scales based on the Measure Yourself Medical Outcome Profile-based questionnaire. Measures were completed online when signing up to receive Reiki (pre) and following the final Reiki session (post). Pre and post data were analyzed using Wilcoxon signed ranks tests.

Results: Seventy-nine healthcare professionals agreed to be in the study and provided baseline survey data (pre), and N = 40 participants completed both pre and post. Participants were 97% female and mean age was 43.9 years old (21-64 years). Healthcare professional participants included nurses (n = 15; 37%), physicians (n = 14; 35%), and other clinical staff such as therapists or patient care assistants (n = 11; 28%). Statistically significant improvements in stress ($p < .001$, $d = .634$), anxiety ($p < .001$, $d = .698$), pain ($p < .001$, $d = .630$), wellbeing ($p < .001$, $d = .578$), and sleep ($p = .019$, $d = .371$) were observed from pre to post.

Conclusion: The Reiki program for healthcare professionals demonstrates preliminary effectiveness for improving stress, anxiety, pain, wellbeing, and sleep in frontline healthcare workers in the UK impacted by the COVID-19 pandemic. Future research will include a larger sample size and long-term follow-up.

Complementary and Integrative Practices in Cancer and Palliative Care

OA04.01

Opportunities and Challenges of Implementing a Virtual Acupressure Service for Cancer Patients During COVID-19: A Retrospective Analysis

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Abstract

Background: Oncology acupuncture service was disrupted by COVID-19, and a virtual acupuncturist-guided, patient self-acupressure intervention was implemented. We explore the potential impact of tele-acupressure on patient-reported symptoms and summarize acupuncturists' experiences on the challenges and opportunities of implementing a virtual acupressure service for cancer patients.

Methods: The study is a retrospective analysis of a virtual acupressure service administered from May to December 2020 at a National Cancer Institute-designated Comprehensive Cancer Center. A semi-standardized virtual acupressure protocol was developed, consisting of 50 min, one-on-one session between the acupuncturist and patient. At the start of each session, the acupuncturist assessed the patient's symptom burden using the Edmonton Symptom Assessment Scale (0-90), for which higher scores represent greater symptom severity. Changes in ESAS scores from baseline to follow-up were evaluated using paired t-test for patients with follow-up within 14 days of baseline. Acupuncturists held weekly group meetings to discuss challenges and ways to improve the delivery of tele-acupressure.

Results: A total of 102 virtual acupressure sessions were administered to 32 unique patients. Most patients were females (90.6%) and white (84.4%), the mean age was 55.7 (range=26-82; SD=15.73), and the most common cancer diagnosis was breast (53.1%). Of 32 patients, 13 had follow-up in 14 days or less. For these 13 patients, there was a statistically significant reduction in total symptom burden (-4.85 ± 7.6 ; $p=0.04$) from baseline to follow-up. Based on the acupuncturists' experiences, various factors were discussed and considered important in implementing virtual acupressure, including effective communications (e.g., both verbal and non-verbal cues), potential technological barriers (e.g., technology literacy), and healing environment (e.g., physical space and/or virtual background appearing on the screen).

Conclusion: Virtual acupressure may be a promising therapy for symptom management, especially when in-person acupuncture service may not be feasible, but further research is needed to rigorously evaluate its safety and efficacy among cancer patients.

OA04.02

Massage Therapy Dosage Effectiveness on Patient Pain, Quality of Life, and Wellbeing in Palliative Care: A Randomized Clinical Trial

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Abstract

Background: Palliative care is a holistic medical approach to chronic illness management that helps patients achieve the best possible quality of life incorporating psychological and physical symptoms. Massage therapy is increasingly being used in palliative care to improve pain, quality of life, and distress; however, the optimal dosage aligned with the hospital setting remain understudied.

Methods: Three-armed randomized trial examined different dosages of therapist-applied massage to test change in pain, distress, peace, quality of life, and symptoms experienced among palliative patients. Outcome measures: McGill and Edmonton Symptom Assessment System (ESAS) scales. The dosage administered for each arm were: Arm-I) 10-minute × 3-day consecutive treatments, Arm-II) 20-minute×3-day consecutive treatments, and Arm-III) 20-minute × single treatment. Data were collected at baseline, pre- and post-treatment, and 1-day post-last treatment (follow-up). Repeated measure analysis of variance and paired t-test were used to determine significant differences.

Results: N=317 were 55.7 (±15.49) years old, primarily female (61.2%), and largely diagnosed with cancer (45.0%) and heart failure (38.2%). All arms demonstrated within-group improvement at follow-up for the total McGill score (all $p < 0.000$) and quality of life (all $p < 0.05$), physical well-being (all $p < 0.000$), and psychological well-being (all $p < 0.01$) subscales. ESAS variables pain (all $p < 0.02$), depression (all $p < 0.02$), and wellbeing (all $p < 0.05$) had significant improvement for Arms II and III. No significant between-group differences were found. Finally, repeated measure analyses demonstrated time to predict immediate improvement in distress ($p \leq 0.003$) and pain ($p \leq 0.02$) for all study arms; however, only improvement in distress remained at follow-up in arms I ($p = 0.02$) and II ($p = 0.003$).

Conclusion: Massage therapy in complex, palliative care patients was beneficial beyond dosage. Findings support session length (10 or 20 minutes) was predictive of short-term improvements while treatment frequency (once or three consecutive days) predicted sustained improvement at follow-up. Further investigation is warranted to test cost-effectiveness of massage dosage in clinical settings.

OA04.03

Acupuncture and Pain Counseling for Inpatients with Cancer: Results from a Pragmatic Hybrid Effectiveness-Implementation Study

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Abstract

Background: At least half of hospitalized cancer patients experience pain during their stay. Using non-pharmacologic treatments alongside medications may better address patients' total pain experience by relieving physical and psychological symptoms and reducing adverse effects of analgesics. Building on evidence supporting acupuncture and pain counseling, we sought to evaluate these therapies in hospital settings serving diverse populations.

Methods: We conducted a hybrid effectiveness-implementation trial, comprising a 2x2 factorial randomized clinical trial of adjunctive acupuncture and pain counseling and in-depth qualitative interviews of stakeholders on patient preferences, barriers, and facilitators of non-pharmacologic pain management in the hospital. Adults hospitalized for an anticipated stay of 48 hours or more, with a malignant solid tumor, and moderate to severe pain were eligible for the trial. All participants received usual care and were randomized to acupuncture, pain counseling, neither, or both. The study was conducted in Cantonese, English, Spanish at two hospitals. Patient-reported pain-related outcomes were analyzed with linear mixed models. Stakeholder interviews with patients, caregivers, and practitioners were analyzed using inductive and deductive coding.

Results: Study participants (n= 447) were 49% female, 10% Asian, 7% Black, 25% Latino, and 52% White, with a mean age of 59. From baseline to day 4, pain intensity decreased 2.21 (95% CI 1.73, 2.68) on an 11-point numeric rating scale, with minimal differences observed between groups. Participants receiving both acupuncture and pain counseling reported statistically significant improvements in health-related quality of life (0.3 increase on the EQ5D index vs. < 0.15 for other groups, $p < 0.05$). Qualitative data from 86 stakeholders underscore the value of biopsychosocial approaches and suggested models for improving access to non-pharmacologic therapies.

Conclusion: All patients improved in terms of pain. Acupuncture and pain counseling additionally had improvements

in quality of life. Additional research is needed on the impact of nonpharmacologic treatments on use of analgesics.

OA04.04

Randomized Controlled Trial Testing Effects of Tai Chi Easy/Qigong on Breast Cancer Survivors' Fatigue and Associated Symptoms

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Abstract

Background: Fatigue is the most frequently reported and persistent symptom of women during/after treatment for breast cancer. Interventions (>12-weeks) using meditative movement practices (e.g., yoga, Tai Chi) show strong evidence for improving fatigue, among other symptoms (e.g., disturbed sleep, anxiety, depression) for breast cancer survivors (BCSs).

Methods: We randomized 167 fatigued BCSs (> 6 months; ≥10 years post-treatment) ages 45-75, Stages 0-III, to 8 weekly sessions plus home practice of Tai Chi Easy/Qigong (TCQ) (n=57), Sham Qigong (SQG) (n=53) (similar movements without the focus on meditative state or breathing), or health education control (EC) (n= 57) and examined fatigue, sleep, anxiety and depressive symptoms at pre-, post-, and 12-weeks follow up.

Results: Using a linear mixed model to test group by time interactions over three time points, the results showed no significant improvements in Fatigue Symptom Inventory (FSI) scores, while two of the Pittsburgh Sleep Quality Index (PSQI) subscales improved significantly for TCQ (duration p=.046, daytime dysfunction p=.032) compared to EC. No significant changes were found for depression or anxiety Profile of Mood States (POMS). Ad hoc analyses separating participants above/below mean scores for fatigue indicated participants in the lower baseline fatigue category experienced reduced fatigue (FSI) practicing TCQ compared to SQG (p=.066) and lower fatigue duration compared to EC (p=.012). Sleep was improved (global PSQI p=.022 and most subscales p<.05), along with anxiety (POMS subscale; p=.005), in comparisons with EC.

Conclusion: Eight weeks of TCQ helps moderately fatigued BCSs to overcome fatigue and improve sleep and anxiety

compared to EC. For some aspects of fatigue and sleep, TCQ is significantly better than the SCQ intervention comprising gentle movement without the meditative/breath focus in practice. These results align with previous findings suggesting that TCQ is an appropriate intervention that benefits BCSs years after their initial treatment.

Methods for Assessing Complementary and Integrative Practice Utilization and Outcomes

OA05.01

Medical Yoga Therapy at Veterans Hospital, East Orange, NJ - Patient Reported Outcome Measures Information System (PROMIS®) Based Evaluation

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Abstract

Background: VA New Jersey Health Care System, East Orange is a national flagship site for Whole Health. Veteran patients, typically having multiple chronic conditions, are referred for Medical Yoga Therapy (MYT). This longitudinal pilot is an attempt to evaluate the effectiveness of MYT.

Methods: A custom PROMIS form was created by selecting multiple items from each identified key benefit domain. This form used items from PROMIS® Scale 1.2 Global Health, PROMIS® Item Bank v1.0 – Positive Affect – Short Form 15a, PROMIS® Item Bank v1.0 - Self-Efficacy for Managing Chronic Conditions – Managing Emotions, and PROMIS® 43 Profile v2.1 Data was collected at the start and after completion of 12 weekly virtual MYT sessions. Cronbach's alpha was computed to measure internal consistency level of the PROMIS items chosen. PROMIS t-scores and Standard Error of Measure (SEM) was determined. The statistical approach of using one SEM as a threshold for Minimally Important Difference (MID) was adopted. Eight PROMIS domain of Anxiety, Depression, Fatigue, Pain, Sleep, Wellbeing, Self-Efficacy, and Mental Health were evaluated, each with a Cronbach's alpha of greater than 0.7.

Results: Sixty-five patients completed the PROMIS evaluations. Results show positive changes in all the domains. Improvements in six of the eight domains namely Anxiety, Fatigue, Pain, Sleep, Wellbeing, and Mental Health were above the MID threshold of one SEM, considered clinically significant. In each of the PROMIS domain a majority of patients showed changes above the MID threshold with Pain domain being highest at 75%.

Conclusion: A standardized and objective approach of PROMIS based evaluation for MYT has shown changes above the MID threshold, indicating significant benefits to patients. This evaluation lays the foundation for undertaking more detailed studies to establish anchor based MIDs for the patient population referred to Medical Yoga Therapy.

OA05.02

Methods for Assessing Complementary and Integrative Health Use - Combining Patient Surveys with Veterans Health Administration (VHA) Medical Records

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Abstract

Background: Little is known about accuracy and completeness of patients' self-reported CIH use and how to combine self-reported use with electronic medical record (EMR) data for CIH provided by a healthcare system. We examined this issue using both 1) EMR data and 2) a quality improvement survey of CIH use that contacts patients days after a EMR recorded encounter.

Methods: Of 1,735 veterans surveyed to-date on their use of yoga, Tai Chi/Qigong, meditation/mindfulness, acupuncture, chiropractic, or massage, 21% provided discordant self-report responses about care paid for or provided by VHA. Among those discordant cases, we conducted brief telephone interviews with 30 veterans to understand discordance. Notes were taken and a matrix was used to aid in rapid analysis.

Results: Among CIH reported in the EMR, 21% of patients provided discordant responses; chiropractic care had the lowest discordance (13%) while meditation/mindfulness had the highest (48%). Among 30 veterans interviewed, the most frequent reasons for discordance were 1) receiving an appointment for CIH therapy but rescheduling or using it at a later time than shown in the initial EMR extraction, 2) receiving education/training that included a meditation session but the patient did not understand they received meditation, 3) multimodal visits where CIH was combined with another more familiar treatment such as physical therapy and patient did not report CIH, and 4) confusion with the survey wording (e.g., received tele-meditation but did not understand it should be reported).

Conclusion: Identifying CIH therapy utilization delivered or paid for by a healthcare system via the EMR is possible if the healthcare system has appropriate coding processes, and accuracy depends on these processes, which vary by CIH therapy. Assessing total CIH use, including CIH use at home or self-paid, requires patient self-report which adds additional challenges with patient understanding of both what they received and how it was paid for.

OA05.03

Effectiveness of Medical Music Therapy Practice: Integrative Research Using the Electronic Health Record (EMMPIRE): A Retrospective Study

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Abstract

Background: Several clinical trials support the efficacy of music therapy (MT) for improving outcomes in hospitalized patients, but few have evaluated MT's effectiveness. Our retrospective study examined the delivery/effectiveness of MT across a large health system.

Methods: A retrospective review was conducted of MT sessions provided to hospitalized adults and documented in the electronic health record (EHR) between January 2017 and July 2020. Discrete clinical information was extracted from EHR documentation narratives, and the data were analyzed using descriptive statistics. Paired t-tests were used to evaluate single-session changes in pain, stress, and anxiety for patients reporting pre-session scores of >4 on a 0-10 numeric rating scale.

Results: Music therapists (average 11.6 clinical FTE/year) provided 14,351 sessions to 7,462 patients across 9,181 hospitalizations. Patients were female (63.3%), White (58.1%) or Black (40.0%), 65.3 years on average, and insured under

Medicare (51.6%), Medicaid (15.7%) or Private insurance (15.1%). Patients' hospitalizations (median length of stay 5 days) were primarily for cardiovascular (11.7%), respiratory (9.9%), musculoskeletal (9.2%), infectious (8.1%) conditions, or palliative care (15.3%). Therapists provided MT sessions to patients discharged from medical/surgical (73.8%), oncology (18.2%), or intensive care (5.7%) units. MT interventions primarily utilized live music listening (50.4%), active music making (16.7%), and music-assisted relaxation and imagery (8.8%). Interventions addressed coping (32.4%), pain (21.5%), relaxation (14.7%), and mood (14.6%). Patients receiving MT with pre-session scores ≥ 4 reported clinically and statistically significant mean reductions in pain (-1.9, $n=1,961$), stress (-3.5, $n=269$), and anxiety (-3.0, $n=844$).

Conclusion: This large retrospective study supports the effectiveness of MT for improving outcomes in socioeconomically diverse patients across a large health system. Our research methods can serve as a model for evaluating the effectiveness of other integrative therapies. Future research is needed to understand possible mechanisms of action and identify whether any demographic/clinical characteristics predict clinical response.

OA05.04

A Retrospective Pilot Study of Patient Reported Outcomes Collection in Outpatient Integrative Medicine Clinics

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Abstract

Background: Integrative medicine (IM) is whole-person care utilizing complementary health approaches to address numerous physical/emotional influences impacting an individual's health. Patient-reported outcomes (PRO) are subjective measures that quantify patients' perception of their quality of life. PROs have been routinely assessed in the inpatient setting after IM intervention and positive changes are observed. Our objectives were to: (1) assess our ability to routinely collect PROs and (2) evaluate potential changes on PROs in an outpatient IM clinic setting.

Methods: From January 2019 through June 2020, patients receiving an IM provider consult or IM intervention (acupuncture, massage, chiropractic, IM provider consult) in 5 Connor Integrative Medicine Network (CIHN) clinics were asked to complete a 0-10 numeric rating (NRS) scale of pain, anxiety and stress before and immediately after the IM intervention.

Results: A total of 29,926 IM clinic visits occurred during the study timeframe with the most common interventions being

chiropractic (37%), acupuncture (26%), massage (13%), IM provider consult (10%) and osteopathic manipulation (9%). Of the 5,245 unique adult patients the demographics were: Female (75%), White (75%), Black (17%) Age (49.7; SD 15.9). Of the 8,254 visits with >1 on pre-score, the pre-pain average was 4.08 (SD=2.2) and post-pain average was 2.38 (SD=2.4) for a decrease of -1.7 (SD=1.58) units. Comparable changes were exhibited on the 7,105 visits of pre-anxiety >1 and 7,761 visits of pre-stress >1 with change scores of -1.8 (SD=1.65) and -2.0 (SD=1.78) respectively.

Conclusion: The study provides evidence that it's possible to routinely collect PRO measures in large IM clinic. Furthermore, patients reported significant changes on pain, anxiety and stress immediately after IM – changes which are comparable to inpatient results. Future research should embed measures in the electronic health record and focus on how providers can utilize PRO results in real-time to improve patients' clinical outcomes and potentially decrease healthcare utilization.

Complementary and Integrative Medicine for COVID Related Outcomes

OA06.01

Honeybee Products for the Treatment and/or Recovery of COVID-19 and Other Coronavirus-Related Respiratory Tract Infections: A Rapid Systematic Review

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Abstract

Background: This rapid review systematically evaluated the effects of honeybee products compared to controls for the duration, severity, and recovery of acute viral respiratory tract infections (RTIs), including SARS-CoV-2, in adults and children.

Methods: A protocol applying Cochrane rapid review methods was registered with PROSPERO: (CRD42020193847) in July 2020. Four English databases plus preprint servers and trial registries were searched for

randomised controlled trials (RCTs). The evidence was appraised using RoB 2.0 and GRADE-approach.

Results: 27 results, derived from 9 RCTs, included 674 adults and 781 children. In Hospitalized patients with confirmed SARS-CoV-2 infections, propolis plus usual care compared to usual care alone, reduced the risk of shock, (RR:0.36; 95%CI:0.15, 0.88), respiratory failure (RR:0.32; 95%CI:0.11, 0.92), and kidney injury (RR:0.36; 95% CI:0.15, 0.88) (all low-certainty) and duration of hospital admission (MD:-3.81 days, 95%CI:-6.19, -1.44) (moderate-certainty). Compared to coffee, honey plus coffee and honey alone, reduced the severity of post-infectious cough of a least 3-weeks duration in adults (MD:-1.40, 95%CI:-1.67, -1.13) (low-certainty) and (MD:-0.40, 95%CI:-0.75, 0.05) (very low-certainty) respectively. Honey was less effective than Guaifenesin in reducing cough severity at 60-minutes in adults with non-specific acute RTIs (MD:0.20 points, 95%CI:0.05, 0.35) (very low-certainty). Honey compared to placebo reduced the duration of cough in children (MD:-0.71 days 95%CI:-1.15, -0.28) and compared to salbutamol (MD:-0.54 days 95%CI:-0.99, -0.09) (low-certainty); and the global impact of paediatric nocturnal cough was reduced by honey plus usual-care compared to usual-care alone (SMD:-0.80, 95%CI:-1.28, -0.32) (very low-certainty) and pharmaceutical cough medicines (SMD:-0.75 95%CI:-1.13, -0.36) (low-certainty).

Conclusion: More RCTs are needed to robustly inform the role of honey and propolis for treatment of SARS-CoV-2 and related respiratory infections.

OA06.02

Review of Integrative Therapies for Management of Post-COVID Dysautonomia

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Abstract

Background: Growing numbers of cases of dysautonomia after acute COVID-19 infection are being reported involving previously healthy patients. This post-COVID dysautonomia is predominantly characterized by lingering neurologic and cardiovascular dysfunction including tachycardia, orthostatic intolerance, migraine, exercise intolerance, fatigue, and cognitive impairment. Anxiety, insomnia, and uncertainty surrounding the COVID-19 pandemic present additional risk factors for sympathetic overdrive and deconditioning. Best management strategies and practice guidelines for this patient population remains unknown.

Methods: We reviewed reports of post COVID dysautonomia and management strategies pursued to understand best practices and provide a primer for clinicians to guide patient management. We reviewed the literature for case reports of post COVID dysautonomia and compiled the cases into a table. Treatment approaches and outcomes were aggregated into an algorithm for management guidance.

Results: Ten studies regarding post COVID dysautonomia were reviewed. Strategies included conservative approaches such as fluids, salt consumption, compression stockings, abdominal binders and head of bed elevation as well as strength building such as yoga, resistance exercise, and recumbent physical activity. Moreover, psychosocial support including cognitive behavioral therapy, biofeedback, and support groups were emphasized along with pharmacologic remedies such as midodrine, ivabradine, fludrocortisone, intravenous immunoglobulin, gabapentin, and topical lidocaine in addition to interventions such as enhanced external counterpulsation. Primary and secondary outcomes included self-report surveys, autonomic laboratory testing, hand grip strength and heart rate variability.

Conclusion: Our review suggests consideration of an integrative, multimodal treatment approach involving physical activity, mental well-being, nutrition, stress management, and medication. These primarily facilitate management of dysautonomia, but rarely lead to complete symptom resolution. Despite the uncertainty associated with post-COVID dysautonomia, patient validation, education, and lifestyle approaches provide the cornerstone of management. Since post-COVID dysautonomia will comprise an increasing number of care consultations, clinician awareness, prompt diagnosis, and personalized management are essential.

OA06.03

Evaluation of a Functional Medicine-Based SMA for the Management of Post-COVID Syndrome

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Abstract

Background: Post-Acute Sequelae of COVID-19 (PASC) describes patients with persistent symptoms weeks after diagnosis. Interventions targeting systemic chronic inflammation (SCI), a potential contributor to PASC, may be beneficial. The objective was to determine if an SMA delivering nutrition and lifestyle-based interventions for PASC patients improves health related quality of life (HRQoL), functional status, and symptom burden.

Methods: A retrospective study was performed on moderate to severe PASC adult patients participating in a virtual, 10-week Post-COVID Syndrome SMA program from April 1, 2021 to September 15, 2021. Outcomes included change at 3 months in: PROMIS Global Physical Health (GPH) and Mental Health (GMH) (≥ 50 =Very Good), post-COVID functional status (PCFS; 0=No limitations, 4=Severe limitations), medical symptom questionnaire (MSQ; 0=No symptom burden, 100=Severe symptom burden) and nutrition and lifestyle adherence survey (NLAS; 45=Ideal behaviors). Improvements of 5.00 or more T-Score points in PROMIS GPH/GMH are considered clinically meaningful. Outcomes were summarized using frequency count (%) or mean [SD] with 95% confidence intervals (CI).

Results: A total of 22 patients were eligible and mean age was 44.3 [11.3], 86% were female, and 86% were white. Patients attended 8 visits on average, and at baseline had fair PROMIS GPH (37.15 [8.18]) and PROMIS GMH (37.98 [6.48]), moderate MSQ scores (82.0 [28.2]), limitations in PCFS (2.7 [0.45]), and less than ideal NLAS behaviors (22.5 [6.9]). At 3 months, patients exhibited minimal improvement in PROMIS GPH (0.76 [5.52], -1.69 to 3.21); however, 23% improved 5.00 points or more, and 41% improved 2.50 or more. PROMIS GMH had similar results. Patients exhibited significant improvements in PCFS (-0.53 [0.64], -0.89 to -0.18), MSQ (-33.2 [23.3], -49.8 to -16.6) and NLAS (7.4 [12.4], 0.8 to 14.0).

Conclusion: Interventions targeting SCI can improve functional status and symptom burden in patients with PASC. Further research is warranted to delineate factors associated with improvements in HRQoL.

OA06.04LB

Echinacea purpurea for the Prevention and Treatment of Viral Respiratory Tract Infections including SARS-CoV-2: an Open-label RCT

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Abstract

Background: Although quite a few plants claim preventive and/or therapeutic effects against SARS-CoV-2, only few [RSI] have been investigated in clinical trials. A 65% ethanolic extract from fresh *Echinacea purpurea* (95% aerial parts and 5% root, Echinaforce® [EF]) licensed as drug in Switzerland, has documented anti-viral effects in former clinical trials, i.a. against various coronavirus strains.

Methods: Open-label randomized clinical trial to investigate preventive and therapeutic effects of EF extract. Healthy volunteers (18 – 75 years) were to take either 2400mg/d over 5 months or received no treatment. Nasal and oropharyngeal swabs as well as blood samples were collected routinely for detection of a broad spectrum of viruses, including SARS-CoV-2. Additional swabs were taken during acute respiratory episodes, when EF dosing was increased to 4000mg/d for up to 10 days.

Results: N=120 adults were randomized and treated in Sofia, Bulgaria between November 2020 and May 2021. Over 5 months, 21 and 29 samples tested positive for any virus in the EF and control group (difference n.s.), of which 5 and 14 samples were SARS-CoV-2 positive (RR=0.37, Chi-square test, $p=0.03$). Overall, 10 symptomatic episodes occurred with EF, resp. 14 in the control group (difference n.s.) of which 5 and 8 were COVID-19 (RR=0.70, $p>0.05$). Treatment with EF during acute episodes reduced the overall virus load by at least 2.12 log₁₀ or approx. 99% ($p<0.05$, t-test), as well as the time to virus clearance by 8.0 days for all viruses ($p=0.02$, Wilcoxon test) resp. by 4.8 days for SARS-CoV-2 ($p>0.05$) in comparison between groups. EF significantly reduced fever days (1 vs. 11 days, $p=0.003$, chi square test).

Conclusion: EF extract reduced the risk of viral RTIs, including those caused by SARS-CoV-2 and substantially decreased virus loads in infected subjects. It might offer a supportive option to existing preventive and therapeutic measures.

CIH Effectiveness and Implementation in the VA

OA07.01

Veterans Health Administration's National Delivery of CIH Therapies, Whole Health Services and Chiropractic Care in 2020 and the Pivot to Telehealth

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Abstract

Background: Given that VHA is the largest healthcare system provider of CIH therapies in the U.S., we examined the VHA's national provision of nine CIH therapies (acupuncture, battlefield acupuncture, biofeedback, clinical hypnosis, guided imagery, massage therapy, meditation, Tai Chi/Qigong, and yoga), chiropractic care, and Whole Health services for fiscal years (FYs) 2017 to 2020 using data from electronic medical records and community-based claims, and assessed utilization as VHA expanded CIH offerings and pivoted to tele-CIH and tele-Whole Health in response to the COVID19 pandemic.

Methods: Databases were searched using CPT codes (acupuncture, chiropractic, and massage therapy), clinic stop codes (chiropractic care), clinic location names, internal accounting codes, clinic note titles, and structured coding templates (HealthFactors) unique to VHA's electronic medical record.

Results: A total of 441,891 Veterans used 2,930,700 of these services in FY20, representing a slight decrease from FY19 (3,083,806 total visits). Prior to the COVID19 pandemic, VHA was on track for expanded utilization in FY20. Of these visits, 422,313 (14%) were delivered through telehealth. Over 8.1% of all Veterans receiving VHA care in FY20 received at least one CIH therapy, Whole Health service, or chiropractic care service. Use was highest among women (14.3%), patients with chronic pain (18.1%), opioid use disorder (15.6%), rheumatoid arthritis (13.3%), obesity (12.9%), or a mental health condition (12.8%). VHA medical centers worked quickly during the pandemic to expand telehealth offerings; comparing against FY19, nearly one-third of the monthly in-person visit volume was provided through telehealth by the end of 2020 for therapies including Core Whole Health services, yoga, Tai Chi/Qigong, meditation, biofeedback, guided imagery, and hypnosis.

Conclusion: Despite the impact of COVID19 on reduced FY20 in-person visits, including group CIH therapies, VHA continued to provide nearly the same number of visits as the prior year, in part due to expansion of telehealth services.

OA07.02

Veterans' Use of VA Healthcare System-Provided Complementary and Integrative Health Activities

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Abstract

Background: To conduct the first national examination of veterans' use of complementary and integrative health (CIH) therapies at the Veterans Health Administration (VA), the nation's largest integrated healthcare system. The VA greatly expanded their provision of CIH therapies to enable patients to manage their health with nonpharmacological options, something no healthcare system has done on this scale. Nine CIH therapies are now considered medical care and are tracked in the medical records.

Methods: Using electronic medical records, we created a national cohort of veterans using VA healthcare and examined their use of VA-covered acupuncture, Battlefield Acupuncture, biofeedback, clinical hypnosis, guided imagery, massage therapy, meditation, Tai Chi/Qigong, yoga, and chiropractic care from October 2016-September 2019.

Results: Veteran's use of CIH therapies and chiropractic care increased 70% in three years. Among patients using CIH therapies, many had co-existing chronic conditions with the most common being: chronic musculoskeletal pain (55%), cardiovascular disease (51%), depression (31%), PTSD (33%). Women were more likely than men to use each of the CIH therapies, but the type of CIH therapy used varied by age and race/ethnicity.

Conclusion: Veterans' use of VA-covered CIH is robust and rapidly growing. This growth is likely due to multiple factors, with a key one being the VA's acceleration of CIH program implementation. This "build it and they might come" lesson might be useful to other healthcare institutions considering providing additional CIH therapies. The information also might help influence federal/state health policy on CIH provision.

OA07.03

Whole Health Peer-led Groups: Understanding Veteran Perspectives and Experiences

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Abstract

Background: As part of its emerging Whole Health (patient-centered, holistic) system of care, the Veterans Health Administration (VHA) offers "Taking Charge of My Life and Health" (TCMLH), a peer-led, group-based course in which Veterans explore how different areas of life impact their health and wellbeing and support one another in setting and pursuing personally meaningful health goals. We sought to understand Veteran perspectives on and experiences in TCMLH groups.

Methods: We completed semi-structured telephone interviews with 15 Veterans across 7 VHA facilities who had participated in TCMLH between Summer 2020 and Winter 2021. The interview recording transcripts were coded using a consensus-building process and analyzed to generate themes.

Results: Veterans described positive experiences with TCMLH groups, while also suggesting areas for improvement. Interviewees generally appreciated the core elements of TCMLH curriculum; difficulties that were reported related to group pace and content. Social dynamics – interactions and relationships between TCMLH participants – took center stage in the interviews, with positive comments on the value of connecting with others, sharing and learning new ideas, and providing mutual support and accountability. Some challenging interactions with groupmates were also recounted. The virtual format of the TCMLH groups, which VHA rapidly adopted in the wake of the COVID-19 pandemic, was perceived as both facilitating and constraining engagement and relationships. Finally, Veteran interviewees described diverse ways in which they thought the group participation had enhanced their lives. These perceived impacts of TCMLH participation included positive changes in attitude, acquiring healthy habits, improvements in social life, and shifts in healthcare (i.e., trying new modalities, changing one's interactions with their clinical team).

Conclusion: Veterans perceived TCMLH groups to be meaningful, engaging, and impactful, offering valuable recommendations to further improve the group experience. Other health systems may consider developing similar group-based programs to bolster guided self-reflection, goal setting, and peer support among patients.

OA07.04

Identifying Implementation Strategies that Encourage Use of Complementary and Integrative Health Therapies in the Veterans Health Administration

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Abstract

Background: The Comprehensive Addiction and Recovery Act mandates complementary and integrative health (CIH) therapy provision in the Veterans Health Administration (VA). In 2018, 18 Whole Health Flagship sites focused on implementing practitioner-delivered (acupuncture, chiropractic care, massage) and self-care (yoga, Tai Chi/Qigong, meditation/mindfulness) evidence-based CIH therapies. However, little is known about the best practices for encouraging Veterans' utilization of these. Our objective was to identify the implementation strategies used by the 18 Flagship Sites to nudge (i.e., encourage) Veterans to use these therapies, focusing specifically on nudges used to encourage self-care or both practitioner-delivered and self-care CIH therapies.

Methods: CIH Program/Clinical Directors at each site participated in site visits with the research team, where we learned what CIH therapies they provide and what implementation strategies they use to nudge patients to these therapies. We then categorized these strategies into specific nudge types. Thereafter, we used a consensus-approach to map these nudges to the 73 Expert Recommendations for Implementing Change (ERIC) strategies.

Results: Thus far, 46 site visits have been completed since 2018. We categorized strategies to increase use of CIH therapies into one of eight specific nudge types: Gateway, Incentive, On Pathway, Off Pathway, Referral, Site Structure,

Advertising/Marketing/Outreach, Availability of Resources. We identified the specific ERIC strategies that map to these nudges. For example, several ERIC strategies, such as conduct educational meetings, mapped to the Gateway nudge type (e.g., a site requiring Veterans to take an education class or orientation session prior to using CIH therapies). Nudges/strategies most frequently used for each type of CIH therapy (practitioner-delivered, self-care) will be presented.

Conclusion: Our findings will provide valuable information for any healthcare facility attempting to encourage patients to try more self-care CIH therapies.

OA07.05LB

Complementary and Integrative Health in the Community: Expanding Access for Veterans Seeking Care through the Veterans Health Administration

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Abstract

Background: The Veterans Health Administration (VHA) Directive 1137: Provision of Complementary and Integrative Health (CIH) identifies the inclusion of evidence-based CIH approaches in the VHA's Medical Benefits Package (acupuncture, biofeedback, clinical hypnosis, guided imagery, massage therapy, meditation, Tai Chi/qigong, and yoga). The purpose of this administrative data review is to identify which approaches are being referred to Community Care from VHA medical centers (VAMC), and to identify if COVID-19 has had an impact on referrals to the community.

Methods: Data were pulled from an internal administrative dashboard. Referrals include services for Veterans who live a prescribed driving distance from a VAMC, wait times over threshold, services unavailable, or for reasons of the best medical interest. Data was pulled for fiscal years 2020 through 2021 and included: chiropractic care, acupuncture, biofeedback, neurofeedback, clinical hypnosis, massage therapy, meditation (specifically MBSR), Tai Chi/qigong, and yoga. Standardized tracking of referrals began with the implementation of Standard Episodes of Care (SEOC) which define care requested and include number of visits permitted and timeframe.

Results: Referrals increased for all approaches from FY20-21 shown as (FY20; FY21): chiropractic (104,197; 197,357),

acupuncture (59,787; 100,908), massage therapy (5,021; 17,646), biofeedback (31; 69), neurofeedback (27; 74), clinical hypnosis (10; 40), MBSR (2; 8), Tai Chi (2; 8) and Yoga (1; 2).

Conclusion: CIH is expanding across the VHA and could be useful in supporting a cultural transformation that includes integrative health approaches within conventional medical systems. While all VAMCs provide some CIH in-house, a substantial amount is provided through Community Care. As the largest integrated healthcare system in the United States, this could impact growth of CIH and the need for more providers in the community. By hiring CIH professionals on-station and expanding the network to the community, VHA could be one of the largest providers and users of CIH.

CIH Among Vulnerable Youth Populations

OA08.01

Mindfulness for Teens as Integrative Medicine: Findings from the Adverse Childhood Experiences (ACEs), Mindfulness, and Adolescent (AMA) Health Study

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Abstract

Background: The Adverse Childhood Experiences (ACEs), Mindfulness, and Adolescent (AMA) Health Study (IRB No.: 00008608) examined integrative health outcomes and implementation among teens in the Peace in Schools (PINS) Mindful Studies course, the first mindfulness class offered for credit in US public high schools.

Methods: Both process and outcome evaluations were conducted with 205 participants across three diverse Portland Public High Schools. Data was collected via a pre/post-survey (n=91) and seven focus groups (n=87) with youth; 34 in-depth interviews with parents, school staff, student alumni, and youth mindfulness experts; 10 observations; and program document review. Computerized surveys measured neurocognitive, psychological, and social outcomes at baseline and post-intervention. Principal component analysis, exploratory factor analysis, and paired t-tests were conducted in Stata to assess significant change in neurological (e.g., executive function, attention), psychological (e.g., anxiety, depression), and social (e.g., connectedness) outcomes. Subgroup differences were examined by school, grade, gender, sexual orientation, race/ethnicity, nativity, and socioeconomic status (SES). ACEs, readiness for change, and class dose were also tested for moderation effects. Qualitative data was analyzed in Atlas.ti using

an inductive/deductive thematic approach informed by a conceptual framework.

Results: The PINS program demonstrated broad reach, high fidelity, and largely positive participant experiences attributed to embodied mindfulness teaching, classroom community, course depth and duration, and curricular focus on equity, trauma, and diversity. Survey results showed statistically significant improvements ($p < .05, .01, .001$) in self-compassion, emotion regulation, coping, anxiety, and depression symptoms. Students with higher ACEs and/or identifying as female, gender non-binary, lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ+), or low-SES exhibited greater gains in self-compassion, expression suppression, anxiety, and depression symptoms (including self-harm ideation) versus peers. Higher ACEs, greater readiness for change, and first-time student status positively moderated program effects.

Conclusion: Mindfulness is a promising integrative health intervention to improve biopsychosocial wellbeing and reduce disparities in diverse public high schools.

OA08.02

Reducing Stress and Enhancing Wellbeing: Adapting a Mindfulness Based Intervention for Youth Experiencing Homelessness

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Abstract

Background: Youth experiencing homelessness face emotional and psychological challenges that impact their physical, mental, and social wellbeing, emotion regulation, and coping. Despite the disparity in health outcomes compared to housed peers, they remain underserved. Mindfulness reduces stress and improves resilience, emotion regulation, and executive functioning. Mindfulness-based interventions (MBI) teach the practice of mindfulness to foster present-moment attention without judgement and enhance self-observation and self-regulation, resulting in greater awareness of thoughts and emotions and improved interpersonal relationships. Importantly, MBIs have been found to improve affect and executive functioning across

populations. One such intervention is .b, which was found to lower stress among 522 housed youth aged 12-16 years old. A pilot study of .b among sheltered youth found the intervention to be feasible in this population. Yet the results suggest that important modifications are needed to improve its relevance and accessibility and ensure a trauma-informed approach.

Methods: We used the ADAPT-ITT (Assessment, Decisions, Administration, Production, Topical experts, Integration, Training staff, and Testing) framework to adapt .b to a youth serving shelter. Methods used include carrying out focus group discussions ($n=56$), key informant interviews ($n=12$), and youth working groups ($n=10$) to identify needed modifications and beta testing those changes with the target audience.

Results: Adaptations to the curriculum and delivery modality were made to approximate the average length of stay in the shelter; integrate trauma-informed approaches; increase diversity of race, ethnicity, age, sexual orientation, and gender identity among images; and increase the relevance of the audio-visual components.

Conclusion: Youth and the health and social services providers who care for youth generally gave positive feedback regarding the core concepts and presentation of the curriculum. Minor, yet important, changes were needed to increase the relevance, acceptability, and feasibility of the intervention. Our next steps are to conduct a randomized attention control pilot study to assess feasibility and acceptability.

OA08.03

Imagine HEALTH: Changes in Diurnal Salivary Cortisol Patterns Following Guided Imagery Lifestyle Intervention RCT in Predominantly Latino Adolescents

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Abstract

Background: Altered diurnal salivary cortisol patterns have been linked to adverse health outcomes. While stress-reduction guided imagery (GI) can reduce salivary cortisol levels acutely, we now ask whether including GI in a 12-week lifestyle intervention to improve eating and physical activity behaviors can improve diurnal salivary cortisol patterns.

Methods: 232 adolescent participants (ages 14-17 years) were cluster randomized by school into four intervention arms: non-intervention Control, Lifestyle, Stress-Reduction GI (SRGI), and Lifestyle Behavior GI (LBGI). Lifestyle received one nutrition and

one physical activity class per week after-school for 12 weeks. SRGI and LBGI received same Lifestyle classes plus an additional weekly GI session. Salivary cortisol was assessed pre- and post-intervention three times daily at awakening, 30-minutes post-awakening, and in the evening to determine Cortisol Awakening Response (CAR) and Diurnal Cortisol Slope (DCS). Perceived Stress Scale (PSS) was administered pre- and post-intervention. Mixed effects modeling was used for intent-to-treat (ITT) analysis; sensitivity analysis was used for participants adherent to intervention.

Results: ITT analysis showed a small between-group increase in CAR after 12-weeks in LBGI vs Control (0.7 nmol/L [CI -1.0,2.5] vs -1.7 nmol/L [CI -3.3,-0.3], $p=0.045$, $d=0.24$). There were no other between group differences in changes in CAR, DCS or PSS. Amongst adherent participants, LBGI showed a small-moderate increase in CAR (1.9 nmol/L [CI -1.0,4.8] vs -1.9 nmol/L [CI -3.7,-0.2], $p=0.03$, $d=0.37$), and moderate-large reduction in PSS vs Control (-3.2 [CI -6.4,-0.1] vs 1.1 nmol/L [CI -0.8,3.0], $p=0.02$, $d=-0.66$). There were with no other group differences in CAR, DCS, or PSS.

Conclusion: LBGI led to increased CAR, which has been linked to beneficial health outcomes. LBGI also decreased perceived stress in adherent subjects, suggesting GI may improve both subjective and objective measures of the stress response. Whether changes in diurnal salivary cortisol patterns effect downstream measures of mental or physical health remains to be determined.

OA08.04

Impact of Mindfulness Training on Low-Income Young Adults attending a Job Training Program

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Abstract

Background: Over the past decade, mood disorders have increased significantly among young adults in the United States. Mind-body practices including mindfulness and yoga have been demonstrated to reduce anxiety, depression, and stress, but are not widely accessible. We implemented and evaluated the impact of mindfulness skills as part of a job

training program serving racially/ethnically diverse, low-income young adults.

Methods: Students in Year Up Bay Area's job training program were invited to participate in an elective offering mindfulness practice, yoga, social and emotional learning, and positive psychology. After the first year of the program, 6-week and 12-week mindfulness electives were offered to meet demand. In year one, pre-post surveys including validated measures were administered to mindfulness participants and those who did not attend. Year two surveys assessed participants in the 6-week vs. 12-week programs. Focus groups were conducted with each cohort to assess experiences.

Results: Over two years, 38% of Year Up students participated in mindfulness electives. Data were collected from 212 students with an average age of 22 years; 46% female; 40% Hispanic/Latinx, 29% Asian/Pacific Islander, 17% Black, 5% White, and 10% more than one race. In year one, compared to the control group ($n=17$), the mindfulness group ($n=71$) reported better focus, less trouble falling asleep, higher levels of self-compassion, and a more optimistic mindset. In year 2, while 6- and 12-week participants had improvements in life satisfaction and mindfulness, the latter had significantly less psychological stress and self-judgment than 6-week participants. Focus group participants ($n=122$) emphasized mindfulness practice as essential to professional success and described physical and mental health improvements (e.g., anxiety attacks, headaches).

Conclusion: Introducing mindfulness to a diverse cohort of young adults as part of job training improved mental and physical health. Further efforts should be made to improve accessibility to these interventions.

OA08.05

Cleveland YPAR for Wellness, and Action Research Methodology for Promoting the Whole Child and Whole Health

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Abstract

Background: In this presentation we will discuss the methodologies employed to promote health equity through the Cleveland YPAR for Wellness program. This youth participatory action research program was designed with and for children and

youth in the greater Cleveland community and coincides with the Ohio Department of Whole Child Framework.

Methods: The program has four components; (1) Youth Participatory Action Research/ Photo Voice, (2) Youth development and employment, (3) Youth led wellness, and (4) adult stakeholder engagement. Through a combination of YPAR and wellness education, we engage youth (ages 8-18) in educational programming which teaches them skills in research, advocacy, and wellness with the aim of providing a meaningful voice for youth on issue affecting their lives, health, and well-being. We train youth with skills in research, photography, and other forms of visual storytelling to collect information on issues of importance to them along with skills for advocacy and social change. We additionally develop the skills of youth to be leaders and mentors for younger children in their community which includes providing employment opportunities for the youth to be facilitators and leaders of youth/ child action research. We also engage essential adult partners, including parents, teachers, and community organizations in activities so that we can connect the youth voice and youth driven wellness techniques with adult allies in the community.

Results: 50 children and youth aged 9-18 had the opportunity to participate in the program and have identified a number of areas for further supporting their health and well-being in the community and within the schools. These include; (1) Social connectedness, (2) Safety, (3) Physical activities, and (4) Mental health promotion.

Conclusion: The Cleveland YPAR for wellness program provides a model for research and action related to promoting the whole child and whole health within Cleveland's communities with implications for communities throughout the globe.

Mind-Body and Manual Therapy Interventions

OA09.01

A Mindfulness Meditation and Education Intervention for Paroxysmal Atrial Fibrillation Reduces Symptoms and Improves Quality of Life

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Abstract

Background: Atrial fibrillation (AF) is the most common heart rhythm disorder in the United States. Patients with episodic or paroxysmal atrial fibrillation (PAF)

experience debilitating symptoms and decreased quality of life (QOL). The goal of current therapies is AF elimination with medical management and procedures. Yet, patients with PAF often experience AF recurrence. Affordable and effective strategies are needed to improve the health and QOL of patients with PAF. We evaluated the efficacy and feasibility of a mindfulness meditation and AF education intervention to reduce symptoms and improve QOL.

Methods: A pre-post pilot intervention study was conducted using mixed methods. Patients with symptomatic PAF participated in baseline testing: Symptom Checklist-Frequency and Severity Scale (SCL), Cardiac Anxiety Questionnaire (CAQ), and the Atrial Fibrillation Effect on QOL Questionnaire (AFEQT). Each week over 6 consecutive weeks, participants had a unique 10-15 minute/day guided meditation audio and AF education module, and weekly phone calls. Pre-post intervention scores evaluated efficacy and participant interviews/participation rates determined feasibility.

Results: We enrolled 31 participants (age 63+11, 65% men). Twenty-six (88%) completed the intervention. Of the 26, we found reduction in Symptom Frequency ($p=0.004$) and Symptom Severity ($p=0.001$). CAQ total score (1.65 to 1.47) was not significantly reduced, but the item related to "heart attention" was significant ($p=0.017$). The total AFEQT score was significantly improved ($p=0.011$), as were the subscales of symptom severity ($p=0.003$) and treatment concerns ($p=0.007$). Patients verbally expressed perceived reduction in AF occurrences and mean satisfaction score of 8.6 (0-10 scale).

Conclusion: Daily meditation provided with incremental education resulted in reduced symptoms, reduced anxiety and improved QOL. Providing mindfulness meditation audios and education modules to patients with PAF is feasible and was associated with high acceptability/satisfaction. Further testing with a larger sample and control group is underway to determine long-term effects on outcomes in patients with PAF.

OA09.02

Increased Body Trusting Associated With Increased Insula Response to Interoception After Mindfulness Training in Patients With Depression and Anxiety

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Abstract

Background: Interoceptive dysfunction is often present in depression and anxiety. We investigated the effects of an 8-week intervention, Mindfulness Training for Primary Care (MTPC), on brain mechanisms of interoceptive attention. We hypothesized that functional MRI brain response to interoception in the insula, a region known for interoceptive processing, would increase following training. Based on a recent study in the same population (Gawande 2019) showing increases in measures of interoception after the same intervention, we further hypothesized that increased brain response to interoception would be associated with increased scores on the Multidimensional Assessment of Interoceptive Awareness (MAIA).

Methods: Adults (n=37) with depression and/or anxiety completed baseline and post-training fMRI visits, including a 10-min task in which they alternated between focusing on their heartbeat (interoception (INT); 10s) and performing a visual attention task (exteroception (EXT); 10s). We modeled baseline and post-training brain response to the INT-EXT contrast.

Results: At baseline, fMRI signal response during the INT - EXT contrast was observed in ventrolateral prefrontal cortex, inferior frontal gyrus, and temporoparietal junction. Following MTPC, we observed increased fMRI response in left anterior insula. We then compared post-training changes in fMRI signal response between patients with moderate to severe depression based on baseline PROMIS scores (n=13) and those with mild or no depression (n=15). While both groups had moderate PROMIS anxiety scores, those with moderate/severe depression showed a greater post-training increase (INT-EXT) in right precuneus response, versus those with mild/no depression. Furthermore, in patients with moderate/severe depression, increased post-training right insula response was associated with increases on MAIA Body-Trust.

Conclusion: This study demonstrates that as patients with anxiety increase body-trust, they have a different neuro-physiologic response to mindfulness-based treatment depending on whether they have comorbid depression. Additionally, among those who are more depressed, increased trust of and safety in one's own body sensations may underlie positive responses to mindfulness-based treatment.

OA09.03

Interoceptive Appreciation Mediates the Effect of Mindfulness Training on Behavior Change Initiation and is Moderated by Depression Severity

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Abstract

Background: Mindfulness training can catalyze health behavior change, which is critical to reduce chronic illness-related morbidity and mortality. Interoception iteratively appraises and integrates signals within the body, but is impaired in depression. Interoceptive appreciation represents listening to and trusting internal signals. As part of a randomized comparative effectiveness trial, we identified the mediating role of interoceptive appreciation on behavior change initiation.

Methods: We randomly assigned patients (N=274) from 11 primary care sites to 8 weeks of a trauma-informed, insurance-reimbursable Mindfulness Training for Primary Care (MTPC) group (n=183) or a 1-hour low-dose mindfulness comparator (LDC) (n=91). The Multidimensional Assessment of Interoceptive Awareness (MAIA) was measured at 0 and 8 weeks. At Week 7, all participants watched a video about SMART goal creation and chose a health behavior action plan. During weeks 8-10, participants reported their action plan initiation (API) level. We used structural equation modeling to estimate the effect of MTPC on API and to assess the mediating roles of Body-Listen and Body-Trust and the moderating role of baseline depression.

Results: We found a significant direct effect of MTPC on API (B=1.2, p<0.001). Adjusting for baseline MAIA levels, we found a significant indirect effect for Body-Listen (B=0.29, 95% CI=0.12-0.48) and for MAIA Body-Trust (B=0.24, 95% CI=0.09-0.43) as individual MTPC-API mediators. The combined indirect effect of interoceptive appreciation (Body-Listen & Body-Trust) was greater than either individual effect (B=0.37, 95% CI=0.17-0.59). Among those without depression (n=62), Body-Listen alone was a significant MTPC-API mediator (B=0.40, 95% CI=0.02, 0.88). Among those with moderate-to-severe depression (n=94), Body-Trust was a significant MTPC-API mediator (B=0.38, 95% CI=0.02-0.082).

Conclusion: Interoceptive appreciation partially mediates the effect of mindfulness on behavior change by helping people listen to bodily signals that motivate change. In depression, feeling safe in and regaining trust with the body may be a key first step on the mindful path towards change.

OA09.04LB

Long COVID Shared Medical Appointments: Lifestyle and Mind-Body Medicine with Peer Support

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Abstract

Background: Long COVID is a new rising health concern where patients have multiple distressing symptoms with no clear treatment guidelines. Early evidence indicates the role of cytokines and chronic inflammatory processes in developing long COVID. Healthy lifestyle behaviors and modifying stress responses reduce chronic systemic inflammation.

Methods: We describe our novel shared medical appointment (SMA) program developed to provide lifestyle education, mindfulness training, and group peer support for patients with long COVID symptoms. Patients virtually attended two-hour weekly visits for six weeks. The SMAs are co-led by a medical provider and a holistic psychotherapist. Every session includes mindfulness practice and peer support with daily homework consisting of lifestyle goals and mindfulness practices. Our objective was to provide patients education and support to recuperate from Long COVID symptoms. For quantitative outcomes, we assessed pre-and post-intervention change in symptoms using Medical Questionnaire Symptom Score (MSQ) and Patient-Reported Outcomes Measurement Information System (PROMIS) Global -10 measures. We used a two-tailed paired t-test. Thematic analysis of patients' feedback of the program is reported.

Results: Since May 2021, nine SMA cohorts have been conducted, and 64 patients have completed the program. We have analyzed 40 MSQ's to date, which shows significant improvement in symptoms (mean difference -16.4, $P = 0.001$). PROMIS-10 scores for 38 patients have been analyzed. Most patients show improvements in PROMIS-10 scores, but the findings were not statistically significant ($p = 0.12$). Patients felt educated, connected, and supported ("I am not alone, I am not crazy." "This class gives me tools to help myself").

Conclusion: Shared medical appointments with lifestyle education, mindfulness practices, and peer support can

effectively support patients with Long COVID symptoms. We anticipate additional data from the current ongoing cohorts will demonstrate continued improvement in patient symptoms and possible significant improvement in PROMIS 10 scores.

Non-Pharmacological Approaches to Chronic Pain Management

OAI0.01

Healing the Opioid Crisis with Mindfulness-Oriented Recovery Enhancement: Outcomes and Biobehavioral Mechanisms from a Full-Scale RCT in Primary Care

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Abstract

Background: Successful treatment of opioid misuse among people with chronic pain has proven elusive. Guidelines encourage clinicians to consider non-opioid therapies, but the efficacy of mindfulness-based interventions for opioid misuse is uncertain. Here we present late-breaking results from the largest, NIH-funded randomized clinical trial of Mindfulness-Oriented Recovery Enhancement (MORE) - an integrative therapy rooted in affective neuroscience that unites training in mindfulness, reappraisal, and savoring skills to restructure reward mechanisms underpinning addiction, distress, and chronic pain.

Methods: Opioid misusing chronic pain patients (N=250) were randomized (1:1) to 8 weeks of MORE or a supportive group (SG) psychotherapy control delivered in a primary care setting. Co-primary outcomes were opioid misuse—as measured by the Drug Misuse Index (DMI), a composite measure triangulating self-report with blinded clinical interview and urine drug screen—and Brief Pain Inventory (BPI) scores through 9-month follow-up. Secondary outcomes were opioid dose, distress, and ecological momentary assessments of craving. Psychophysiological responses to opioid cues and natural reward cues were assessed as a mediating mechanism.

Results: By 9-month follow-up, 46% of patients in MORE no longer met criteria for opioid misuse, compared to 22% in the SG, with an overall odds ratio for lower opioid misuse in MORE (compared to SG) of 2.06 ($p=0.012$). Mixed models demonstrated MORE's superiority over SG for pain severity ($p=.003$) and functional interference ($p<.001$). Patients

randomized to MORE were more likely to decrease their opioid dose by at least 50% by the end of the trial ($p=0.009$). MORE also reduced distress ($p=0.027$) and craving ($p=0.002$). MORE significantly shifted autonomic and frontal midline theta responses to drug and natural rewards; this restructuring of reward salience mediated the effect of MORE on opioid misuse.

Conclusion: MORE's improvements in opioid misuse and chronic pain symptoms were maintained 9-months after the end of treatment, demonstrating the efficacy of this integrative intervention in primary care.

OAI0.02

Patients Receiving Integrative Medicine Intervention Efficacy Registry (PRIMIER): BraveNet Study Focusing on a Chronic Pain Cohort

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Abstract

Background: Chronic pain impacts ~50 million US adults and is why patients seek treatment at Integrative Medicine (IM) Clinics. PRIMIER was a prospective, non-randomized, observational evaluation conducted across 17 BraveNet IM clinics. We report results on changes on patient reported outcomes (PROs) from PRIMIER chronic pain patients.

Methods: All PRIMIER participants received non-standardized, personalized IM approaches as part of clinical practice. Participants electronically consented and completed Patient Reported Outcomes Measurement Information System (PROMIS)-29, Perceived Stress Scale (PSS-4), and the Patient Activation Measure (PAM) at baseline/index, 2, 4, 6, and 12 month surveys. Linear mixed-effects analyses were performed to assess change from baseline/index through 12-month assessment.

Results: Overall, 4,954 participants enrolled in PRIMIER from August 2013–November 2018. Of these, 967 met chronic pain criteria, completed baseline/index survey, completed >1

follow-up survey and had IM visit data extractable from their Electronic Health Record (EHR). Participants were white (82%), female (78%) and average age of 51.6 (sd 13.9). EHR data revealed that from Index to 2 months 82% had >1 IM visit, whereas for 2-4 months, 4-6 months, 6-12 months the percentages were 59%, 46% and 55% respectively. Over the study period, IM provider consult (62%), acupuncture (42%), massage (24%), mind/body (15%) and chiropractic (12%) were the most common interventions. On PROMIS-29 Anxiety, Fatigue, Physical Functioning and Pain Interference scales, participants reported levels higher scores (0.5 SD) than national norms. Statistically significant differences on the Pain Interference scale were -1.59, -2.14, -2.84, -2.75 units at 2, 4, 6 and 12 months respectively. Significant reductions were also observed on remaining PROMIS-29 subscales, PSS and PAM across all 4 time periods except the PAM at 4 months.

Conclusion: Results indicate a sustained improvement across PROMs in the PRIMIER chronic pain cohort. However, future work will be needed to evaluate efficient implementation of IM across the US healthcare enterprise.

OAI0.03

Doing NOHARM: Descriptive Results and Initial Progress of a HEAL-Funded Pragmatic Trial of Non-Pharmacological Perioperative Pain Care

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Abstract

Background: Guidelines recommend non-pharmacological pain care (NPPC) to help manage pain after surgery. NOHARM is an NIH HEAL (Helping End Addiction Long-term) initiative funded pragmatic trial, testing a patient portal-based decision tool plus EHR clinical decision support (CDS) bundle to advance NPPC use after surgery.

Methods: NOHARM is a stepped-wedge, cluster-randomized pragmatic trial spanning seven surgical specialties across six Mayo Clinic locations. Thirty-two individual surgical practices within 22 practice clusters receive the intervention in five steps over 28 months starting in March 2021. Eligible patients with qualifying procedure clusters receive a portal-based decision tool that elicits NPPC preferences. These then populate EHR clinical decision. Patient characteristics and outcomes will be abstracted from the EHR. Primary outcomes PROMIS pain interference and physical functioning scores collected via the patient portal

(and mailings) 1, 2, and 3 months after surgery. Data collection is ongoing.

Results: Baseline data collection began in October 2020, and the intervention bundle was initiated with 9 practices in the Spring of 2021. As of mid-October, 2021, outcome measurement was initiated on 24,645 patients. Of these, 2093 did not have surgery. Characteristics: 59% female, 4% Hispanic/Latino, 4% Black/African American, 90% white. Mean age – 59. Of these, 14,937 completed the index surgery and 3-month follow up. Because controls outweigh intervention participants early in the study, 4004 of the 14937 received the intervention. Of these, 2337 completed at least one post-op patient-reported outcome assessment (58%).

Conclusion: This large pragmatic trial advancing NPPC in a large, diverse, surgical practice finding excellent accrual and solid response rates. Ongoing data collection and future analyses will determine the effectiveness of the bundled intervention and the factors influencing successful implementation.

OAI10.04

COVID Impacts on Pragmatic Trials of Nonpharmacological Approaches to Pain Management: A Mixed Methods Evaluation

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Abstract

Background: The COVID-19 pandemic changed the delivery of healthcare services and disrupted clinical research programs. This study evaluated adaptations made to 11 in-progress, pragmatic clinical trials (PCTs) of non-pharmacological pain management interventions in Department of Veterans Affairs and Department of Defense healthcare facilities.

Methods: This 2-phase study used a sequential, mixed methods design to explore changes made to study protocols, particularly clinical interventions, in response to the evolving pandemic. A structured REDCap questionnaire queried about emerging adaptations using the periodic reflections method across 3 timepoints. Following Phase I analysis, brief checklists and 3 setting-specific focus groups were completed with principal investigators and key staff via video-conference to elicit information about study adaptations. Focus group interview schedules and directed content analyses were guided by the Framework for

Reporting Adaptations and Modifications-Expanded (FRAME) taxonomy.

Results: Eleven PCTs completed questionnaires and 16 representatives from 10 PCTs joined focus groups. In periodic reflections, teams reported between 2 to 6 adaptations in the first 5 months of the pandemic. PCTs in the implementation stage reported delays in site/clinic onboarding, staff training, and/or patient recruitment, with 3 trials pausing intervention delivery. Intervention protocols were adapted with 6 PCTs adding/expanding virtual care. Trials testing manual therapies reported clinic closures and care restrictions. FRAME analyses of focus groups identified adaptation goals to increase trial feasibility, decrease patient/provider COVID exposures, and increasing patient engagement/retention. Context adaptations focused on virtual delivery while content adaptations included adding elements to enhance safety, tailoring/refining protocols for virtual delivery, and removing/skipping hands-on pain management interventions.

Conclusion: While core elements of trial interventions were retained, investigators were required to adapt study protocols for non-pharmacological pain management PCTs to address COVID-related disruptions and restrictions.

Nutrition and Lifestyle Interventions

OAI11.01

Associations Between Basic Food Groups and Mental Health Outcomes in Adolescents and Young Adults

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Abstract

Background: Accumulating evidence over the past decade suggests a relationship between nutrition and mental well-being. For instance, several studies have linked higher meat consumption to reduced depressive symptomatology (e.g., Fung et al., 2001; Hu, et al, 2000). However, the bulk of the literature linking nutrition to mental health outcomes has focused on individual nutrients (e.g., lipids) or general dietary patterns (e.g., western, traditional, modern). The current study aimed to examine the association between basic food group consumption and a number of mental health outcomes in adolescents and young adults.

Methods: Data analyzed for this study were retrieved from a larger randomized control trial consisting of adolescents and young adults (N = 267, ages 15-20 years). Mental health outcomes were assessed based on responses to measures of

depression [Beck Depression Inventory-II (BDI-II)], anxiety (Beck Anxiety Inventory (BAI)), and suicidality [Self-Harm Questionnaire (SHQ)]. Consumption of nine basic food groups (vegetables, fruits, grains, dairy, eggs, meat, nuts, legumes, and added sugar) was assessed using the full-length Block Food Frequency Questionnaire (FFQ).

Results: Results were surveyed using linear regression analyses, correlation analyses, and multivariate regression analyses. After controlling for important confounding variables, lower meat consumption was a significant predictor of suicidal ideation ($p < .05$). Additionally, lower added sugar consumption ($p < .05$), lower fruit consumption ($p < .05$), and higher grain consumption ($p < .01$) were all significant predictors of anxiety.

Conclusion: These results indicate a link between diet and mental health outcomes that warrants further investigation to determine the efficacy of dietary interventions in preventing suicide in adolescents and young adults. Establishing a relationship between individual food groups and mental health outcomes would afford the future possibility for developing evidence-based suicide prevention interventions for adolescents and young adults that incorporate dietary changes.

OAI1.02

The Effects of Healthy Cooking Classes on Veterans with a History of Housing Instability in the Atlanta VA Healthcare System

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Abstract

Background: We assessed healthy cooking classes as a tool to improve health outcomes as part of Lifestyle GEM (Grow, Eat, Move) grant for patients in the HUD/VASH program at the Atlanta VA. The HUD/VASH voucher allows Veterans to secure housing. Often this housing is in areas considered food deserts with minimal green space. The HUD/VASH Veteran population has increased rates of diabetes and cardiovascular disease. The goal was to teach participants how to prepare nutritious and delicious meals on a limited budget and evaluate changes in BP, BMI and eating habits.

Methods: We partnered with Open Hand Atlanta a non-profit whose vision it is to eliminate disability and untimely death due to nutrition sensitive diseases. Open Hand provides evidence-based hands-on nutrition education, a cooking

curriculum and produce prescription program divided into six weekly classes followed by 4 monthly sessions. Surveys assessing food behavior changes, food insecurity and biometric data (weight, blood pressure) were collected.

Results: 21 patients signed up for the initial class (85% African American, 60% male, 70% on food assistance program, 40% working, 20% retired, 10% on disability, 30% not working or other); 11 graduated (attended 4 of 6 classes). Post-graduation surveys noted increase in water intake and a decrease in sugary beverage consumption. Behavior survey questions noted increase in meal planning, reading food-labels and preparing meals from scratch. Participants reported more confidence using healthy ingredients in different recipes and choosing the best priced form of fruits and vegetables. Biometric data showed a statically significant improvement in systolic blood pressure, with non-statistically significant improvement in diastolic blood pressure and BMI.

Conclusion: A program combining nutrition education, cooking instruction and produce prescription can provide significant improvement in nutrition knowledge, behavior and health outcomes for Veterans who have experienced housing insecurity.

OAI1.03

Evidence of Safety in a RCT of a Multi-Nutrient Treatment for Children With ADHD and Emotional Dysregulation: The MADDY Study

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Abstract

Background: Purpose: There is a paucity of safety data on nutritional supplementation use in the pediatric population. The Pediatric Adverse Event Rating Scale (PAERS) measured adverse events (AEs) of children aged 6 to 12 years enrolled in the Micronutrients for ADHD in Youth (MADDY) study. The MADDY study was an eight-week multi-site fully blinded randomized placebo-controlled trial. The purpose of this study was to determine the safety of a broad-spectrum multi-nutrients intervention using the PAERS.

Methods: This study analyzed the change in AEs in the PAERS which consisted of 43 symptom questions and measured at baseline, week 4, and week 8. Frequency (proportions) were

calculated for all treatment-emergent AEs and principal component analysis was conducted to determine grouping of 16 psychiatric-specific AEs. A combined score ranged from 0 to 5 was created based on symptom presence, functional impairment, and severity of the psychiatric AEs. Mean score change was calculated from baseline to week 8 and between groups with intention-to-treat and per-protocol samples.

Results: Data from 126 children were analyzed. Their mean age was 9.8 (SD=1.7), with majority (73%) male, White (88%), and 72% diagnosed with ADHD prior to the study initial evaluation. Baseline presence of PAERS symptoms was similar between treatment groups, and no between-group differences for treatment-emergent adverse events (AEs) were detected. Analysis of psychiatric AEs showed the micronutrient group showed a greater decrease than the placebo group with a between-group difference in change of -0.36 (95% CI: -0.67 , -0.04 ; $p=0.03$) with ITT data and -0.48 (95% CI: -0.81 , -0.15 ; $p=0.005$) with per-protocol data.

Conclusion: The PAERS results demonstrated that the multi-nutrient supplement did not result in more adverse events with respect to psychiatric symptoms than placebo, suggesting it is a safe intervention.

OAI1.04

Recipe4Health: Preliminary Analysis of an Integrative Approach to Address Social Isolation and Food Insecurity during COVID-19

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Abstract

Background: Food insecurity has been associated with social isolation; both have risen dramatically in the US during the COVID-19 pandemic. This project, Recipe4Health, is implementing and assessing the impact of integrative group

medical visits and produce prescriptions for low-income adults with chronic conditions.

Methods: This 16-week intervention conducted at community health centers combines integrative group medical visits with produce prescriptions. Participating patients are adults diagnosed with chronic conditions including diabetes, hypertension and depression. Virtual integrative group medical visits meet weekly in Spanish or English with health coach support between sessions. Participants also receive weekly doorstep delivery of fresh vegetables grown using regenerative agriculture. Ongoing mixed-methods data collection includes: 1) semi-structured interviews with program staff and patients, and 2) pre- and post-program patient surveys including the 8-Item UCLA Loneliness Scale and the 6-item USDA short form for household food insecurity. Preliminary quantitative analysis uses mixed-effects models to assess the effects of participation in the combined intervention (N=185). Qualitative analysis uses reflexive thematic analysis (N=35).

Results: Qualitative interview data explored program implementation and stakeholders' experiences with Recipe4Health during COVID-19. Patients and staff reported that virtual group visits provided social connection and supported mental health. Weekly produce delivery increased food security and provided access to new and familiar foods. Preliminary quantitative analysis included 185 patients: 83% female; 51% Latin@, 27% Black; 61% spoke English as primary language, 39% Spanish. Average loneliness scores decreased from 5.2 to 4.7 ($p<.04$), despite notable national increases in isolation and loneliness during COVID-19. While food insecurity doubled nationwide, the proportion of study participants reporting food insecurity or marginal food security decreased from 79% to 54% ($p<.01$).

Conclusion: Combining integrative group medical visits and produce prescriptions can improve key patient outcomes including loneliness and food security in a pandemic context.

CIH Practices for Mental Health Outcomes

OAI2.01

Pilot Study of Virtual Delivery of Multimodal Complementary Integrated Health (CIH) Intervention for Suicide Prevention

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Abstract

Background: CIH interventions are promising therapies in suicide prevention, critical in transitioning vulnerable veterans into mental health care who do not consistently engage in mental health services, often citing stigma as a barrier. In previous work, we have shown that in-person programming of CIH interventions resulted in significant improvement in suicidal ideation and associated mental health risk factors, with high veteran engagement. In this pilot program evaluation driven by the COVID-19 pandemic, we investigated whether the virtual delivery of this multimodal CIH intervention was similarly effective.

Methods: This was a program evaluation study at a large urban VA medical center, where clinician-referred Veterans participated in virtual delivery of CIH interventions e.g. mindfulness and meditation, Yoga, horticultural therapy, nutritional education, etc delivered via cohort design. Using validated clinical assessment instruments reduction in severities of depression, PTSD symptoms, pain, and sleep disturbance, and improvements in stress and coping skills were measured to evaluate program effectiveness.

Results: Data was collected from 66 participants (26 females and 40 males) across 7 cohorts. However, data is presented for 34 participants with available pre-post data for all clinical assessments. Among these 34 participants, 30% had a prior history of suicide ideation or attempt. We found statistically significant reduction in depression and PTSD severity across all Veteran participants. In Veteran participants with prior history of suicide ideation or attempt, improvements in stress and coping skills were also detected.

Conclusion: The virtual delivery of the CIH interventions resulted in significant improvement in mental health symptoms. These findings underscore the importance and utility of CIH interventions in suicide prevention efforts to improve overall wellness and broaden access to care in at-risk populations experiencing health disparities.

OAI2.02

Mindful yoga intervention for young women with major depressive disorder: results from a randomized controlled trial

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Abstract

Background: To examine the efficacy in reducing depression of a nine-week mindful yoga intervention (MYI) for young women (18-34 years) with major depressive disorder, in addition to treatment as usual (TAU) compared to TAU alone.

Methods: A randomized controlled trial (n = 171) with assessments at baseline, post-intervention and at six- and 12-month follow-up. Primary outcome measures included clinician-rated and self-report symptoms of depression at all assessments and a diagnostic interview to establish MDD diagnosis at 2-month follow-up only. Secondary outcome measures assessed quality of life in various domains. Self-report measures of rumination, self-criticism, intolerance of uncertainty, perceived body awareness, dispositional mindfulness, and reaction time measures of attentional bias and self-related depression associations were included as potential mediators for the primary outcome measures.

Results: 148 participants completed the 12-month follow-up assessment indicating 13.5% drop-out. Adding MYI to TAU did not lead to greater reduction of depression symptoms or increase in quality of life of various domains of functioning at post-intervention or the follow-up assessments, but did lead to a significant lower rate of MDD-diagnoses at 12-month follow-up (23% for MYI versus 37% for TAU). There was no indication of mediation for any of the potential mediators.

Conclusion: Overall, this study suggests that adding a mindful yoga intervention to treatment as usual for young women with depression does not lead to increased benefits in terms of stronger reduction in symptoms of depression or better quality of life of various domains of functioning, though there was some indication that adding mindful yoga led to fewer MDD diagnoses at 12-month follow up (23% for MYI versus 37% for TAU).

OAI2.03

The integration of yoga breathing techniques in cognitive behavioral therapy for posttraumatic stress disorder: a randomized-controlled trial

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Abstract

Background: Pranayama consists of meditative yoga breathing and breath-holding techniques. This study investigated the effects of pranayama in patients with post-traumatic stress disorder (PTSD) undergoing out-patient trauma-focused cognitive behavioral therapy (TF-CBT).

Methods: Seventy-four PTSD-patients (84% female, 44.2±13 years) were randomized to receive either 5-10 minutes of pranayama at the beginning of each TF-CBT session or TF-CBT alone. The primary outcome was PTSD severity operationalized by the Posttraumatic Stress Disorder Checklist (PCL-5) after 10 TF-CBT sessions. Secondary outcomes included health-related quality of life, social participation, anxiety, depression, distress tolerance, emotion regulation, body awareness, breath-holding duration, acute emotional reaction to stress, and safety. Intention-to-treat (ITT) and per-protocol (PP) analyses of covariance with 95 % confidence intervals (CI) were performed. In addition, moderator analyses were executed to identify characteristics of patients that moderate the effect of treatment allocation on change in PTSD severity.

Results: ITT analyses revealed no significant differences on primary or secondary outcomes, except for breath-holding duration in favor of pranayama-assisted TF-CBT (20.81 seconds, 95%CI=13.05|28.60). Nine patients reported recurrent adverse events during pranayama, all had comorbid somatoform disorders. PP analyses revealed that these nine patients reported significantly higher PTSD severity (12.39, 95%CI=5.08|19.71) than control ones. In contrast, patients who performed pranayama without adverse events reported significantly lower PTSD severity (-5.41, 95%CI=-10.17|-0.64) and higher mental quality of life (4.89, 95%CI=1.38|8.41) than those treated with TF-CBT alone. Concurrent somatoform disorders were found to be a significant moderator of change in PTSD severity ($p=0.029$).

Conclusion: In PTSD patients without concurrent somatoform disorder, the integration of pranayama into TF-CBT was shown to reduce post-traumatic symptoms and increase mental quality of life more efficiently than TF-CBT alone.

OAI2.04LB

Online Guided Meditation Training (Isha Kriya) Improves Symptoms of Anxiety and Depression within Two Weeks of Practice – An Observational Study

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Abstract

Background: Anxiety and depression have increased dramatically with the COVID-19 pandemic. There is an urgent need for accessible, cost-effective, and scalable approaches to alleviate this parallel mental health pandemic. Meditation is shown to reduce symptoms of stress, anxiety, and depression. Furthermore, online delivery of mind-body interventions in a timely fashion will be impactful to address disparities in access to healthcare. In this observational pilot study, we investigate the impact of an online guided meditation (Isha Kriya) on symptoms of anxiety and depression in the general population.

Methods: Participants attended a webinar where they learned Isha Kriya meditation and were instructed to practice daily for six weeks. PROMIS Anxiety Short Form and Center for Epidemiologic Studies Depression 10-item (CESD-10) scales were administered at baseline, 2, 4 and 6 weeks following the training. Paired t-test was employed to calculate statistical significance.

Results: Participants completed surveys at baseline (n=58), week 2 (n=58), week 4 (n=37), and week 6 (n=28). They were grouped into tertiles based on reported baseline values (High, Medium, and Low). When comparing baseline with week 2, mean anxiety scores decreased significantly by 12.9 units ($p < 0.01$; High), 10.33 units ($p < 0.01$; Medium), and 4 units ($p < 0.01$; Low). Similarly, mean depression scores decreased by 11.6 units ($p < 0.01$; High), 6.3 units ($p < 0.01$; Medium), 1.55 units ($p = 0.05$; Low). The scores for both anxiety and depression continued to stay low at weeks 4 and 6.

Conclusion: Participant's anxiety and depression showed significant improvement with just 2 weeks of Isha Kriya practice. These changes were sustained over the next four weeks suggesting that routine Isha Kriya practice could alleviate symptoms for these conditions in a short time span.

Novel Approaches to CIH Research to Address Disparities

OAI3.01

Perceived Ethnoracial Discrimination, Chronic Pain, and the Explanatory Role of Depression and Se

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Abstract

Background: Perceived ethnoracial discrimination (PED) is predictive of pain-related outcomes. Less is known about pathways through which these constructs interact. The goal of this study was to test whether depression mediated the relationship between PED and pain-related variables and if this relationship was maintained across sex and ethnoracial identity in a sample of BIPOC adults ($n = 77$).

Methods: Hierarchical multiple regressions were conducted to investigate if PED and sex predicted pain outcomes. Follow-up regressions were performed to assess if established relationships were consistent across two ethno-racial identity subsamples: Black and Hispanic. To assess the possibility of a mediational effect of depression on the relationship between PED and pain outcomes, two path analyses were conducted.

Results: PED significantly predicted pain interference (PI), $R^2 = 0.21$, $F(2,74) = 9.52$, $p < .001$, $\beta = 0.38$ and central sensitization (CS), $R^2 = 0.33$, $F(2,74) = 18.53$, $p < .001$, $\beta = 0.56$. Sex accounted for a significant proportion of the variance in PI, $R^2 = 0.06$, $\Delta F(1, 72) = 5.91$, $p = .02$, $b = -0.16$. Depression explained the relationship between PED and PI [point estimate = .07; 95% bootstrap CI = 0.02 to 0.14]. A moderated mediation analysis found that sex moderated the indirect pathway $R^2 = .04$, $F(4,73) = 4.01$, $p = .04$, such that for men, the relationship between PED and PI was explained via depression $\beta = .19$, $SE = .06$, 95% CI (0.06 -0.32). Depression partially explained the relationship between PED and CS, point estimate = .42, 95% CI = .20 to .68.

Conclusion: This study provided a unique contribution to the pain literature by providing a contextual analysis of PED and pain. Addressing and validating experiences of lifetime discrimination may be a clinically-relevant tool in the management of chronic pain for BIPOC.

OAI3.02

Relative Impact of Mindfulness, Self-Compassion, and Resilience on Health Outcomes in Black, Indigenous, People of Color (BIPOC) Adults

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Abstract

Background: BIPOC adults lack equal representation in research and experience disparities in healthcare. Little is known about which trait-level factors may help mitigate negative and promote positive health among adults from these communities. The aim of this study was to assess the

differential impact of trait mindfulness, self-compassion, and resilience in predicting depression, anxiety, stress, and life satisfaction in a sample of BIPOC adults.

Methods: All participants identified as a BIPOC adult ($N = 169$). Participants completed measures of health and protective factors. Separate hierarchical regression models examined the relative influence of mindfulness, self-compassion, and resilience in predicting depression, anxiety, stress, and life satisfaction.

Results: After accounting for negative affect, self-compassion ($\beta = -.18$, $p < .05$, $sr^2 = .02$) but not mindfulness ($\beta = -.10$, $p = .20$, $sr^2 = .01$) or resilience ($\beta = -.11$, $p = .17$, $sr^2 = .01$) predicted depression; resilience ($\beta = -.19$, $p < .05$, $sr^2 = .02$) but not mindfulness ($\beta = -.05$, $p = .53$, $sr^2 = .00$) or self-compassion ($\beta = .02$, $p = .83$, $sr^2 = .00$) predicted anxiety; and neither mindfulness ($\beta = -.05$, $p = .57$, $sr^2 = .00$), self-compassion ($\beta = -.13$, $p = .14$, $sr^2 = .01$), nor resilience ($\beta = -.13$, $p = .12$, $sr^2 = .01$) predicted stress. After accounting for positive affect, self-compassion ($\beta = .41$, $p < .001$, $sr^2 = .08$) but not mindfulness ($\beta = -.14$, $p = .15$, $sr^2 = .01$) or resilience ($\beta = .02$, $p = .86$, $sr^2 = .00$) predicted life satisfaction.

Conclusion: Above and beyond affect, trait mindfulness, self-compassion, and resilience differentially impacted depression, anxiety, stress, and life satisfaction. Future research may incorporate an intersectional methodology, account for differences among different BIPOC groups, and utilize a dismantling methodology to better explain which protective factors offer salutary health effects.

OAI3.03

Using Participatory Action Research Principles to Translate an English-Language Mindfulness App into Spanish

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Abstract

Background: Participatory-action research (PAR) is an anti-oppressive, equity-empowering approach in which researchers and community stakeholders engage in an iterative, collaborative process together to enact social justice and change through shared research. To our knowledge, this approach has never been implemented as a part of linguistic translation, let alone translation of a mind-body intervention where socio-cultural factors may play a large role in understanding and uptake. The purpose of this abstract is to present the methodology of

translating an English-language mindfulness application (Wakeful) into Spanish using PAR principles.

Methods: PAR generally entails a 4-phase process: Planning, Action, Reflection, and Evaluation. A collaborative, ground-up approach was used in which bilingual, bicultural, native Spanish-language stakeholder translators and researchers co-created a translation planning framework that involved capacity building (e.g., on-going mindfulness immersion and practice by the translators), meeting weekly to share ideas, updates, insights, and concerns and creating a space to reflect on the multicultural lineage of this project (Pali/Sanskrit, English, Spanish) and linguistic and cultural considerations to keep in mind when adapting Wakeful for a Spanish-language audience.

Results: A 4-phase PAR translation methodology entailed both translators exchanging the roles of primary translator and reviewer, which ensured that both translators had equal input on the translation of the entire script, without each having to translate the full script separately. In line with PAR, the translators were encouraged to trust their respective linguistic and cultural intuitions as a primary source for translating the script from English to Spanish and to conduct independent confirmatory research whenever necessary to check their choices and decisions if there was any doubt.

Conclusion: The Spanish version of Wakeful is inclusive and accessible, providing Spanish-speaking communities with a linguistically sound and culturally informed tool. The PAR translation methodology is innovative and applicable for any integrative medicine tool or program that needs to be translated.

OAI3.04

Promoting Equitable use of Whole Health Approaches in Diabetes Management among Veterans of Color

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Abstract

Background: This project explored barriers to chronic disease management and Whole Health utilization among Veterans of color with diabetes. We used a Veteran-centered approach to examine social determinants of health (SDOH) that affect diabetes management and develop content for a Whole Health and

functional medicine program for diverse Veterans who are living with poorly controlled Type 2 diabetes.

Methods: Non-Hispanic Black and Hispanic/Latino/a/x Veterans living with poorly controlled diabetes (i.e., HAIc >9) were identified as potential focus group participants using the VA Primary Care Equity Dashboard – a tool developed to support equity-focused quality improvement in VA primary care settings. Twenty-one Veterans participated in virtual focus groups to discuss their perspectives on diabetes management and health goals.

Results: Focus group data were coded using inductive and deductive coding schemes. Family history of poor eating habits and perceptions that the etiology of Type 2 diabetes was inevitable were barriers reported by Veterans. Veterans highlighted psychological stress, negative emotions and fatigue as barriers to healthy behaviors. SDOH that negatively affected Veteran's diabetes self-management included: 1) high cost of healthy food; 2) limited access to diabetes medications outside of the VHA; and 3) lack of community resources (e.g., supermarkets with healthy food choices). Veterans provided recommendations for a Whole Health and functional medicine program to improve their health: culturally-informed cooking classes; information about medical alternatives (e.g., acupuncture; mindfulness) to facilitate stress management; and effective strategies that treat the whole Veteran (not just the illness).

Conclusion: Veterans of color identified SDOH-related barriers and recommendations to improve diabetes self-management. Topics generated from Veterans will be integrated within a SDOH-informed model of care and incorporated into a multifaceted Whole Health group intervention using functional medicine to help reduce racial and ethnic disparities in diabetes control among Veterans.

OAI3.05LB

Feasibility and Preliminary Efficacy of Acupuncture for Angina in Underrepresented Diverse Urban Individuals: Advancing Health Equity

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Abstract

Background: African Americans suffer disproportionately from ischemic heart disease, receive less guideline-directed therapy, and experience poorer outcomes. The purpose of the study was to test a randomized controlled trial of acupuncture for the reduction of pain and improved health-related quality of life (HRQoL) in individuals with stable angina.

Methods: Patients from an urban cardiology clinic serving predominantly underrepresented individuals were enrolled. Eligibility criteria were a diagnosis of stable angina for ≥ 1 month and experiencing symptoms at least once per week. Participants in the acupuncture group received a 12-point acupuncture protocol, twice per week for 5 weeks. The attention control group viewed non-pain related videos for 10 hours over 5 weeks. Participants completed the McGill Pain and Seattle Angina Questionnaires. Multivariable analyses of variance tests were performed.

Results: The sample included 24 adults, 59 ± 13 years old, majority female (63%) and predominantly Black (46%) and Hispanic (38%). Feasibility was supported with 79% retention and 96% completion rates. Acceptability was 88% for the acupuncture group. Outcomes were significantly better for the acupuncture group (average pain intensity $b=2.1$ [1.1], $p=0.047$; functional status $b=27.6$ [7.2], $p<.001$; and HRQOL $b=38.8$, [11.9], $p=0.001$).

Conclusion: Acupuncture was safe, effective, and well-accepted. Participants who started the study had a high likelihood of completing the protocol and is the group we will aim to treat in practice. We were able to build trust, advance health equity, and science in our underserved minority community through this research. Policies that improve access to evidence-based care and complementary therapies are critical for improved outcomes in minority populations.

Methods: The primary outcome was mean change in HbA1c and secondarily mean change in fasting blood glucose (FBG). Only intervention studies were included. Restricted maximum likelihood random effects modeling was used to calculate mean differences and summary effect sizes. Heterogeneity was assessed using Cochran's Q and publication bias using funnel plots.

Results: We identified 489 articles through literature searches on Medline with 25 meeting the inclusion criteria for the final meta-analysis (yoga, $n=16$; mindfulness-based stress reduction (MBSR), $n=4$; meditation, $n=2$; qigong, $n=2$; guided imagery, $n=1$). There was a statistically significant and clinically relevant mean reduction in HbA1c of 0.94% (95% CI: -1.23%, -0.65%, $p=5.4 \times 10^{-10}$). The reduction was consistent across all intervention subgroups; MBSR: 0.51% (95% CI: 0.78%, -0.23%, $p=0.31 \times 10^{-4}$), Qigong: -0.87% (95% CI: -1.57%, -0.17%, $p=0.014$), yoga: -1.09% (95% CI: -1.47%, -0.71%, $p=5.4 \times 10^{-10}$). Fifteen studies reported on FBG, which significantly improved (mean FBG difference: -22.37 mg/dl (95% CI: -33.14 mg/dl, -11.61 mg/dl; $p=5.4 \times 10^{-5}$). Heterogeneity was detected only within the yoga subgroup ($p=5.5 \times 10^{-7}$). Funnel plots showed no significant evidence of publication bias. Meta-regression was used to assess if duration of yoga explained the heterogeneity within that group; results were not statistically significant ($p=0.51$).

Conclusion: We conclude there is a strong association between MBP and improvement in glycemic control, reflected by change in HbA1c and FBG, in T2D patients. The overall mean reduction in HbA1c and FBG were clinically significant, suggesting MBP may be an effective intervention to T2D.

CIH Approaches to Improve Metabolic Conditions**OAI4.01****Mind and Body-based Interventions Improve Glycemic Control in Patients with Type 2 Diabetes: A Systematic Review and Meta-Analysis**

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Abstract

Background: Only 57% of type 2 diabetes (T2D) patients achieve a target HbA1c < 7%. Mind and body practices (MBP) have been increasingly used to improve glycemic control among T2D patients, but studies show inconsistent efficacy. We conducted a systematic review and meta-analysis to assess the association between MBP and glycemic control in T2D patients.

OAI4.02**Changes in patient-reported outcomes after fasting and lifestyle modification in patients with metabolic syndrome: a randomized controlled trial**

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Abstract

Background: Lifestyle interventions such as fasting, diet, relaxation, and exercise might have beneficial effects on quality of life and psychological parameters in patients with metabolic syndrome. The aim of this analysis was to evaluate the effects of fasting followed by lifestyle modification on patient-reported outcomes in patients with metabolic syndrome compared with lifestyle modification only.

Methods: This was a single-blind, multicenter, parallel randomized controlled trial conducted in two German tertiary referral hospitals in metropolitan areas. 145 patients with metabolic syndrome (62.8% women; 59.7±9.3 years) were randomized to either 1) 5-day fasting followed by 10 weeks of lifestyle modification (modified DASH diet, exercise, mindfulness; n=73) or 2) 10 weeks of lifestyle modification only (n=72). Patient-reported outcomes were assessed at weeks 0, 1, 12, and 24 by validated standardized questionnaires and included quality of life on the Short-Form 36 Health Survey Questionnaire (SF-36), anxiety and depression on the Hospital Anxiety and Depression Scale (HADS), stress on the Cohen Perceived Stress Scale (CPSS), mood on the Profile of Mood States (POMS), self-efficacy on the General Self-Efficacy Scale (GSE), mindfulness on the Mindfulness Attention Awareness Scale (MAAS), and self-compassion on the Self-Compassion Scale (SCS).

Results: At week 1, POMS depression and fatigue scores were significantly lower after fasting compared to lifestyle modification only. From week 0 to 12, most self-report outcomes improved in both groups, however, only POMS vigor was significantly higher after fasting followed by lifestyle modification compared to lifestyle modification only. Most positive within-group effects persisted at week 24; only self-compassion was significantly higher in the lifestyle modification only group compared to fasting followed by lifestyle modification.

Conclusion: Fasting can induce mood-modulating effects in the short term. Lifestyle modification induced several beneficial effects on quality of life and psychological parameters in patients with metabolic syndrome. Further high-quality clinical studies are warranted.

OAI4.03

Cleveland Clinic Lifestyle Essentials: Lifestyle Medicine-focused Shared Medical Appointments for Chronic Metabolic Conditions

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Abstract

Background: Over the past several decades, we have witnessed a steady increase in chronic conditions. While there is evidence suggesting that long-term, individual lifestyle modifications including nutrition, exercise, and stress management have direct health benefits, the effects of an intensive program combining several lifestyle modifications on physical and mental health has not been demonstrated.

Methods: In this retrospective study, we describe Cleveland Clinic's "Lifestyle Essentials Shared Medical Appointments" (SMAs), a 7-session/14-week program that combines lifestyle interventions (nutrition/culinary medicine, yoga, and meditation) and self-care education for patients with hypertension, hyperlipidemia, obesity and/or type 2 diabetes. Our objective was to improve biometrics (BMI, blood pressure), biomarkers (glucose, total cholesterol, HDL, LDL, CRP) and self-reported measures of stress (PSS-4), depression (CES-D-10), patient activation (PAM) and global health (PROMIS-10) pre/post-SMA in adult patients with obesity, type 2 diabetes, hypertension, and/or hyperlipidemia.

Results: Overall, 452 patients participated in the Lifestyle Essentials SMA between March 2014 through January 2020. Patients (73%) who attended 4+ sessions (mean age: 64.3yo, 125/203 M/F) were diagnosed with chronic conditions: hyperlipidemia (81%), hypertension (71%), pre-diabetes/type 2 diabetes (29%/30%), overweight (BMI 25-30, 24%) or obese (BMI>30, 51%). Pre/post SMA comparison reported improvement in blood glucose (-12.2), total cholesterol (-10.8), LDL (-8.3) and bio-impedance measures for weight (-5.14lbs) and fat (-3.6lbs). In addition, patients reported improvement in stress (PSS-4: -0.85), patient activation (PAM; 4.68) and global health outcomes (PROMIS-10: Physical, 2.91; Mental, 2.61) (p<0.02).

Conclusion: Implementation of a short-term comprehensive Lifestyle Essentials SMA program combining nutrition/culinary medicine, yoga, and meditation can result in significantly and clinically meaningful improvements in biometrics and biomarkers, as well as global health outcomes and stress for adults with chronic metabolic conditions.

OAI4.04LB

Mindful eating for adherence to carbohydrate restriction in diabetes: results from the DELISH randomized, controlled trial

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Abstract

Background: Carbohydrate (CHO) restriction can improve glycemic control in diabetes but is challenging to maintain. We tested whether adding mindfulness components would improve nutritional adherence.

Methods: We enrolled people with type 2 diabetes in a group-based intervention (9-18 individuals per group) in which participants received training in implementing a low CHO diet (1-hour sessions, weekly x 11 weeks), with randomization (1:1) to groups with additional mindfulness training or nutritional information only. The mindfulness intervention used the Eat Right Now app (5-10 minute didactic presentations and exercises on applying mindfulness to cravings and automatic behaviors), and weekly 1-hour group meetings with mindfulness exercises and discussion. Dietary adherence was evaluated using a biomarker for CHO restriction (fingerstick blood ketones, Keto-Mojo), 24-hour diet recall for CHO intake, and change in glycated hemoglobin (HbA1c %) from baseline. At 3 months, participants entered the maintenance phase until 12-months follow-up with randomization to one of three intensities, but with continued delivery of mindfulness components for the original mindfulness arm participants only; the current analysis focuses on main outcomes by initial randomization to mindfulness or control.

Results: We randomized 62 participants to the mindfulness arm and 63 to the control arm. There were not statistically significant differences in mean ketone levels, non-fiber CHO intake, and changes in HbA1c% between arms at 3, 6, and 12 months. HbA1c% decreased clinically and statistically amounts ($p < 0.001$ all timepoints) in each group compared to baseline; decreases at 3 months were 1.47 and 1.43 in the control and mindfulness groups respectively ($p = 0.78$ comparing groups) and 1.39 to 1.04 at 12 months ($p = 0.15$).

Conclusion: Both arms experienced clinically and statistically significant improvements in HbA1c that were maintained over 12 months, but the mindfulness intervention we studied did not appear to increase adherence to carbohydrate restriction.

OAI4.05LB

The Virtual Enhanced Lifestyles for Metabolic Syndrome Pilot Study: A Multi-component Lifestyle Intervention Program Delivered Remotely

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Abstract

Background: Remote lifestyle interventions can be more convenient and cost-effective than in-person interventions and may lead to increased engagement and thereby improved patient health outcomes. Patients with the metabolic syndrome (MetS), defined by 3 or more of 5 health characteristics (large waist circumference, high triglycerides, low high-density lipoprotein, hypertension, and elevated fasting blood glucose), have increased risk for the development of diabetes and cardiovascular disease. The Enhanced Lifestyles for Metabolic Syndrome (ELM) is a holistic multi-component lifestyle intervention including mindfulness designed to reverse the metabolic syndrome. It was originally developed to be delivered in-person via small groups. The purpose of this study was to assess the feasibility and acceptability of a virtual version of the ELM intervention program.

Methods: We conducted a single arm proof-of-concept study in 10 patients with the MetS. Potential patients were identified via self-referral or medical records interrogation. Participants attended virtual group meetings via Zoom led by trained interventionists once weekly for three consecutive months covering mindful habits, nutrition, and physical activity. Participants were asked to self-monitor daily food intake, mindful habits, and daily steps. Participants used the Fitbit app to communicate with peers. We collected weight, waist circumference and blood pressure virtually and participants visited commercial laboratories for measurement of fasting glucose and lipids.

Results: The average age of participants (N=10) was 55 (SD±11) years, with 50% African-American, 20% Asian, 20% White, with 10% Hispanic, 70% women, and 80% college educated. 30% achieved remission of MetS and 40% achieved weight loss $\geq 5\%$. Feasibility was supported by 100% retention and 95% virtual session attendance.

Conclusion: The Virtual ELM proof of concept showed promising results for the feasibility of implementing a remote lifestyle intervention for patients with MetS.

OAI4.06LB

Using MRI and CT to Assess Changes in Visceral Adipose Tissue Following Positive Lifestyle Behavior Engagement

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Abstract

Background: Engaging in positive lifestyle behaviors benefits a myriad of health outcomes. Little is known about their impact on Visceral Adipose Tissue (VAT) changes, or the hormonally active component of total body fat that helps determine risk of developing a host of chronic diseases. The purpose of this study is to examine the role of using MRI/CT abdominal scans to assess the impact of positive lifestyle behaviors in reducing VAT in a community sample.

Methods: Our National Science Foundation funded study used MRI and CT scans to assess changes in VAT during engagement in different lifestyle strategies for reducing chronic disease including sprinting, distance running, dietary fasting, elimination of dietary processed carbohydrates, adding dietary resistant starches (rice), etc in a large community sample of adults. Participants were imaged to quantify VAT while collecting data on their diet, exercise and lifestyle. Individuals were followed over 1-104 weeks through a series of repeated scans to assess the impact over time of various interventions.

Results: Over 5000 patients were scanned with serial MRI & CT scans which were demonstrated to be effective imaging techniques for identifying meaningful changes in VAT from various lifestyle interventions. Both MRI & CT were useful to give study subjects more insight into how their bodies actually change internally from their chosen actions and their choices about lifestyle and diet interventions assessed.

Conclusion: This study explored the ability of using MRI & CT abdominal scans to evaluate changes in VAT from diet, exercise and other lifestyle interventions. Both imaging techniques were found to be effective in assessing change as well as educating and motivating patients by using these visual images of their changes. Both CT & MRI should be considered by providers to assist patients in both achieving as well as maintaining improved health.

CIH for Aging Related Health Conditions**OAI5.01****Yoga Prevents Grey Matter Volume Decline in Women With Alzheimer's Disease Risk**

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Abstract

Background: Female sex, subjective cognitive impairment, and cardiovascular risk factors (CVRF) are known risk factors for developing Alzheimer's disease (AD). We previously demonstrated that yoga practice in older adults with mild cognitive impairment improved depression, resilience, memory and executive functions, increased hippocampal choline concentrations and modulated brain connectivity compared to a memory training control. In this study, we tested whether older women with subjective memory complaints and CVRF show changes in brain gray matter volume with yoga training compared to memory training.

Methods: Eleven women (mean age=61.45, SD=6.58) with CVRF and subjective memory decline completed twelve weeks of weekly yoga sessions and daily home exercises, while eleven women (mean age=64.55, SD=6.41) underwent memory training of the same duration. T1-weighted MRI scans were acquired at baseline and follow-up using a Siemens 3T Prisma scanner. We used Freesurfer 6 and longitudinal two-step models to test group differences in symmetrized percent change in GMV. Resulting clusters were corrected and Monte-Carlo simulations applied at an alpha level of 0.05. Region-of-interest analysis was performed for hippocampus and amygdala.

Results: Compared to the Yoga group, MT showed reductions in GMV in clusters in the left prefrontal, pre- and post-central, supramarginal, superior temporal and pericalcarine cortices, and in overlapping regions in the right paracentral, postcentral, superior, and inferior parietal cortices, the banks of the superior temporal sulcus and the pars opercularis. Yoga group did not change GMV over time, and showed increased right hippocampal volume.

Conclusion: Yoga training may offer neuroprotective effects compared to MT in preventing neurodegenerative changes, even over short time intervals. Future analyses will address changes in functional connectivity in both groups.

OAI5.02**Everyday Coping Strategies for Spine Health: A Mixed-Methods Exploratory Study of Midlife and Older Adults Who Use Chiropractic Care**

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Abstract

Background: Clinical guidelines recommend self-management for chronic spine pain, yet aging adults experience challenges

engaging in adaptive coping behaviors. This IRB-approved mixed-methods study explored coping strategies used by aging adults in their daily self-management of chronic spinal conditions.

Methods: A convenience sample of 48 chiropractic patients, age 50 years and older, submitted an online Chronic Pain Coping Inventory (CPCI), with 24 participants completing an hour-long, audio-recorded, individual interview on living with chronic spine conditions. CPCI scales were graded, with descriptive statistics calculated by item. Four CPCI scales were triangulated with deductive thematic analyses of 10 randomly sampled interviews to elucidate cognitive and relational patterns of spine self-management.

Results: CPCI scores indicated task persistence (mean 4.3 days/week; SD 1.5) and coping self-statements (mean 3.5 days; SD 2.1) were frequently used. Seeking social support (mean 1.8 days; SD 1.8) and asking for assistance (mean 1.6 days; SD 1.9) were used less. Themes emerging from the qualitative interviews paralleled quantitative results. Task persistence was described as fighting through pain, knowing pain will eventually subside, doing so for their livelihood, and a sense of needing to do something. Coping self-statements focused on having control over pain, knowledge of treating pain, and addressing an underlying fear of losing independence while aging. Social support was described as having their pain acknowledged by family and friends, and building a strong therapeutic alliance with healthcare to co-manage symptoms and engage in wellness activities. Participants expressed reticence to ask for assistance, while recognizing that others offered their assistance without being prompted.

Conclusion: Midlife and older adults who use chiropractic care reported reliance on internally-driven cognitive coping strategies for spinal complaints. Findings suggest opportunities balancing task persistence among aging adults with fostering social engagement and reciprocity for activities known to exacerbate chronic spine conditions.

OAI5.03LB

A Randomized Controlled Trial of a Tai Chi Training Intervention on Interoceptive Awareness and Physical function in Older Adults

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Abstract

Background: With an increasingly aging population, maintaining a healthy physical lifestyle is vital for quality of life. Tai Chi is a meditative movement practice observed to

improve physical function in older adults. However, the mechanisms by which Tai Chi produces these improvements are unclear. We postulate that interoception, the process of receiving, accessing, and appraising internal bodily states, which is vital for maintaining desired physiological activity, may play a critical role in Tai Chi's positive effects on physical function.

Methods: The present study sought to determine whether Tai Chi improves a specific regulatory aspect of interoceptive awareness, that of body listening (Multidimensional Assessment of Interoceptive Awareness–Body Listening subscale), physical function (Timed Up and Go test), and health-related quality of life (SF-20) (physical component). Adults aged 65+ years (n = 160) with hypertension were randomly assigned to 12 weeks of Tai Chi training or a healthy aging practice-based education (HAP-E) program.

Results: Linear Mixed Model analyses found that compared with HAP-E, Tai Chi training was associated with significant improvements in self-reported body listening (p < .003), physical function (p < .007), and physical-related quality of life (p < .05). Furthermore, body listening partially mediated (indirect/total effect, 20%) the relationship between group membership (Tai Chi vs. HAP-E) and Timed UP and Go (physical function).

Conclusion: These findings suggest that Tai Chi practice improves body listening, physical function, and physical-related quality of life and that increased awareness of bodily states may enhance physical function. However, further study is needed to determine whether interventions can be optimized to enhance regulatory interoceptive awareness to garner improved physical function.

Non-Pharmacological Approaches to Chronic Pain Management II

OAI6.01

Addressing Social Isolation and Social Support in Integrative Group Visits for Chronic Pain

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Abstract

Background: Chronic pain affects one out of five adults in the United States. Among the many other complex factors, social isolation has a bidirectional effect on pain perception

while social support may buffer the pain experience. Evidence suggests that group medical visits have the potential to improve pain perception. We explored patterns of social isolation and social support within the setting of group medical visits for patients with chronic pain.

Methods: Eligible participants with chronic pain within the San Francisco Department of Public Health Network were referred to an Integrative Pain Management Program (IPMP). The IPMP is a twelve-week program that offers weekly group lessons and multimodal integrative treatment options such as acupuncture and massage to help participants manage their chronic pain. To complement individual-level patient-reported outcomes (previously reported), observational field notes were taken to capture IPMP group dynamics with a special focus on social connection and participant engagement during group visits. Field notes were analyzed using a deductive thematic framework.

Results: Ten out of twelve group sessions were observed in total. Group participants varied from nine to thirty and averaged thirteen individuals per session. Participants ranged in gender, age, and source of pain. Throughout the weeks, observational data suggest that participants found emotional support through the group visits. Participants expressed empathy, gratitude, and loyalty to the group. In numerous instances, instrumental support was demonstrated through participants offering each other rides and helping each other perform tasks. Informational support through the exchange of advice was also present throughout several sessions.

Conclusion: Throughout the twelve-week IPMP, there was evidence of group visits providing emotional, instrumental, and informational support to participants in addition to the patient education and varied treatment modalities offered. This lends support to the hypothesis that group visits have the potential to increase social support and decrease social isolation.

OAI6.02

Use and Effectiveness of Back Pain Treatments in Seventeen US-Based Integrative Medicine Clinics

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Abstract

Background: To describe the use and effectiveness of back pain treatments among patients receiving care at seventeen integrative medicine clinics.

Methods: Patients from a practice-based research network enrolled in a national longitudinal cohort study, the Patients Receiving Integrative Medicine Interventions Effectiveness Registry (PRIMIER). In this analysis we included patients with a back-related diagnosis in their medical record or those who self-reported back pain at index visit. Patients were followed for one year. We identified use of integrative medicine services from their medical record. The PROMIS-29 instrument was used to measure patient reported outcomes. Primary outcomes were pain interference and physical function. Secondary outcomes were anxiety, depression, sleep quality, and social function. We used linear mixed-effects models with a random intercept to assess within-group mean differences (MD) from index visit.

Results: From August 2013 to November 2018, 4,954 adults were enrolled in PRIMIER. Of 3,691 participants with a complete baseline survey and medical record data, 663 (18%) had back pain. Of these, 444 had follow-up information on patient reported outcomes. Over the 12-month period the most common treatments were integrative medicine consults (56%), acupuncture (44%), massage/other manual therapies (36%), and chiropractic care (28%). A reduction in pain interference was observed in the short- and long-term (2-month MD=-1.47, 95%CI= -2.98, -0.64; and 12-month MD=-1.98, 95%CI= -3.12, -0.88). By contrast, improvements in physical function were small and not statistically significant (2-month MD=0.37, 95%CI= -0.28, 1.01; and 12-month MD=0.69, 95%CI= -0.31, 1.69). At twelve months, significant improvements were observed on all secondary outcomes (anxiety, depression, and social function; all P<0.01) except fatigue (p=0.56).

Conclusion: Patients with back pain receiving care at integrative medicine clinics had modest improvements in pain interference and most secondary outcomes but not physical function. Additional research evaluating potential implementation strategies, particularly when embedding integrative medicine interventions in large healthcare systems, is needed.

OAI6.03

Mapping Evidence-Based Non-Pharmacological Modalities Across Minnesota: The Non-Opioid Pain Alleviation Information Network Project (NO PAIN MN)

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Abstract

Background: The objective of our mapping study has been to identify/consolidate evidence-based non-pharmacological modalities (NPM) for pain management across Minnesota into a searchable and informational website.

Methods: The Consortium Pain Task Force White Paper guided identification of evidence-based research of NPM. We further cross-referenced our findings with the NCCIH website and PubMed. National and state certifying boards and accrediting organizations were accessed to locate licensed and/or credentialed providers across Minnesota. Provider name, business/health-system affiliation, address, contact information, and credentials were obtained. Accredited training schools providing NPM were included. A website developer with expertise in mapping capabilities imported the data, designed, and programmed the consumer-facing website. Funding was provided by the Minnesota Department of Health.

Results: Eight main modalities and their respective sub-categories were identified and mapped: Acupuncture; Integrative Medical Care (Functional medicine consultation, Integrative medicine consultation); Massage Therapy; Mind-Body Therapies (Biofeedback, Clinical Hypnosis, Mindfulness-Based Stress Reduction, Music Therapy); Movement Therapies (Tai Chi, Qiqong, Yoga Therapy); Psychology (Cognitive Behavioral Therapy); Rehabilitative Therapies (Physical & Occupational Therapy); Spinal Manipulation (Chiropractic). All information compiled resulted in 16,370 providers/practitioners. Physical Therapy had the greatest number of reported providers (n=5061), followed by Occupational Therapy (n=3747), Psychology (n=3286), Chiropractic (n=3027), Acupuncture (n=602), and Music Therapy (n=330). A total of 47 health systems, 612 healthcare facilities, and 14 training school clinics were mapped. With web-based cross-referencing, providers and facilities were affiliated/linked with health systems to produce an inter-connected mapping system.

Conclusion: The searchable and informational website created through the NO PAIN MN mapping project is a tool to assist individuals, healthcare providers, insurance carriers, and healthcare facilities in finding evidence-based information and resources on NPM to guide, support, and proactively manage chronic pain patients across Minnesota.

OAI6.04

Cost-Effectiveness of Integrative Medicine Services on Chronic Pain Management

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Abstract

Background: Objective - To evaluate the impact of integrative medicine services on chronic pain management compared to standard care.

Methods: Methods - This article uses data from insurance claims from 10/2016 – 09/2019 to identify patients with nervous system or musculoskeletal pain. 1,302 patients were matched into treatment (652) and control (652) groups. Propensity score matching was then used to identify like cohorts for difference-and-difference analysis. The patients were matched based on age, sex, zip code, ICD-10s, prescriptions, healthcare events, and medical claims costs.

Results: Results - We found that patients that used integrative medicine services had overall better health outcomes and lower costs in the 3-month, 6-month, and 12-month time frames. Over the 12-month time frame showed a decrease in inpatient utilization of 19%, Emergency department utilization decreased 37%, and reduction in claims costs of 11.2%.

Conclusion: Conclusion – When patients utilize integrative medicine services, they have overall lower health care costs and better health outcomes. Unfortunately, in the health system studied, less than 3% of patients utilize these services. We believe this is in part due to health insurance coverage, misconception of effectiveness and lack of awareness, promotion and education of integrative medicine services.

Mindfulness Based Interventions

OAI7.01

Investigating the Experience of an Audio-Based Mindfulness vs. Control Program for Mothers With Infants in the Nicu

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Abstract

Background: Hospitalization of U.S. infants in the neonatal intensive care unit (NICU) is common and highly stressful for parents. Mothers of infants in the NICU are more likely to experience psychological distress including depression, anxiety, stress, and post-traumatic stress, which can have lasting negative impact on mother and infant. The aim was to explore the experience of an audio-based mindfulness intervention for mothers of infants in the NICU.

Methods: This qualitative evaluation was embedded in a pilot RCT of the mindfulness intervention for mothers of infants in the NICU. We interviewed participants up to two times each. Key domains of the in-depth interviews included the NICU experience, coping with stress and difficult emotions, previous experience with mindfulness, and perspectives on the program. Data analysis of the interview text was conducted using an iterative, thematic constant comparison process informed by grounded theory.

Results: Thirty-seven interviews with 26 mothers were conducted (15 intervention participants, 11 control participants). Overall, participants had favorable experiences with the programs. Compared with controls, four themes emerged regarding the mindfulness intervention, which helped mothers: 1) be present in the now to foster connection (with self, infant(s), and partner), 2) calm the chaos (re-centering of self, which improved the ability to address ongoing NICU stressors), 3) find comfort within the chaos (acceptance of the unknown, acknowledgement of feelings without judgment, and awareness of the need for self-care), and 4) shift their perspective (being grateful for what is going well, recognizing that the infant(s) is okay in this moment).

Conclusion: Maternal stress as a result of infants' NICU stays has negative implications for maternal and child wellbeing, yet remains an under-appreciated public health issue with few effective interventions. Mindfulness practices are widely used in clinical and community settings and may be feasible, acceptable, and beneficial for mothers with infants in the NICU.

OAI7.02

Effects of Mindfulness Training on Emotion Regulation and Catalyzing Behavior Change

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Abstract

Background: Among individuals with chronic illness, difficulties in emotion regulation have been connected to chronic pain, depression, anxiety, and early mortality, whereas adaptive emotion regulation has been shown to promote positive health behavior change. Mindfulness training may promote health behavior change in the context of chronic illness through deepening skills of self-awareness, self-regulation, and emotion regulation. This randomized controlled trial aimed to replicate 2 prior pilot studies and gain a deeper understanding of the effects of Mindfulness Training for Primary Care (MTPC) on difficulties in emotion regulation and health behavior change.

Methods: We randomly assigned primary care patients from 11 sites to 8 weeks of trauma-informed MTPC delivered as an insurance-reimbursable group or a 1-hour low-dose mindfulness comparator (LDC) (N=94). The Difficulties in Emotion Regulation (DERS) scale measured emotion regulation at 0, 8, and 24 weeks. At 7 weeks, participants in both arms watched a 5-minute video about SMART goal creation and were asked to choose a short-term behavior change action plan related to chronic illness self-management or health behavior change (e.g., exercise/activity, eating, self-care). During 8-10 weeks, participants then reported their level of action plan initiation on a 7-point Likert scale. To evaluate emotion regulation, we conducted mixed methods repeated measures analyses. To evaluate action plan initiation, we used bivariate logistic regression.

Results: Compared to LDC, MTPC significantly reduced DERS at both 8 (d=0.59, p=0.01) and 24 weeks (d=0.61, p=0.017). Compared to only 38% of LDC, 63% of MTPC participants successfully initiated their action plan within 3 weeks (OR=2.87, p=0.04).

Conclusion: MTPC significantly reduced difficulties in emotion regulation and facilitated health behavior change among primary care patients with anxiety, depression, and stress disorders. These findings support the potential for MTPC as an effective behavior change initiation intervention for patients with chronic illness.

OAI7.03LB

Mechanisms of Mindfulness in Patients with Migraine: Results of a Qualitative Study

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Abstract

Background: To understand the mechanisms of mindfulness' impact on migraine.

Methods: Semi-structured qualitative interviews were conducted on adults with migraine who participated in two Mindfulness-Based Stress Reduction (MBSR) clinical trials (n=43). Interviews were audio-recorded, transcribed, and summarized into a framework matrix with development of a master codebook. Constructivist grounded theory approach was used to identify themes/subthemes.

Results: Participants who learned mindfulness through MBSR experienced altered pain perception, altered response to migraine attacks and disease, increased awareness of external and internal experiences, improved overall well-being, and group benefits. Specifically, mindfulness resulted in earlier stress-body awareness and increased interoceptive awareness resulting in earlier attack recognition, leading to earlier and more effective management. Inter-ictal factors of self-blame, guilt, and stigma decreased while migraine acceptance, hope, empowerment, self-efficacy, and self-compassion increased. Improved emotion regulation resulted in decreased fear of migraine, pain catastrophizing, anticipatory anxiety, and pain reactivity. Mindfulness was used both acutely and prophylactically. We created a conceptual model hypothesizing that MBSR skills led to an infusion of mindfulness in daily life, resulting in altered pain perception and experience, ultimately leading to overall well-being improvement, which may positively feedback to the infusion of mindfulness in daily life. The therapeutic benefit of learning mindfulness in a group setting may moderate these effects.

Conclusion: This study identified several new potential mechanisms of mindfulness' effect on migraine. After taking MBSR, participants reported altered pain and migraine perception and experiences. Increased stress-body and interoceptive awareness resulted in earlier migraine awareness and treatment, as well as improvement in emotion regulation. Mindfulness may target important inter-ictal factors that significantly affect disease burden, such as fear of migraine, pain catastrophizing, and anticipatory anxiety. This study's findings support and extend our understanding of the impact and mechanisms of mindfulness on migraine and provide important findings to direct future research endeavors.

OAI7.04LB

Comprehensive Lifestyle-Modification in Patients With Crohn's Disease – A Randomized Controlled Trial

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Abstract

Background: Patients with Crohn's Disease suffer from impaired health-related quality of life (HrQOL). Environmental and lifestyle are well excepted factors modifying the course of disease in CD. There is a need for structured programs which address non-pharmacological treatment options in CD. The aim of this study was to investigate the effect of a comprehensive mind-body lifestyle-modification day clinic program in patients with Crohn's disease.

Methods: N=35 patients in clinical remission with impaired QOL (IBDQ < 170) were randomly assigned to the intervention group (IG, n = 19) or control that received a single workshop of intense training in non-pharmacologic self-help strategies (CG, n =16). The intervention group participated in a 60-hour day clinic over 10 weeks (6h once a week - average attendance: 9.1 ± 1.1; Min.: 7) including mindfulness, stress management, exercise therapy, meditative movement therapies, mediterranean diet, self-help strategies and social support. Health related quality of life (IBDQ), disease activity (HBI), fecal inflammation marker lactoferin, psychological symptoms (HADS), core self-efficacy (CSES) and perceived stress (PSS) were measured with standardized questionnaires at baseline (Week 0) and post intervention (week 12).

Results: Subjects were predominantly female (63%), 48.1 ± 12.3 years old with a mean time of disease of 20.5 ± 11.6 years and did not differ in sociodemographic characteristics and medication. Intention to treat analyses provided evidence for a significant improvement in quality of life (p=.021), psychological symptoms in general (p = .013), anxiety (p = .006) and core self-efficacy (p=.010) among participants in the IG compared to CG at the end of the intervention. No effect on disease activity, depression and perceived stress were observed

Conclusion: A comprehensive mind-body lifestyle-modification day clinic program in patients with Crohn's disease based on non-pharmacologic therapy modules can improve health related quality of life, psychological symptoms and self-efficacy in patients with Crohn's disease

Various Research Methods to Explore Integrative Health

OAI8.01

A National Survey of U.S. Physicians' Perspectives Regarding the Use of Medical Cannabis

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Abstract

Background: Over thirty states currently have medical cannabis (MC) legislation, although federal regulations still prohibit use of MC. This study aims to understand physician perspectives on MC use.

Methods: A survey was sent by mail and e-mail to a random sample of 2,400 U.S. physicians nationally – internal medicine, family practice, pediatrics, pain medicine, palliative, and psychiatry. The questions covered demographic information and topics related to MC: use by patients, attitudes, perceived benefits and adverse effects, and education.

Results: The study is ongoing. Out of the 272 responses received, most were white (75.1%) and male (56.9%), with a mean age of 48 years. Specialties represented included pediatrics (30.6%), pain/palliative medicine (23.4%), psychiatry (22.2%), and family/internal medicine (18.5%). Respondents reported 14.9% (± 18.1) of patients ask about MC and 19.1% (± 16.6) of patients utilize MC. Only 10.4% were certified by their state (if applicable) to prescribe MC. About half of physicians felt non-FDA approved MC should be an option for patients (52.0%) versus no (22.5%) or maybe (25.4%). The most common health conditions for MC use were cancer (64.8%), pain (48.2%), and seizures (43.9%). A minority felt confident (20.6%) in their knowledge of MC and comfortable (20.6%) with recommending MC to patients. Most physicians (85.6%) had not received any education about MC, but thought it should be taught in medical school (88.4%). The majority (63.0%) felt MC should be rescheduled by the FDA, with most recommending schedule III (39.5%) followed by II (23.6%) and IV (22.1%).

Data collection will finish 12/1/2021 with a goal of 500+ responses.

Conclusion: In this study, one of the largest surveys of U.S. physicians from different specialties about MC use, most physicians felt that MC should be an option for patients and should be rescheduled by the FDA. Education for physicians about MC is needed.

OAI8.02

Patients Receiving Integrative Medicine Intervention Efficacy Registry (PRIMIER): Results of the BraveNet Effectiveness Study

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Abstract

Background: BraveNet is the first national integrative medicine (IM) practice-based research network. PRIMIER was a prospective, non-randomized, observational evaluation conducted across 17 BraveNet clinics. PRIMIER collected patient reported outcomes to assess whether IM was associated with improved quality of life (QoL) over time.

Methods: PRIMIER participants received non-standardized, personalized IM approaches in routine clinical practice. Participants electronically consented and completed Patient Reported Outcomes Measurement Information System (PROMIS)-29, Perceived Stress Scale (PSS-4), and the Patient Activation Measure (PAM) at baseline/index, 2, 4, 6, and 12 month surveys. Linear mixed-effects analyses were performed to assess change from baseline/index through 12-month assessment.

Results: Overall, 4,954 participants enrolled in PRIMIER from August 2013–November 2018. A total of 2,374 individuals completed the index survey, completed >1 follow-up survey and had >1 IM visit in their electronic health record (EHR). Patients reported 2 elevated PROMIS-29 scores on Anxiety, Fatigue, and Pain Interference subscales and indicated primary reasons for seeking IM

services were: pain (35%) and wellness (15%). EHR data revealed that from Index to 2 months 75% had >1 IM visit, whereas for 2-4 months, 4-6 months, 6-12 months the percentages were 52%, 43% and 59% respectively. Over the study period the most common IM services (via EHR) were: acupuncture (40%), IM provider consult (35%), massage (17%), and chiropractic (10%). Statistically significant reductions were observed on all PROMIS-29 subscales, PSS and PAM across all 4 time periods except Physical Functioning at 2 and 4 months. Additionally, significant improvements were observed on PROMIS-29 Mental and Physical Health Summary scales.

Conclusion: Based on an extensive literature review, we contend that PRIMIER is the largest study to assess the effectiveness of IM on QoL. Results indicate a profound improvement across all tested measures. While promising, a larger study is needed to fully explore dosing and potential differential impact of IM interventions on QoL.

OAI8.03

Implementation and Impact of Tele-Whole Health on Patients: Provider and Patient Perspectives

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Abstract

Background: The Veterans Health Administration (VHA) quickly responded to the COVID-19 pandemic by providing access to care via telehealth. This rapid pivot occurred simultaneously with VHA's Whole Health transformation, which includes the integration of complementary and integrative health services, education, and coaching to develop self-care skills. This qualitative study explored providers' and patients' perspectives on the implementation and advantages/disadvantages of tele-Whole Health services (teleWH).

Methods: Semi-structured interviews were conducted with 51 providers and 30 Veterans across 12 VHA Medical Centers (VAMCs). Interviewees included staff delivering and patients participating in teleWH coaching, teleWH educational classes, and tele-complementary and integrative therapies (e.g., acupuncture, chiropractic, yoga, Tai Chi, mindfulness or meditation). Interviews were transcribed and a content analysis was performed using a rapid approach.

Results: Participants described a broad range of benefits associated with Veteran participation in teleWH services. These included: 1) Improved access to services that previously were not widely offered in-person; 2) Increased comfort engaging in services, especially for specific Veteran populations (e.g., Veterans with PTSD, LGBTQ, women, and younger Veterans); 3) Greater convenience, including less stress related to travel, length of time required to use services, and integration with workday; and 4) Increased engagement in self-care outside of classes or services. Disadvantages included: 1) Decreased socialization and opportunities for group interaction; 2) Decreased access to touch-based services (e.g., acupuncture); 3) Technological challenges with approved virtual platforms. Facilitator skill and telehealth etiquette mattered greatly for satisfaction with teleWH.

Conclusion: TeleWH is perceived to be a strong complement to in-person services and poses many physical and mental health benefits for patients. Attention to facilitator skills training and ease of virtual platform use is needed to increase engagement and make teleWH a viable patient-centered option for care.

OAI8.04

Trends in Insurance Coverage for Acupuncture Therapy

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Abstract

Background: Acupuncture therapy is a safe, effective, and cost-effective approach to pain care and management. Yet insurance coverage is inconsistent, serving as an important barrier to care for patients. This study measures insurance coverage for acupuncture sessions using a nationally representative survey between 2010 and 2019. We also examine trends in total and out-of-pocket costs and, when available, track the most common indications for acupuncture therapy.

Methods: We used data from the Medical Expenditure Panel Survey (MEPS), a nationally representative survey of Americans' health care utilization. There were over 180,000 thousand respondents during the study period, with 1,246

utilizing acupuncture therapy. Outcomes included (1) the share of respondents reporting any acupuncture therapy in a given year; (2) total costs of acupuncture therapy; (3) the share of acupuncture sessions covered by insurance; (4) the share of costs for acupuncture therapy paid out-of-pocket; and (5) the most common indications associated with acupuncture therapy.

Results: The share of MEPS respondents with at least one acupuncture session doubled between 2010 and 2019. Insurance coverage for acupuncture therapy also increased—the share of MEPS respondents citing some insurance coverage for acupuncture therapy increased from 40% in 2010 to over 50% in 2019, but half of costs were still paid out-of-pocket.

Conclusion: This study documents increases in both acupuncture use and insurance coverage for acupuncture therapy. However, we find that the majority of acupuncture costs were paid out-of-pocket despite acupuncture therapy being recommended as part of comprehensive pain care and management by the U.S. Agency for Healthcare Research and Quality and other experts. Insurers should be encouraged to cover safe, low-cost, and evidence-based approaches to pain care and management, including acupuncture therapy.

POSTERS

Basic Science

P01.01

Approach versus Avoidant Coping Strategies and Antiretroviral Therapy Adherence among Men who have Sex with Men Living with HIV and Using Substances

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Abstract

Background: Only 57% of men who have sex with men (MSM) living with HIV in the United States are virally suppressed, making forward HIV transmission a significant public health concern. Antiretroviral therapy (ART) adherence, critical to viral suppression, has been positively associated with approach (i.e., confronting and addressing a stressor) coping and positive emotions and negatively associated with avoidant (i.e., not addressing a stressor) coping and negative emotions. According to the Revised Stress and Coping Theory, experiencing positive emotions in response to stressors is associated with better coping and health outcomes; however, further research is needed to understand how approach versus avoidant coping is associated with the generation of positive and negative emotions that may relate to adherence.

Methods: This secondary data analysis examined direct and indirect associations between approach (e.g., reframing and acceptance) and avoidant (e.g., distraction and denial) coping with ART adherence via positive and negative emotions, respectively among 202 MSM living with HIV and using substances. The sample was 22% Black, 29% Hispanic, and 35% reported an annual income \leq \$20,000. Coping was assessed using the Brief COPE. Emotions were assessed with the Differential Emotions Scale (DES-IV). ART adherence was assessed as ability to take medications in the past week on a visual analog scale (0-100%).

Results: Approach coping was not directly associated with ART adherence but was associated with endorsing more positive emotions ($b=.36$, $se=.07$), which in turn, was associated with better ART adherence ($b=.53$, $se=.26$; indirect effect: $.29$, 95% Confidence Interval [95%CI]=.004-.39). Avoidance coping was not directly associated with ART adherence but was associated with endorsing more negative emotions ($b=.65$, $se=.06$), which in turn, was associated with

worse ART adherence ($b=-.61$, $se=.30$; indirect effect: $-.40$, 95%CI=-.84-.06).

Conclusion: These findings illustrate how interventions that teach approach coping strategies could be efficacious at improving emotional states and HIV-related health behaviors.

P01.02LB

Case Report- Vitamin B 6 Toxicity

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Abstract

Background: We present 2 case reports of reversible peripheral neuropathy due to vitamin B6 toxicity. Pyridoxine toxicity has been documented to cause spinal cord neurotoxicity. Given the abundance of B6 supplementation, it is important to include B6 toxicity in a chronic pain differential. B6 toxicity is reversible upon diagnosis and discontinuation of supplementation.

Methods: Patient 1 - 41 year old female referred for whole body pain leading to significant functional impairment. Pain was burning and pruritic, with increased nocturnal symptoms, 7/10, lasting 3 months before presentation. PMH: Ehler-Danlos syndrome, chronic fatigue, avascular necrosis of sesamoid bone, depression. She reported taking several supplements for energy (Table 1) Workup: normal TSH, B12, D, folate/histamine. B6 level was in the toxic range (Table 2). Patient 2 - 79 year old female referred for evaluation of chronic fatigue and bilateral lower extremity neuropathic pain. Her symptoms of tingling, numbness, weakness and burning leg pain worsened over 2 years, increased at night, and caused functional impairment. The patient was on multiple supplements including high doses of a B complex for her chronic fatigue amounting to 9 capsules daily (Table 1) PMH: Microscopic colitis and diarrhea, fibromyalgia, chronic fatigue syndrome, gluten sensitivity. Workup: Heavy metal screen, and multiple myeloma (MM) urine light chain tests were normal. EMG revealed mild, chronic right S1 and S2 radiculopathy without evidence of distal polyneuropathy. B6 levels were in the toxic range (Table 2).

Results: Patient 1 - B6 toxicity resolved after the patient discontinued her supplementation, which included a B6-enriched Vitamin C complex. The burning whole body pain resolved upon pyridoxine clearance. Patient 2 - Upon normalization of her B6 levels, her neuropathic pain resolved. Her diarrhea improved on a strict gluten-free diet.

Conclusion: B 6 toxicity should be considered in the differential in a patient presenting with chronic neuropathic pain who takes supplements.

P01.03

Mindfulness and Resilience Predict Perceived Stress After Accounting for Socioeconomic Factors

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Abstract

Background: Socioeconomic status (SES) is composed of factors including income and education level, and is associated with diverse outcomes including physical health, mental health, and perceived stress. Little is known about factors that may protect against perceived stress as a result of SES-related stressors. Mindfulness and resilience are two potential protective factors. The purpose of this study was to evaluate the comparative roles of mindfulness and resilience in predicting perceived stress after accounting for income and education.

Methods: The current study was secondary analysis of an internet-delivered meditation intervention among older adults. A hierarchical multiple regression was conducted with age and race as covariates entered at Step 1, years of education entered at Step 2, income bracket entered at Step 3, mindfulness entered at Step 4, and resilience entered at Step 5. The entry order for mindfulness and resilience were reversed in a post hoc analysis.

Results: Results indicate that years of education significantly and negatively predicted perceived stress ($\beta = -.28$; $p = .034$) in Step 2, and that income bracket did not significantly predict perceived stress in Step 3. In Step 4 mindfulness significantly and negatively predicted perceived stress ($\beta = -.42$; $p = .001$), and in Step 5 resilience significantly predicted perceived stress ($\beta = -.52$; $p < .001$), and years of education was no longer a significant predictor ($\beta = -.08$; $p = .44$). When the entry order for mindfulness and resilience was reversed in a post hoc analysis, resilience significantly negatively predicted perceived stress ($\beta = -.60$; $p < .001$), and education level remained a significant predictor of perceived stress ($\beta = -.10$; $p = .04$).

Conclusion: These results provide insight into the relationship between years of education and perceived stress, as well as the potential role of mindfulness and resilience as

buffers between education and perceived stress. Implications and future directions will be discussed.

P01.04LB

Mechanism of Ficus hirta and Hypericum perforatum in Treatment of Microvascular Angina Based on Network Pharmacology and Molecular Docking

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Abstract

Background: To explore the mechanism of Ficus hirta Vahl. and Hypericum perforatum L. in treatment of microvascular angina based on network pharmacology and molecular docking.

Methods: The active ingredients of Ficus hirta and Hypericum perforatum were collected from Traditional Chinese Medicine Database and Analysis Platform (TCMSP) and related papers. The potential targets of these two medicinal herbs were searched from HERB database, and those targets associated with microvascular angina were screened out from GeneCards, Online Mendelian Inheritance in Man (OMIM), Therapeutic Target Database (TTD), and HERB database. String 11.0 platform was used to construct a protein-protein interaction (PPI) network of the common targets shared by the two herbs and microvascular angina. Metascape was employed to identify the involved biological processes and pathways enriched with the common targets. Visualization of data was conducted via Cytoscape software. AutoDock Vina was used to dock the core ingredients with the key targets.

Results: A total of 19 potential active ingredients and 71 potential targets were identified to be associated with microvascular angina. Bioinformatics analysis showed that phosphatidylinositol-3-kinase/protein kinase B (PI3K-AKT), interleukin-17 (IL17), hypoxia-inducible factor 1 (HIF-1) and other signaling pathways were related to the treatment of microvascular angina by F. hirta and H. perforatum. Molecular docking results showed that β -sitosterol, luteolin and other ingredients had strong affinity with multiple targets including mitogen-associated protein kinase 1 (MAPK1) and epidermal growth factor receptor (EGFR).

Conclusion: F. hirta and H. perforatum may regulate PI3K-AKT, IL17, HIF-1 and other signaling pathways, leading to biological processes & functions changes in terms of oxidative

stress, inflammatory response, angiogenesis, endothelium proliferation, etc. This study provided bioinformatics basis for in vitro and in vivo studies of the treatment of microvascular angina.

Clinical Research: Acupuncture and Traditional Chinese Medicine

P02.01

Ear Acupuncture During Chemotherapy Infusion for Symptom Management Among Breast Cancer Patients: A Retrospective Chart Review

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Abstract

Background: Breast cancer patients undergoing chemotherapy commonly experience multiple distressing symptoms, many of which are only partially controlled by currently available treatments. Ear acupuncture is a nonpharmacologic intervention involving stimulation of specific points on the ear and has been shown to be beneficial in improving various cancer-related symptoms. However, little is known about the feasibility and effectiveness of ear acupuncture during chemotherapy for symptom management. The aim of this study is to provide a retrospective analysis on the impact of ear acupuncture service during chemotherapy infusion on patient-reported symptoms among breast cancer patients.

Methods: This study is a retrospective chart review of breast cancer patients who received ear acupuncture treatment during their chemotherapy at a National Cancer Institute–designated Comprehensive Cancer Center from March 2016 to March 2020. Five patient-reported symptoms (anxiety, depression, nausea, pain, and tiredness) were collected before and after acupuncture, on a 0-10 scale, with higher scores representing greater symptom severity. Symptom scores and patient characteristics from electronic health records were abstracted. Paired t-test was used to analyze pre-post changes in symptom scores. Clinical responders were defined a priori as those having a reduction of symptom score by 1 or greater.

Results: There were 810 unique breast cancer patients who received ear acupuncture during their chemotherapy infusion. The mean age was 53.5 (SD 12.0), and most patients were female (99.4%) and white (84.3%). There was a statistically significant reduction in the severity of all five symptoms after ear acupuncture ($p < 0.0001$), but the

reduction was considered clinically meaningful for only anxiety (mean change: -1.34, SD 1.80) and tiredness (mean change: -1.12, SD 1.94). The percentage of responders was 55.8% for anxiety and 53.1% for tiredness.

Conclusion: Ear acupuncture during chemotherapy infusion is feasible and may help moderate chemotherapy-related symptoms in breast cancer patients. However, randomized controlled trials are needed to confirm these findings.

P02.02

Acupuncture Intervention for Acute Pain in the Emergency Department (ACUITY): a Consensus Process

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Abstract

Background: This document describes the consensus process and intervention development for an NIH-funded, multi-site, feasibility study utilizing acupuncture for ACUTE pain in The Emergency Department (ED) (ACUITY). The acupuncture intervention is designed to be flexible and responsive to the most common ED scenarios including acute pain of the low back, abdomen, musculoskeletal system, renal colic and headache. Acute pain remains a difficult condition to treat in many EDs. The use of opioids remain a primary treatment for acute ED pain with attendant risk of adverse effects, addiction liability, diversion and

death. Effective/safer options for acute pain are needed. Although acupuncture therapy has shown promise for acute pain in the ED alone or in conjunction with usual care, future pragmatic and multi-site trials are needed to obtain definitive and generalizable evidence.

Methods: An Acupuncture Advisory Panel was convened that included 9 acupuncture experts with 5-44 years of experience in practice and 2-16 years of experience in an acute pain care setting. A modified Delphi process was used with provision of a literature review, surveys of our panel members, three online discussions, and email discussion as needed. The STRICTA checklist was used as a guide.

Results: A responsive consensus acupuncture intervention was agreed on for ACUITY, the treatment of acute pain in the ED. Session forms were fashioned to capture essential treatment data to test in the current pilot (U01). Specifically, we built REDCap case report and acupoint charting forms, which serves as a guide to the acupuncturist in delivery of the intervention and provides a method for assessing the fidelity to the responsive manualization intervention for future multi-site studies.

Conclusion: Development of a responsive manualization intervention provides the framework for conducting a future, multi-site, definitive RCT (UG3/UH3) of acupuncture in the ED in BraveNet Practice-based Research Network (PBRN) Clinic-affiliated EDs.

P02.03

Feasibility of Acupuncture Group Visits, Ensuring Access to Care and Modeling Sustainability

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Abstract

Background: With the high demand in acupuncture and limitation in one on one acupuncture sessions, access to care for acupuncture can negatively impact the institutions. Evaluating the feasibility of group visit auricular acupuncture could provide answers for this issue. Would this model create a financially sustainable model for institutions, support patient satisfaction of their care and increase access to care is the purpose of this study. Auricular acupuncture has shown to have promising results in pain management, is it easy to perform. this study is designed for chronic pain patients.

Methods: 8 sessions of auricular acupuncture visits, in a group setting, for patients with chronic pain. At each session patients satisfaction, change in medication for pain and quality of life will be surveyed. After the last session, patients attitude towards group

visits will be surveyed. The sessions will be billed to insurance, instead of self paid or sponsored by the institution. We have been tracking the payment from the insurance.

Results: Currently study is being conducted with preliminary results on understanding optimal number of patients needed in each group visit to make the sessions financially sustainable. Patients quality of life with the group visit model for acupuncture is being tracked through PEG questionnaire. Patients attitude toward this model will be surveyed at the end of the study.

Conclusion: study is currently being conducted and will be concluded in early 2022.

P02.04

Clinical Effects and Safety of Compound Glutamine Enterosoluble Capsules for Diarrhea-predominant Irritable Bowel Syndrome

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Abstract

Background: Diarrhea-predominant irritable bowel syndrome (IBS-D) is a gastrointestinal disease with a high incidence and no effective drugs available. Compound Glutamine Enterosoluble Capsules (CGEC) is a compound preparation integrating Sijunzi Decoction and L-Glutamine. The aim of this systematic review was to evaluate the clinical effects and safety of CGEC for IBS-D.

Methods: PubMed, Web of Science, the Cochrane library, CNKI, VIP and Wanfang Databases were searched. Randomized controlled trials (RCTs) assessing the clinical effects and safety of CGEC for IBS-D were included. Global improvement of IBS-D symptoms was used as the primary outcome. The data were analyzed by RevMan 5.3 software. Risk ratio (RR) calculations and 95% confidence intervals (CI) were used for dichotomous outcomes, and mean difference (MD) with 95% CI were used for continuous outcomes.

Results: Twelve RCTs involving 1232 participants were included. Compared with western conventional medicine (WCM) alone (i.e. gastrointestinal spasmolytic and probiotics), CGEC demonstrated no significant differences in global improvement of IBS-D symptoms (RR 1.09, 95% CI [0.97,

1.23]), reduction in stool frequency (MD 0.14, 95% CI [−0.18, 0.46]) and relief of abdominal pain (MD 0.12, 95% CI [−0.27, 0.52]). The combination of CGEC and WCM had advantages over WCM alone in terms of global improvement of IBS-D symptoms (RR 1.37, 95% CI [1.25, 1.49]). Regarding the recurrence rate, both the CGEC group and the combined drug group were lower than the WCM group. In terms of safety, there is currently no evidence to suggest that CGEC can cause adverse reactions/events in patients with IBS-D.

Conclusion: Low or very low certainty evidence indicated that there was no difference between CGEC and WCM for the treatment of IBS-D. The combination of CGEC and WCM had a better therapeutic effect than WCM alone for the treatment of IBS-D.

P02.05

Potential Effects and Use of Chinese Herbal Medicine Pine Pollen (*Pinus pollen*): A Bibliometric Analysis of Pharmacological and Clinical Studies

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Abstract

Background: Pine pollen is a Chinese herbal medicine, being first recorded in the Tang Dynasty's *Xin Xiu Ben Cao*; it has been used in medicinal products and as a healthy food for thousands of years. The objectives of this study are to conduct a comprehensive literature search and bibliometric analysis to identify the breadth and volume of pharmacological and clinical studies on pine pollen (*Pinus pollen*) and to identify the potential effects and the use of pine pollen.

Methods: The literature was systematically searched and analyzed using a bibliometric approach. Five electronic databases were searched for pharmacological and clinical studies on pine pollen. Data were extracted and analyzed and included publication year, authors, study type, pharmacological research topics or clinical diseases/conditions, usage and type of preparation, authors' conclusions, and adverse effects.

Results: Of 239 publications identified, 180 were pharmacological studies, 37 were clinical trials, and 22 were reviews.

Numbers of publications increased particularly from 2004 onward. The top 10 most frequent topics in pharmacological studies were immune regulation, antisenility, antioxidation, liver protection, inhibiting prostate hyperplasia, inhibiting tumor cell proliferation, lowering blood glucose, lowering blood lipids, antifatigue, and improving intestinal function. The top 10 most frequent clinical diseases treated or where pine pollen was used as an adjuvant were bedsores, diaper dermatitis, hyperlipidemia, oral mucositis, eczema, hyperplasia of prostate, hypertension, prostatitis, type 2 diabetes mellitus, and radiodermatitis. Eight trials reported no adverse events associated with pine pollen, one reported mild gastrointestinal reactions, but symptoms disappeared without special management.

Conclusion: There have been an increasing number of publications on pine pollen during the past 20 years. Pharmacological studies have shown many potential benefits, and clinical studies have indicated some positive effects when it is either used as a single herb or as an adjuvant to treat disease. Its use as a topical agent, especially for skin diseases, was notable.

P02.09

Licensed Acupuncturists' Response to the Covid-19 Pandemic in the Us: Sources and Use of Evidence to Guide Treatment With Chinese Herbal Medicine

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Abstract

Background: Licensed acupuncturists (LAc) in the US started using Chinese herbal medicine (CHM) to treat patients with COVID-19 related symptoms soon after the pandemic began despite little information about the use of CHM to treat COVID-19. Throughout 2020 information about the use of CHM in China was disseminated in the US, and scientific studies were published. Our study examined the critical thinking process and information sources that US LAc used to prescribe CHM for COVID-related patients.

Methods: Following IRB approval LAc who had been prescribing CHM for COVID-related patients were recruited to complete an anonymous survey consisting of 28 questions soliciting information about demographics, modes of practice, sources of information, and treatment success. The survey was undertaken between 4/1/21 and 7/20/21.

Results: Our survey was undertaken by 125 LACs from all regions of the US. Average years in practice was 17 and 68% had received formal research training. The majority did not get infected, and of those that did most took CHM. Over 2/3 reported they had received or intended to receive the vaccine. Most treated less than 30 patients and mainly in the acute initial infectious stage. Appointments were predominantly undertaken remotely with 18% being in-person. 14% of respondents never closed their office, and 18% closed and reopened. The predominant form of CHM was granules and the duration of treatment was usually less than 20 days. A variety of information sources informed their practice. These were mainly from East Asian medical sources, but 61% reported also using biomedical sources. LACs reported few patient deaths and little development of long-COVID.

Conclusion: LACs in the US used CHM to treat COVID-related patients throughout the pandemic. They predominantly interacted remotely with patients, used granulated herbs, accessed information disseminated from China through collegial networks, and reported effective treatment outcomes.

P02.10

The Association with Chinese Medicine Body Constitution and Harmonic Amplitudes- Hemodynamic Status from Photoplethysmography

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Abstract

Background: Body constitution is the foundation of Chinese medicine. Individuals with a non-balanced constitution, is in a condition of reduced vigor in the absence of overt ailment, which is also recognized as sub-health. A sub-health individual may describe as health but may not be able to well adapted to a challenge. Harmonic amplitudes (HA) is one of the complete quantitative descriptions of periodic arterial pressure pulse waveforms and relates to health condition. However, the association with harmonic amplitudes and body constitution is not known. Therefore, we conducted the first preliminary study to investigate whether harmonic amplitudes may provide information about

underlying health by using a novel, non-invasive harmonic amplitudes photoplethysmography (PPG) device in individuals with different body constitution.

Methods: Forty-two young males (aged 20-40) were recruited. Participants' body constitution was evaluated by using the Constitution in Chinese Medicine Questionnaire and general health information were collected before a 20-minute upright cycling cardiovascular exercise challenge at 60-70% intensity followed by a 30-minutes resting. The first six harmonic amplitudes (C1-C6) from the data of PPG were collected and calculated by using the Fourier transform method.

Results: Our results indicated that 1) Body weight, waist and hip circumference of Qi-deficient group and Phlegm-dampness group were higher than that of balanced group. 2) The baseline of C3 of Qi deficient group is significantly lower than that of balanced group. 3) During exercise challenge, C1 to C6 levels were decreased (14%, 52%, 55%, 70%, 81%, and 83%, respectively) among all participants and C1 to C6 levels of non-balanced groups were lower than that of balanced group.

Conclusion: The study suggests that analyzing the harmonic amplitudes of non-invasively measured periodic arterial pressure pulse waveforms may be a potential and easy-to-perform approach to discriminate exercise-induced hemodynamic changes in the individuals with balanced (health) and non-balanced (sub-health) body constitution.

P02.11

Traditional Chinese Medicine for COVID-19 Pandemic and Emerging Challenges: an Online Cross-sectional Survey in China

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Abstract

Background: We aimed to investigate use of infection control behaviours, preventative and therapeutic interventions, and outcomes among respondents to an online survey during the COVID-19 pandemic in China.

Methods: The survey was designed by an international team, translated and adapted to simplified Chinese, including 132 kinds of traditional Chinese medicine (TCM) preparation recommended by guidelines. It was distributed and collected from February to May 2021, with data analysed by WPS spreadsheet and wjx.cn. Descriptive statistics were used to describe demographics and clinical characteristics, diagnosis, treatments, preventative behaviours and interventions, and their associated outcomes.

Results: The survey was accessed 503 times with 341 (67.8%) completions covering 23 provinces and four municipalities in China. Most (282/341, 82.7%) respondents reported no symptoms during the pandemic and the majority (290/341, 85.0%) reported having a SARS-CoV-2 PCR test at some point. Forty-five (13.2%) reported having a respiratory infection, among which 19 (42.2%) took one or more categories of modern medicine, e.g. painkillers, antibiotics; 16 (35.6%) used TCM intervention(s); while seven respondents combined TCM with modern medicine. All respondents reported using at least one behavioural or medical approach to prevention, with 22.3% taking TCM and 5.3% taking modern medicines. No respondents reported having a critical condition related to COVID-19.

Conclusion: We found evidence of widespread use of infection control behaviours, modern medicines and TCM for treatment and prevention of COVID-19 and other respiratory symptoms. Larger scale studies are warranted, including a more representative sample exploring TCM preparations recommended in clinical guidelines.

P02.12

Traditional Chinese Medicine for Smoking Cessation: An Umbrella Review and Meta-Analysis of Randomization Controlled Trials

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Abstract

Background: To conduct an umbrella review and meta-analysis of RCTs of TCM on smoking cessation to identify modalities and evaluate the effectiveness and safety of TCM.

Methods: RCTs, RCT protocols and SRs were systematically retrieved from CNKI, WANFANG, CQVIP, SINOMED, PubMed, Embase, Cochrane Library, clinicaltrials.gov and Chinese Clinical Trial Registry from their inception to August 1, 2021. Two authors extracted data independently and performed quality assessment of included RCT by ROB and included SR by AMSTAR-2. Effect was presented as relative risk (RR) or mean difference (MD) with 95% confidence interval (CI) using RevMan 5.4.

Results: There were no statistically significant differences between the TCM and conventional intervention in terms of the point prevalence at 7-day, 1-month, 2-month, 5-month and 6-month time points. For continuous abstinence rate from 1 month to 6 months, TCM (RR=0.81, 95%CI [0.69, 0.95], 9 trials) and TCM combined with conventional intervention (RR=1.32, 95%CI [1.14, 1.55], 2 trials) were better than conventional intervention. For continuous abstinence rate from 6 months to 1 year, TCM was better than placebo (RR=1.85, 95%CI [1.29, 2.67], 3 trials) and blank control (RR=2.27, 95%CI [1.12, 4.58], 1 trial). There were no serious adverse events caused by TCM intervention.

Conclusion: Low quality evidence demonstrates that TCM modalities may have better effectiveness on long-term abstinence rate. Further well-designed randomized trials are needed to confirm the TCM special beneficial effect in long-term smoking cessation.

P02.14

Adjunctive Acupuncture within a Total Joint Replacement Program

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Abstract

Background: Acupuncture is known to provide acute pain relief for various hospitalized patients such as postsurgical joint replacement. However, few have studied whether acupuncture integrated within a total joint replacement program provides adjunctive, non-pharmacological pain relief.

Methods: Clinicians electronically requested an acupuncture referral for patients admitted to University Hospitals Ahuja Medical Center and scheduled for Monday total knee

replacement (TKR) or total hip replacement (THR). A licensed acupuncturist approached referred patients individually on the afternoon of surgery (Day 0) as well as the morning after surgery (Day 1). Patients consenting to receive acupuncture had pre-acupuncture and post-acupuncture pain, anxiety and stress scores collected by the acupuncturist via 0-10 numeric rating scale. Patients were also asked a point of care question: "How would you rate the impact of acupuncture on your visit?" on a 1-5 Likert Scale after acupuncture sessions where 1=Very negative to 5=Very positive.

Results: From 05/01/2019 to 05/10/2021, a total of 327 patients received acupuncture on at least one day after TKR or THR and reported scores. The population was 67% female, 33% male, 83% White, 16% Black. Only 20% of patients had reported any prior acupuncture experience. On day 1, pain scores decreased by -1.31 points from 4.64 (2.3 SD) to 3.35 (2.4 SD) (n=327). On day 2, pain scores reduced by -1.14 points from 4.05 (2.2 SD) to 2.9 (2.3 SD) (n=274). Stress and Anxiety decreased on days 1 and 2 were even larger. Finally, on the Impact question, 59% and 67% responded 5=Very Positive on days 1 and 2 respectively.

Conclusion: Our early results suggest that adjunctive acupuncture is a viable choice for reduction of pain, anxiety and stress post TKR/THR. Referring clinicians and patients reported strong enthusiasm for acupuncture for pain relief. However, future research is needed to optimize the implementation of acupuncture in this population.

P02.15

Diverse Perimenopausal Women's Attitudes About and Interest in an Integrative Group Medical Visit

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Abstract

Background: Midlife women prefer a reduced lifespan instead of experiencing 30 days of perimenopausal (PMP) symptoms (hot flashes, pain, insomnia, cognitive, or mood problems) at their worst. Not all women can take hormone therapy, thus non-pharmacological, integrative health interventions are needed, but access remains a barrier due to lack of insurance coverage. Integrative Group Medical Visits (IGMV) have been

used to deliver care to several people concurrently and can be used to bill medical insurance. The present study aims to explore PMP women's interest in IGMV and identify relevant barriers and facilitators to accessing IGMV.

Methods: We conducted a community engagement focus group ("studio") designed to elicit community members' opinions about access to medical care and integrative health and what preferred integrative health components and delivery might be. Inclusion criteria: intact uterus; aged 40-55; reporting poor menopause-related quality of life and hot flashes; willing to provide menstrual history which indicates either late transition or early post-menopause stage; able to provide informed consent. The studio was recorded and transcribed, and data were analyzed inductive thematic analysis process and identified PMP women's needs and opinions.

Results: The majority of participants were Caucasian (75%) and the average age was 46.9 years (range 40-53 years). Identified themes included: 1) need for health education regarding PMP symptom types, timing, and duration, and PMP stages; 2) feeling "crazy" and overwhelmed by many symptoms; 3) the importance of social roles and pressures, including the sandwich generation; 4) keen interest in IGMV; 5) preferred delivery mode of telehealth due to busy schedules.

Conclusion: The community engagement studio with midlife women yielded significant information about the midlife women's need for health education about PMP timing and symptoms and revealed interest in IGMV delivered via telehealth. These findings highlight the importance of extensive engagement with potential stakeholders before the design and implementation of IGMV.

Clinical Research: Herbs and Supplements

P03.01LB

Efficacy and Safety of Melaleuca Alternifolia (Tea Tree Oil) For Human Health

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Abstract

Background: Tea Tree Oil is an essential oil steam-distilled from the Australian tea tree plant (*Melaleuca alternifolia*) used traditionally for centuries by indigenous Australians for treating wounds, burns, and insect bites. While there are many claims on the efficacy of Tea Tree Oil for various conditions, no recent systematic review has summarised its

clinical evidence. The aim of this review was to critically appraise evidence from randomised controlled trials.

Methods: Electronic databases (PubMed, Cochrane, Scopus) were searched in Sept 2021 for RCTs comparing Tea Tree Oil against placebo, usual care or no treatment in participants of any age, gender or health status. Data were extracted, and risk of bias was assessed by two authors independently following Cochrane methodology. Results were summarized narratively and synthesized thematically

Results: A total of 43 studies were included (Dermatology N=8, dentistry N=17, infectious disease N=9, ophthalmology N=5, podiatry N=3, mental health n=1). Potential benefits were identified for improving acne severity, dental plaque and for supporting gum disease treatment. In addition, Tea Tree Oil might be beneficial for treating MRSA infections, although intranasal use may cause irritation. Studies also show potential benefits for treating dandruff, Athletes foot, and Demodex eye infections. Overall, Tea Tree Oil appears to be safe in general, many studies, however, were associated with potential risk of bias limiting the conclusiveness of findings.

Conclusion: This systematic review provides the first comprehensive appraisal of clinical evidence for the therapeutic efficacy and safety of Tea Tree Oil for human health. While Tea Tree Oil appears to be effective for skin conditions, oral care and skin infections, potential risk of bias and unclear source and quality of Tea Tree Oil products limit the power of the results.

P03.02

Urinary Excretion Pattern of Xanthohumol Following 8 Weeks of Daily Dosing in Healthy Individuals

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Abstract

Background: Xanthohumol is a prenylflavonoid a constituent in beer with demonstrated in vitro and in vivo antioxidant, anti-inflammatory, and prebiotic activity, plus regulatory effects on intestinal permeability and bile acid metabolism. Additional clinical pharmacology data are necessary to develop xanthohumol as a potential therapeutic intervention. As such, the human in vivo urinary metabolite excretion profile was determined in this study.

Methods: Healthy adults aged 21-50 years were randomized to receive either 24 mg (67.72 µmol) of 99% pure xanthohumol

in a rice protein vehicle or rice protein placebo, each daily for eight weeks. Twenty-four hour urine samples were collected biweekly and the following compounds were measured in triplicate by liquid chromatography-mass spectrometry: xanthohumol, isoxanthohumol (IXN), 6-prenylnaringenin (6-PN), 8-prenylnaringenin (8-PN), desmethylxanthohumol (DXN), and dihydro-desmethylxanthohumol (DDXN). The percent of dose excreted was then calculated based on the amount of each metabolite in the 24-hour urine sample and their respective molecular weights.

Results: Fourteen individuals received xanthohumol (7 females and 7 males). The average percent of dose excreted daily over 8 weeks was $0.151 \pm 0.081\%$ as xanthohumol, $0.665 \pm 0.379\%$ as IXN, $0.070 \pm 0.122\%$ as 8-PN, and $0.007 \pm 0.015\%$ DXN. 6-PN and DDXN were not detected in urine for most participants. The intraindividual variability in excretion over 8 weeks ranged from 10.9-72.4% for xanthohumol, 11.5-118% for IXN, 22.6-200% for 8-PN, and 16.1-200% for DXN. The urinary metabolite excretion profile of xanthohumol reached a relative steady-state within two weeks of daily administration and did not vary significantly over the remaining six weeks of dosing.

Conclusion: In vivo, xanthohumol was isomerized to isoxanthohumol with minimal recovery of other metabolites in the urine. Other planned analyses, including plasma and stool, will provide a comprehensive picture of human metabolism of xanthohumol.

P03.03

The Usage of Dietary Supplements Among Patients with Chronic Pain and the Capture of this Data

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Abstract

Background: Little is known about the use of dietary supplements among patients with chronic pain in the United States and how best to capture patients' dietary supplement use.

Methods: A mixed methods approach will be used. First, we will use preliminary data from previous clinical trials at Boston Medical Center to capture common supplements used among patients with chronic pain. Next, we will collect information from the OPTIMUM study (an RCT for MBSR in Chronic low back pain) by conducting individual

interviews using an interview guide adapted from the National Health and Nutrition Examination Study. We will report on our testing of the dietary supplement use questions, in addition to testing the user-friendly digital capture of supplement label information (smart phone pictures, email, text message).

Results: Out of 159 participants with chronic pain at the Boston Medical Center, 136(86%) of participants were female, 91(57%) were Black, and 77(48%) had a household income between \$5K and \$29.99K. Common vitamin supplements included multivitamins (41.5%) and Vitamin D (49.7%). Common mineral supplements included Calcium (25.8%) and Iron (20.1%). Additionally, non-vitamin, non-mineral supplements often used were Green Tea (48.4%), and Garlic (42.1%). We will report on approximately 20 individual interviews on dietary supplement use for chronic use among participants of the OPTIMUM study, as well as the type of technology used to capture label data from patients, such as smart phone pictures, email, and text message.

Conclusion: Preliminary data from Boston Medical Center found that patients with chronic pain use a variety of different dietary supplements to manage their pain. More research is still needed on the topic for a more complete understanding of dietary supplement usage among patients with chronic pain. Methods of digital collection will aim to create more convenient data collection for patients.

P03.04LB

Double-blind, Placebo-controlled RCT for Efficacy and Safety of ANGOCIN® Anti-Infect N n Adult Patients with Acute Bronchitis

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Abstract

Background: Isothiocyanates (mustard oils) have sufficiently been investigated for antimicrobial effects in vitro. However, clinical research is scarce. A commercial product, licensed in Germany as a traditional drug in a fixed combination of horseradish (80mg/film tablet) and nasturtium (200mg) extracts, has been on the market for 50y, with some investigations on esp. upper respiratory tract infections. As it is also used for bronchitis, there is a necessity for an RCT.

Methods: 380 patients (m,f, ≥18 and ≤75 y) with the diagnosis of acute (or recurrent acute) bronchitis and a Bronchitis Severity Scale judged by physician (BSSinv) score ≥ 5 with the

onset of symptoms ≤ 48 h before were to take 4x3 film tablets as a regular dose of the commercial preparation over 10d or placebo. Primary outcomes were the difference between groups for BSSinv between day0 and day7. The secondary was the general assessment of efficacy by a physician, quality of life by SF-12, daily assessment by CAT (COPD Assessment Test), tolerability of study medication by investigator and patient (VAS), laboratory analysis, use of rescue medications.

Results: 384 patients (ITT, 134 mean age 37.3+13.2y) were randomized. On day7, improvement of BSSinv was superior by 0.81+0.22 units (SEM) for verum compared to placebo (p=0.0002), resp. for PP (n=360) by 0.76+0.20 (p=0.0002), mainly due to reduced cough, pain caused by coughing, and mucus production, not dyspnoea nor crackles. Responder rates were significantly superior at days3 and 7, not day 10. Patients reported 28 adverse events for verum, 18 for placebo, none serious, mostly transient headaches. 41 needed rescue medications, predominantly paracetamol (16 verum, 25 placebo n.s.). 2 placebo patients, none verum required antibiotics.

Conclusion: Compared to placebo, treatment with a combination of horseradish and nasturtium provided better relief of bronchitis symptoms and accelerated healing of acute bronchitis with good safety.

Clinical Research: Manual Therapies

P04.01

The Use and Benefits of Craniosacral Therapy in Primary Health Care: A Prospective Cohort Study

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Abstract

Background: Patients frequently use treatments complementary to standard primary care. This prospective cohort-study examined the use, benefits, and safety of Craniosacral Therapy (CST).

Methods: Consecutive out-patients utilizing CST from 2015 to 2019 were asked to provide anonymized data on symptom intensity, functional disability, and quality of life before and after treatment using an adapted 11-point numerical rating scale (NRS) version of the Measure Yourself Medical Outcome Profile (MYMOP). Treatment expectations were assessed as were concurrent therapies/medication and safety. Mean differences were analyzed using paired sample t-tests with 95 % confidence intervals (CI), predictors of treatment response using linear regression modelling.

Results: CST therapists submitted 220 patient records (71.4 % female) including 15.5 % infants and toddlers, 7.7 % children, and 76.8 % adolescents and adults. Patients received on average 7.0 ± 7.3 CST sessions to treat 114 different, acute and chronic conditions. Symptom intensity significantly decreased by -4.38 NRS (95 %CI=- 4.69/-4.07), disability by -4.41 NRS (95 %CI=-4.78/-4.05), and quality of life improved by 2.94 NRS (95 %CI = 2.62/3.27). Furthermore, CST enhanced personal resources by 3.10 NRS (95 %CI = 1.99/4.21). Independent positive predictors of change in the adapted total MYMOP score included patients' expectations ($p = .001$) and therapists' CST experience ($p = .013$), negative predictors were symptom duration ($p < .002$) and patient age ($p = .021$); a final categorical predictor was CST type ($p = .023$). Minor but no serious adverse events occurred.

Conclusion: In primary care, patients and parents of underage children use CST for preventive and therapeutic purposes. Considering the design limitations, CST appears to be overall effective and safe in infants, children, and adults.

P04.02

Stroking the Soul: a Qualitative Analysis of the Subjective Effects of Postoperative Foot Massage in Women With Breast and Ovarian Cancer

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Abstract

Background: Current research suggests supportive effects of foot massage on postoperative pain, sleep and anxiety. In cancer patients, there is limited data on individual needs and experiences after surgery. Using a qualitative approach, this study aimed to investigate the effects of foot massage as a supportive treatment in inpatient postoperative cancer care.

Methods: Fifteen women (mean age 61.7 ± 8.0 years, stage I-IV) were treated once with aroma oil foot massage for 50 minutes during the first week after surgery for breast or

ovarian cancer. Data were assessed by semi-structured interviews, audio-recorded, and transcribed verbatim. Data were coded independently by two coders using MAXQDA software and analyzed within a multidisciplinary team using qualitative content analysis.

Results: Women reported on five major topics including setting characteristics, physical and mental responses, adverse events, and suggestions for improvement: (1) Foot massage was generally described as a gentle and caring intervention enabling women to escape the invasive (post-)operative setting. (2) The massage further allowed women to relax and experience weightlessness and physical revitalization. In some women, sleep improved, as did abdominal cramps and postoperative pain, which in turn promoted digestion. (3) After days of negative mood, the women described more inner peace, felt reconciled with their situation, safe and confident, and appreciated the pleasure of touch and attention. They also reported having experienced a release from anxious thoughts and being able to temporarily forget that they have undergone surgery. (4) Only minor adverse events not related to foot massage were described. (5) For further treatments, the women requested a more quiet setting, time to rest subsequent to treatment, less guided imagery, and an earlier and repeated application of foot massage.

Conclusion: Women with breast and ovarian cancer assessed foot massage as being a physically and mentally supportive intervention in postoperative cancer care.

P04.03

RECOVARI – Efficacy and Safety of Massage on Surgical Stress in Colorectal Cancer Patients: Study Protocol for a Randomized Controlled Clinical Trial

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Abstract

Background: Patients' physiological stress reactions to surgery have been ameliorated by refining surgical techniques, and improving pain therapy. Another way to reduce

stress could be the use of Rhythmical embrocation (RE), a type of massage, which has been shown to reduce pulse rate and blood pressure. This trial investigates whether RE is effective to reduce stress, and what effects it exerts on sleep quality, nausea and vomiting, pain, medication consumption, mood, mobility, and length of stay. The occurrence of complications associated with RE will be established.

Methods: The trial will include 60 patients after colorectal cancer surgery, randomized into three different intervention groups: (1) RE performed by professionals, (2) RE performed by students; (3) empathic conversation. Interventions will be performed twice daily over four postoperative days. Before and after the intervention days, heart rate variability will be established overnight as a measure of stress. The patients will fill out questionnaires on pain, sleep, nausea/vomiting and well-being. Possible complications from RE will be recorded daily. Vital signs, medication and surgery data will be retrieved from the patient record. Nursing students will be interviewed about job satisfaction, empathy and their identification with RE.

Results: Trial registration: German Clinical Trials Register (DRKS), DRKS00023407 on 2nd November 2020. Ethical approval: ethics committee of the University Medical Center Freiburg (no. 356/20) on 20th October 2020.

Conclusion: Massage has been shown to have stress relieving effects. However, its effectiveness in clinical settings is rarely investigated. With the postoperative setting we investigate massage in a situation of high physiological stress. Reduction of stress perioperatively has shown to reduce complications and improve recovery. With heart rate variability we include a physiologic, objective parameter to supplement them against the questionnaire responses of patients. Massage might reduce stress in stressful situations in healthcare and contribute to a better outcome of these patients.

P04.04

Association Between Chiropractic Spinal Manipulative Therapy and Benzodiazepine Prescription in Radicular Low Back Pain: A Retrospective Cohort Study

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Abstract

Background: Chiropractic spinal manipulative therapy (CSMT) and benzodiazepines are commonly prescribed to treat radicular low back pain (rLBP), yet the association between these treatments is unknown. We hypothesize that patients receiving CSMT for incident rLBP have reduced odds of benzodiazepine prescription through 12 months of follow-up, after adjusting for confounding variables.

Methods: We conducted a retrospective cohort study with 3-, 6-, and 12-month follow-up windows and new-user, active-comparator design. Confounding variables associated with benzodiazepine utilization were adjusted for using propensity score matching. A national network of electronic health records data (TriNetX) of 73 million patients was queried on July 30, 2021, providing data from 2003 to 2021. Adults age 18-49 with newly-diagnosed rLBP were included. Exclusions were back pain related to serious pathology, non-radicular neurological conditions, spinal deformity, and benzodiazepine contraindications. Patients were allocated into cohorts according to CSMT receipt or non-receipt. The number, frequency, and odds ratio (OR) of benzodiazepine prescription over follow-up windows was determined before and after propensity matching.

Results: There were 9,206 patients (mean [SD] age, 37.6 [8.3] years, 54% male) in each cohort after matching. The OR of benzodiazepine prescription in the CSMT cohort was significantly lower throughout all follow-up windows before and after matching ($P < 0.0001$). The OR (95% CI) of benzodiazepine prescription was 0.56 (0.50-0.64) at 3 months, 0.61 (0.55-0.68) at 6 months, and 0.67 (0.62-0.74) at 12 months.

Conclusion: These results suggest that receiving CSMT for incident rLBP is associated with decreased likelihood of benzodiazepine prescribing. These findings are a real-world indicator of concordance with clinical practice guidelines among patients with rLBP receiving chiropractic care, and reinforce the use of CSMT for this patient population. This study should be replicated using a randomized controlled trial design.

P04.05

Theory-based Investigation of Behavioral Determinants to Perform Self-administered Knee Massage in a Self-management Routine for Knee Osteoarthritis

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Abstract

Background: There is an absence of a theory/conceptual framework explaining if self-administered massage (SAM) can be adopted by patients with Knee Osteoarthritis (KOA) as a self-management routine. The complexity of developing a new behavior by clinical populations requires a conceptual framework to identify the behavioral determinants. Two relevant theories, the Transtheoretical Model of Change (TTM) and COM-B were tested to identify the readiness of performing SAM as self-management and essential components of performing behavior, to gain insight for designing effective SAM programs.

Methods: N=430 either self-reported diagnosed KOA or chronic knee pain were recruited in an online observational study. Stages of readiness from the TTM and constructs of COM-B including capacity, opportunity, and motivation were measured. A factorial MANOVA (2×2) was performed to determine the multivariate effects of KOA and level of pain (independent variables) on theory constructs (dependent variables).

Results: Participants were 58.9 (SD=13.3) years old, 63.7% female, 85.5% Caucasian, 39.3% with bilateral knee pain. The 2-way MANOVA was found to be significant for KOA arm, $F(1, 413)=2.28, p=.008$, and pain classification, $F(1, 413)=3.42, p<.001$. The interaction knee condition (KOA vs. Knee pain) × pain intensity (low intensity vs. high intensity) demonstrated that there was a significant main effect for knee condition, $F(1, 413)= 1.83, p=.041$ such that more patients with KOA were in the 'action stage' of SAM behavior with higher score in 'physical' and 'psychological capacity'. Moreover, participants with higher pain intensity scored greater in 'action', 'reflective' and 'automatic motivation' for SAM. Notable findings from the interaction found KOA with higher pain intensity were in the 'action' stage of change

Conclusion: Findings indicate that high risk participants (KOA with high pain) are willing to perform SAM. The two theories help identify the stage (TTM) and constructs needed for behavior change (COM-B), which should be encouraged for developing SAM interventions.

P04.06

Implementation of the RECOVARI Trial on Effectiveness and Safety of Rhythmic Embrocations During the COVID19 Pandemic

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Abstract

Background: The RECOVARI study investigates in a randomized controlled trial the effect of rhythmic embrocations (RhE) on stress after surgery in 60 patients with colorectal carcinoma. Nowadays, the daily nursing routine in acute care hospitals in Germany faces great challenges. Increasing workload and the shortage of specialists are major problems. Under the situation of the COVID-19 pandemic, both developments have become more acute. Numerous, changing legal requirements for infection control had to be integrated into everyday nursing care. Sickness and care absences had to be compensated for. Integrating an intervention care study into everyday inpatient care in this pandemic situation required planning elements that can be adapted at any time. These can be found in project management, as this planning method includes times of crisis due to consideration of risks.

Methods: The following tools were used: 1. Division of the project into phases: Initialization, Definition, Planning, Implementation, Control and Closure. 2. SWOT analysis to categorize the project into Strengths, Weaknesses, Opportunities, Threats. 3. Evaluation of target groups and stakeholders. 4. Definition of objectives according to the SMART model. 5. Breakdown of the project into milestones. 6. Risk analysis. 7. During the implementation phase of the project, further project management tools were used, such as controlling, quality management and error management.

Results: The tools of project management could be related to the planning and implementation of the RECOVARI study and supported the process significantly. Despite the tense situation in nursing, the RECOVARI study was able to find its place on the wards. Stakeholder feedback has been consistently positive. The planning and implementation was successful.

Conclusion: The following "4 C's" have emerged as the fundamental tasks for this implementation: • Communication with target groups and stakeholders • Cooperation with the stakeholders • Coordination of the study relevant measures • Control of the processes and project management

P04.07

Hospital-Based Massage Therapy Interventions in Patients with Cancer: A Retrospective Chart Review

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Abstract

Background: Patients with cancer, receiving a multitude of treatments, experience cumulative side effects resulting in pain and anxiety. Treating the side-effects of cancer treatment is the focus of Hospital-Based Massage Therapy (HBMT), an emerging specialty in massage therapy that focuses on providing non-pharmacological interventions for individuals who are medically complex. This study examined the results of HBMT intervention for pain and anxiety of people living with cancer.

Methods: A retrospective chart review of 177 adult patients with cancer. Patients received a 15-minute hand, foot, or both hand/foot massage at different pressures, from HBMT trained licensed massage therapists, during their chemotherapy-infusion treatments or hospital stay at an academic medical center. Pain and anxiety were measured using the visual analog scale (VAS) on scale from 1-10, before and after intervention. Data are presented as medians and non-parametric tests were used to identify differences. Spearman correlations were determined when appropriate. Statistical significance is assumed at $p < 0.05$.

Results: Full data sets were collected on 85 patients. Pain and anxiety significantly improved by 25% and 60%, respectively, ($P < 0.0001$) after the hand and foot massage. There was a significant positive correlation between the level of pain pre-massage and the difference in pain before and after treatment ($r = 0.26$, $P = 0.025$). There was an even stronger correlation between the level of anxiety pre-massage and the difference in anxiety before and after treatment ($r = 0.58$, $P < 0.0001$).

Conclusion: One session of hospital-based massage therapy decreased pain and anxiety in patients undergoing treatment for cancer and, moreover, pain and anxiety decreased more in those patients who had higher initial values. These results indicate that massage is a potentially beneficial non-pharmacological treatment in patients suffering pain and anxiety after cancer treatment.

P04.08

Providing Alternatives for Patients at a FQHC in Washington, DC: Integrative Medicine Services (Acupuncture & Massage Therapy) for Chronic Pain

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Abstract

Background: To examine the experience of low-income, medically underserved patients receiving acupuncture and/or massage for chronic pain at an FQHC in Washington, DC.

Methods: 31 patients with chronic pain were identified by their primary care physicians. Utilizing funds from a Health Resources and Services Administration (HRSA) grant, massage therapists and acupuncturists were recruited by Access to Integrative Medicine (AIM) Non-Profit to offer free integrative medicine services. English or Spanish speaking patients who received at least four treatments were recruited for one-on-one interviews as well as a focus group. Ultimately, fourteen patients took part and the average age was 58. IRB approval was obtained from George Washington University. Participants were asked questions concerning their chronic pain and quality of life (QOL), their understanding of integrative medicine treatments, and their use and perceptions of medication to treat chronic pain.

Results: Coding of the transcripts revealed positive QOL improvements from the acupuncture and massage treatments. All participants reported at least some improvement in their pain from the treatments and all indicated they would be interested in further acupuncture and/or massage treatments in the future. Their decisions for treatment focused primarily on a willingness to try more natural treatments that did not cause adverse side effects, and in some cases, desperation to find a treatment that helped manage pain after trying other interventions including medication and physical therapy. Additional positive effects included a deep sense of calm and relaxation participants felt during treatment, improvement in pain symptoms, as well as benefits experienced for conditions other than pain.

Conclusion: Acupuncture and massage were overwhelmingly viewed as treatments that could improve pain symptoms and QOL. This study demonstrates the important role integrative approaches to pain can play and highlights the need to reduce accessing for marginalized communities with chronic pain.

P04.09

Definition and Classification for Adverse Events Following Spinal and Peripheral Joint Manipulation and Mobilization: A Scoping Review

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Abstract

Background: Spinal/peripheral joint manipulation/mobilization are interventions used by many professions worldwide. Cultural and regulatory differences may significantly influence how an adverse event (AE) is defined and their classification system. This scoping review mapped the AE definitions and classification systems following spinal/peripheral joint manipulation/mobilization for musculoskeletal conditions in adult populations with the current literature, particularly exploring differences in geographical areas.

Methods: Eight medical databases and the grey literature were searched from inception to Feb2021. The inclusion criteria were: any peer-reviewed study design, adult population, musculoskeletal condition, spinal/peripheral joint manipulation/mobilization, and providing an AE definition and/or severity classification. At least 2 authors were involved in title/abstract screening and full-text review followed by discussions to resolve conflicts. Data from included studies were extracted and categorized into studies providing a direct or indirect AE definition and/or classification system.

Results: Ninety-eight studies were included from the initial 8248 studies identified. These studies were published between 1993-2021 and mostly from North America (n=42) and Europe (n=36). There were 78 unique references within the 69 studies that provided a direct definition, and 27 unique references from the 29 studies providing an indirect definition. Of the direct definition studies, the ones in North America often referenced studies by Carnes (2010), Carlesso (2010), and Carlesso (2011); studies conducted in Europe often cited Carnes (2010a, 2010b), Carlesso (2010), Senstad (1997), and Caigne (2004); and studies conducted in Asia referenced work from Spilker (1995).

Conclusion: AE citation trends specific to geographic locations were identified in this study, as well as a paucity of studies focused on AE from all parts of the world, clearly demonstrating a limitation in knowledge exchange across continents. As a standardized AE definition and classification system is developed it is of great importance to support the development of investigations related to this topic in all locations.

P04.10

Comparison of Care-Ally Assisted Massage vs. Waitlist Control for Veterans with Chronic Neck Pain

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Abstract

Background: Chronic neck pain is prevalent and challenging to treat in Veterans. Despite evidence of massage's effectiveness for chronic neck pain, multiple accessibility barriers exist. The Trial Outcomes for Massage: Care Ally-Assisted vs. Therapist Treated (TOMCATT) study began as a 3-arm, randomized controlled trial of two massage delivery approaches for Veterans with chronic neck pain. Because of treatment engagement and retention challenges exclusive to the care ally-assisted massage (CA-M) study arm, TOMCATT was modified to a 2-arm trial that included therapist-delivered massage and waitlist control arms. This analysis compares neck pain outcomes between CA-M and waitlist control (WL-Co) prior to modification.

Methods: The CA-M intervention consisted of in-person training for veteran/care-ally dyads to learn a standardized 30-minute massage routine, instructional DVD, and printed treatment manual. Participants were asked to complete three care ally-assisted massage sessions weekly for 12-weeks. Outcomes were collected at baseline, 1-, 3-, and 6-months and included validated measures of neck pain severity and associated disability and other validated instruments. A linear mixed-model approach was used for analysis.

Results: Participants (N=203) were 56.7±14 years of age, 75% White, 15% Female, 75% married/partnered. Among 102 CA-M participants, 45% did not attend the training, subsequently withdrew from the study, and were more likely to be younger (p=0.016) and employed (p=0.004). Compared to WL-Co, CA-M participants had statistically significant reductions in pain-related disability at 3-months (-3.4, 95% CI=[-5.8, -1.0]; p=0.006) and 6-months (-4.6, 95% CI=[-7.0, -2.1]; p<0.001) and pain severity at 3-months (-1.3, 95% CI=[-1.9, -0.8]; p<0.001) and 6-months (-1.0, 95% CI=[-1.6, -0.4]; p=0.007), respectively.

Conclusion: In this analysis, care-ally assisted massage led to greater reductions in chronic neck pain with disability and pain severity compared to waitlist control, despite treatment engagement and retention challenges. Future work is needed to determine how to better engage Veterans and their care-allies to attend CA-M training.

P04.11

Mixed-Methods Examination of Comorbid Mental Health Symptomology for Veterans with Chronic Neck Pain: A TOMCATT Study Secondary Analysis

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Abstract

Background: Massage therapy for chronic pain is also thought to positively impact concurrent mental health symptoms including anxiety and depression. Comorbid chronic pain and mental health issues are rising among U.S. veterans, and veterans increasingly seek massage for pain treatment. Massage therapist treatment notes may elucidate massage's impact on pain-accompanying mental health symptoms. The ongoing Trial Outcomes for Massage: Caregiver-Assisted vs. Therapist-Treated (TOMCATT) study examines therapist-applied massage for chronic neck pain in veterans and provides an opportunity to investigate massage therapists' consideration/notation of mental health symptoms in treatment notes and massage's impact on mental health symptoms accompanying chronic pain.

Methods: Convergent parallel mixed-methods study design with retrospective chart review on TOMCATT massage treatment charts (qualitative) and exploratory analysis on data extracted from medical records and study outcome surveys (quantitative) assessing anxiety (GAD-7) and depression (PHQ-9) at baseline and post-intervention. References to mental health status during up to 24 twice-weekly treatments were extracted and examined.

Results: N=100 participant charts resulted in 1,553 treatment sessions. Eighty-eight unique mental health related notations occurred in 33 separate charts. Extracted themes include what therapists notate, notation timing, and conveyed notation impression. Half of notations (51%) offered a negative impression, often indicating concern about returning pain after treatment end. No significant changes were observed in mental health measures generally or by reported mental health-related diagnosis, completed treatments, or treatment duration.

Conclusion: Increases in anxiety-related notations toward treatment end may reinforce chronic pain and mental health connections. Further integration of qualitative and quantitative data may reveal insight about the impact of returning pain on mental health. The lack of mid-treatment mental health assessment data may obscure positive treatment impact on emotional during massage. The reviewed charts were written as a treatment record rather than intentional data collection within the research context and may reflect mental health documentation outside the research setting.

P04.12

Massage Utilization during Unknown Risk: Investigating Client Affective Characteristics and Support Domains

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Abstract

Background: The COVID-19 pandemic created unprecedented circumstances for massage therapists across the nation. Shutting down massage businesses created issues with treatment continuity for those who use massage to help manage symptoms of health issues. Social distancing increased concerns for negative mental health outcomes related to anxiety, depression, and suicidality. Massage therapy has shown benefit for anxiety and depression while also directly and indirectly supporting affect.

Methods: Cross-sectional survey study examining affective characteristics and supportive domains for adults seeking and abstaining from massage treatment during the COVID-19 pandemic. U.S. massage clinicians and clinic owners informed past, current, and new clients of the research opportunity. Participants completed online Patient-Reported Outcome Measure Informational Systems (PROMIS) measures of anxiety, depression, sleep disturbance, pain behavior, companionship, emotional support, social isolation, and self-efficacy. Between group differences were examined by total scale score and pathology category.

Results: N=304 were recruited by massage therapists as course of business or through email between September 2020 to March 2021; age=51.4±14.1 years old; 82.1% female. T-score means for all measures and cohorts were in the non-pathological range. Respondents reported pain as the most frequent general health concern (86.2%) with half of respondents reporting headaches. Respondents who abstained from treatment (n=97,

age=52.9±12.9) reported reduced levels of daily activity self-efficacy ($t=2.26$, $p<0.05$) and were more likely to report financial hardship ($\chi^2=11.15$, $p=0.011$). Those seeking services ($n=202$, age=51.6±15.1) were more likely to receive treatment monthly or biweekly ($\chi^2=103.16$, $p<0.001$). Post-vaccination approval respondents ($n=109$, age=50.4±14.3) had significantly increased levels of emotional support ($t=2.00$, $p<0.05$) and significantly decreased depression totals ($t=1.97$, $p<0.05$) compared to pre-vaccination respondents ($n=195$, age=51.9±14.5).

Conclusion: There were limited significant findings. Effects seen within this population primarily highlighted differences in emotional and social domains. These findings are congruent with other research that found positive mental health outcomes based on level of social support.

P04.13

Hospital-Based Massage Therapy Provides Symptom Relief to Patients and Specialized Clinical Education to Certified Massage Therapists

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Abstract

Background: The purpose of this study is to assess the impact of an inpatient massage therapy intervention on patients' pain and overall quality of life while also providing clinical training to massage therapists seeking to develop specialized skills in care for hospitalized patients.

Methods: This clinical service provides weekly massage therapy (one-time or recurring) to patients admitted to UCSF Medical Center between July 2021 and June 2022. Pre- and post-intervention pain scores were assessed using a visual analog pain scale. Data was collected over 4 month period. During this period, two hundred fifty six (256) patient sessions were offered. Pre and Post pain scale numbers were collected. Additional symptoms and qualitative impact were assessed using a post-intervention survey tool.

Results: Results demonstrated a reduction in pain scores immediately following massage intervention, as well as qualitative interview findings that massage therapy was associated with improved quality of life during a hospital stay. Qualitative interviews also demonstrated that this clinical training provided invaluable education to massage therapy fellows. Massage therapy fellows reported the clinical experience as the most effective learning activity.

Conclusion: In conclusion, inpatient massage therapy is an effective intervention to reduce pain and improve quality of life among hospitalized patients while also contributing to the

education of massage therapists who wish to develop specialty skills caring for hospitalized patients.

P04.14

Human Touch: Perceptions of Self-Efficacy From a Non-Pharmacology Treatment for Individuals Living With HIV/AIDS

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Abstract

Background: The purpose of this study was to explore how massage therapy affected self efficacy for people living with HIV/AIDS.

Methods: A phenomenological, qualitative research study was conducted at Aid for AIDS of Nevada (AFAN). Participants received a massage and rich descriptive narratives were captured from the 12 participants, six female and six male, ranging in age from 30-67 years of age. The interviews were transcribed and coded for themes. For the purpose of this qualitative study, the research design included field observations and interviews. Data were analyzed using a phenomenological lens. The data was coded for themes that emerged from the data and grouped.

Results: Four thematic themes resulted from this data analysis: Self-efficacy, Human Connectivity through Touch, Physical & Mental Responses, and An Emotional Roller Coaster. Many of the participants expressed statements that the non-pharmacology treatment of massage therapy assisted them in making a variety of positive decisions, thus alluding to the question of self-efficacy. One of the major themes that emerged was the sense or feeling of human connectivity through touch.

Conclusion: Every participant in this study reported positive benefits following the massage therapy session and many expressed a newfound awareness of their bodies and overall well-being. This awareness is pivotal in initiating meaningful behavioral changes. The feelings of being cared for created a ripple effect where the participants begin to think about their decisions in a different light. Due to the limited time frame and study design, a longitudinal research study with HIV/AIDS patients would be an excellent tool to continue gathering data to see what the long-term effects of regular massage therapy could be. Additionally, there are numerous other methods that fall under the integrated medicine umbrella that could be tested and utilized to help

improve the quality of life and provide better care for people living with HIV/AIDS.

Clinical Research: Mind-Body

P05.01

Factors Associated with Successful Implementation of Worksite Mindfulness Interventions for Acute Care Nurses

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Abstract

Background: Effects of nurse stress and burnout on work engagement, absenteeism, and turnover are well documented as are associations with medication errors and lapses in care. Mindfulness-based interventions are widely recognized for reducing employee stress and improving coping and resilience. However, mechanisms of success and sustainability are difficult to ascertain due to multiple inter-related factors including intervention features, nurse characteristics, and complexities of healthcare environments. The purpose of this study was to determine contextual factors contributing to implementation success of worksite mindfulness-based interventions aimed at supporting nurse health and well-being.

Methods: A multi-phase, sequential, mixed-methods design explored critical aspects of the implementation process for worksite mindfulness-based interventions targeted to clinician groups that included acute care nurses working in academic medical centers. A descriptive, cross-sectional survey design was used to obtain information related to variations in worksite mindfulness interventions and implementation processes across multiple U.S. healthcare systems. Factors associated with implementation success were computed using regression analysis. Semi-structured interviews were completed to further explore, evaluate, and clarify strategies that have led to successful implementation and describe intervention, healthcare setting, or process-related barriers to implementation success.

Results: Significant predictors of implementation success within academic healthcare systems included offering adapted mindfulness programming ($p=.038$) and paid time ($p=.029$) to support employee participation. Of these two predictors, offering paid time for employee participation provided the most significant ($p=.008$) contribution to organizational implementation success and was validated qualitatively by organizational implementation leaders.

Conclusion: An understanding of how and why specific development and implementation strategies for mindfulness-based interventions are successful for nurses may be applicable to other interventions and more broadly to all healthcare professionals in the acute care healthcare environment. This is also valuable information for healthcare organizations that employ interventions targeted to employee well-being, especially considering the significant psychological impact of the COVID-19 pandemic on front line healthcare providers.

P05.02

Live Video Mindfulness Program is a Safe, Feasible, and Acceptable Intervention for Youth with Inflammatory Bowel Disease

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Abstract

Background: Literature supports use of mindfulness-based stress reduction (MBSR) in adults with IBD, although little is known in pediatrics. Our aim is to study the feasibility and acceptability of an 8-week MBSR program delivered virtually to youth with IBD.

Methods: Two 8-session MBSR cohorts of youth with IBD were conducted live via a HIPAA-compliant, video-conferencing platform in Winter and Spring 2021. Mixed methods feasibility and acceptability data were collected through a semi-structured focus group, study-specific survey, and attendance data. Secondary outcomes included self-reported health-related quality of life (HRQOL).

Results: Thirty participants enrolled; 23 completed the MBSR course (Winter cohort=13, Spring cohort=10).

Participants (61% female, Mage=14.0 years, 61% non-Latinx White) with ~70% attending all 8 classes. Majority (87%) of participants rated the quality of the classes as good or excellent and 74% would recommend the course to others. Three themes emerged from the focus groups (n=17): (1) IBD-specific benefits: reduced stress (which some identified as an IBD trigger) and connecting with IBD peers; (2) mental health benefits: improved mood, new coping skills, increased awareness of thoughts and emotions; (3) virtual MBSR course was feasible and well-liked, although challenges included technology issues, increased distractions at home, and virtual environment fatigue. Schedule conflicts were an additional barrier in the Spring cohort. Participants identified multiple suggestions (e.g., hybrid model, increased interactive exercises) for improvement. No significant pre-post differences in HRQOL or stress were found.

Conclusion: The virtual MBSR course was feasible (high attendance and retention rate) and well-accepted. Participants identified strengths and weaknesses of the program and video format. Patient experiences may have been influenced by history effects associated with the pandemic. MBSR may be a useful tool to reduce stress and a potential adjunct therapy for youth with IBD. Larger studies are needed to understand the impact on HRQOL.

P05.03

Meditative Movement, Heart Rate Variability and Interoception To Improve Body Composition Among Breast Cancer Survivors: An Exploratory Analysis

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Abstract

Background: Meditative movement (MM) practices (e.g., Tai Chi, Qigong, Yoga) demonstrate improved body composition (i.e., body mass index, body fat) across recent systematic reviews/meta-analyses of intervention studies; however, there is limited research to establish mechanistic pathways of change. Given the often low-to-moderate intensity of MM, we propose that other factors inherent in these practices (i.e., parasympathetic nervous system activation, awareness of body/emotion connections) may favorably shift body composition.

Methods: In the context of a RCT (N= 167) with breast cancer survivors (M age=59.96; M body mass index=29.42; M body fat=38.94%) randomized to 8-weekly sessions of Tai Chi/Qigong, Sham Qigong or health education control (results reported elsewhere) secondary analyses were

conducted to explore factors likely to predict change in body fat (fewer based on limited data from participants, N=148). We regressed change in body fat on emotion and stress related factors (anxiety and depression; Profile of Mood States, and stress; Perceived Stress Scale), heart rate variability (HRV) to assess “coherence” as a marker of parasympathetic activation and balance of the autonomic nervous system, and interoception on the Multidimensional Assessment of Interoceptive Awareness.

Results: Final regression model overall ($R^2=.137$; $F=3.907$; $p=.003$) was significant. After subsequent iterations including HRV (normalized coherence) ($\beta=.187$; $p=.034$), and 4 of the MAIA subscales (Not-Worrying: $\beta=.195$; $p=.027$; Emotional Awareness: $\beta=.204$; $p=.046$; Self-Regulation: $\beta=.392$; $p<.001$; Body Listening: $\beta=.253$; $p=.015$).

Conclusion: Myriad factors may be associated with reduced body fat in MM interventions (e.g., changes in sleep, eating behaviors); preliminary examination of emotion, stress, and self-regulation/self-awareness indicate HRV coherence and interoceptive factors may be important targets of change. These factors may be achieved through shifting to a focus on the breath and attention to the body; select exploratory variables may act as mechanisms to explain improved body composition in response to MM.

P05.04

A Multi-Centre Trial on Eurythmy Therapy and Tai Chi in Elderly Patients With Risk of Falling (ENTAiER): A Trial Protocol

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Abstract

Background: In elderly people, multimorbidity and polypharmacy increase while sensory, motor and cognitive functions decrease. Falls occur in 30% of people aged 65 years and older at least once per year, with injuries at

10–20%. 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 eight trial sites, 550 outpatients aged 65 years and older with chronic disease and increased risk of falling will be randomly assigned (1:1:1) to receive either EYT or Tai Chi (for over 24 weeks) added to standard care or standard care alone. Seniors living a reclusive life or economically disadvantaged elderly will be particularly addressed. A motivation and communication concept supports the trial participants' compliance with trial procedures and practicing. Public and patient representatives are involved in the planning and conduction of the trial. Falls will be documented daily by the participants and ascertained during monthly phone visits. The falls efficacy scale, BBS, cognition (MoCA), Mood (GDS-15), quality of life (SF12), instrumental activities of daily living (IADL), use of medical and non-medical services (FIMA) and adherence will be assessed at months 3, 6, and 12 and inner correspondence with practices (ICPH) at month 6.

Results: The trial is funded by the German Federal Ministry of Education and Research (BMBF 01GL1805). Trial registration: www.drks.de. DRKS00016609. Registered 30th July 2019.

Conclusion: This study will determine whether EYT and Tai Chi reduce falls, injurious falls, fear of falling and healthcare utilisation and improve mobility, cognition, mood, quality of life and functional independence. A reduction of fall risk and fear of falling and an improvement of mobility, autonomy, quality of life, mood, and cognition are highly relevant for older people to cope with aging and diseases and to reduce healthcare costs.

P05.05

Acceptability and Feasibility of Mindfulness Based Intervention for Anxiety and Depression in a Community Health Center

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Abstract

Background: To evaluate the feasibility and acceptability of an 8-week mindfulness-based intervention in a community health center among patients with depression and anxiety.

Methods: This pilot study was conducted at the Institute for Family Health. Study participants were referred by

their primary care provider or by a collaborative care program. Each participant received 8 weeks of a mindfulness-based intervention virtually in a group setting. Each sessions were 120 minutes. Core components of MSBR included didactics, sitting meditation, bodyscan and movement. The primary outcome was pre- and post-intervention PHQ9 and GAD7.

Results: A total of 49 patients were enrolled of which 63% attended. Patient demographics confirmed majority underserved status, with 49% covered by Medicaid and 45% reporting annual income under \$20,000. Of those who attended, 77% self-reported as female, 3% as non-binary, the rest self-reported as a male. 41% of enrollees self-reported "Black" as race, and 29% "Latino/Hispanic" as ethnicity. At the time of preliminary analysis, we had 8-week assessment data on 31 patients and 12-week assessment data on 21 patients. PHQ 9 assessing depressive mood showed the mean score reduction from 9.75 to 4.86 from pre intervention to 4 week post intervention. GAD7 the mean score reduction was noted from 10.75 to 6.14. No significant changes are noted in Self compassion and CESD.

Conclusion: Our pilot study demonstrated that mindfulness based intervention for depression and anxiety can be successfully delivered in a primary care setting for an underserved population. Preliminary results also suggest that participants achieved improvements in depression and anxiety after the intervention. Further analysis will be completed.

P05.06

Impact of Acute Yoga Stretching on Systemic Inflammation: A Pilot Study

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Abstract

Background: To conduct a pilot feasibility three-arm-RCT to gather preliminary data on the impact of an acute yogic stretching intervention on the dynamics of circulating inflammatory cytokines in healthy yoga-naïve participants.

Methods: Participants (N=30) 40-60 years old, yoga-naïve, and relatively sedentary, were recruited during 2020-2021. During visit 1, a baseline blood sample was drawn before each participant was randomized into 3-groups (intense or mild stretching or control). Both stretching groups received a one-on-one 1-hour yogic stretching session; stretching was supported by props (blocks and mats), and sessions were video-recorded. After the intervention, 6 blood samples were obtained at different time points (0-, 30-, 60-, 120-, 180-minutes, and 24h). Cytokine levels were quantified using a human inflammation antibodies panel and flow cytometry. Due to the study's pilot nature, analyses focused on descriptive statistics and exploratory analyses for Area Under the Curve (AUC), generalized linear mixed models to characterize longitudinal patterns of cytokines, and Pearson correlations.

Results: We observed that it was feasible to recruit participants, and collect and analyze blood samples even during the COVID-19 pandemic; no adverse events were reported. The recruitment process took 11 months; 97% of participants completed two study visits, and 88% adhered to the yogic stretching protocol. Our preliminary results identified 8 cytokines that were the most informative when comparing the AUC between groups. At the same time, our correlation analysis identified 7 cytokines (e.g., IL-6) that were the most informative when comparing delta correlations from baseline to the first timepoint post-intervention.

Conclusion: It was feasible to measure the systemic effect of an acute intervention of yogic stretching on the short-term dynamics of inflammatory cytokines. Results provide valuable information for informing the future design of a fully powered study.

P05.07

Patterns of Interaction Between Mindfulness Instructors and Primary Care Providers Regarding Patients With Chronic Low Back Pain

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Abstract

Background: We developed a survey assessing the 2016 Core Competencies for Interprofessional Collaborative Practice with the goal of understanding the attitudes of

Primary Care Providers (PCPs) towards collaboration with instructors of the Mindfulness-Based Stress Reduction Program (MBSR), an eight-week program delivered to patients with chronic low back pain.

Methods: A 25-question survey was developed in REDCap and sent via email to providers at sites involved in the OPTIMUM study: UPMC General Internal Medicine Division, Pittsburgh, PA, the Piedmont Health Services Family Medicine Section, Chapel Hill, NC, the Boston Medical Center General Internal Medicine and Family Medicine Sections, Boston, MA, and the University of Massachusetts Family Medicine Section, Worcester, MA. Descriptive statistics were used to analyze the data.

Results: Among 118 eligible survey respondents, 85 (72.0%) were female, mean age was approximately 41.5±10.1, 98 (83.1%) were medical doctors, and the majority of respondents (65.2%) had been in medical practice ≤ 10 years. Of these PCPs, 83 (70.1%) reported familiarity with MBSR, and 49 (59%) of them recommended patients to MBSR programs at least once a year. Of these 49, eight (6.8%) reported collaboration with mindfulness instructors. All eight PCPs found that communication increased the quality of patient care at least a little bit. Reasons for not referring to MBSR included lack of knowledge of evidence-based treatment guidelines, perception of low patient acceptance, insurance coverage, and availability/accessibility.

Conclusion: We found that while most of the PCPs were familiar with MBSR programs, less than half recommended it to their patients, and only a few actually interacted with mindfulness instructors. Since those who did communicate with instructors found that it improved patient care, methods to augment communication should be considered. This could include integrating PCPs with mindfulness instructors in healthcare settings and more education for PCPs about the referral process as well as the evidence-based efficacy of MBSR.

P05.09

Self-transcendence During Mindfulness Training Decreases Clinical Symptomology: Results from Five Randomized Clinical Trials

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Abstract

Background: Self-transcendence is an established, therapeutic mechanism of mindfulness. Yet, few empirical studies have examined the clinical benefits of self-transcendent experiences arising during mindfulness-based interventions (MBIs).

Methods: In this presentation, we will review 5 randomized clinical trials (RCTs) that investigated self-transcendent experiences in the context of ultra-brief MBIs and an 8-week MBI, Mindfulness Oriented Recovery Enhancement (MORE).

Results: Studies 1 (N=266) and 2 (N=118) found [1] a single, preoperative, ultra-brief MBI was able to induce self-transcendent states in a general sample of knee and hip replacement patients (Study 1: $p < .001$; Study 2: $p = .001$), [2] mindfully-induced self-transcendent states were associated with immediate decreases in pain intensity (Study 1: $\beta = -.26$, $p = .001$; Study 2: $\beta = -.29$, $p = .005$), and [3] the experience of self-transcendence before surgery predicted better postoperative physical function ($\beta = .21$, $p = .033$) and less pain ($\beta = -.40$, $p = .021$). Study 3 (N=62) found that after 8-weeks of MORE, [1] opioid-treated chronic pain patients were able to achieve self-transcendent states during a laboratory-based, self-guided meditation practice (), [2] mindfully induced self-transcendent states were positively correlated with frontal theta power ($\beta = .25$, $p = .038$), and [3] increases in frontal theta power predicted opioid dose reductions 4 months after treatment ended ($b = -1.83$, $p = .002$). Studies 4 (N=95) and 5 (N=250) found [1] 8-weeks of MORE increased the frequency with which opioid-treated chronic pain patients experienced self-transcendence (Study 4: $F = 82.43$, $p < .001$; Study 5: $F = 44.74$, $p < .001$), and [2] increases in self-transcendence predicted better pain (Study 4: $\beta = -.20$, $p = .025$; Study 5: $\beta = -.23$, $p = .024$) and opioid-related (Study 5: $\beta = -.23$, $p = .027$) outcomes up to 9-months after treatment ended.

Conclusion: These findings suggest self-transcendence is a viable therapeutic mechanism, even in samples of novice mindfulness practitioners. These findings further suggest the realization of self-transcendent states during MBIs is associated with both immediate and long term health benefits. Thus, further research on mindfully-induced self-transcendent states is indicated.

P05.10

Mothers with Cancer: A Qualitative Investigation of the Desirability of a Mindfulness Based Cancer Recovery Program for Coping with Role Demands

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Abstract

Background: Mothers with cancer report self-stigma associated with failing to successfully balance maternal roles and cancer. It is important to explore how mothers with cancer cope with their role demands to understand their unmet needs and develop tailored integrative interventions, yet this remains unexplored. Our objectives were to investigate: the roles of mothers with cancer and perceived ability to cope; the impact that role demands have on overall quality of life (QoL), and; whether mothers feel Mindfulness Based Cancer Recovery (MBCR) would support their QoL and coping ability.

Methods: We used a cross-sectional, concurrent mixed-methods design. Participants included mothers diagnosed with cancer, currently in or within three years of completed cancer treatment, experiencing cancer-related disability, and with a dependent child (<18 years, living at home). Participants completed a one-on-one semi-structured interview and data was analysed using a thematic inductive approach. A participant authenticity check will be conducted using two focus groups.

Results: N=15 mothers participated. Their mean age was 44 years. Treatment duration ranged from 1 month into active treatment to 3.5 years post treatment. Relationship status included married, single, or common law. Children's developmental stages ranged from infant to high school. Mothers reported taking on most childcare and household roles despite their cancer diagnosis, but the pressure to do so was internally motivated by the perception that their helpfulness and self esteem are directly tied. Strategies to cope with role demands included "self care", employing a "present focus" and "seeking balance". Mothers reported a lack of professional support to help them cope. Integrative therapies such as MBCR and Yoga were seen as important aspects of care.

Conclusion: These results can inform future program development and improve clinical care. Participants reported various role demand challenges and expressed an unmet need for greater access to integrative therapies as part of their care and coping regimen.

P05.11

Preoperative Pause: Comparing a ten-minute Guided Meditation before Surgery to Structured Silence for Reducing Patient Pre-operative Anxiety

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Abstract

Background: A non-pharmacological intervention to lessen pre-operative anxiety of patients in surgical settings that seamlessly fits into the workflow, has the potential to be a scalable, low-cost intervention. Higher levels of pre-operative anxiety have been found to be a predictor of severe post-operative pain and chronic pain after surgery, influencing the success and quality of a patient's recovery.

Methods: Semi-structured interviews of former surgical orthopedic patients provided a qualitative assessment to inform study team regarding the pre-operative experience of anxiety. Noisy environment and fear of the unknown were dominant themes that informed the design of the pre-operative pause interventions. Enrolled participants (n=42) were recruited within the Perioperative Environment of the Department of Orthopaedics, and provided informed consent. Participants were randomized into the active group (n=20), a ten-minute audio-meditation, or the control group (n=22), a ten-minute recorded silence, received through lpad/headphones while waiting for the surgery in the preoperative room. Participants completed the Promis short form Emotional Distress Anxiety survey, levels of anxiety on the VAS pre/post intervention, and one question on patient-perceived helpfulness of each study condition, via a secure, RedCap survey on the lpad. Surgical team and research personnel were blinded to the condition the patient received. Analysis was completed using STATA16/SE16 software; a 95% confidence interval was utilized and p-value of <0.05 was considered significant.

Results: Both study conditions showed decreased patient anxiety pre/post intervention, but the active audio meditation was associated with significantly higher decreases in anxiety scores than the silence intervention (p=.0152). The difference was also significant in overall self-report anxiety levels (p=.0001). Patient-rated intervention helpfulness was significantly greater in the meditation group (p=.0001) as compared to the silence intervention.

Conclusion: Non-pharmacological means of addressing patient pre-operative anxiety should be explored as a pragmatic addition to pre-operative offerings to lessen patient anxiety before surgery.

P05.12**Feasibility of a Pilot Randomized Trial of Virtual and In-Person Qigong for Cancer Caregivers**

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Abstract

Background: Caregiving for someone with cancer can cause significant psychological and physical distress, leading to lower overall quality of life. Although mind-body interventions offer a solution for caregiver distress and to improve quality of life, current research has not evaluated the virtual delivery of mind-body programs for caregivers in the home. The purpose of this study was to examine and compare the feasibility of providing a virtual Qigong program, an in-person Qigong program, and a self-care control for cancer caregivers.

Methods: A three-arm, pilot, randomized controlled, mixed-methods clinical trial design was used to randomize cancer caregivers to: 1) virtual Qigong classes; 2) in-person Qigong classes; or 3) a self-care control. Feasibility goals included recruiting 54 caregivers over 12 months, ≥ 50% of screened individuals study eligible, ≥ 50% of eligible individuals enrolled, and < 20% lost to follow-up at 12 weeks. Participants were considered adherent to the intervention if they attended ≥ 70% of all Qigong classes.

Results: A total of 47 caregivers were recruited (in-person group: n=15; virtual group: n=16; control group: n=16), thus falling short of the recruitment goal by 13%. All other feasibility metrics were met: 1) out of total individuals screened, 72% were eligible; 2) 64% of those eligible enrolled in the study; 3) 13% were lost to follow-up; and 4) 63% and 73% of participants in the virtual group and in-person group attended ≥ 70% of all Qigong classes, respectively.

Conclusion: Findings indicate that a virtual Qigong intervention for cancer caregivers is feasible. Not meeting the recruitment goal was partially explained by the COVID-19 pandemic occurring during the study time period. Ongoing analyses of qualitative and quantitative data will inform facilitators and barriers related to meeting the feasibility metrics, as well as providing initial data regarding the effectiveness of Qigong programs for subsequent clinical trials.

P05.13**Addressing COVID-19 Challenges in a Randomised Controlled Trial on Exercise Interventions in a High-Risk Population**

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Abstract

Background: The coronavirus disease 2019 pandemic is a threat to ongoing trials with regular in-person meetings, particularly in high risk populations. Guidance on how to handle and safely continue such trials is lacking. The ENTAIER trial was investigating the influence of mindful movements on fall risk and other outcomes in 550 chronically ill elderly individuals. The movements were regularly performed in groups over 6 months. After the trial began, lockdowns stopped all in-person meetings. The exercise programme had to be substituted by a telemedicine programme. The objectives, therefore, were to identify challenges, tasks and procedures to achieve high-quality, efficacy, safety, and enable human encounter and motivation.

Methods: We proceeded as follows: 1) A literature review on the quality and feasibility of telemedicine in general, and specifically, in exercise training in elderly individuals. 2) Participation in two international telemedicine task forces. 3) Interviews with study therapists, personnel, international experts, scientists and patient representatives. 4) Evaluation by the trial team and planning and implementation of changes in the trial organisation.

Results: Identified topics were: technical equipment; ability to adequately manage the technology and telemedicine intervention; reservations and concerns about the technology; safety and data protection in using the technology; and study design. The two major options found on how to continue the trial in the COVID-19 situation were a complete switch to telemedicine and a partial switch in the form of risk management implemented into the former design.

Conclusion: The management of an ongoing clinical trial in a national or international crisis with a minimum of time and extra financial resources, alongside with two checklists on steps and procedures for trial continuation and telemedicine implementation, may be informative for other researchers or healthcare providers faced with similar challenges and making similar decisions in the current situation or similar future scenarios.

P05.14

mHealth Platform for Mindfulness Self-Management of Chronic Pain Perspectives of Clinicians and Patients

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Abstract

Background: Purpose: Millions of Americans are suffering from chronic pain impacting their quality of life. In search of non-pharmacological strategies, patients struggle to find evidence-based treatments. GEMINI is a web-based platform for patients with chronic pain to access virtual integrative medical group visits, learn and regularly use mindfulness skills with support of medical provider. The goal of this study is to evaluate both patient's and provider's needs and expectations of the GEMINI platform.

Methods: We conducted a mixed method study with the outcome data including demographics, interview scripts, and three follow up surveys. During the focus groups, participants were shown real-time use of GEMINI, and answered questions about GEMINI's usability, features, and implementation.

Results: The study included 8 medical providers and 10 patients with chronic pain. Of providers, 75% were medical and 25% were mental health; 50% of providers had experience with medical group visits. The following themes were identified: 1) Wholistic approach to pain management combined with accurate symptom and intervention tracking can provide much-needed insight for symptom management on the level of individual patient. 2) Psychological safety and appropriateness of group interaction in a chat were emphasized. Participants suggested several features to address this issue. 3) Patient's goals and motivation were identified as critical component for engagement. At the same time, providers highlighted impact of potential overwhelm by technology and information.

Conclusion: Conclusions: This study is unique in reporting both patient and provider perspectives on technology use in integrative medicine. The results highlight the importance of technological built-in safety measures, opportunity for accurate symptom reporting. Patient motivation is considered not only as engagement factor, but also as result of patient experience with GEMINI. Future development and implementation of identified themes will allow evidence-based customization of integrated treatments.

P05.15

Understanding the Mechanisms Through Which Mind-Body Exercise Promotes Physical Activity: Using Focus Groups to Refine a Mindful Attention Script

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Abstract

Background: Multicomponent mind-body exercises (MBEs) are promising for promoting long-term physical activity (PA) engagement. However, there is limited understanding of how MBEs may improve PA. This mechanistic understanding (e.g., which intervention components and behavior change/self-regulatory processes are particularly relevant) is critical for optimizing MBEs to promote PA. In a future RCT, we plan to use a factorial design to examine the individual and combined effects of two components central to MBEs, mindful attention and exercise, on key self-regulatory processes and downstream PA. As a preliminary step, we conducted focus groups to help refine the mindful attention content to be paired with treadmill walking in our future factorial trial.

Methods: Semi-structured focus groups were conducted among relatively sedentary patients with metabolic syndrome to assess the usefulness and acceptability of the mindful attention content for promoting PA. Audio recordings of mindfulness scripts (listened while seated and during walking) were played during the focus groups to elicit feedback. Transcripts were reviewed and grouped to identify high-level themes.

Results: Five focus groups (N = 16 total participants) were completed. Themes regarding participants' perceptions of the scripts included: 1) a desire for a greater focus on breath, posture, and the positive benefits of exercise; 2) the recognition that mindful movement can be purposeful and beneficial for PA; 3) the usefulness of descriptive metaphors to convey the concept of mindfulness; and 4) an understanding that the scripts promote nonjudgmental awareness of the body. Challenges to using scripts were the repetitive nature of the recordings.

Conclusion: The mindful attention scripts were well-received and participants offered helpful feedback to maximize acceptability. Focus group themes will be finalized and presented to an interdisciplinary panel to iteratively refine the content to be included in our future factorial RCT. Future work using this factorial design will help optimize MBEs for promoting healthy behaviors.

P05.16

Development of a Yoga Treatment Protocol for Gulf War Illness (GWI) in Veterans

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Abstract

Background: Chronic pain, fatigue, and cognitive issues are common symptoms in Veterans with GWI from the Persian Gulf War (1990-91). We designed a yoga protocol that would be effective in treating these symptoms. We provide a detailed description of the yoga protocol used in the study with the intention for wide dissemination and utilization in research and clinical settings.

Methods: We enrolled 75 Veterans in a 10 week randomized controlled trial (yoga group n=39). The weekly classes were led by a registered yoga instructor with an additional instructor assisting in adapting the yoga to the individual. Participants were asked to practice yoga for at least 30 minutes on 5 non-class days using a homework instruction sheet developed for the project. We addressed musculoskeletal pain with awareness of and attention to posture and alignment and imbalances in strength and flexibility and more general pain with attention to the more subtle practices of yoga such as controlled breathing and meditation. Yoga classes incorporated controlled breathing, postures, hand gestures, vocalization, and meditation. Across the yoga treatment, the balance of seated, standing, breath work and meditation were gradually adjusted for tolerance. Yoga poses were modified to be suitable for participants without prior yoga experience. Each technique was selected for its potential to reduce pain and improve body awareness, circulation and natural healing processes.

Results: The primary outcome of pain severity and interference (Brief Pain Inventory – Short Form) showed that yoga significantly improved pain severity and pain interference when compared to the control group receiving cognitive behavioral therapy (Bayley et al, 2020, J Psychiatric Res). Yoga also led to significant improvement in the 6-minute walk test, a potential indicator of fatigue.

Conclusion: The yoga protocol may be suitable for treating other forms of chronic multi-symptom illness and we discuss how the protocol can be adapted for online delivery.

P05.17

Taking a Mindful Stance: A Linear Regression Examining Pain, Protective Factors, and Physical Functioning

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Abstract

Background: Pain presents a major health challenge to individuals and society, being one of the most prevalent and complex conditions to treat. Pain is associated with negative outcomes such as impaired physical functioning. However, little is known about factors that may bolster physical functioning in the presence of pain. Mindfulness and resilience are two potential factors. The purpose of this secondary analysis was to evaluate the unique contribution of mindfulness and resilience in predicting physical functioning, over and beyond pain.

Methods: A linear multiple regression was conducted with age as a covariate entered at Step 1, pain entered at Step 2, resilience entered at Step 3, and mindfulness entered at Step 4.

Results: The current study is a secondary analysis of a larger parent study of internet-based mindfulness for mildly-stressed older adults. The sample for the current study was N = 59. Results indicate that pain significantly and negatively predicted physical functioning ($\beta = -.80$; $p > .001$) in Step 2. In Step 3, resilience did not significantly predict physical functioning ($\beta = .08$; $p = .30$). In Step 4, mindfulness ($\beta = .17$; $p = .03$) significantly and positively predicted physical functioning, while pain remained a significant predictor ($\beta = -.75$; $p > .001$). The order of entry for resilience and mindfulness was reversed in order to confirm results. Results did not change based on order of entry.

Conclusion: These results provide insight into the unique relationship between mindfulness, pain, and physical functioning. Mindfulness, specifically attention and awareness, is associated with improved physical functioning over and beyond pain, whereas resilience is not. This would indicate that while the relationship between pain and functioning still exists, mindfulness may be a useful protective factor for bolstering physical functioning, particularly in older adults where this relationship has been found to be prevalent.

P05.18

Mindfulness-Based Cognitive Therapy in Patients with Depression and Type 2 Diabetes

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Abstract

Background: Individuals with diabetes are nearly twice as likely to have current depressive symptoms or a history of depression compared to those without diabetes (Rawlings, Sharrett, Golden, Windham, & Selvin, 2018). There is ample evidence that those with comorbid diabetes and depression tend to fare worse in terms of quality of life, diabetes self-management, incidence of complications, and life expectancy (Holt, de Groot, & Golden, 2014). Despite this, there is little research examining treatment that addresses both symptoms of depression and markers of diabetes symptom severity. Mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002) is an evidence-based group treatment that utilizes eastern meditative practices and cognitive-behavioral principles and has been shown to reduce risk for depressive relapse and depressive symptoms (Segal et al., 2013). Several studies suggest that mindfulness-based interventions may show promise for T2DM and depression.

Methods: The objective of the present study is to examine the implementation of MBCT in individuals with comorbid type 2 diabetes mellitus (T2DM) and depression in the context of a joint research and treatment program between the departments of Psychiatry and Behavioral Health and Endocrinology, Diabetes, and Metabolism. We will evaluate the effect of MBCT on symptoms of depression, diabetes-related distress, and diabetes-control among patients with T2DM who report moderate symptoms of depression using a pre-post test design.

Results: Preliminary analyses from the first cohort of participants (N=8) indicate significant changes in symptoms of depression ($p = .02$), emotional burden of diabetes ($p = .03$), and mindfulness ($p = .03$). No significant differences were found in biological markers of diabetes-control (HbA1c or lipid profile).

Conclusion: Initial results and subjective reports of participants indicate MBCT is beneficial for mood and diabetes distress. The study is ongoing, and a larger sample size will help clarify these associations and determine the effect size of treatment on biological makers of diabetes control.

P05.19

How Do Multidisciplinary Orthopedic Trauma Providers Define Good Clinical Outcomes? A Qualitative Investigation of Biopsychosocial Themes

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Abstract

Background: Good clinical outcomes in orthopedics are largely defined within the biomedical model despite mounting evidence for the role of psychosocial factors. Understanding how orthopedic providers conceptualize good clinical outcomes may inform: 1) strategies for effective collaboration between mental health and orthopedic providers, 2) biopsychosocial training in orthopedics, and 3) mind-body interventions for orthopedic trauma patients.

Methods: We recruited 79 diverse orthopedic healthcare professionals (e.g., orthopedic surgeons, residents, physical therapists, nurses, clinical social workers) from 3 Level-I trauma centers in geographically diverse regions of the United States. Providers participated in focus groups followed by individual exit interviews. Three independent coders identified the inductive codes of “good outcomes,” “outcome barriers,” and “outcome facilitators” and applied this coding framework to all transcripts. Three data interpreters collaboratively extracted deductive themes related to Biomedical, Psychological, and Social factors, and corresponding inductive subthemes.

Results: Orthopedic providers’ definitions of good outcomes included biomedical (e.g., bone healing), psychological (e.g., improvement in emotional distress), and social themes (e.g., patient feeling heard). Perceived barriers to good outcomes also included biomedical (e.g., medical comorbidities), psychological (e.g., poor mental health), and social themes (e.g., low socioeconomic status). Perceived facilitators of good outcomes only included psychological (e.g., effective coping/resiliency) and social themes (e.g., provider empathy and support).

Conclusion: Results suggest that various orthopedic providers may recognize the importance of psychosocial factors in optimal patient outcomes, as well outcome barriers and facilitators. However, certain providers/institutions were more steeped in biomedical models than others. Support programs for orthopedic providers may focus on positively reinforcing recognition of psychological resiliency factors that influence recovery while encouraging 1) the use of destigmatizing language and 2) consideration of the social/systemic factors influencing patients’ emotional and motivational issues during recovery. Implications for mind-body intervention implementation will be discussed.

P05.20

Preventing Depression Relapse: Qualitative Study on the Need for Greater Structured Support Following MBCT

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Abstract

Background: Mindfulness-based cognitive therapy (MBCT) is an eight-week group intervention that is effective in reducing depression relapse. However, about one-third of graduates with multiple prior episodes of depression relapse within one year of completing the course, highlighting a need for strategies to maintain MBCT benefits. The current study aimed to explore perspectives on providing additional structured support following the eight-week course.

Methods: We conducted four focus groups via videoconferencing, two with student graduates of MBCT (n=9 in each group) and two with MBCT teachers (n=9 and n=7). Participants were recruited through existing listservs of graduates and teachers. Focus group prompts explored participants’ perceived need for and interest in MBCT programming beyond the core eight-week program. We conducted thematic content analysis to identify patterns among transcribed focus group recordings. Through an iterative process, multiple researchers developed a codebook, independently coded the transcripts, and reached agreement about themes through consensus.

Results: Both students and teachers described maintaining skills and practices learned in MBCT as a significant challenge after the course ended. All participants expressed a desire for additional structured support following MBCT. Without additional support, one participant described this transition as feeling like “falling off a cliff.” Some students reported challenges in making what they learned “stick” after the eight weeks and experiencing a general fading of benefits. Teachers noted that “participants are just starting to learn about this,” at the end of the course. To address this, many students reported retaking the MBCT course since other options for structured support, such as community- and alumni-based meditation groups, were both insufficient and poorly attended.

Conclusion: There is a need and desire for greater structured support following MBCT participation. Our findings support the development of follow-up programs to address this gap in care.

P05.21

Impact of an 8-Week Mindfulness and Resilience Virtual Training on Stress and Burnout for University Faculty and Staff

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Abstract

Background: Mental well-being and reducing stress are critical to job performance and retention within University faculty/staff. Mindfulness and resilience trainings (MRT) are increasingly used to improve stress management and reduce burnout. The purpose of this study was to assess drivers of burnout, motivators for participation in, and the impact of attending a virtual 8-week MRT on faculty/staff stress and burnout.

Methods: A mixed methods pre-post survey was administered to participants of an 8-week virtual MRT offered at a Midwestern university to faculty/staff. Qualitative items assessed top stressors, motivators for participation, and personal and professional impacts of the training. Validated measures were used to assess burnout (Maslach Burnout Inventory) including subscales of professional efficacy (PE), emotional exhaustion (EE) and cynicism; stress (Perceived Stress Scale); and a Likert scale assessment was used to examine 7 evidence-based drivers of burnout (Shanafelt, 2017). SPSS.25 was used to compare mean scores pre-post intervention and thematic analysis was used to describe qualitative data.

Results: 93 faculty/staff registered for the MRT while 21 participants completed both pre-post surveys and attended 6 or more sessions (mean age=42 years, 95% white, 95% female). Stress management (38%) and burnout (38%) were the top motivators for participation. Top drivers of burnout were feeling their workload was too much (35.6%) and having difficulties balancing work and life (18.6%). Participants reported significant decreases in stress ($p=.00$) and increases in PE ($p=.05$), as well as less EE ($p=.24$) and cynicism ($p=.14$) post-training. Participants shared that the MRT helped them “react less at work to negative stimuli,” “stay focused,” and “not carry” stress home.

Conclusion: Addressing stress and burnout through a virtual MRT can reach a wide audience of university faculty/staff with positive impacts on mental well-being and reduced burnout at work. Ongoing attention and practice are necessary in order to sustain outcome improvements.

P05.22

Increased Sensorimotor Precision Following Treatment for PTSD

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Abstract

Background: Posttraumatic Stress Disorder (PTSD) is understood neurocognitively to involve both alterations in the function of brain structures (amygdala, hippocampus, locus coeruleus, prefrontal cortex), and impairments in neuropsychological processes (attention, planning, problem solving, memory). Little is known regarding changes in cognition following PTSD treatment.

Methods: We undertook a randomized controlled clinical trial comparing a 6-week breathing meditation, Sudarshan Kriya Yoga (SKY) to a manualized trauma-focused psychotherapy (Cognitive Processing Therapy) in 85 veterans with symptoms of PTSD. Measures were assessed at baseline and end of treatment and included the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5), and the CANTAB, a computerized neuropsychological assessment system measuring multiple neurocognitive domains including visuomotor, working memory, visual memory, attentional processing, set shifting, and inhibitory control. Scores from each neurocognitive domain were analyzed individually as well as combined into a composite cognitive Z-score ($Z_{\text{cognitive}}$) at each time point.

Results: Following treatment, significant improvements were found in PTSD symptoms (CAPS-5; [$F(1,60)= 6.35, p = 0.01$]) and cognitive performance ($Z_{\text{cognitive}}$; [$F(1,66)= 27999.21, p <.001$]). Reductions in PTSD symptoms following treatment were associated with significant improvements in neurocognitive summary scores [$F(2,59) = 14.835, p = .03$]. Further analysis of CAPS-5 by symptom cluster showed that cognitive symptoms as measured by the Criterion D subscale (negative alterations in cognitions and mood) of the CAPS-5 improved across treatment [$F(2,49) = 16.031, p = .01$]. Furthermore, this improvement predicted better performance on a task of sensorimotor accuracy [$F(2,59) = 16.03, p = 0.01$]. No other CAPS-5 symptom cluster was associated with changes in other neurocognitive domains. Moreover, no significant differences were found between treatment groups [$F(2,60) = 11.94, p = 0.61$]

Conclusion: Findings suggest that changes in cognition following treatment for PTSD correspond more to basic attention, comprehension, and motor-driven, goal-directed responses, than to higher-order neurocognitive processes.

P05.23

Mindfulness-Based Resilience Training for Aggression, Stress and Health in Law Enforcement Officers: Multisite Feasibility Trial Preliminary Outcomes

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Abstract

Background: Law enforcement officers (LEOs) are exposed to significant stressors, elevating their risk for aggression and excessive use of force, as well as mental health consequences, including post-traumatic stress disorder, burnout, alcohol misuse, depression, and suicide. Mindfulness training is a promising approach with high-stress populations that has been shown to be effective for increasing resilience and improving negative mental health outcomes common among LEOs. Implemented at three sites (Portland, OR, Albuquerque, NM, and Madison, WI), the primary aim of this study was to establish feasibility, acceptability, and optimal protocols and procedures for a future full-scale, multi-site efficacy trial assessing effects of mindfulness-based resilience training (MBRT) versus an attention control (stress management education [SME]) and a no-intervention control (NIC), on physiological, behavioral, and psychological outcomes.

Methods: Participants ($n = 109$) were randomized to either MBRT, SME, or NIC. Self-report and physiological data were collected at baseline, post-training, and three- and six-months following intervention completion. Individual interviews were conducted with a subsample of participants from each condition at intervention completion to assess participant experience, and use of force and behavioral data will be collected at 12 months post-training (February, 2022).

Results: Across sites, attendance (94% treatment completers), adherence (>80% retention at six-month follow-up; 98% using meditation app in MBRT group), acceptability (87% of participants rated MBRT as “acceptable” or “very acceptable”), data completion (98%), and post-training participant feedback all demonstrated feasibility of MBRT for LEOs. Optimized study protocol and procedure were also developed in anticipation of a full-scale, multi-site efficacy trial.

Conclusion: This multi-site, feasibility RCT suggests MBRT is a feasible intervention and a larger fully powered RCT is warranted. Preliminary evidence also suggests that MBRT can promote reductions in violence and increased resilience and mental health among LEOs, and ultimately yield benefits for communities and residents they serve.

Abstract

Background: Interoceptive awareness (IA), the recognition of internal body and emotional states, plays a critical role in maintaining homeostasis and guiding self-regulatory behaviors. Physical activity (PA) can support interoceptive processes but there is limited research examining the association between PA and IA in children. This study examined the relationship between parent-reported PA and facets of IA in children.

Methods: Baseline data was analyzed from a cluster-randomized controlled study examining the preliminary outcomes of an eHealth yoga intervention ($n=122$). Parents/guardians completed a questionnaire that included the PROMIS Parent-Proxy Short Form (PROMIS-PA) which measures weekly PA frequency, the Modified Burdette Proxy Report (MB-PA) which measures daily PA duration, and the Caregiver Assessment for IA (CAIA) which evaluates the perceptual aspects of interoception (e.g., pain, hunger, emotions, physical exertion). Controlling for age, partial Pearson’s correlations and ANCOVA were used to explore the relationship between PA and IA.

Results: Respondents were primarily mothers (69.7%). Children (48% female, $M_{age}=5.8\pm 1.7$ years) were predominately white (91.4%) and 28.7% were below the normative cut-off for a “good” PROMIS-PA score. Children who met the PROMIS-PA “good” cutoff were perceived to have a clearer sense and understanding of body signals representing pain, $F(1,114)=5.36$, $p=.022$, $\eta_p^2=.045$ and physical exertion, $F(1,114)=6.71$, $p=.011$, $\eta_p^2=.056$, compared to children who did not. Across all children, higher duration of daily PA (MB-PA) demonstrated similar pain and exertion relationships and was also positively correlated with the interoceptive facet of emotional awareness ($r=.315$, $p<.001$).

Conclusion: Per parent report, children’s PA was positively related to interoceptive facets of pain, physical exertion, and emotional awareness. Future work should consider observation or child-reported IA. PA and interoception likely have a dynamic relationship, and their interaction may impact self-regulatory behaviors. A better understanding of their relationship will help guide the development of PA-based interventions for health behavior development.

P05.24**Relationships Between Parent-Reported Physical Activity and Facets of Interoceptive Awareness in Children**

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P05.25**Management of Chronic Spine Pain for U.S. Military Veterans during the COVID-19 Pandemic: Development of Virtual Chiropractic and Yoga Group Education**

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Abstract

Background: The COVID-19 pandemic has severely limited patients' access to in-person manual (e.g. chiropractic) and complementary and integrative therapies, such as yoga, to manage chronic back pain. We sought to pilot a series of virtual classes combining yoga therapy with education and exercises to improve spine health and increase veterans' self-management of chronic back pain.

Methods: An experienced yoga therapist and chiropractor collaborated to develop a manualized series of 4 virtual combination yoga and chiropractic classes tailored to the needs of primarily older veterans with chronic back pain. The sessions emphasized education about spine health with practical exercises and other self-care strategies to decrease back pain. Over 4 one-hour sessions, a cohort of two to six veterans practiced these chiropractic principles (e.g. postural correction, abdominal bracing, spine sparing strategies), gentle yoga postures, and relaxation and mindfulness exercises, each class building on the one before.

Results: Four veteran cohorts were conducted from February 2021 through August 2021. Veterans reported feeling better equipped to manage their back pain and were more active after engaging in these classes. Delivering the classes via telehealth not only facilitated veterans' participation during COVID-19, but also allowed for the inclusion of some rural veterans who often lack access to integrative pain management resources. Other veterans struggled to participate virtually however due to lack of comfort with technology, or not having adequate equipment, or bandwidth.

Conclusion: Challenges in providing in-person spine care during COVID-19 have been overcome by this novel collaboration between chiropractic care and yoga therapy, emphasizing patient education, active care strategies and empowerment of veterans. Future courses will need to consider recruitment efforts as well as providing enhanced technical support to help close the digital divide.

P05.26

Associations Between Increased Bodily Awareness and Meaningful Symptom Improvement in a Young Adult Cancer Sample: A Mixed Methods Study

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Abstract

Background: Young adult cancer survivors are at risk for a host of negative physical and psychosocial sequelae. Using waitlist control RCT design, the REDEFINE study sought to

evaluate the effects of MBSR in this population. This present secondary analyses used mixed methods to identify important patient-reported indicators associated with meaningful improvement in PROMIS measures of health related quality of life in a young adult cancer sample.

Methods: Participants were randomized to an 8-week MBSR or a waitlist control group. In this analysis data from both groups were combined. PROMIS Depression, Anxiety, Fatigue, Sleep Disturbance, and Pain Interference measures were collected at baseline, 8-weeks, 16-weeks, and 24-weeks. Participants submitted written mid-course and weekly homework reflections on their experiences. Differences between PROMIS T-scores at the start and end of MBSR course were calculated and assessed for minimally important change. Qualitative coding was applied to all written reflections.

Results: Thirty-one participants submitted written reflections (Mean age: 32.61 [SD=5.8]). The majority were female (83.87%), white (83.87%) and/or non-Hispanic (83.87%). Nearly half of these participants demonstrated meaningful improvement in symptoms of Pain Interference (48.28%) and Fatigue (48.28%), and more than half experienced meaningful improvement in Depression (51.72%) and Anxiety (58.62%). Mixed methods analyses revealed that meaningful improvement in Pain Interference, Depression, and Anxiety were associated with increased bodily awareness, expressing a positive relationship to the body, and observations about learning mindfulness, such as challenges and benefits.

Conclusion: Increased bodily awareness and observations of challenges and benefits to learning mindfulness during an MBSR course was associated with meaningful improvement in physical and emotional wellbeing. Applying this mixed-methods analysis approach may help identify which qualitative themes expressed during a course are most linked with clinical improvement at study completion.

P05.27

Optimizing Music Therapy Documentation in the Medical Setting: An EMMPIRE Process Improvement Study

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Abstract

Background: To measure the effectiveness of integrative therapies, investigators need to ensure robust data collection without disrupting individualized patient care or adding unnecessary documentation burden for therapists. We conducted a process-improvement study to improve documentation

consistency and increase the capture of patient-reported outcomes (PROs) (i.e., stress, pain, anxiety, and coping) within a medical music therapy (MT) team.

Methods: Between July and December 2020, the University Hospitals MT team (13.3 clinical FTE) received 8 trainings. Trainings focused on providing (1) skills and resources for collecting pre- and post-session PROs; (2) specific guidelines for entering session data in the electronic health record (EHR); and (3) opportunities for the team to provide feedback on new procedures. To optimize documentation within EHR template constraints, acronym expansions were used to document new PROs in narrative fields. Regular expressions were used to mine this data from documentation reports generated at regular intervals to monitor consistency and completion. Our analysis compared therapists' rates of capturing PROs at three intervals: (T0) six months before the first training, (T1) between the first and fourth trainings, and (T2) from the fifth training to after the eighth training.

Results: Therapists' rates of capturing PROs increased significantly for all domains including pain (30%, 62%, 87%), stress (0%, 36%, 78%), anxiety (18%, 34%, 80%), and coping (0%, 21%, 66%) at T0, T1, and T2 respectively. Following this study, we utilized therapists' feedback as well as findings from a retrospective analysis to create an improved EHR documentation template.

Conclusion: Our training and documentation enhancements were effective at improving rates of PRO data collection in a medical MT team. Our presentation will include several recommendations for applying these procedures to other health systems.

P05.28LB

Short Term Effects of Inner Engineering Completion Online Program on Stress and Wellbeing Measures

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Abstract

Background: Feelings of stress, anxiety and hopelessness have skyrocketed since the start of the Covid-19 pandemic. It is common knowledge that mind-body interventions (MBI) improve emotional balance an enhanced sense of productivity, and self-confidence. Therefore, we hypothesized that exposure to a digitally delivered MBI 'Inner Engineering Completion Online', would reduce stress and promote wellbeing.

Methods: This prospective cohort study enrolled consenting participants registered for the Inner Engineering Completion Online (IECO) courses, which for the first time were delivered remotely. Participants learned a 21-minute breathing and meditation practice called Shambhavi Mahamudra Kriya. Each enrolled participant was asked to complete self-reported electronic surveys at three key time points: baseline, immediate post-IECO completion and six weeks after IECO completion. Effects of IECO practice were assessed using four well-validated neuropsychological scales: Perceived Stress Score (PSS), PERMA Profiler, Pittsburgh Sleep Quality Index (PSQI), and Mindful Attention Awareness Scale (MAAS). A Signed Rank test was used to analyze the survey data and P values of <0.05 were considered statistically significant.

Results: Of the 375 participants interested in participation, 164 participants were eligible. Sixty-eight participants completed surveys at all time points and were identified as compliant participants. The baseline median score for perceived stress score (PSS) in compliant participants was 13 (IQR 9, 18); immediate post-IECO median PSS score was 11.5 (IQR 8, 16) demonstrating a 1.5 unit decrease in PSS scores (p-value = 0.0023). Similarly, comparing PSS scores for immediate Post IECO [11.5 (IQR 8, 15.5)] to PSS scores at six weeks [8 (IQR 4.5, 12.5)] showed a statistically significant 3.5-unit decrease, indicating a reduction in stress upon routine practice of the intervention (p<0.0001).

Conclusion: Incorporating the remotely delivered mind-body intervention Shambhavi Mahamudra Kriya into daily life via the IECO program over as few as six weeks produced a significant stress reduction, improvement in sleep quality & mindfulness.

P05.29LB

Yogic Breathing and Guided Meditation for Post-COVID Syndrome (PCS)

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Abstract

Background: Of those that are diagnosed with COVID-19, 10-20% experience Post-COVID-19 Syndrome (PCS), where they continue to have symptoms such as fatigue, dyspnea, brain fog, stress, anxiety, and depression for months post-infection. Simha Kriya, Nadi Shuddhi, and Isha Kriya are yogic breathing and guided meditation practices that help maintain physical and mental wellbeing and reduce stress, anxiety, and fatigue. We hypothesized that these simple, safe, and scalable online practices may hold significant potential to improve the quality of life of PCS patients.

Methods: This is a six-week, waitlisted, Randomized Controlled Trial where participants are referred to study team by physicians at the BIDMC COVID clinic. Consenting participants are blindly randomized into either the intervention group or the waitlisted control. Intervention group participants learn the practices in the first week while waitlisted participants receive the intervention at the third week. Assessments evaluating changes in stress (Perceived Stress Scale), mood disturbance (Profile of Mood States), quality of life (SF-12), breathing discomfort (Multidimensional Dyspnea Profile) and physical symptoms (Somatic Symptoms Scale) were collected at 3 timepoints for both groups.

Results: Currently, 57 participants are enrolled, of which 17 completed the study. Of the 17 completed participants, 88% routinely practiced Isha Kriya, 82% Simha Kriya & 94% Nadi Shuddhi. Average overall study satisfaction was reported as 7.6 on a scale on 1-10. Testimonials suggest that the intervention has been useful in managing symptoms. Data collection is ongoing.

Conclusion: To our knowledge, this is the first RCT to study the feasibility of a multicomponent, online delivered yogic practices for PCS. Results from this study will provide a better understanding of the impact of complementary treatments on PCS symptoms. The protocol for this study (2021P000552) was approved by BIDMC's IRB. This trial (NCT05139979) was registered with US NIH on clinicaltrials.gov. There were no conflicts of interest.

P05.30

Yoga Versus Education for Veterans With Chronic Low Back Pain: A Randomized Controlled Trial

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Abstract

Background: To determine whether yoga is more effective than an educational book for improving back-related pain and disability among Veterans with chronic low back pain (cLBP).

Methods: Veterans diagnosed with cLBP at a VA medical center were enrolled in a randomized controlled trial from March to December 2015. Interventions were twelve weekly hatha yoga classes or education using The Back Pain Helpbook. Co-primary outcomes were changes in Defense & Veterans Pain Rating Scale and back-related disability on the modified Roland Morris disability Questionnaire at 12 weeks. Secondary outcomes were global improvement, patient satisfaction, medication use and changes in PTSD symptoms. Primary analyses involved an intention-to-treat approach. Secondary per-protocol analyses included only participants who attended >9 yoga classes or read >75% of the book.

Results: Veterans (n=120, mean age=55; 11 [9%] female) were randomly assigned to yoga (n=62) or education (n=58) interventions. In intention-to-treat analysis, at 12 weeks, reductions in back-related disability in yoga group (mean difference [MD]= -3.3, 95%CI: -4.9, -1.8) were not significantly different than in education (MD= -2.4, 95%CI: -3.9, -0.8; between-group difference: -0.96 [95%CI: -3.15, 1.23], p=0.39). For pain, there was no significant difference between yoga (MD= -0.81, 95%CI: -1.36, -0.27) and education (MD=-1.0, 95%CI: -1.67, -0.35; between-group difference: 0.26, 95%CI: -1.06, 0.66, p=0.65). More yoga than education participants reported that they were very much or extremely improved (39% vs 19%, OR=3.34, 95%CI: 1.21, 9.18) or very satisfied with treatment (60% vs 31%, OR=4.65, 95%CI: 1.83, 11.83). No differences in pain medication use or PTSD symptoms were observed at 12 weeks. Findings from per protocol analyses were similar, although only 70 (58%) participants were included in those analyses. No serious adverse events were reported in either group.

Conclusion: Twelve weekly hatha yoga classes were not more effective than an education intervention for improving pain or back-related disability among Veterans with cLBP.

P05.31

Assessing Post-Acute Sequelae of COVID-19 (PASC) in a Pilot Cohort of Patients Participating in Integrative Medical Group Visits

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Abstract

Background: With the rising number of patients experiencing the onset of Post-Acute Sequelae of COVID-19 (PASC), there is a need to find effective treatment options. The Integrative Medicine Group Visit (IMGV) is an evidence-based program using complementary and traditional modalities in a group setting to treat patients with various conditions. The objective of this study is to assess the symptoms of patients diagnosed with PASC to adapt an existing IMGV model.

Methods: The first adapted IMGV was delivered as weekly two-hour telehealth visits cofacilitated by a physician and yoga instructor over the course of 8 weeks (June to August 2021). Interviews were conducted with 16 patients, aged 22 to 67, prior to participation in the groups about their symptoms and experience with PASC. The perceived stress scale (PSS) was used to measure stress levels as well. Descriptive statistics were performed on quantitative data and qualitative data were analyzed using thematic content analysis.

Results: The mean PSS score was 19.00 with a standard deviation of 5.52, which corresponds to moderate stress levels. Primary symptoms reported by patients include fatigue, shortness of breath, and brain fog. Patients reported factors that exacerbate symptoms include physical activity and stress related to work and everyday activities. Factors that improve symptoms included anti-inflammatory diets and self-care activities. Feelings of frustration and anxiety were common as patients cannot quickly recover and there are no rapid treatments. Adaptations to this cohort of IMGV included discussions about COVID-related news and research, COVID vaccinations, PASC-related conditions, neuroplasticity, meditation practices, and nature-based resources that parallel resilience and growth.

Conclusion: By understanding the symptoms patients encounter with PASC, clinicians will be able to provide holistic care to meet the needs of each patient. The analysis from this pilot cohort will give clarity on a condition that currently has been hard to manage and treat.

P05.32

Primary Findings of a Randomized Controlled Trial Investigating Mindfulness-Oriented Recovery Enhancement for Lumbar Sacral Radiculopathy

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Abstract

Background: Lumbar Sacral Radiculopathy (LR) is a common sequelae of chronic low back pain (LBP). Studies have demonstrated that mindfulness-based interventions are effective tools to mitigate self-reported pain in LBP patients. This presentation will describe primary results of a randomized controlled trial designed to evaluate the effects of Mindfulness-Oriented Recovery Enhancement (MORE) on disability severity in LR patients as compared to patients undergoing treatment as usual (TAU). We hypothesize that the MORE group will show a greater decrease in disability than the TAU control group.

Methods: Participants recruited from the Portland, Oregon (USA) area completed telephone screenings before a baseline visit featuring primarily self-report questionnaires evaluating pain, quality of life, and mental health. Participants are then randomly assigned to the MORE or TAU group for 8 weeks, followed by repeat questionnaires after the intervention period is complete. Modified Oswestry Disability Index (ODI) scores at baseline and follow-up will be reported; group differences in change from baseline to follow-up will be evaluated using ANCOVA.

Results: Data collection began in January 2021 and will be completed by January 2022. Baseline descriptive characteristics for each group, MORE (n = 37) and TAU (n = 34), are as follows (mean±SD): age for each group was 48.6±11.59y vs 44.94±11.47y; sex distribution was 58% female vs 68% female; LR symptom duration (years) was 11.7±11.28 vs 15.22±20.28; and disability (ODI) scores were 19.7±7.66 vs 21.82±10.28 for the MORE and TAU groups, respectively. Randomization was effective in preventing group differences at baseline (all p-values > .05). Whether ODI score was significantly impacted by group assignment will be elucidated after follow-ups are completed.

Conclusion: Strengths of the study include the virtually-delivery and pain-specificity of the intervention, with a limitation being poor retention (73% as of October 2021). Future studies may focus on whether an in-person group program may lead to better participant retention.

P05.33

What are Orthopedic Healthcare Providers' Attitudes Toward Addressing Patient Psychosocial Factors? A Mixed-Methods Investigation

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Abstract

Background: Integrating psychosocial and mind-body treatments into orthopedic clinics requires a nuanced understanding of orthopedic providers' attitudes towards addressing psychosocial aspects of health. In this multi-site, mixed methods study, we asked: 1) What are orthopedic providers' attitudes towards addressing patient psychosocial factors, and how are they related? 2) How do orthopedic providers' beliefs and experiences help explain these attitudes? 3) How do attitudes differ between physicians and non-physicians?

Methods: We conducted qualitative focus groups with 79 orthopedic providers at three Level I trauma centers. Participants also completed self-report items assessing attitudes towards addressing patients' psychosocial factors. Attitudes identified via these items served as a priori-defined themes within which two independent coders organized the qualitative data and identified beliefs and experiences that explained attitudes. We used both quantitative and qualitative data to evaluate differences between physicians and non-physicians.

Results: Using exploratory factor analysis, we identified 6 underlying provider attitudes towards addressing psychosocial factors: Professional Confidence, Perceived Resource Availability, Fear of Offending Patients, Fear of Negative Patient Reactions, Blame Towards Patients, and Professional Role Resistance. There was a strong positive correlation between Professional Confidence and Perceived Resource Availability ($r=0.627$; $p<0.001$). Qualitative data revealed how healthcare professionals' willingness to discuss psychosocial issues is shaped by their perception of psychosocial resources available to patients and their perceived skills to navigate conversations. Quantitative data showed that physicians, compared to non-physicians, endorsed higher blame towards patients for psychosocial factors (medium effect size, $p = 0.02$).

Conclusion: Orthopedic providers reported varying levels of confidence discussing psychosocial factors with patients, which included stigmatized views of patient mental health (e.g., blaming patients for psychosocial concerns). These findings highlight the need to coach providers on how to discuss psychosocial factors effectively and bolster institutional resources for psychosocial health, which in turn can enhance providers' confidence in assessing these factors.

P05.34

Breathing Curriculum for Stress Reduction in High School Students: A Feasibility Randomized Controlled Trial

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Abstract

Background: Nearly 1 in 3 US adolescents meet the criteria for anxiety, an issue that has worsened with the COVID-19 pandemic. We developed a video-based, 5-week, slow diaphragmatic breathing (DB) stress-reduction curriculum for high school students and evaluated its feasibility and preliminary effectiveness.

Methods: This cluster-randomized pilot compared 5-minute slow DB with treatment-as-usual among four 12th-grade public high school classes. Students individually participated in the curriculum after school during COVID-19-related hybrid teaching, with DB 3 times/week and breath science education once/week. Feasibility was based on overall compliance and qualitative assessments. Preliminary effectiveness was measured with the State-Trait Anxiety Inventory (STAI) and a timed-exhale carbon dioxide tolerance test (CO2TT). Descriptive statistics and repeated analysis of variance were performed to quantify and compare cross-sectional and temporal outcomes between classes and time periods. Human subjects research approval was granted through WCG-IRB.

Results: Forty-two students consented to participate. Intervention and effectiveness assessments' compliance varied from 29-91% across classes and weeks, and decreased on average 40% from baseline to follow-up. Compliance of ease/tolerability assessments ranged from 41% to 86%, and averaged 55% for open-ended assessments. Usefulness, ease and tolerability ratings for the DB ranged from 1.63 ± 0.74 to 2.88 ± 0.35 on scales of 0-3 ("not at all" - "very much"); and from 2.24 ± 0.84 to 2.60 ± 0.55 for effectiveness assessments. Students reported enjoying the DB, CO2TT, and breath science; some found the extended exhales challenging and the curriculum and assessments time-consuming. Outcome measures demonstrated trends towards improvements (e.g., improved STAI and CO2TT before-to-after breathing exercises), but were not statistically significant.

Conclusion: Implementation of this 5-week slow breathing curriculum was feasible and tolerable to this cohort. Compliance, tolerability, and effectiveness may be improved with in-class participation. Future research on simple and accessible slow-breathing exercises is warranted to address today's adolescent stress-management crisis.

P05.35

Use of Open-Loop Audio-Visual Entrainment To Improve Chronic Insomnia in Adult Dayworkers With Normal Sleep Duration

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Abstract

Background: The goal of this study was to assess the efficacy of open-loop audio-visual entrainment to improve chronic insomnia in adult dayworkers with normal sleep duration.

Methods: The goal of this study was to assess the efficacy of open-loop audio-visual entrainment to improve chronic insomnia in adult dayworkers with normal sleep duration. Fifteen middle-aged day workers were randomly assigned to one of two intervention groups: OLAVE (n = 8, with the Braintap Headset – New Bern, NC) or CONTROL (n = 7) (placebo group) for a period of 6 weeks. Both groups attended six, weekly sessions, during the day, at the same time and day of the week. During the 10-week trial, participants completed four different questionnaires including three self-assessment questionnaires for insomnia symptoms, sleep quality and emotional impairment, and a sleep diary. Actigraph, heart rate and heart rate variability readings were also recorded during the intervention.

Results: After 6 weeks, between-group differences were found in sleep fragmentation (WASO, p=0.04) and sleep quality (PSQI, p<0.0001; CSD, p=0.004) in the OLAVE group. Within-group differences showed that both groups reported some improvement in sympathovagal balance and significant improvements in insomnia symptoms (ISI, p<0.05) and emotional reactivity (impairment) (p<0.05), which continued to the end of the trial. Improvement in sleep quality (PSQI, p<0.001, CSD, p<0.01), WASO (p<0.01) and sleep efficiency (p<0.05) in the OLAVE group were reported at the 2-week post-intervention period.

Conclusion: Results suggest that OLAVE technology used during daytime may be efficacious in improving chronic insomnia in adult dayworkers with normal sleep length. Further exploration of OLAVE as a non-pharmacotherapeutic intervention for reducing chronic insomnia in adult dayworkers is warranted.

P05.36

Effect of Brainwave Entrainment and Transcranial Photobiomodulation on Brainwave Power of College Golf Players

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Abstract

Background: The purpose of this study was to evaluate the effect of transcranial photobiomodulation (tPBM) and brainwave entrainment (BWE) on Brainwave Power of College Golf Players.

Methods: Trial was pre-approved by Seminole State College IRB. Participants were screened and asked to sign an Informed Consent Form. Sample size was 8 adult female College Golf Athletes randomly assigned to either Group A or B. Group A underwent BWE sessions twice a week for the first 3 weeks, then tPBM 2 times a week for the next 3 weeks; Group B underwent tPBM for the first 3 weeks, then BWE for the next 3. BWE was delivered in 20-minute sessions with a BrainTap headset (New Bern, NC) and consisted of Binaural beats and Isochronic Tones from 18 to 0.5 HZ as well as visual Entrainment through light-emitting diode lights at 470 nanometers (nm) flickering at the same rate (18 to 0.5 HZ). tPBM was delivered in 10-minute sessions with a tPBM helmet composed of 660 nm (n=100) and 850nm (n=100) evenly distributed. Total irradiance delivered per session was 1000 mW/cm² per minute. Evaluation of total brainwave power was conducted with the Emotiv EPOC+ EEG Headset (San Francisco, CA) conducted at baseline and after 6 weeks and consisted of 2-minute eyes open immediately followed by 2-minute eyes closed readings.

Results: Two-tailed Paired T-test with 95% confidence interval (GraphPad software La Jolla, CA) between baseline and end of study EEG evaluations demonstrated the following: decrease in Low Beta (-24.4%, p<0.1171) and High Beta (-46%, p<0.0278); increase in Alpha (90%, p<0.0009); decrease in Theta (-42%, p<0.3206) and Gamma (-46%, p<0.0098).

Conclusion: The interventions used herein induced statistically significant changes in brainwave activity of College Golf Players. To the best of our knowledge this is the first report to demonstrate the combined effects of BWE and tPBM upon brainwave activity.

P05.37

Breathing Practices for Stress and Anxiety Reduction: A Systematic Literature Review

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Abstract

Background: Intentional breathing practices such as diaphragmatic or pranayama-based approaches are established stress-reduction tools. To better understand the efficacy of these methods, we identified and described findings from stress-reduction breathing interventions across populations.

Methods: We conducted a systematic literature review of publications presenting empirically-evaluated, breathing-based interventions for stress or anxiety. PubMed and ScienceDirect were searched to identify randomized and non-randomized, peer-reviewed clinical trials published in English through June 2019, comprising all geographies and populations. Included studies evaluated voluntary, intentional breath control practices without biofeedback, as isolated interventions, and considering psychometric stress or anxiety measures as primary or secondary outcomes. Two independent reviewers conducted all levels of screening, data extraction, and study quality assessment.

Results: Of the 2,107 articles screened, 29 met the inclusion criteria. Interventions addressed high-anxiety adults, individuals in clinical settings or simulated-stress situations, youth, and healthy adults. All but one included at least 1 form of slow breathing. Interventions ranged from 1-100+ sessions over 1-13 weeks, and sessions ranged from 1-60 minutes. The State-Trait Anxiety Inventory, Hospital Anxiety and Depression Scale, and Beck Anxiety Inventory were the most frequent outcome measures. Twenty studies were randomized clinical trials, and stress or anxiety was the primary outcome in 17. Comparators comprised usual care, other breath-related interventions, and non-breath-related interventions. Twenty-two of the 29 interventions significantly reduced participants' anxiety. All interventions among high-anxiety adults, healthy adults, and youth were effective; they were effective in 9 of 13 studies in clinical populations and 1 of 4 with simulated-stress situations. Ineffective interventions failed to: provide breath training; emphasize stress-reduction benefits; incorporate slow breathing; or demonstrate significance despite benefit trends.

Conclusion: Evidence indicates that intentional slow breathing practices are effective stress-reduction strategies for many populations. Further emphasis on stress reduction

and adequate training may improve effectiveness. Future research is warranted to develop this easily-accessible intervention for stress relief.

P05.38

A Closer Look at Yoga Nidra: Early Sleep Lab Investigations

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Abstract

Background: In this study, our aim was to examine trial feasibility, along with physiological and psychological effects of a guided meditation practice, called Yoga Nidra, in adults with mild to moderate self-reported insomnia.

Methods: Twenty-two adults with self-reported insomnia were recruited to attend two visits at our research center. During the first visit, participants were asked to lie quietly for ninety minutes while electroencephalography (EEG), heart rate variability, respiratory rate and self-reported anxiety and mood were measured. During the second visit, the same protocol was followed, except half of participants were randomized to practice Yoga Nidra for the first 30-minutes of the measurement period.

Results: The intervention displayed good acceptability (well-tolerated with perceived benefit ratings) and implementation success (target sample size reached with a 5% dropout rate). Our primary outcome, alpha EEG power, showed a mean increase in the intervention group, yet the change was not significant ($p=.57$ in a two-sample unequal variance t-test between groups). There was a significant decrease of a secondary outcome variable, respiratory rate, during and after Yoga Nidra ($p=.03$ for both), with a decrease of 1.4 and 2.1 breaths per minute (bpm) from Visit 1 to Visit 2 in the Intervention group, compared to an increase of 0.2 and 0.4 bpm in the Control.

Conclusion: This preliminary clinical trial provides early evidence that Yoga Nidra may produce relaxation and is a well-tolerated, feasible intervention for adults with self-reported insomnia. Our preliminary findings merit future research, which should include larger populations and more than one Yoga Nidra session, in order to evaluate impact on nighttime sleep.

P05.39LB

Effects of 4-Day Online Yoga on Ballistocardiography Based Sleep & HRV in Indian Medical Professionals vs Randomized Waitlist Controls During COVID-19

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Abstract

Background: Medical professionals (MPs) are facing tremendous stress, sleep deprivation & burnout due to COVID related high patient inflow & continuous work shifts. Low heart rate variability (HRV) & poor sleep regimes are associated with cardiomyopathy & diabetes in the long run. Yoga has strong evidence for its multifold mental & physical health benefits, yet no previous study has determined its acute effects on objective sleep measures & HRV among MPs during a pandemic.

Methods: In this ongoing randomized waitlist-controlled trial, we assessed changes in sleep, HRV & vitals, recorded overnight using a Ballistocardiography based health monitoring device. Outcomes were measured before (Day 0) & after (Day 4) a four-day online breath meditation workshop (OBMW) involving Sudarshan Kriya Yoga. 90 MPs from a tertiary care hospital in northern India were randomized equally (1:1) (45 participants each) to experimental (mean age 27.4±3.6) & waitlist-control (28.8±3.48) groups using computer-generated sequentially numbered opaque sealed envelopes.

Results: All outcomes were found comparable at baseline. The between-groups analysis showed a highly significant increase in total sleep duration ($p=0.000$), duration of deep sleep ($p=0.034$), light sleep ($p=0.000$) & rapid eye movement sleep ($p=0.000$) with a significant reduction in respiration rate ($p=0.015$) for the Experimental group when compared to Controls. Within-group analysis showed highly significant improvements in HRV outcomes of SDNN ($p=0.000$) & RMSSD ($p=0.000$) & reduction in heart rate ($p=0.006$) for the experimental group alone.

Conclusion: Maintaining a good sleep routine & high HRV result in greater cardiovascular fitness & vagal tone. Four days of OBMW might help induce psycho-physical relaxation & prove to be a feasible, cost-effective, & well-accepted tool to help build stress resilience. As the stakeholders in patient care i.e., MPs are healthy, it might further improve patient care & reduce the chance of medical errors. Further research is warranted to determine long-term effects in this regard.

P05.40LB

Tai Chi Improves Plasma Levels of Oxylipins and Endocannabinoids in Postmenopausal Women With Knee Osteoarthritic Pain

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Abstract

Background: A pre/post pilot study investigated circulating endocannabinoids (eCB) and oxylipins (OxL) in an 8-week Tai Chi (TC) intervention in postmenopausal women with knee osteoarthritic pain. Correlation analyses were done between eCB/OxL levels and clinical outcomes (pain, stiffness, and physical function), as well as between eCB/OxL levels and resting-state functional magnetic resonance imaging (rs-fMRI) data.

Methods: Twelve postmenopausal women underwent TC group exercise for 8 weeks (60 min/session, 3 times/week). Plasma eCB and OxL were determined by UPLC-MS/MS. Data of clinical outcomes included self-reported WOMAC-pain, VAS, brief pain inventory (BPI) and rs-fMRI and diffusion tensor imaging (DTI) analysis of amygdala-medial prefrontal cortex (mPFC) functional and structural connectivity, respectively, at baseline and after 8-week intervention were collected previously. Spearman correlations analyses (i) between eCB/OxL and corresponding pain, stiffness, and physical function, and (ii) between eCB/OxL and corresponding rs-MRI and DTI were performed.

Results: Values for OxL metabolites showed that TC in subjects resulted in lower plasma prostanoids PGE₁ and PGE₂ (metabolites of arachidonic acid) and higher 12-HETE

(metabolite of arachidonic acid), 12 HEPE (metabolite of eicosapentaenoic acid), and LTB4 (metabolite of arachidonic acid) compared to baseline. Correlations between pain assessments (WOMAC) in women showed strong connections between many eCB and OxL suggesting important associations between inflammatory markers and pain assessment. Furthermore, several OxL levels were positively correlated with left amygdala-mPFC and right amygdala-mPFC functional connectivity.

Conclusion: We report that TC changed brain connectivity and lowered plasma pro-inflammatory OxL in postmenopausal women with knee osteoarthritis. Correlations revealed significant relationships between subject pain assessments and brain connectivity with plasma levels of OxL and eCB. Our findings strongly support clinical investigations on TC outcomes for lipid biomarkers associated with neuroinflammation, pain, and brain connectivity.

P05.41LB

Yoga: A Non-Pharmacologic Therapy to Reduce Dinutuximab-Induced Pain in Patient's with Neuroblastoma

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Abstract

Background: Anti-GD2 antibody therapy has become a key component of treatment for patients with high-risk neuroblastoma in the frontline and relapsed settings. Dinutuximab (DIN) targets GD2 on neuroblasts, but also binds to normal cells of neuroectodermal origin, such as peripheral nerves. Pain is a common toxicity. While opioid analgesics are the mainstay of pain management, incorporating an integrative therapy such as yoga may help reduce pain, overall distress, and perhaps decrease opioid usage in patients receiving DIN. The primary objective was to assess the feasibility of providing yoga therapy to hospitalized patients. Secondary aims included evaluating the efficacy of yoga therapy, as assessed by patients, caregivers, and clinicians, in addition to measuring the level of pain/distress pre-and post yoga therapy.

Methods: Children ≥ 3 years of age with neuroblastoma participated in yoga therapy while receiving DIN infusions at the Children's Hospital of Philadelphia. Yoga therapy was deemed feasible if patients participated in individualized yoga therapy during $\geq 60\%$ of admissions for DIN. The patient was

considered to have participated if the therapist entered the patient's room, interfaced with the patient for ≥ 15 minutes, and engaged the patient in at least one yoga intervention.

Results: Twelve participants were enrolled in the feasibility cohort and there were 32 evaluable encounters. Yoga therapy was feasible in 25/32 (78%) encounters. Nine of 12 caregivers completed surveys. Seven caregivers agreed/strongly agreed that yoga was valuable to their child and eight caregivers strongly agreed that they wanted their child to continue to participate. Twenty-one of 23 clinicians reported that they would recommend yoga therapy for other patients receiving DIN.

Conclusion: This pilot study establishes the feasibility of yoga therapy during DIN infusions in patients with neuroblastoma. These results are promising, as yoga therapy may help decrease DIN-associated pain and distress. Efficacy is currently being evaluated in additional patients receiving this therapy.

P05.42LB

Yoga Therapy in the Treatment of Post-Traumatic Stress Disorder (PTSD)

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Abstract

Background: Yoga is an interdisciplinary mind-body practice that has grown in popularity over the last decade as a treatment modality for psychiatric disorders, including Post-Traumatic Stress Disorder (PTSD). Yet, despite the growing interest in yoga as therapy, no studies have explicitly outlined the format, content or structure of yoga necessary to provide beneficial effects. This study uses an explicitly defined format to assess the applicability of yoga in the treatment of PTSD.

Methods: A case series was conducted in an interdisciplinary trauma and wellness center. Individuals between the ages of 18 and 65 years old with a diagnosis of PTSD were recruited. Selected patients participated in weekly yoga classes for 6 weeks. Each yoga class was structured as follows: 5 minutes of pranayama (breathwork), 5 minutes of Dhyana (meditation), 40 minutes of asana (movement) and 10 minutes of savasana (rest). Symptoms of PTSD were evaluated before and after yoga therapy using the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5). Psychosomatic impact was assessed by phone interviews at the end of the study.

Results: Of 12 participants recruited, 4 completed the intervention. All participants demonstrated improvement in PTSD symptoms after the yoga intervention with an average

reduction in PCL-5 score of 39% (standard deviation 0.09, minimum 31%, maximum 52%). Qualitative analysis identified two major themes that contributed to symptom improvement: increased self-awareness and the ability to self-soothe.

Conclusion: Yoga therapy that combines breathwork, meditation, movement and rest is a valuable tool for the treatment of PTSD. It provides a unique and holistic way for patients to create balance within their bodies and harmonize the dynamic interplay of sympathetic and parasympathetic responses that are often dysregulated after exposure to trauma.

P05.43LB

A Mixed-Methods Study Exploring the Impact of MBSR in an Integrative Healthcare Clinical Setting During COVID Pandemic

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Abstract

Background: Determine if mindfulness-based stress reduction (MBSR) in an integrative healthcare (IHC) clinical setting can improve patients' depression, stress, anxiety, quality of life, and other wellbeing during COVID 19 pandemic.

Methods: Veterans completed the 8-week MBSR incorporated with Integrative Health interventions, including health coaching and other wellbeing services at a VA Medical center. Participants received objective assessments at baseline and after the 8-week course for PHQ-9, GAD-7, PSS, and SF-36. At the end of the program, participants completed a qualitative survey to evaluate their motivation and program experiences.

Results: Among the fifty-seven participants who completed the MBSR between 2019 and 2020, thirty-nine participants completed the course in traditional face-to-face format, and seventeen enrolled through WebEx platform during pandemic. Across all MBSR participants, statistically significant changes were found at completion, including lower levels of perceived stress ($d = 1.018 [0.672, 1.357]$), improvements to anxiety ($d = 1.161 [0.818, 1.498]$), and depression ($d = 0.926, [0.609, 1.237]$) symptoms. Similarly, perceptions of health also showed meaningful improvements in the categories of SF-General Health ($d = -0.692, [-1.015, -0.363]$), SF-Vitality ($d = -0.549, [-0.860, -0.233]$), SF-Social Functioning ($d = -0.766, [-1.095, -0.429]$), SF-Role Emotional ($d = -0.657, [-0.976, -0.331]$), SF-Mental Health ($d = -1.740, [-1.067, -0.406]$). There was no statistical difference between outcomes for participants who utilized telehealth and face-to-face format, suggesting that Telehealth MBSR within an IHC setting is plausible. Four major clusters of themes were identified: improve isolation and

loneliness, improve stress from pandemic, endorse course content and structure, and technical challenging of telehealth.

Conclusion: Participating in the MBSR within an integrative healthcare setting can be successfully delivered through telehealth and in person, resulting in clinical improvements of depression, anxiety, perceptions of stress, and quality-of-life. Face-to-face and Telehealth MBSR with IHC focus have promising potential to improve Veterans' mental health burden and overall wellbeing.

P05.44LB

Adoption of Regular Meditation Practice after Preoperative Meditation Education among Newly Diagnosed Breast Cancer Patients

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Abstract

Background: To determine the rate of adoption of meditation practices among newly diagnosed breast cancer patients after preoperative meditation education.

Methods: Twenty six patients were consented to a feasibility study exploring the impact of meditation on surgical pain among newly diagnosed breast cancer patients undergoing primary surgical management. Each patient underwent a preoperative meditation induction and coaching session and were provided with two 5-minute pre-recorded guided meditations. The morning meditation focused on breathwork for pain management, increased energy and stress reduction. The evening meditation focused on a guided visualization to promote deeper relaxation and rest. Patients were instructed to begin the meditation program one week prior to surgery and to keep a daily meditation log for 12 weeks after surgery. Individual meditation coaching support was also provided at 4 and 12 weeks. Patients were surveyed at 12 and 24 weeks after surgery to determine rate of continuation of a regular meditation practice.

Results: Twenty-six patients were enrolled. Twenty were initiated into a daily meditation practice for the first 12 weeks after breast cancer surgery. Of the 6 that were consented but not initiated 3 were ineligible due to change in treatment and 3 were unable to attend the meditation initiation appointment. Seventeen patients have reached the 12th week post-surgery, as of this writing February 18, 2022: thirteen continued regular meditation practice with the intention of continuing into the future. Two did not. Two patients became ineligible due to change in treatments after surgery. Three

patients have not yet reached their 12th week after surgery. Twenty-four-week data is still under collection.

Conclusion: Preoperative meditation education with support from recorded materials and meditation coaching can engage newly diagnosed breast cancer patients in a regular meditation practice and establish an ongoing meditation practice. Data analysis regarding impact on preoperative pain is ongoing.

P05.45LB

Yoga and Mantram for Veterans with Chronic Pain and PTSD

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Abstract

Background: Veterans with PTSD are more likely to report chronic pain than veterans without PTSD. Yoga has been shown to reduce both chronic pain and PTSD symptoms in various studies. The goal of our study was to assess the feasibility of conducting an RCT that combined yoga and mantram repetition (Yoga+MR) into one program for military veterans with both chronic pain and PTSD.

Methods: In this RCT, 32 veterans were randomized to either Yoga+MR or a manualized relaxation control intervention. Due to the COVID-19 pandemic, in-person recruitment, assessments, and intervention attendance were re-evaluated. Although remote delivery of aspects of the study were utilized, interventions were delivered in-person. Feasibility benchmarks met included full recruitment in 12 months or less, 75%+ retention at initial follow-up assessment, 50%+ attendance rate, and 75%+ of participants satisfied with the interventions.

Results: Participant recruitment took approximately 11 months instead of the 6-8 months that was targeted. Out of 32 participants initially randomized, 2 participants (6%) asked to be dropped from the study. For the remaining 30 participants, retention rates were 87% for the 12-week post-intervention follow-up, and 80% for the 18-week follow-up. Participants attended 68% of in-person yoga and 54% of in-person relaxation sessions ($p = 0.23$). Yoga participants were significantly older than relaxation participants (55 vs 39 years respectively; $p = 0.003$). Satisfaction was high, with 83% of yoga participants and 85% of relaxation participants agreeing or strongly agreeing they were satisfied with the intervention/instructors. Many participants greatly appreciated the ability to attend in-person sessions

during the pandemic. Younger participants in the relaxation arm may have contributed to lower attendance. Health outcomes data are being analyzed.

Conclusion: Amidst numerous research challenges during the pandemic, study results indicate that it is feasible for the investigators to conduct a larger RCT at VA San Diego.

P05.46LB

We Don't Talk About Concepts: Problems with Contemporary Mindfulness in Medicine

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Abstract

Background: This talk will discuss significant problems with contemporary mindfulness relevant to academic integrative medicine and from an interdisciplinary perspective. The focus is problems that tend to be neglected in our professional discourses.

Methods: An interdisciplinary, dialogical and qualitative survey of problematic aspects of the contemporary mindfulness paradigm was conducted among experts in areas of contemplative practice, philosophy, neuroscience, religious studies, psychology and integrative medicine. From the resultant list, salient problems were selected and reviewed based on their relative lack of uptake within sources cited in PubMed and upon their assessed relevance to academic integrative medicine and health.

Results: Noteworthy problems with contemporary mindfulness include: 1.) definitional problems, 2.) adverse events, and 3.) poignant social critiques. Conceptual problems with mindfulness can be seen in the inconsistencies between various definitions of mindfulness. "Mindfulness" is variously defined as a specific contemplative practice, state of awareness, cognitive skill, innate cognitive faculty (like memory) and even as a synonym of contemplative practice. This definitional inconsistency is a source of considerable confusion. Adverse events are likely under-appreciated and under-reported in contemporary investigations of mindfulness. Side effects associated with mindfulness-based interventions are probably common and include severe exacerbations of mental health disorders. There are important social critiques of contemporary mindfulness. One frequently voiced critique is that emphasizing mindfulness-based interventions might circumvent and undermine approaches that address the "root causes" of socially-determined problems. In light of the history of Western colonialism, contemporary applications of mindfulness in medicine are also vulnerable to problems of orientalism, especially

when key aspects of mindfulness are extracted from its Asian and Buddhist sources.

Conclusion: In the future interdisciplinary perspectives should be taken more seriously in order to fully understand problems with contemporary applications of mindfulness.

P05.47LB

A Systematic Review and Meta-Analysis of Mindfulness-Based Stress Reduction for Hypertension

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Abstract

Background: Arterial hypertension is a major public health issue. Non-pharmacological approaches like Mindfulness-Based Stress Reduction (MBSR) might be a promising addition to conventional therapy. This systematic review and meta-analysis aims to evaluate the effects of MBSR on systolic (SBP) and diastolic blood pressure (DBP) among individuals with prehypertension or hypertension.

Methods: We searched Medline/PubMed, Scopus and the Cochrane Central Register of Controlled Trials (CENTRAL) for randomized controlled trials (RCTs) from their inception until August 1st 2021. RCTs were included that compared MBSR to any control intervention in participants with diagnosed prehypertension (120–139/80–89 mmHg) or hypertension ($\geq 140/\geq 90$ mmHg). Mean differences (MD) and 95% confidence intervals (CI) were calculated. Risk of Bias was assessed using the Cochrane tool. Quality of evidence was assessed according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

Results: Seven RCTs with 429 participants were included. Very low quality of evidence was found for positive effects of MBSR on SBP (MD=-11.26 mmHg, 95%CI=-20.24 to -2.29, $p=0.01$) but no evidence for effects on DBP levels (MD=-3.62 mmHg, 95%CI=-8.52 to 1.29, $p=0.15$) compared to waitlist control. Compared to active control, very low quality of evidence was found for positive effects on DBP (MD=-5.51 mmHg, 95%CI=-10.93 to -0.09, $p=0.05$) but no effects on SBP levels (MD=-4.33 mmHg, 95%CI=-12.04 to 3.38, $p=0.27$). Overall, the studies showed a high degree of heterogeneity. The effects found were robust against selection, detection and attrition bias. Only one RCT reported safety data.

Conclusion: MBSR may be an option for lowering blood pressure in people with prehypertension to hypertension.

More and larger high-quality studies are needed to substantiate our findings.

P05.49LB

Remotely-Delivered Mindfulness-Based Cognitive Therapy for SCAD Survivors: Preliminary Findings of an Open Pilot Trial

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Abstract

Background: Spontaneous coronary artery dissection (SCAD) is an increasingly recognized etiology of acute coronary syndromes, particularly among young women. Approximately half of SCAD survivors struggle with fear of recurrence (FOR), which contributes to poor sleep and physical inactivity. We adapted Mindfulness-Based Cognitive Therapy (UpBeat-MBCT) to target FOR, sleep, and physical activity in SCAD survivors. The aim is to explore preliminary feasibility and acceptability from the first intervention cohort of an open pilot trial.

Methods: Nine participants were enrolled (100% female, 100% white, average age=52). UpBeat-MBCT consisted of eight weekly 1.5-hour sessions via group videoconference, combining cognitive-behavioral therapy, mindfulness meditation, and health behavior promotion. Participants completed baseline and post-intervention surveys; actigraphy and daily diaries for 7 days before and after the intervention; and exit interviews. Feasibility outcomes included enrollment; data collection; attendance (i.e., > 6/8 sessions); and study retention (i.e., completion of post-intervention data collection). Acceptability outcomes included program satisfaction (1=not at all satisfied; 10=very satisfied) and exit interview themes.

Results: Enrollment was completed from 10/2021-11/2021. At baseline, 100% (9/9) of participants completed the survey and actigraphy; 44% (4/9) completed the daily diaries. One-third (3/9) completed the intervention. 44% (4/9) were retained post-intervention: 33% (3/9) completed the survey, 44% (4/9) completed actigraphy, and 11% (1/9) completed the daily diaries. Among intervention completers, program satisfaction was Mean=9.0 (SD=1.4), and 100% (3/3) would recommend the program to others. Exit interview themes revealed valuing social connection with other SCAD survivors, decreased anxiety about recurrence and physical symptoms, and improved sleep. However, participants

expressed difficulty hearing others' emotional stories about SCAD.

Conclusion: While we found positive intervention effects among treatment completers, refinements are needed to promote retention and align the intervention with the unique needs of SCAD survivors. Possible adaptations include setting boundaries for sharing about personal experiences with SCAD, and reducing intervention dose and daily diary schedule.

P05.50LB

Effects of Mindfulness Based Cancer Recovery (MBCR) on Resilience in Cancer Survivors: A Mixed-Methods Longitudinal Study

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Abstract

Background: Resilience in cancer patients is associated with positive psychosocial health outcomes. Mindfulness-based interventions (MBI) have potential for improving resilience in cancer patients but require further investigation. This study investigates the Mindfulness Based Cancer Recovery (MBCR) program's impact on participants' resilience.

Methods: Adult cancer patients in the ongoing videoconference-based group MBCR clinical program were invited to participate in this mixed-methods longitudinal study. Quantitative assessment for resilience (primary outcome), coping, quality of life, post-traumatic growth, and depression (secondary outcomes) occurred at baseline, week 8 (post-MBCR), and week 12 (follow-up). Individual, semi-structured interviews were conducted post-intervention. Descriptive statistics, t-tests, and correlational analyses are reported.

Results: Participants (N=6) were female with a mean age of 55 (+7.78) years. Mean time since diagnosis was 18 months. Cancer diagnoses included breast (n=4), myeloma (n=1), and Chronic Lymphocytic Leukemia (n=1). From baseline to post-MBCR, patients showed significant increases in resilience ($p=.034$, $d=0.94$), emotional well-being ($p=.015$, $d=1.28$), positive reframing ($p=.006$, $d=1.45$), planning ($p=.003$, $d=1.11$), and spirituality-focused ($p=.017$, $d=0.77$) coping strategies and decreased depression ($p=.048$, $d=1.04$). Correlation analyses

revealed 1) being in active treatment (compared to having completed treatment) was associated with higher home practice hours per week, $r=.89$, $p=.019$, 2) longer time since diagnosis was linked with higher post-MBCR resilience scores, $r=.81$, $p=.049$ and 3) Being finished active treatment was associated with higher change in resilience score between post-MBCR and follow-up, $r=-.82$, $p=.046$.

Conclusion: MBCR participation was associated with improved resilience and emotional wellbeing, decreased depressive symptoms, and increased use of positive reframing, planning, and spirituality-focused coping strategies. Results from this small sample suggest both statistical and clinical improvements in psychosocial health and resilience following MBCR training in people with cancer but require further investigation.

P05.51LB

Self-Transcendent States during a Brief Mindfulness Based Stress Reduction Class Predict More Positive Participant Outcomes

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Abstract

Background: Self-transcendence, characterized by feelings of unity and bliss, is a frequently theorized therapeutic mechanism of mindfulness. However, self-transcendence experiences have been infrequently examined in legacy mindfulness-based interventions such as Mindfulness Based Stress Reduction (MBSR). To date, no known studies have examined 1) participant reports of self-transcendent states during MBSR, 2) cognitive states preceding self-transcendent states during MBSR, or 3) whether self-transcendent states during MBSR predict more positive participant outcomes.

Methods: This was a cohort, pilot study of individuals participating in a 4-session adaptation of MBSR. Each session was 2-hours and participants completed validated surveys assessing decentering, self-transcendent state, positive affect and negative affect immediately before and after each session. To increase power, data was collapsed across the four sessions, yielding 38 cases. Linear mixed modeling was used to analyze continuous outcomes, and structural equation modeling was used to determine predictors of affective change. Follow-up assessments and another cohort of data will be available before the ICMH meeting.

Results: Participants in the Brief MBSR class reported significant increases in decentering ($F_{1,72}=49.22$, $p<.001$), self-transcendent state ($F_{1,72}=16.88$, $p<.001$), and positive affect ($F_{1,72}=28.82$, $p<.001$) as well as significant decreases in

negative affect ($F_{1,72}=21.37$, $p<.001$) from immediately before to immediately after class. Structural equation modeling revealed change in decentering predicted change in self-transcendent state ($\beta=.42$, $p=.006$). Change in self-transcendent state predicted increased positivity ($\beta=.62$, $p<.001$) and decreased negativity ($\beta=-.45$, $p=.006$). Decentering did not (positivity: $p=.54$; negativity: $p=.13$).

Conclusion: MBSR involvement may encourage self-transcendent states; and self-transcendent states appear to outperform more established mechanisms of mindfulness in the prediction of positive participant outcomes. Furthermore, the associative chain observed in the present study, situating decentering as an antecedent to self-transcendence, is consistent with established, theoretical hierarchies of altered states of consciousness. Now, larger randomized controlled MBSR studies are needed to replicate these results.

P05.52LB

Inner Atlas Mind-body Therapy and Pain Scores

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Abstract

Background: Mind-body therapies are highly effective for numerous medical conditions previously treated with opioids (Garland et al. JAMA 2019). InnerAtlas is a comprehensive mind-body healthcare program for patients in any healthcare setting. The program was implemented for patients at a pilot neuromodulatory surgery clinic. This quality improvement (QI) study aimed to establish if patients engaged in InnerAtlas before and after surgery had significant improvement in Visual Analog Scale (VAS) pain scores over patients that were not engaged.

Methods: A retrospective review of 32 patients who participated in the program from November 2018 until present time, was performed. VAS scores were collected prior to surgery and at 2 weeks, 3 months and 1 year postoperatively. The groups were separated by active engagement in InnerAtlas in the perioperative period (Group 1) and surgical patients who did not participate in InnerAtlas in the perioperative period (Group 2). Then VAS scores were analyzed using Friedman test. A Post Hoc Test was performed for Group 1.

Results: The Test Statistics Table for the VAS Scores shows a statistically significant difference between the data at four different timepoints, $\chi^2(4) = 0.9135$, $p = 0.028$. For the intervention group, the Wilcoxon test shows statistically significant

differences between the VAS prior to surgery versus Week 2 ($\chi^2(4) = -2.144$, $p = 0.032$) and Month 12 postoperatively ($\chi^2(4) = -2.086$, $p = 0.037$). The non-intervention group showed no differences in VAS scores across the time periods.

Conclusion: Patients who participated in the InnerAtlas group had significantly lower pain scores at 2 weeks and 12 months post surgery than surgical patients who did not participate in InnerAtlas. Being actively engaged in the InnerAtlas group in the perioperative period could have led to better VAS scores. This is expected as mind-body therapies are highly effective and under utilized in the postoperative period.

P05.53LB

Improvement in Migraine Disability from Mindfulness is Mediated by Improvements in Pain Catastrophizing and Self-Efficacy

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Abstract

Background: The objective of our current study was to evaluate potential mediators of mindfulness meditation's effect on disability.

Methods: The effect of Mindfulness-Based Stress Reduction (MBSR) on disability was assessed in adults with migraine ($n=78$) randomized to MBSR ($n=37$) or Headache (HA) Education ($n=41$). Independent mediation analyses were conducted for MBSR treatment on disability (Migraine Disability Assessment, MIDAS) through each of our candidate mediators, which included Pain Catastrophizing Scale (PCS), Headache Management Self-Efficacy (HMSE), depression (Patient Health-Questionnaire-9, PHQ-9), anxiety (Generalized Anxiety Disorder-7, GAD-7), emotion regulation (Difficulty in Emotion Regulation Scale, DERS), and pain acceptance (Chronic Pain Acceptance Questionnaire; CPAQ). We assessed change in each measure and its potential mediation effect on change in MIDAS. The mediator and outcome models used for the mediation analysis fit change scores fit via linear mixed models with treatment (MBSR vs. HA education), time (treated as a factor variable), and baseline MIDAS as predictors, with random intercepts for each patient. Statistical significance was based on the estimated Average Causal Mediation Effects (ACME), estimated for each candidate mediator following the Quasi-Bayesian Monte-Carlo method over 5,000 simulations.

Results: Most participants were female (91%), with average age (SD) of 45.0 (12.9) and average headaches of 9.7 (3.5)/month. Reductions in PCS ($p<0.001$) and HMSE ($p<0.048$) were significant mediators for change in MIDAS between the MBSR vs. HA Education groups. Non-significant mediating effects were found for changes in PHQ-9 ($p=0.23$), CPAQ ($p=0.34$), GAD-7 ($p=0.36$), and DERS ($p=0.23$). We found a significant mediation effect change in PHQ-9 on PCS between the MBSR vs HA education groups ($p=0.011$).

Conclusion: Decreases in migraine disability in MBSR participants was significantly mediated by improvements in pain catastrophizing and headache management self-efficacy. These results suggest mindfulness may impact migraine-related disability through the Fear-Avoidance Model. These results can help direct future research evaluating mechanisms of mindfulness-based interventions.

P05.54LB

Pilot Study of Effects of Yoga Therapy & Qigong for Pain, Sleep & Mood among ER+ Breast Cancer Survivors

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Abstract

Background: To determine feasibility and effects of yoga therapy (YT) and qigong/tai chi (QT) for self-management of pain, mood and sleep among estrogen-receptor positive (ER+) breast cancer survivors AIMS: · Identify effects of a standardized 12-week YT intervention on pain intensity, interference and QOL of ER+ breast cancer survivors as compared with QT intervention and waitlist control group. Evaluate effects of a standardized 12-week YT intervention on stress, mood, sleep, perception of control, and QOL of ER+ breast cancer survivors as compared with QT intervention and waitlist control group
Methods: Design: Three-group, randomized-controlled trial comparing effects of standardized YT and QT with control group. Interventions: 60-minute class one-time per week for 12-weeks Sample/Setting: ER+ breast cancer survivors reporting pain recruited (N=42); Inclusion Criteria: over age 21, Stage I-IIIa ER+ breast cancer, post treatment; speak/read English. Exclusion Criteria: metastasis. In-person classes at community centers; Rapid Pandemic Redesign (YouTube/Zoom). Data Collection/Analysis: Series of questionnaires to measure pain intensity, perception of control, mood, stress, sleep, QOL (in person & doorstep delivery). Data analysis using

SAS for descriptive statistics, multivariate linear/nonlinear mixed model for longitudinal data; repeated measures design.

Results: Recruitment successful despite pandemic; timeline met with Rapid Redesign; Mean age 61; 82% white, 11.8% African American, 5.8% Asian; 69% married, 13% single/widowed, 18% divorced; 87% some college; 54% working; retention exceeded 98%;reported ease with intervention protocols & positive benefits during pandemic. Reported pain consistently decreased after YT & QT intervention sessions, with significance decrease noted at week 6 ($p<0.03$) and over time ($p<0.05$) with increase in pain noted in control group. Study ended 1/31/22; analysis continues.

Conclusion: Healthcare providers should acknowledge survivors' interest in and ability to self-manage pain, and consider evidence-based complementary practices to improve health outcomes. This research highlights the feasibility and importance of meditative movement practices for symptom management.

Education Research

P06.01

Medical Student Education on Integrative Medicine: Case Study on Medical Student Clinical Experience in Integrative Medicine over 3 Years

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Abstract

Background: The practice of integrative medicine (IM) is becoming increasingly prevalent in our medical system, which necessitates the need for adequate education and updated curriculum. The development of IM curriculum is in part guided by ACIMH, and through the development of competencies at academic centers. Integrative medicine competencies pertaining to medical school curriculum were most recently updated in 2004. There is limited research in evaluating clinical experiences within IM. At the University of Michigan Medical School (UMMS), there is a clinical elective experience in IM offered to third and fourth year medical students. This study aims to gain insight into the IM clinical experience in medical education through interviews with stakeholders of this elective.

Methods: Utilizing a holistic single case study format, this case reviews the key elements of the UMMS IM elective over a 3-year time frame. Medical student and faculty perspectives

were gathered through semi-structured interviews. Themes were identified following the transcription and coding of interviews.

Results: A total of 8 interviews were conducted (6 students, 2 faculty). Two prevailing themes emerged from the interviews: 1) The IM elective broadened student perceptions about how a patient can be cared for with holistic and evidence-based alternative therapies (professional growth); and 2) Students experienced personal growth during this elective. Personal growth came from self-guided learning and improvement of communication skills. Professionally, students learned the importance of team-based care, and how to incorporate foundations of health and lifestyle medicine into patient care.

Conclusion: Future physicians are well-served to receive training in Integrative Medicine. This study provides themes which are central to the functioning of an Integrative Medicine Elective. Furthermore, it demonstrates the benefit an IM elective can have on a learner's education. Implications of this study aim to provide data to guide competencies which formulate Integrative Medicine clinical experiences, as well as inform national guidelines.

P06.02

IOS Program: Web-Based Training Can Significantly Improve Dietary Supplement and Antioxidant Key Knowledge for Providing Evidence-Based Oncology Care

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Abstract

Background: Dietary supplements (DS) and antioxidants are commonly used among cancer survivors; however, oncology providers rarely receive training in the benefits and risks of DS. We evaluated whether web-based materials could improve oncology providers' knowledge of DS and antioxidants and if sociodemographic and professional characteristics are associated with performance.

Methods: Oncology providers were part of a year-long NCI Integrative Oncology Scholars (IOS) program. At baseline the IOS participants self-reported sociodemographic and professional characteristics. 2021-2022 Scholars performed pre-module rapid assessment tests (RAT), prior to studying web-based materials, and then post-module RATs. Pre-and-post-module RAT mean scores were analyzed with paired t-tests. Test results were also analyzed using multivariate linear regression adjusting for gender, race,

profession, and years in practice. Results are reported using an alpha of 0.05 and 95% confidence intervals.

Results: Scholars (N=26) included 81% (N=21) women; mean age 43 ± 9 years; 65% (N=17) White; years in practice ranged from 1-26 years with a median of 12.5 years. There were 12 physicians, 2 PAs, 9 nurses, 1 pharmacist, and 2 social workers. Medical oncology (23%) was the most represented specialty. Pre-RAT mean and SD was 47% ± 19 for DS, and 46% ± 18 for antioxidants: post-RAT was 71% ± 20 for DS and 72% ± 19 for antioxidants. The mean change in RAT scores for DS and antioxidants was 25% ± 23 and 26% ± 27, (paired t-tests both P<0.0001). In adjusted models, there were no significant predictors of change in DS RAT scores. Social workers had a significantly higher change in antioxidant scores compared to physicians, 59% and 24%, respectively, (P=0.021) [95% CI, 10.21 to 108.41]; however, no other characteristics were significant.

Conclusion: Oncology providers have little knowledge of important DS and antioxidant key knowledge for providing evidence-based oncology care. DS and antioxidant knowledge can be improved with web-based learning materials.

P06.03

Evaluation and Evolution of an Integrative Psychiatry Curriculum

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Abstract

Background: To discuss an evidence-based, iterative design curriculum in Integrative Psychiatry which has evolved over the past 5 years based on feedback from residents and fellows, and to explore next steps and implications for continued curriculum development and expansion.

Methods: The Integrative Psychiatry Curriculum (IPC) consists of a 109.5-hour evidence-based, asynchronous interactive online curriculum; a weekly didactic and experiential curriculum; and weekly outpatient clinical supervision. Psychiatry residents and fellows who completed in IPC from 2015-2020 were offered 15-minute interviews using standardized questions at the end of each academic year. Interviews were analyzed based on overarching themes and trends. During the 2020-2021 academic year, five out of seven consented to participate in the interviews, and all supervision was offered virtually due to the COVID-19 Pandemic.

Results: Since 2015, 42 of 45 trainees who enrolled in IPC, completed the curriculum requirements. In 2021, the respondents had an overall positive experience, found the

program feasible to complete, and were able to implement the material personally and clinically, while also educating their colleagues and peers. They expressed benefit from the combination of online modules and weekly live virtual teaching and supervision sessions. Many noted that the experiential portion was invaluable due to its interactive and collaborative approach, with opportunities to practice mind-body medicine techniques as a group, while the online asynchronous portion provided an in-depth evidence base for various integrative medicine approaches. Respondents noted that live clinical supervision was vital in building confidence to incorporate integrative medicine approaches in clinical care. Additionally, participants who completed a second year of IPC training found continued exposure to this material allowed enhanced implementation in patient care.

Conclusion: The IPC has been feasible to implement at the University of Arizona and is rated highly among participants. Future directions include supporting other institutions adapting IPC into their residency training curricula.

P06.04

Comparable Efficacy of a Virtual Culinary Medicine Elective for Medical Students

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Abstract

Background: Cooking Up Health (CUH) elective was created in response to the lack of adequate education within medical schools surrounding clinical nutrition and cooking. The course is intended to expand students' comfort in counseling patients in successful behavior change around nutrition and cooking through didactics and hands-on culinary sessions. Due to COVID-19, the CUH course held at Northwestern University Feinberg School of Medicine shifted to a virtual learning environment in Spring 2020. Students completed daily asynchronous learning activities, and met with faculty for discussion and virtual cook-together sessions.

Methods: To examine whether students showed changes over the course of the elective in their preliminary efficacy outcomes as a function of participating in the elective, we conducted repeated measures analysis of variance (ANOVA) models on the outcome measures with assessment (pre vs. post elective) as a within-subject factor and cohort as a between-subject factor. Descriptive summary statistics were conducted on the questions on engagement with the virtual elective format.

Results: Three cohorts (n=22) completed CUH virtually. All three groups showed significant increases in their confidence in their cooking skills from pre course to post course ($p < .05$). All 3 groups showed significant increases in their confidence in basic nutrition counseling from pre course to post course ($ps < .01$). All 3 groups showed significant increases in their confidence in obesity counseling from pre course to post course ($ps < .001$).

Conclusion: We concluded culinary medicine training can successfully be translated from in-person to virtual format, based on the following results: students reported being able to stay engaged in the course, even with virtual delivery, the majority of students reported that they felt that their ability to gain nutrition and culinary knowledge was not impacted because the courses were virtual, and students reported that the cooking demonstrations were of value, even if they couldn't cook along.

P06.05

Chiropractic Faculty Burnout Through the Lens of the Global Pandemic

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Abstract

Background: The purpose of this study was to examine the effect of moving to emergency remote teaching due to the COVID-19 pandemic on chiropractic college faculty. The job of a faculty member has always included demands. Stress can lead to occupational burnout, defined by the World Health Organization (WHO) in 2019 as "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed."

Methods: A survey was designed using Survey Monkey to query faculty regarding measures of stress and burnout related to both remote teaching and on campus teaching. A five-point Likert scale was used to garner respondents' reactions to 21 closed ended questions. The anonymous, confidential survey link was sent by email to faculty at three chiropractic programs. Respondents were instructed to reflect on March 2020 to March 2021 when completing the survey.

Results: The survey request yielded 36 respondents. The majority of respondents, 66%, worked partially at home and partially on campus, while 26% worked entirely from home and 8% entirely on campus. In addition to work responsibilities, 31% of respondents were educating children at home. Nearly 2/3 of respondents (61%), indicated that they did not stop working at the end of the workday and 47% indicated that they felt stressed at work. However, 72% of

respondents indicated that they were able to create a productive learning environment for students. While only 17% of respondents agreed that working with students remotely was energizing, most (70%) did not feel students blamed them for issues experienced during remote learning.

Conclusion: Chiropractic faculty variably experienced stress during the height of the COVID-19 pandemic. This may be due to working remotely and an absence of separation of home and work life. Despite the stressors felt surrounding teaching and work, faculty created a positive learning environment for students.

P06.06

Does Education and/or Experience Facilitate Primary Care Provider Attitudes & Subsequent Complementary and Integrative Health Referrals: A Pilot Study

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Abstract

Background: Complementary and integrative health (CIH) services are strongly recommended by numerous official bodies for improving pain relief. However, the attitudes of primary care providers (PCPs) and their patterns of CIH referrals don't reflect these recommendations/guidelines with only 53% providing CIH referrals according to national data. Our purpose was to assess whether a brief intervention aimed at increasing PCPs' knowledge of CIH and experience with CIH therapies would (1) influence their attitudes of usefulness toward CIH for chronic pain and/or (2) change the proportion of PCPs referring for CIH therapies.

Methods: Twenty-five PCPs participated in this pre-post, pilot study. The CIH educational and experiential intervention had two parts: 1) a webinar-based training on the evidence of acupuncture and massage, and 2) a session of acupuncture, massage, or both at the CIH clinic. Surveys captured attitudes about CIH therapies for chronic pain at baseline and at 3-month follow-up. Referrals to CIH were tracked via electronic health records for pre-period (3 months pre-intervention) versus post-period (during and 3 months post-intervention).

Results: Providers under age 50 made significantly more post-intervention CIH referrals than older providers. PCP's ratings of the usefulness of massage ($p=0.008$, $d=0.61$) and acupuncture ($p=0.025$, $d=0.50$) for chronic pain significantly increased pre to post. Furthermore, the proportion of PCPs making >1 referral for any CIH therapy significantly increased from pre-period ($n=5$: 20%) to post-period ($n=11$: 44%) ($p=0.02$, 24% increase).

Conclusion: Despite the small sample size, the PCP-level intervention was associated with significantly greater rating of usefulness of CIH for chronic pain and increased proportion of PCPs referring patients for CIH. While these initial results are promising, we recognize that only 44% of providers made a referral after the intervention. Accordingly, future research is needed in a randomized controlled trial including a slightly stronger intervention, a larger sample size and an active control group.

Health Equity and Health Disparities

P07.01

Considering the Role of Religion and Spirituality in Adapting Mindfulness-Based Interventions for Black Communities

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Abstract

Background: A growing body of evidence points to mindfulness-based interventions (MBIs) as a potentially accessible, culturally acceptable, and effective treatment approach for mental health outcomes among racial and ethnic minorities. However, qualitative data on the implementation of MBIs among Black communities indicate that some individuals experience tension between mindfulness concepts and their religious and spiritual beliefs. This perceived discordance can present a significant obstacle to engagement and retention in MBIs, especially given that religion and spirituality play an important role in the lives and wellbeing of Black people in America. This review calls for a strengths-based approach in considering religion and spirituality as cultural factors for the adaptation of MBIs within Black communities.

Methods: We conducted a literature review and integrated findings from the literature on religion, spirituality, and wellbeing, especially within Black communities; MBIs and

their implementation within American minority communities; and cultural adaptation of health interventions. Building upon this review, we offer recommendations for surface-level and deep-level adaptations of MBIs.

Results: We provide the following recommendations: 1) collaborate with faith leaders and implement MBIs in houses of worship, 2) proactively address concerns about religious and spiritual discordance with mindfulness, and 3) adapt mindfulness terms and metaphors to align with participants' religious and spiritual worldviews when appropriate. We also recommend that researchers consider developing novel mindfulness interventions from within the particular cultural and spiritual contexts of Black communities.

Conclusion: Religion and spirituality are important to consider when adapting MBIs for Black communities in America. Surface-level adaptations, such as proactively addressing concerns about religious conflicts and utilizing familiar terms to explain mindfulness concepts, are helpful in groups with diverse religious affiliations. Deep-level adaptations, such as utilizing religious metaphors and collaborating with faith leaders to implement MBIs, can be particularly helpful for groups organized around a similar religious affiliation and level of religious commitment.

P07.02

Patient Designed Mindfulness Mobile App: Connection, Information, and Sharing Pain Reduction Strategies for those with Sickle Cell Disease

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Abstract

Background: People with Sickle Cell Disease (SCD) experience severe chronic pain that can be debilitating to everyday life. Patients with SCD turn to healthcare systems for pain management which commonly result in the prescription of opioids. The regular use of opioids can increase risk of breakthrough pain and/or opioid failure. The utilization of non-pharmacological pain management methods (including mindfulness) is an effective alternative to managing chronic pain; however, this topic is understudied within patients with SCD. This study aims to design a mobile application for the sickle cell community to: 1) decrease anxiety and distress; 2) provide non-pharmacological pain management resources; and 3) foster a sense of community.

Methods: Patients were recruited via phone from a SCD home visitation program and were asked to consent to a

structured interview assessing distress, role of identity, self-management strategies, attitudes towards complementary therapies and mindfulness, and mobile applications use and preferences. The qualitative analysis team developed, test-coded, and finalized a codebook for patients with SCD (N=11).

Results: Content analysis of coded patient interviews revealed patients are seeking an app that offers a “live” connection to a SCD community of other patients and to healthcare providers, with the ability to chat and ask questions. Patients expressed the desire for confidential access to information and advice to mitigate the stigma many patients encounter in seeking clinical care. Patients also expressed preferences for pragmatic tools to manage sickle cell disease including: a medication tracker, live emergency room wait times, and daily health tracker to document stress and mood.

Conclusion: These findings support the development of an app aimed to promote: 1) open communication with SCD patients and healthcare providers; 2) mindfulness practices as a nonpharmacological pain management tool and a self-management strategy to reduce distress and anxiety; and 3) a sense of community within SCD patients.

P07.04

Understanding Barriers to Uptake of Integrative Oncology among Black Patients with Cancer

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Abstract

Background: Despite modern advances in screening, diagnosis, and treatment, Black individuals in the US remain disproportionately affected by cancer and have the highest mortality and lowest survival for most cancers. Drivers of these disparities have been previously explored and persist at the patient, provider, and structural level. There is now a growing body of literature demonstrating the impact of integrative oncology (IO) approaches not only on cancer/treatment-related symptoms but survival outcomes. To date, there is minimal data on the uptake and acceptability of IO among Black individuals, likely due to a lack of diversity in study participants, poor accrual, and racial/ethnic or cultural differences in the acceptability of study interventions/instruments. Research lacks the acceptability of complementary approaches for cancer prevention/disease modification or management of cancer/treatment-related side effects in this population.

Methods: Examine the current use of IO therapies and barriers to participation in IO research among Black patients with cancer. Semi-structured interviews and focus groups with patients diagnosed with any solid malignancy within the past five years. Eligible participants self-identify as Black or African American, are at least 18 years old at the time of consent, can read and write in English, and are willing and able to provide consent.

Results: Flyers, invitation letters, and a review of provider schedules will be used to recruit participants from oncology clinics serving diverse populations at the University of California San Francisco, Zuckerberg San Francisco General Hospital, and San Francisco Veterans Affairs Hospital. Preliminary data will be available in early 2022.

Conclusion: We expect this study to provide data to support IO programs specifically for Black patients with cancer. Findings will help guide future research on the most efficacious modalities and provide recommendations to increase engagement in research for this patient population. Future research might also facilitate an understanding of mechanisms of action involved with these interventions.

P07.05

Assessment of Healthcare Professionals' Wellbeing During a Peak of the COVID-19 Pandemic in the United States

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Abstract

Background: The purpose of this cross-sectional study was to evaluate multiple indices of wellbeing in healthcare professionals during the COVID-19 pandemic.

Methods: Healthcare professionals were invited to participate across the University Hospitals healthcare system in Ohio, USA. Participants (N = 6397) completed online questionnaires on their wellbeing, including healthy behaviors, safety and security, mental and physical health concerns, and social support. Differences in wellbeing across demographics were also assessed.

Results: Overall, healthcare professionals' mean subjective wellbeing was 7.98 (1.50) and their future health score was 3.98 (1.13). Room for improvement was noted for diet, sleep, and positive thinking. Males reported significantly higher levels of overall wellbeing and future health scores, including fruit and vegetable intake and physical activity, and alcohol use, whereas females reported higher levels of positive

thinking and tobacco use. Of the three largest racial groups, White and Asian employees scored significantly higher on future health, M = 4.00 (1.17) and M = 4.10 (1.13), than Black or African American employees, M = 3.74 (1.10).

Conclusion: This cross-sectional study assessed the wellbeing of healthcare workers during the initial peak of the COVID-19 pandemic prior to vaccine delivery. Future work will implement strategies to improve healthcare workers' wellbeing in an individualized way based on our findings, as well as evaluate changes in wellbeing and future health scores across time.

P07.06

Exploring Spinal Diagnoses and Complementary and Integrative Health Use Among Sexual and Gender Minority Adults in the Department of Veterans Affairs

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Abstract

Background: Sexual and gender minority adults (SGM; i.e., lesbian, gay, bisexual, transgender, queer) experience disparities in health risks and outcomes compared to their heterosexual, cisgender peers, but these differences remain largely understudied. We sought to investigate differences in spinal diagnoses and complementary and integrative health (CIH) use between Veterans Health Administration (VHA) patients who do and do not identify as SGM.

Methods: Data were obtained from an existing cohort which used natural language processing to extract information on sexual orientation and gender identity. From 2010 to 2018, we examined rates of back and neck diagnoses (using International Classification of Disease codes), and among those with back and neck diagnoses, whether there were differences in use of chiropractic and acupuncture services (identified by clinic stop codes and Current Procedural Terminology[®] codes). We compared the odds for diagnoses and for care, by SGM status, using logistic regression, controlling for other demographic characteristics.

Results: The population consisted of over 9 million patients, of which 1,187,785 had sufficient information to determine SGM status. Of these, 19.9% were identified as SGM, 13.7% had female as sex of record, the mean age was 51.5, and 68.5% were white and 20.3% black. In adjusted regression models,

SGM patients were significantly more likely to have a back (adjusted odds ratio (aOR)=1.13) and neck (aOR=1.14) diagnosis. Among those with neck or back diagnoses, SGM patients were significantly more likely to utilize chiropractic (aOR=1.04) and acupuncture (aOR=1.13) services.

Conclusion: SGM adults using VHA healthcare commonly are seen for spinal conditions and receive CIH services. This illustrates the need for further investigation of the higher likelihood of back and neck diagnoses in SGM adults, the patient-level impacts of these diagnoses, and the characteristics and outcomes of CIH and other care.

P07.07

Qualitative Analysis of Barriers & Facilitators to Non-Pharmacological Modalities Across Minnesota: Views from Patients, Clinicians, Administrators

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Abstract

Background: Identify existing facilitators and barriers to non-pharmacological pain modalities (NPM) through 1:1 qualitative interviews with five stakeholder groups across seven regions of Minnesota, a project funded by Minnesota Department of Health.

Methods: We developed questions for each stakeholder group to explore barriers and facilitators to providing and accessing NPM for chronic pain management. Stakeholder groups interviewed were: chronic pain patients (CPP, n=11), complementary and integrative health providers (CIH, n=11), clinicians (primary/specialty care providers, nurse practitioners, n=7), healthcare administrators (n=5), and health insurance representatives (n=3). Individual stakeholder groups were recruited through various methods/platforms. The recordings were transcribed and uploaded to a data analysis software. Using the Framework Method, qualitative thematic analysis of interviews was done. We independently coded transcripts and jointly reconciled any coding differences.

Results: For individual stakeholder groups, our preliminary analysis identified the major barriers as: limited access to NPM (clinician and CPP), lack of insurance coverage (CIH providers and insurance representatives), professional biases toward NPM (healthcare administrators), and a perceived lack of research evidence (insurance representatives). Major

facilitators were identified as: partnership between providers (CIH providers, clinicians, and insurance representatives); understanding/enhancing education about NPM (CPP); and increasing awareness and access to NPM (healthcare administrators). Composite analysis of all stakeholder groups identified the major barriers as: lack of insurance coverage, limited access to services, cost (i.e. deductibles, out-of-pocket, and copays), and lack of knowledge of NPM. Major facilitators were identified as: partnerships between clinical and CIH providers, the expansion of insurance coverage, and appropriate understanding/enhancing education about NPM. Most groups provided recommendations for future improvements such as easier means of communication among providers and more expansion of insurance coverage.

Conclusion: Our unique project reports an unmet need for NPM across Minnesota. Specifically, there were significant barriers and few facilitators to referring, accessing and utilizing NPM for chronic pain management in Minnesota.

P07.08

Wellness Education to Support Behavioral Health for Children in Underserved Communities: Expanding our Wellness Equity for a Healthy Life Program

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Abstract

Background: Integrative therapies are effective in reducing anxiety, depression, and stress for a variety of conditions and studies demonstrate these practices can help enhance coping strategies, resilience, and academic performance in underserved communities. We piloted a wellness class series with 25 children with a behavioral health diagnosis and their families. We found the program was feasible and acceptable; families reported high satisfaction and interest in incorporating wellness practices into their lives. The success of this pilot project enabled us to reach 60 additional children and families, opening referrals to primary care centers in underserved areas. In this second phase of this project, we will examine the impact of wellness education on resilience and quality of life.

Methods: We worked with 60 families to deliver a virtual integrative health and wellness education series. Utilizing the Community Health Worker model, the Community Wellness Educator provided families with practical application of these tools in everyday life. Before and after the class series, parents were asked to complete the CD Resiliency Scale and PROMIS

questionnaires to understand the education's impact on outcomes of interest. This process has been reviewed by the Institutional Review Board. We are simultaneously rolling out a pilot for phase three of this project and will report out on this the expansion of BE-WEHL curriculum in community groups.

Results: We've enrolled 29 families and 17 completed the entire series to date. Three caregivers completed the train-the-trainer component, and one has executed the classes within their community. We've updated the course materials based on family feedback. We plan to enroll 60 families in phase two and 50 groups in phase three of this program.

Conclusion: Families who live in underserved communities and have children with behavioral health concerns are impacted by integrative health and wellness education, specifically measured by improved resiliency and quality of life.

P07.09

Preventing Mindfulness from being “Lost in Translation” for Spanish Speakers: Considerations for Translation, Adaptation, and Implementation

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Abstract

Background: To highlight socio-cultural-linguistic factors important to translating mindfulness-based interventions (MBIs) and tools from English to Spanish in a manner that preserves the original intent and meaning yet is receptive to Spanish-speakers.

Methods: A scoping literature review was conducted using two online databases (PubMed and Google). Search terms included: “mindfulness”, “Spanish”, and “translation”. Five published sources that focused on the role of cultural and linguistic factors, cultural adaptations, and challenges associated with the implementation of MBIs with Spanish-speaking communities were identified and included. Articles were read in full and key themes and recommendations were abstracted.

Results: The following best practices were identified to ensure successful translation, adaptation, and implementation of MBIs with Spanish-speaking communities: 1) Utilizing universal Spanish that would be best understood by speakers from different regions; 2) Describing/deconstructing mindfulness concepts and terms in simple, lay language to prevent difficulties in translation and understanding; 3) Simplifying/adapting

the names of practices for ease in understanding or to mitigate hesitancy rooted in religious beliefs (e.g., mindful movements or gentle stretches instead of yoga); 4) Addressing contextual factors (e.g., long work days, childcare needs, family commitments) in design and delivery considerations by reducing duration of formal practice and incorporating more audio/video practices; 5) Considering normative Hispanic/Latinx cultural values and belief systems (e.g., familismo, fatalismo, simpatia, personalismo, and respeto) when developing MBI content and structure; 6) Considering the effects of cultural match theory on implementation and design; and 7) Considering the multi-cultural-linguistic lineage from original text in Pali or Sanskrit to English, to Spanish.

Conclusion: These recommendations may serve as a guide for creating and delivering MBIs that are culturally informed and linguistically appropriate for Spanish-speaking communities. These best practices have potential to provide increased access to mindfulness in a population that has historically been left out of the conversation.

P07.10LB

Navigating Harm Through Lovingkindness: A Community-Engaged Qualitative Study With Diverse Meditators During COVID-19

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Abstract

Background: Inclusive research is needed to understand how contemplative practices are used by people across a range of identities. Lovingkindness meditation (LKM) may be particularly relevant for efforts towards equity and justice because of the social nature of the practice. Using community-based participatory research and an inter-sectional framework, this qualitative study focuses on how people in a diverse meditation community teach and practice lovingkindness or metta meditation.

Methods: In partnership between university researchers and a community-based meditation center, we conducted virtual focus groups on experiences lovingkindness meditation before and during the COVID-19 pandemic. We used reflexive thematic analysis to analyze focus group data, with a member checking process.

Results: 47 people participated in 6 focus groups (mean age 47; 62% LGBTQ+; 32% white, 23% Asian, 19% Black, 13% Hispanic/Latina/o, 24% multi-racial). Qualitative analysis revealed two central themes: (1) Diverse meditators' participation in a community of practice, including adaptation to virtual-only formats during COVID-19; (2) The use of metta to navigate harmful situations, both individual stressors and systems of oppression.

Conclusion: Diverse participants in a meditation community found lovingkindness practice supportive for coping with the stress of microaggressions and structural oppression. They used LKM to navigate hardships caused by the COVID-19 pandemic, offer compassion to themselves and others, and cultivate the ability to hold multiple difficult emotions. Community-engaged approaches to meditation research are feasible during the COVID-19 pandemic and other times of crisis and should be used more widely.

Health Services Research

P08.01

The Evolution of Outpatient Chronic Pain Management Programs: A Mapping Review

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Abstract

Background: Interdisciplinary chronic pain management programs (CPMPs) are considered the gold standard for people with chronic, non-cancer pain. However, no consensus exists in the literature regarding the optimal content of CPMPs. This study aims to amalgamate and describe outpatient CPMPs by analyzing studies published between 2011-2020.

Methods: Design: Systematic mapping review. Data Sources: CINAHL, Ovid MEDLINE, PsycINFO, PEDro, and Cochrane. Literature: Multidisciplinary CPMPs for adults with chronic pain. Data extracted: Publication country, participants, providers, program content, approach, format, duration. Data synthesized: descriptively.

Results: Publications: n = 53; United States (21%), Australia (15%), and Canada (13%). Programs: n = 51. Participants: n = 9821 Professions (% of publications): From 2011-2020 Physical therapy (94%), Psychology (83%), and Medicine (77%) were the most prevalent professions. 2016-2020

increases were noted in pharmaceutical intervention (32%) and Occupational Therapy (22%). Program content (% of programs): 2011-2020 Education (94%), Psychological therapy (90%), and Exercise/physical therapy (80%)., 2016-2020 Increases in prevalence were noted for integrative therapies, occupational therapy (23%) and vocational training 13%. The use of outcome measures for pain decreased 27%.

Conclusion: The management of chronic pain is very complex and a diverse interdisciplinary team approach was used in most programs. There appears to be a recognition that measuring outcomes based on pain severity is not as relevant as promoting function and quality of life. The addition of pharmaceutical interventionists, occupational therapists and integrative therapists appears to be an important part of this evolution. Inconsistency in terminology regarding approach, profession, characteristics, and interventions created challenges in interpretation and classification. In conclusion, this mapping review demonstrates that the content and format of CPMPs have evolved. This research fills a void in the literature by establishing the most prevalent components of CPMPs across the past decade and identifies changes in outpatient CPMP models.

P08.02

Levels of Burnout among Nurses During the COVID-19 Pandemic and Preference for Stress Management Strategies

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Abstract

Background: Burnout is a protracted response to stressors at work, characterized by exhaustion and inadequacy¹. During the COVID-19 pandemic, nurses' concerns leading to burnout include lack of resources, rapidly changing advice about the pandemic, and lack of organizational preparedness². There is a need for interventions to reduce pandemic-related burnout³. This study explores the relationship between levels of burnout and nurses' preference for stress management strategies. This is a partial report of a larger study on COVID-19 stress in nurses.

Methods: This cross-sectional study recruited 314 nurses from two hospitals in the southeastern US. Measures were collected via an online survey after IRB approval and informed consent. The Copenhagen Burnout Inventory was used to measure burnout. Multiple choice questions from the survey

inquired about preferred stress management strategies (e.g., exercise class, relaxation).

Results: Participants were predominantly female, white, married, average age of 40.45 years, and 59% provided direct COVID-19 care. Average burnout score was 59.52 (SD = 19.00); 70.9% reported moderate (47.1%) to high/severe (23.8%) burnout. Nurses indicated most interest in “restorative breaks at work” (53.8%), relaxation exercises (52.5%), music therapy (48.7%), exercise (48.1%), yoga (36.6%) and meditation (36.3%) to help manage stress. Logistic regression results showed that nurses’ preferences were mostly independent of their levels of burnout ($p > .05$). Burnout was predictive of choosing restorative breaks ($p = .021$), meditation ($p = .040$), and nurses with higher burnout being more likely to choose restorative breaks (OR = 1.02), but less likely to prefer meditation (OR = .99).

Conclusion: Frontline nurses experience significant burnout levels that warrant intervention. Nurses’ top stress management preferences included organizational and individual strategies but were mostly independent of levels of burnout. Results highlight the need for restorative breaks at work, especially for those with higher levels of burnout.

P08.03

Interest in Mindfulness Training for Chronic Low Back Pain: Results from a Vignette-driven, Web-based Survey of Patients

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Abstract

Background: Mindfulness-based stress reduction (MBSR) has been found effective for improving chronic low back pain (cLBP). Little data exist regarding how attractive this technique is to Americans as a therapy for cLBP so we conducted a survey to assess interest in taking this course and practicing at home.

Methods: Between December 2019 and August 2020, we conducted an online survey of randomly selected adults with cLBP, aged 18 to 80 years, who were recruited from Kaiser Permanente Washington, USA. The survey described an evidence-based classic MBSR course and then asked respondents about their sociodemographic characteristics, their current back pain, previous back pain treatments, behavioral risk factors for back pain and four outcomes

indicative of intention to engage in MBSR. Six variables were a-priori hypothesized to be related to intention to engage in MBSR. To explore the relationship between each measured patient-level variable and each of the four MBSR intention outcomes, we fit unadjusted, bivariate linear regressions to each outcome and patient characteristic pairing.

Results: The survey was completed by 457 participants, who were primarily women, white, educated, and had back pain for at least five years. They reported moderate to high intention to try mindfulness classes and practice at home (median of 5 and 5.7, respectively on a 7-point scale). They reported a willingness to spend a median of 3 hours/week learning mindfulness and 3.5 hours/week practicing mindfulness techniques. Few patient characteristics predicted intention to engage in MBSR among the six a priori hypothesized variables or the five other variables. No variables predicted all outcomes. All effect sizes associated with significant predictors were small.

Conclusion: Classic MBSR appealed to many survey respondents and the amount of time they reported being willing to spend learning MBSR and practicing at home is consistent with the time commitment in the original course.

P08.04

Using the Theory of Planned Behavior to Improve Implementation of Mindfulness in People with Chronic Low Back Pain

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Abstract

Background: Chronic low back pain (cLBP) is a leading cause of disability worldwide. Mindfulness-Based Stress Reduction (MBSR) is a recommended first line therapy for cLBP. However, the time commitment and structure of MBSR training may impede implementation of this evidence-based practice. We used the Theory of Planned Behavior (TPB) to conceptualize patient-level determinants of MBSR use such as self-efficacy and attitudes and then identified those TPB constructs that could be a focus of strategies to improve implementation of MBSR.

Methods: People with cLBP (n=457) completed an online survey. They read a description of evidence for MBSR and what an MBSR training program involves. They then completed survey items assessing Theory of Planned Behavior constructs (attitudes, norms, self-efficacy, perceived control)

intentions to try MBSR training and hours willing to spend learning MBSR. Structural equation modeling assessed the association of attitudes, norms, self-efficacy and perceived control with intentions and hours.

Results: Based on preliminary exploratory factor analyses, the self-efficacy and control factors were combined. Self-efficacy/control (0.564), norms (0.245) and attitudes (standardized coefficient: 0.131) were all positively associated with intentions to try mindfulness trainings. Self-efficacy/control (0.408) and norms (0.235) were positively associated with hours a participant was willing to commit to MBSR whereas the association with attitudes (-0.249) was negative. The attitudes factor was highly correlated with norms (0.610) and self-efficacy/control (0.674) and the bivariate correlations between the attitudes items and hours were positive (range: 0.074-0.190), suggesting a possible suppressor effect.

Conclusion: Results suggest self-efficacy/control may be the most strongly related Theory of Planned Behavior construct with intentions to try MBSR. Implementation of MBSR for cLBP should focus on adapting the intervention (for example to online formats or drop-in classes) and improving available resources to overcome logistical barriers. Available resources may be needed for childcare, transportation and other logistic challenges to MBSR adoption.

P08.05

An Experimental Study to Improve Intentions to Adopt Mindfulness-based Stress Reduction in Chronic Low Back Pain Patients

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Abstract

Background: Mindfulness-Based Stress Reduction (MBSR) is recommended as first line therapy for chronic low back pain (cLBP). This study tested whether different descriptions of MBSR that were altered based on the Consolidated Framework for Implementation Research (CFIR) increased intentions.

Methods: Persons with cLBP (n=450) were randomized to review one of four descriptions of MBSR in an online survey that included two components: Evidence Strength and Quality with Relative Advantage (ESQRA). and Adaptability, Trialability, Complexity and Design Quality of Packaging (ATCDP). Each component had two levels: a description of standard MBSR based on CFIR constructs; and a patient-centered description that included adaptations to patients' preferences. Primary outcomes were intentions to try MBSR training (INTENTIONS)

and practice MBSR at home (PRACTICE). We tested six mediators: self-efficacy, norms, attitude, feasibility, appropriateness, acceptability. We used structural equation modeling with a bootstrapped distribution to test mediation models.

Results: Overall, MBSR descriptions were not associated with an increase in intentions compared to the classic vignette (11/12 p's>0.05). Most descriptions were unrelated to mediators except the Classic ESQRA with Patient-Centered ATCDP was associated with self-efficacy/control and feasibility (p's<=0.05; standardized effects range: 0.111-0.125). Self-efficacy/control (training standardized coefficient: 0.531, home: 0.686), norms (training: 0.303, home: 0.256) and attitudes (training: 0.316, home: 0.293) were all positively associated with INTENTIONS and PRACTICE. Feasibility (training: 0.185; PRACTICE: 0.293) and acceptability (training: 0.639; PRACTICE: 0.554) were positively related to INTENTIONS. Appropriateness was related to PRACTICE (0.187) but not INTENTIONS (0.100). No indirect effects from experimental group to intentions were significant (all p's>0.05).

Conclusion: Self-efficacy/control and acceptability may be the most important mediators for increasing patient adoption of MBSR. As the experimental manipulation did not substantially change intentions to adopt MBSR or potential mediators, the presentation and delivery of MBSR may need to be tailored to the individual patient's needs rather than a specific format by disease group.

P08.06

Listening to The Voices of Nurses: Lessons on Implementing an Integrative Health Program at an Academic Medical Center

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Abstract

Background: This study examines medical/surgical nurses' perceptions and attitudes regarding Integrative Health (IH) services and modalities and factors associated with their willingness to integrate IH practices for patient and self-care. The findings would inform the implementation of a hospital-wide IH training program.

Methods: This qualitative research study employed a semi-structured interview methodology. A purposive sample of full-time, inpatient medical/surgical nurses were recruited. Anonymous interviews were conducted by the Principal Investigator until saturation was achieved, which occurred after nine interviews. Building on the literature on IH and Implementation Science, an interview guide of 14 open-ended questions was developed. Nurses who met eligibility criteria and interested in participating were directed to a confidential REDcap

enrollment form. A Project Assistant obtained verbal informed consent and permission to tape the anonymous interviews. The study obtained expedited Institutional Review approval at this academic medical center. Completed interviews were transcribed by a professional company. Data were analyzed using standard content analysis methods. The research team used a “comparison technique” and reached consensus on emerging themes.

Results: Five themes emerged from the interviews. (1) Participants articulated strong recognition but shallow understanding of IH and IH modalities. (2) Participants expressed enthusiastic interest in learning IH modalities for self-care purposes. Use of IH for patients was considered a secondary goal. (3) Daily requirements of direct care present significant barriers to implementing IH for patients. (4) Participants identified strategies to increase the likelihood of success. Nurses expressed clear preferences about professional development sessions and offered recommendations. (5) Respondents identified specific communications approaches and messaging.

Conclusion: The findings underscore that, prior to introducing innovative practices, it is critical to obtain input from individuals for whom the innovations are intended. The perceptions, attitudes and willingness of providers to implement IH practices can enhance the success and sustainability of new programs.

P08.07

Smart Technology and the Meaning of Life During the COVID-19 Pandemic: A Cross-National Study

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Abstract

Background: The exponential increase of the older segment of the population (1) is coinciding with the growing challenges of a digital society in different socio-cultural contexts (2). This exploratory study aims to analyze older adult perspectives of how smart technology

influenced their meaning in life during the Covid-19 Public Health Emergency period, using qualitative research at a cross-national level.

Methods: Three hundred and fifty-one community-dwelling older participants aged 65-87 years were included in the study. Participants were Italian, Mexican, Portuguese and Spanish. All the narratives went through a process of content analysis.

Results: Findings of content analysis produced six themes: Meaningful relations, rewarding activities, spirituality, health and safety-related support, self-growth, and physical activity. Smart technology was important in promoting significant relations for Mexican older adults (71.3%), rewarding activities for Portuguese older adults (57.1%), spirituality for Spanish older participants (71.6%), and physical activity for Italian older adults (29.5%).

Conclusion: This study indicated that smart technology during the Health Emergency period was important for the meaning in life of older populations, mostly by facilitating meaningful relations, rewarding activities and spirituality. Future interventions with older adults during pandemic periods should consider the diversity of themes associated with increasing older adult well-being, from a cross-cultural perspective. I.von Humboldt S et al. Smart technology and the meaning in life of older adults during the Covid-19 public health emergency period: A cross-cultural qualitative study. *Int Rev Psychiatry*, 2020; 1-10. 2. von Humboldt S et al. Does spirituality really matter? - A study on the potential of spirituality to older adult's adjustment to aging. *Jpn Psychol Res*, 56;114-125.

P08.08

Negative Emotions Associated With Self-Growth Among Older Adults During the COVID-19 Pandemic

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Abstract

Background: The Covid-19 pandemic appeared globally (1), thus affecting the self-growth of the older population (2). The aim of this study is to identify and analyze the negative emotions felt during the pandemic, as well as their impact on self-growth of 226 older individuals of four nationalities: Mexican, Italian, Portuguese and Spanish.

Methods: Thus, a transnational qualitative survey was carried out. A content analysis was carried out.

Results: Seven negative emotions were reported, namely: fear, sadness, anger, grief, annoyance, loneliness and shame. These emotions were considerably associated with the following themes: (a) Sharing experiences; (b) Availability of the partner; (c) Spirituality and religion; (d) Be active; (e) Interest in new projects; (f) Civic participation; (g) Sexual activity. Older participants with Mexican and Italian nationality reported that sharing experiences as the most relevant topic, while for the Portuguese and Spanish participants, having a partner available was more important.

Conclusion: This study demonstrated that negative emotions cooperated with the self-growth of older individuals during the Covid-19 pandemic. The heterogeneity of experiences lived by each culture was highlighted, underlining the positive side of negative emotions and their strong connection with the self-growth of the older people. I.von Humboldt S et al. Smart technology and the meaning in life of older adults during the Covid-19 public health emergency period: A cross-cultural qualitative study. *Int Rev Psychiatry*, 2020; 1-10. 2. von Humboldt S et al. Does spirituality really matter? - A study on the potential of spirituality to older adult's adjustment to aging. *Jpn Psychol Res*, 56;114-125.

P08.09

Chiropractic Care for Fall Prevention in Our Aging Society: Rationale, State of the Evidence, and a Research Agenda

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Abstract

Background: Falls in older adults are a significant and growing public health concern. There are multiple risk factors associated with falls that may be addressed within the scope

of chiropractic training and licensure. Few attempts have been made to summarize existing evidence on chiropractic care and fall risk mitigation.

Methods: Systematic review was conducted following PRISMA guidelines. Databases searched included PubMed, Embase, and Cochrane Library. Eligible study designs included randomized controlled trials (RCT), prospective non-randomized controlled, observational, and cross-over studies in which chiropractic manipulation or multimodal care was the primary intervention and changes in gait, balance and/or falls were outcomes. Risk of bias was also assessed.

Results: The original search yielded 445 articles; 22 met final eligibility including 12 RCTs. One study directly measured the frequency of falls (underpowered secondary outcome) while most studies assessed short-term measurements of gait and balance. The overall methodological quality of identified studies and findings were mixed, limiting interpretation regarding the potential impact of chiropractic care on fall risk.

Conclusion: Little high-quality research has been published to inform how chiropractic care can best address and positively influence fall prevention. We outline a proposed research agenda to address current evidence gaps.

P08.10

Patterns of Care Following Emergency Department Visits for Spine Disorders: A Pilot Study Utilizing Insurance Claims

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Abstract

Background: Spine disorders account for over 6 million yearly Emergency Department (ED) visits. Most visits are avoidable because patients receive no treatment and are referred to other providers for follow-up care. Details of follow-up care have not been investigated.

Methods: A cohort of patients initiating care in the ED for a spine disorder was identified from an insurance database representing covered members of a large fortune-500 company (2012-2018). Episodes of care were identified by 90 day claim free periods; only the initial episode of care was included. Episodes including multiple spinal regions were excluded, as were diagnoses related to serious medical conditions. Demographic, cost, and clinical variables were collected, and patterns of care were developed by evaluating healthcare utilization.

Results: 649 ED visits were identified, with 165 receiving post-ED care. Approximately one-third included conservative care of spinal manipulation and/or physical therapy. Neck and low back diagnoses accounted for 70% of ED visits. Nine patterns of care emerged: 1) ED imaging + office visit (OV), (n=11); 2) ED imaging + conservative care (CC) (n=4); 3) ED imaging + >2 interventions (n=19); 4) repeat ED visits (n=14); 5) OV only (n=27); 6) OV + imaging (n=32); 7) OV + CC (n=10); 8) OV + >2 interventions (n=40); 9) CC first (n=8). Mean age ranged from 33 (pattern 4) to 52 (pattern 2). Male gender accounted for >50% of cases in most patterns. Median allowed cost was highest in pattern 8 (\$4335) and lowest in pattern 5 (\$1059). Median retrospective risk score for the cohort was 1.2 (range 0-28), with pattern 3 highest (2.6) and pattern 5 lowest (0.7).

Conclusion: Our results indicate that the most common pattern involved several interventions and high cost. This information will inform the design and analysis of a larger upcoming study.

P08.11

Lesbian, Gay and Bisexual Older Adults and Adjustment to Aging

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Abstract

Background: Intervention programs that highlight predictors of adjustment to aging (AtA) (1) for minority older lesbian, gay and bisexual (LGB) populations are scarce (2,3). The aim of this preliminary study is to build a structural model to explore whether socio-demographic, health and lifestyle-related variables, are correlates of AtA in a group of LGB older adults.

Methods: The sample comprised 287 LGB older adults aged 75 years old and older. Convenience sampling was used to gather questionnaire data. Measures encompassed the Adjustment to Aging Scale, the Satisfaction with Life Scale, demographics and lifestyle and health-related characteristics. Structural equation modeling was used to explore a structural model of the self-reported AtA, comprising all the above variables.

Results: The structural model indicated the following significant correlates: perceived health ($\beta=0.456$; $p<0.001$), leisure ($\beta=0.378$; $p<0.001$), income ($\beta=0.302$; $p<0.001$), education ($\beta=0.299$; $p=0.009$), spirituality ($\beta=0.189$; $p<0$

.001), sex ($\beta=0.156$; $p<0.001$), physical activity ($\beta=0.142$; $p<0.001$), satisfaction with life ($\beta=0.126$; $p<0.001$), and marital status ($\beta=0.114$; $p=0.008$). The variables explain respectively 76.4% of the variability of AtA.

Conclusion: These outcomes suggest that policy making and community interventions with LGB older adults may benefit of including variables, such as, perceived health, leisure and income, as these were pointed out as significant for this group of older adults for promoting adjustment to aging in late adulthood. 1.von Humboldt S et al. How do older adults experience intergenerational relationships? Different cultures, ambivalent feelings. *Educ Gerontol.* 2018;44(8):501-513. 2.von Humboldt S et al. Analyzing adjustment to aging and subjective age from Angolan and Portuguese community-dwelling older adults' perspectives. *Int. J. Gerontol.* 2013;7(4):209-215. 3.von Humboldt S et al. What influences the subjective wellbeing of older adults?: A systematic review of the literature. *Rev. argent. clín. psicol.* 2014;23(3):219-230.

P08.12

Association of an Employee Wellness Program With Biomarkers and Biometrics of Human Health Capital and Aging: Cleveland Clinic 10 Year Experience

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Abstract

Background: While employee wellness programs (EWP) are increasing, their effect on health remains unclear. This study's goal was to evaluate the association between Cleveland Clinic's "Healthy Choice," a large incentive (up to 30% reduction in health insurance premiums)- and health outcome-based EWP and employee health, biomarkers, biometrics, and rate of aging over a 10-year period.

Methods: We conducted a retrospective cohort study using de-identified health data from Employee Health Plan (EHP), EPIC, Impact Intelligence, and OptumOne databases, as well as NHANES. EHP members who were

employed from 2009 to 2019 were paired with age- and gender-matched controls in NHANES (representative of the general employed US population in 2009 and 2015/16). The main outcome measures were changes in specific biomarkers (LDL, fasting glucose, HbA1c), biometrics (age, BMI, BP) and in imputed biologic age (RealAge). Mixed linear regression was used to compare changes in outcomes and difference between RealAge and chronological age (rate of aging), where calendar years were nested within EHP adjusting for age and gender.

Results: There were 33,023 employees working at Cleveland Clinic from 2009 through December 2019 paired with 4,923 age/gender-matched controls from NHANES. 61% of employees participated in the EWP either continuously (14,792) or intermittently (5,354). Over 6 years, EHP members showed reduced rate of increase in systolic BP compared to NHANES (2.57 vs 4.41 mmHg) and the rate of aging (-0.27 vs 0.03). The rate of aging between EHP members and NHANES participants was greatest for patients aged >55 years (0.64 years younger in 6 years), and not significant among those aged <44 years. Among employees, rate of aging was less in continuous EWP participants than nonparticipants (-0.38 vs -0.05).

Conclusion: Implementation of a large incentive and outcome-based wellness program was associated with improved biomarkers, biometrics, and rate of aging compared to the general population.

P08.13

Use of a Low Back Pain Electronic Health Record Tool in a Multisite Pragmatic Randomized Clinical Trial

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Abstract

Background: To describe the initial use of and preliminary data obtained from an electronic health record (EHR) documentation and data collection tool.

Methods: In the context of a multi-site pragmatic clinical trial for veterans with chronic low back pain (Veterans

Response to Dosage in Chiropractic Therapy [VERDICT]), we created the VERDICT EHR Template (VET) tool. The template provides a standardized clinical documentation format and expands the EHR functionality to capture additional structured clinical data previously only available in text fields. The tool was launched to 7 clinicians treating trial participants in four chiropractic clinics in the Veteran's Health Administration (VHA). We assessed the frequency that clinicians used the template on participant first visits with a chiropractor from February 1, 2021 to September 30, 2021, and extracted data obtained from these visits. We present descriptive statistics summarizing results.

Results: During the study period 113 participants were enrolled in the trial and received first visits, and VET was used in 93% (site range: 83%-100%) of these. History of radiating pain was documented in 38.1% of participants, and prior low back surgeries in 9.5%. Examination was positive for straight leg raise test in 13.3%, and provocation of the lumbar (74.3%), sacroiliac (24.8%) and hip (12.4%) joints. Motor weakness was not documented. Treatment included high velocity low amplitude manipulation of the lumbar spine in 52.4%, thoracic spine in 28.6%, cervical spine in 6.7%, and sacroiliac joint in 4.8%. Manual myofascial release was performed in 33.3%, therapeutic exercise in 23.8%, and lifestyle counseling and other patient education in 40.0% of first visits.

Conclusion: VET had high use among clinicians and captured granular data on patient history, examination, and treatment. Ongoing use of this tool will provide robust clinical data and can inform future EHR template design in VHA and elsewhere.

P08.14

Analysis of the Multidisciplinary Team: Experience of Integrative Medicine in an Oncology-Hematologic and Bone Marrow Transplantation Center

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Abstract

Background: Caring for hospitalized patients going through long-term treatments brings many challenges for them, their families and the multidisciplinary teams. Approaches such as Integrative Medicine (IM) are welcomed alongside conventional cancer treatments. IM offers person-centered care, helping in symptom management, relaxation, and well-being. Understanding how the multidisciplinary team perceives IM is a way to assess its importance and performance. **OBJECTIVE** To analyze the

value of the IM service to the multidisciplinary team in an Onco-Hematology and Bone Marrow Transplantation Center of a private tertiary care hospital.

Methods: Using REDCap, a survey was developed, consisting of 18 questions, answered voluntarily by professionals from the onco-hematology multidisciplinary team.

Results: From August 2018 to September 2021 - 1,659 patients were seen, and 11,764 IM sessions were conducted. Specialized integrative therapists taught inpatients and caregivers stress management and self-care tools, through yoga, light massage, and empathic listening. The survey was answered by 78 professionals: 66% of them were women with a predominance between 34 - 44 years of age (38%); the majority was physicians and nurses (69%). 44 professionals (56%) indicated IM to patients and the feedback was positive (88%). Regarding symptoms control, they observed improvements in stress (96%), anxiety (92%), insomnia (80%), and pain (68%). The main benefits noted in patients and caregivers after IM care were relaxation, well-being, and comfort. 67 (86%) responded that IM care helps the team's work and 72 (92%) believed that it positively influences the Patient Experience. It was observed that some professionals don't know how to request the IM team (49%) and 19% are unaware of the service.

Conclusion: For the multidisciplinary team the inclusion of IM is positive: facilitates the team's work, helps patients in the management of symptoms, and improves the Patient Experience. There are some improvement opportunities for diffusion of IM services.

P08.15

A Pilot Feasibility Study of a Virtual Group Drumming Intervention for Cancer-related Fatigue and Anxiety

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Abstract

Background: The purpose of this study was to investigate initial feasibility and potential impact of a 6-week virtual group drumming intervention for cancer patients' fatigue and anxiety as compared to an attentional control.

Methods: Twenty cancer patients who had undergone at least one treatment session of chemotherapy or radiation therapy were randomized into a six-week group

drumming intervention or a 6-week attentional control consisting of a group educational film series. Feasibility was determined through evaluation of participant accrual, session attendance adherence rates, and drop out rates. Outcomes of interest were fatigue and anxiety levels over 8 weeks. Participants were also interviewed about the impact of the Covid-19 pandemic on their fatigue and anxiety levels.

Results: Recruitment of 26 participants was planned, but 20 participants were recruited and consented, which resulted in 76.9% accrual rate. There was a 95% study retention rate with one withdrawal after consent due to an unexpected death in the family. Attendance at study sessions was also high; 92% for the intervention group and 93% for the attentional control group. Over the course of the study, both groups significantly improved on fatigue (drumming $p=.006$; attentional control $p=.034$) and anxiety levels (drumming $p=.013$; attentional control $p=.047$) but the intervention group was not significantly different from the attentional control. The majority of participants said concerns about COVID-19 did not affect their ratings of fatigue and anxiety during the study.

Conclusion: Virtual group drumming was a feasible intervention for cancer patients. Both the drumming intervention and attentional control participants showed improvements in fatigue and anxiety from baseline to study end. The study was implemented during the COVID-19 pandemic and a virtual group activity may have been welcomed while observing social isolation. Alternately, both group drumming and a group film experience may have therapeutic benefit for cancer-related fatigue and anxiety. More study is needed to determine efficacy.

P08.16

How Many Patients Starting CIH Therapies Have Chronic Musculoskeletal Pain and How to Identify Such Pain in Electronic Health Records?

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Abstract

Background: To assess how many patients starting complementary and integrative health (CIH) therapies in a health care system have chronic musculoskeletal pain, and to evaluate two criteria for identifying such pain in electronic health records (EHRs).

Methods: For 20 weeks starting from April 27, 2021, we queried EHRs to identify 21,169 patients who began using CIH therapies within the Veterans Health Administration (VHA) or had a new referral to the community for CIH therapies paid for by the VHA. Based on a list of pre-determined constraints, we chose 4,849 of these patients for a survey. We implemented two criteria to identify chronic musculoskeletal pain in EHRs. The simple criterion required ≥ 1 ICD-10 code of a musculoskeletal pain condition in the past year. The complex criterion required ≥ 1 ICD-10 code of a musculoskeletal pain condition plus two 0-10 Numerical Rating Scale (NRS) scores ≥ 4 that were ≥ 30 days apart in the past year. We evaluated these two criteria against the Center for Disease Control and Prevention's definition of chronic pain adopted in the survey – having pain most of the days or every day during the past three months.

Results: Among the 21,169 identified patients, 80.4% (17,030/21,169) met the simple criterion and 27.1% (5,729/21,169) met the complex criterion. Among the survey respondents who met the complex criterion, 96.1% (1,741/1,811) reported having chronic pain in the survey. Among the survey respondents who met the simple but not the complex criterion, 91.9% (479/521) reported having chronic pain.

Conclusion: Most patients starting CIH therapies in the VHA have chronic musculoskeletal pain. The complex criterion can identify patients with chronic pain more precisely than the simple criterion.

therapies (chiropractic care, acupuncture, massage therapy, yoga, meditation/mindfulness, Tai-Chi/Qigong) when offered by a healthcare system. The instrument is being used to understand comprehensive CIH utilization as patients begin to use CIH for the first time.

Methods: The iterative survey development process involved obtaining input from key stakeholders and subject matter experts to understand how to describe CIH service use, define dose, understand where they are using it, whether they are relying on services provided by a healthcare system or are supplementing use with services paid for out-of-pocket, and to track use longitudinally. The instrument underwent several rounds of cognitive interviews and field testing.

Results: We identified four key constructs: 1. CIH definition - We used 15 words or less for each; language was refined to ensure patients could distinguish the 6 evidence-based CIH therapies from other therapies/practices such as movement therapies, stretching or physical therapy. 2. CIH new and recent use - We asked the number of visits during past four weeks, and four weeks prior to that. 3. Location – We inquired about the location of where they received services, either provided by the healthcare system or used outside of the healthcare system. 4. CIH Delivery Mode - Virtual or in-person, individual or group, whether there was a real-time instructor or recorded instruction. Development of nesting logic and skip patterns was essential to capture key details of only those therapies that were used to limit burden on survey participants.

Conclusion: Our survey development identified challenges and complexities involved in identifying new CIH users, levels of prior use or experience, assessing different contexts and formats, and quantifying dose. Our survey can be used in any healthcare setting where detailed CIH use needs to be assessed.

P08.17

Development of a Survey for Quantifying Patient's Use of Complementary and Integrative Health Therapies

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Abstract

Background: The Veteran's CIH Experience survey goal is to understand how patients with chronic pain use six CIH

P08.18

A Systematic Review of Practice-Based Research of Complementary and Integrative Health Interventions in Clinical Settings on Quality of Life

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Abstract

Background: The goal of this systematic review was to evaluate the impact of individualized complementary and

integrative health (CIH) interventions on quality of life outcomes in CIH outpatient clinics.

Methods: A systematic review was conducted using PubMed, OVID, Cochrane, Web of Science, Scopus, and Embase through Dec 2020. Inclusion criteria were: individualized CIH treatment, longitudinal effectiveness design, patient-reported outcomes, outpatient CIH clinic setting, participants >18 years, sample size of >25, and English full text. The study was listed in the PROSPERO database (CRD42020159193), and PRISMA guidelines were used. The variables extracted from articles focused on study details/demographics, CIH intervention characteristics, and outcome characteristics.

Results: The literature search yielded 3,316 records with 264 assessed for full text review. Of these, 19 studies (including ~14,002 patients) were specific to quality of life (or wellbeing) as a main outcome. Most studies included were multidisciplinary studies (n = 12), followed by acupuncture (n = 4), chiropractic (n = 3), and massage or reflexology (n = 1). The Short Form group of questionnaires (SF-12, SF-36, SF-8) were the most used quality of life/wellbeing questionnaire, comprising 37% of studies (n = 7), and PROMIS measures comprised 21% (n=4). Both questionnaires are normed to US population, allowing for comparison. The average improvement across the comparable SF and PROMIS measures for Physical health was 6% (range 2-20%) and for Mental health was 5% (range 1-11%), demonstrating clinical significance. Improvements in the observational studies are comparable to improvements reported from RCTs.

Conclusion: Results from this systematic review indicate that CIH therapies have positive effects on health-related quality of life and wellbeing for various patient populations in CIH clinical settings. Direct comparisons across studies were limited due to the heterogeneity in study design as well as incomplete reporting in the publications. Suggestions for improving the design and reporting for future practice-based research are provided.

P08.19

VA Employee Engagement in Pilot Employee Whole Health Well-Being Labor-Mapping Program

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Abstract

Background: Employee Whole Health (EWH) empowers VA employees to take charge of their health by integrating well-being

skills-building programming (WBP) at work. During the COVID response, there was a pronounced increase in WBP; however, employees cite lack of time to participate in self-care as a barrier to utilization. To support participation, EWH embarked on a 12-month pilot to protect 60 minutes of time per week via a new labor mapping category in support of employee self-care.

Methods: Employees were enrolled at three VA medical centers. Self-report data was collected at baseline, six months, and will be collected again at twelve months, to assess changes over time in measures of perceived wellness culture, resiliency, stress, self-efficacy, and flourishing. Objective metrics of overtime and sick leave use were collected. An activity survey was administered every two weeks to assess engagement in WBP. Pilot WBP activities included education, health coaching, and complementary and integrative health modalities for well-being. Qualitative data was collected from supervisors at six months.

Results: Employees in multiple departments within each medical center were offered protected time. Pilot enrollment was from March-April 2021. A total of n=312 employees and n=135 supervisors enrolled. At six months, 40 (29%) supervisors provided feedback on pilot impact. Supervisors expressed appreciation and observable benefits for employees and/or themselves. However, given the pandemic and competing demands, workload was identified as an ongoing barrier. Preliminary analyses from surveys indicated statistically significant improvements in wellness culture, resiliency, goal setting, and flourishing.

Conclusion: The pilot is ongoing; results of the six-month quantitative and qualitative evaluations will be presented. The use of a new labor mapping category to support employee well-being on an ongoing basis is expected to meet the need for building a more resilient workforce. Early results show perceived benefits of a regular, routine self-care allotment, however challenges to full utilization remain.

P08.20

Employee Whole Health in the Veterans Health Administration (VHA): Assessing Progress and Measuring Impact

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Abstract

Background: The Veterans Health Administration (VHA) is implementing a Whole Health System (WHS) of care that empowers and equips Veterans to take charge of their health and well-being. Increasingly leaders recognize the value in implementing a similar model to support employees, an effort

termed Employee Whole Health (EWH). We examined the roll-out of WHS and EWH in VA.

Methods: Since 2019, employee involvement in WH at all VA medical centers was assessed annually on the All Employee Survey (AES) among employees with a clinical role. In 2020, a question was added to assess the extent to which clinicians change personal self-care behaviors after involvement in WH. In 2021, two questions were added on participation in EWH activities. Relationships between involvement in activities and important organizational metrics, such as burnout and turnover intent, were assessed.

Results: Overall involvement in WH continues to increase with an average of 56% of clinicians at VA medical centers reporting involvement in 2021 compared with 49% in 2019. In 2021, average involvement was highest for mental health providers (82%) followed by nurses (56%) and physicians (55%). The percent of clinicians reporting changing personal self-care behaviors increased from 26% to 41% from 2020 to 2021. 45% of clinicians involved in WH participated in complementary and integrative health and 29% participated in self-education classes for personal well-being. Finally, clinicians involved in WH were less likely to consider leaving and experienced lower burnout. The same patterns held for clinicians participating in 3 or more EWH sessions.

Conclusion: Implementation of the WHS represents a broad organizational and cultural transformation within VA. Important progress is being made both in clinician involvement in WH, which will impact Veteran care, and in use of WH by and for clinicians themselves. For cultural transformation to occur, both are essential.

P08.21

Improving Healthcare Worker Resilience Through Burnout Prevention: A Psychology Fellow Interdisciplinary Training Project

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Abstract

Background: Studies show that between 30-60% of nurses, physicians and mental health providers report experiencing symptoms of burnout. The COVID 19 pandemic heightened the risk factors and had a negative impact on typical coping strategies. The VA assesses symptoms of employee burnout annually in a nationwide All Employee Survey (AES).

Methods: In September 2020, a burnout prevention program was created for Cincinnati VA supervisors to arrange for their staff. The program was also shared broadly in a series presented to 11 VA facilities through self-referral. Coordination and

investment from direct supervisors served to build awareness, reduce stigma, and offer an opportunity for team building and support. A six-session intervention was offered: session 1 and 6 were educational, focusing on stress, burnout and resilience and sessions 2 through 5 were Urban Zen experiential practices to support body awareness, rest, and self-compassion. The goals were to recognize and reverse burnout and build resilience. A brief pre-post assessment was administered, including the 3 primary symptoms of burnout, exhaustion, depersonalization, and reduced sense of accomplishment.

Results: The full program was offered to 8 supervisor-arranged teams (N = 100; 70% pre-assessment response rate) and broadly to 11 VA facilities through self-referral (N = 125; 28.8% pre-assessment response rate). As with the national AES, burnout scores were categorized by the number of symptoms endorsed (0, 1, 2 or 3). Symptoms rates were similar for the supervisor-arranged group as for the self-referred group (0 symptoms: 40.8% vs 40%; 1 symptom: 31% vs 28.6%; 2 symptoms 18.3% vs 20%; 3 symptoms 10% vs 11.4%). Post-assessment return rate for both groups combined was 13.8% (31/225).

Conclusion: Reports of burnout symptoms improved from pre to post assessment (0 symptoms from 40.6% to 54.8%; 1 symptom from 30.2% to 29%; 2 symptoms 18.9% to 9.7%; 3 symptoms 10.4% to 6.5%).

P08.22

Whole Health Options in Pain Education (wHOPE): A Multi-Site Pragmatic Trial of a VA Whole Health Team Approach to Pain Management in Veterans

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Abstract

Background: To conduct a pragmatic trial to establish evidence for the VA Whole Health model for chronic pain care.

Methods: Target enrollment in the wHOPE (Whole Health Options in Pain Education) trial is 750 veterans with

moderate to severe chronic pain from five geographically diverse VA facilities across the U.S. We are creating an inclusive and generalizable sample through few exclusion criteria, over-sampling and stratified randomization, prioritizing women veterans and those prescribed opioids, while closely monitoring racial and ethnic diversity. The primary aim of the trial is to determine whether a Whole Health Team (WHT) (interdisciplinary Whole Health/integrative pain team) is superior to Primary Care Group Education (PC-GE, abbreviated group Cognitive Behavioral Therapy for Chronic Pain), and whether both are superior to Usual Primary Care (UPC) in decreasing pain interference and secondarily, in improving quality of life and use of non-pharmacological modalities to manage chronic pain. An implementation evaluation and budget impact analysis will provide information about feasibility, maintenance, and sustainability. Descriptive statistics characterized wHOPE study participants including COVID-19-related impacts.

Results: To date, of 248 randomized participants, mean age is 60.2 (SD+/-12.3) years; 39% women; 23% Black or African American and 9.2% Hispanic/Latinx; 27% were prescribed opioids. Roughly half endorsed moderate to severe depression, moderate PTSD symptoms, and 58% reported sleep difficulties. Roughly 20% engaged in hazardous drinking and 10% problem drug use. At baseline, veterans reported high rates of non-pharmacological and CIH pain management, e.g., mindfulness (42%); spinal manipulation (32%). As a result of COVID, wHOPE participants reported worsening: mental and emotional health (73%); access to healthcare (59%); pain intensity (48%) and use of tobacco (44%) and cannabis products (36%).

Conclusion: This ongoing multi-site pragmatic trial in a diverse group of veterans with chronic pain and high rates of comorbidity indicates high baseline use of CIH and substantial negative COVID-related impacts.

P08.24

Complementary and Integrated Health Therapies in VA: Patient-Reported Outcomes of Health and Well-Being

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Abstract

Background: Veterans often have more pain and chronic conditions than the general population. As such, providing them with effective alternatives to pharmacologic treatments is essential in supplying them with a comprehensive range of options to manage pain, improve overall health, and to avoid risks associated with opioids. Some evidence exists about CIH therapies' effectiveness among Veterans. As part of the VA APPROACH pragmatic trial of CIH therapies' effectiveness, we sought to qualitatively examine how CIH therapies affect a variety of aspects of patients' health and quality of life. We hypothesize that a combination of practitioner-delivered and self-care CIH therapies has more positive effects than practitioner-delivered care alone.

Methods: We used electronic health records to identify patients (n=100) receiving yoga, meditation, Tai Chi/Qigong, acupuncture, therapeutic massage, or chiropractic care in the previous six months in person or via telehealth format. We mailed veterans information packets including opt-out instructions and enrolled and consented them by phone. Audio-recorded telephone interviews are being transcribed and analyzed using a rapid turnaround method to examine the effects of the six CIH therapies on patient-reported outcomes, including pain, anxiety, depression, fatigue, quality of life, and empowerment for self-care.

Results: We will present qualitative themes, and quotes supporting each theme, to demonstrate the effectiveness of the six CIH therapies on the patient-reported outcomes. We also will present the results by practitioner-delivered CIH therapies, self-care CIH therapies, or combination of both.

Conclusion: Providing greater understanding of the effects of CIH therapies on several aspects of Veterans' health and well-being in their own words is important for examining the effectiveness of CIH therapies in real-world clinical settings.

P08.25

Challenges of Conducting Osteoarthritis Quality Improvement Project in an Integrative Clinic During COVID-19

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Abstract

Background: Implementation of a quality improvement (QI) project to understand treatment pathways of osteoarthritis patients (OA) in an integrative medicine clinic. As the majority of visits shifted to virtual, we had to pivot our project.

Methods: Patients with OA were identified through EPIC. Those that had a treatment scheduled in the Comprehensive Pain Center at Oregon Health & Science University were contacted and baseline patient reported outcomes (PRO) were obtained. The PRO tools included the Hip dysfunction and Osteoarthritis Outcome Score (HOOS), Knee dysfunction and Osteoarthritis Outcome Score (KOOS), Brief Pain Inventory (BPI) and PROMIS Global 10. The PRO were gathered at return visits for one year. Common treatment pathways were assessed using change scores. The OHSU IRB determined that the project did not need IRB oversight due to its QI nature.

Results: Due to COVID-19 related changes in treatment patterns and safety precautions- virtual visits for MDs and psychologists, interruptions for acupuncture, chiropractic, massage and Rolfing - PRO tools could not be handed to patients prior to visits. A multipronged approach to data gathering was implemented, including telephone and iPad accessed questionnaires. iPads required QR-code generation for participant identification. As of 10/15/2021, 51 patients provide 160 questionnaires. Average age of participants was 62.1 (8.85). Initial PROMIS GLOBAL physical score was 8.7 (SD 0.9) and mental was 10.0 (SD 0.33). Our original proposal estimated that we would have 125 individuals at this point in the project. We will discuss changes in methodology in response to COVID-19.

Conclusion: While COVID-19 created significant barriers to health care, it also created new patterns of utilization in patients with OA. Due to these changes, the methodology of conducting a QI project also had to change. While there were significant obstacles, our QI project was able to continue and new treatment patterns have emerged.

P08.26

Veteran Experiences with Virtually Delivered Whole Health Services: Cross-Sectional Survey Findings from the Veterans Health Administration

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Abstract

Background: The Veterans Health Administration's (VHA) transformation into a 'Whole Health system of care' (WHS) has encompassed a shift in organizational culture, wherein care delivery is focused on Veteran goals and preferences rather than diagnoses alone. VHA's WHS includes offering commensurate services and therapies to Veterans, including complementary and integrative health services. In the wake of COVID-19, VHA rapidly shifted service delivery to a virtual format. For most Whole Health programs, the virtual format (i.e., 'tele-Whole Health' (tele-WH)) was a novel delivery platform. Our goal was to assess Veteran experiences with and perceptions of tele-WH services.

Methods: We are fielding an online survey to approximately 2,000 Veterans using tele-WH services across 10 VHA facilities. The survey contains internally developed questions and validated patient-reported outcome measures (e.g., Perceived Stress Scale). Survey content was developed iteratively and refined based on Veteran feedback. The survey is collecting data on Veteran: (1) use of and interest in, (2) experiences and satisfaction with, (3) perceived outcomes of, and (4) sources of information about tele-WH services.

Results: Data collection is underway. We will present data on the percent of respondents who: (1) used and (2) are interested in using each tele-WH service/therapy, (3) learned about tele-WH through various sources, (4) reported satisfaction with tele-WH services/therapies, and (5) reported that tele-WH participation helped them improve outcomes. We will use multivariate analyses to identify factors independently associated with use of tele-WH services and therapies, interest in future use, and perceived impacts on outcomes.

Conclusion: Following the pandemic-related shift in services, interest in tele-WH continues to rise. Our data will provide insights regarding Veteran perceptions of tele-WH, including interest in continued use of tele-WH offerings and factors that can be addressed to facilitate participation. Such information can be used by healthcare institutions to plan future availability of tele-WH services.

P08.27

Understanding Priorities for Crohn's Disease after Hospitalization: Patient and Provider Perspectives

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Abstract

Background: Hospitalization and readmission are common among >560,000 US adults with Crohn's Disease. Discharge from a hospital stay is an opportune time to improve support for Crohn's patients. Our study assesses how patients' concerns align with providers' concerns at discharge; identifies integrative medicine practices of interest to patients; and examines actionable steps to provide patients with discharge support.

Methods: Semi-structured interviews were conducted with hospitalized patients and one member of their care team at an academic hospital within 3 days of their discharge. Patients were ≥ 18 and hospitalized for Crohn's Disease. Providers were healthcare professionals with ≥ 4 documented interactions with the patient. We collected data on patients' prior use of and interest in complementary and integrative health (CIH) approaches. Open ended questions elicited patient and provider perspectives on recent hospital stay and treatment plans. Interview transcripts were analyzed using an inductive thematic approach.

Results: Six patient-provider dyads were interviewed (n=12). Patients' and providers' priorities aligned regarding symptom management. However, providers did not identify other key concerns important to patients, such as safe return to work, communication between specialists, and health insurance. All patients reported prior use of CIH, most often special diet (5/6 patients), and all were interested in nutrition counseling. All providers endorsed patients pursuing CIH, though no providers offered resources beyond nutrition counseling. Providers stated their main reason for not making CIH referrals was lack of CIH resources.

Conclusion: Data from a small sample of hospitalized patients and their providers indicate that care priorities align when the patient's top priority is a specific symptom. Patients and providers see value in CIH, particularly nutrition counseling, but need informational resources to avail these approaches. During discharge planning, Crohn's patients would benefit from additional support for coordinating care between providers and navigating life stressors (e.g., work and health insurance) while managing sequelae of Crohn's disease.

P08.28

Diabetes Basic Training Program: Empowering Veterans for Wellness

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Abstract

Background: Diabetes is a major health concern among Veterans, with one in four patients of the Veteran's Administration having the diagnosis (Veteran's Health Administration, 2017). Diabetes is associated with serious, negative health consequences such as cardiovascular disease, kidney damage, blindness, and lower-limb amputations (Halter et al., 2014; Atchison et al., 2011), along with significant healthcare system utilization and cost (CDC, 2018). The Committee on Quality of Health Care in America (Institute of Medicine, 2001) recommends that systems make fundamental changes in health care delivery to streamline care while enhancing patient outcomes, requiring the adoption of a patient-centered model of care (Lubetkin et al., 2010).

Methods: In response, the Cincinnati VAMC developed the Diabetes Basic Training, a nine-week intervention which blends medical consultation with group support and training in self-management strategies for enhancing patient motivation and empowerment.

Results: Retrospective examination of clinical outcomes from this pilot program indicated that Veterans reported significant increases in activation levels for managing their health (M = 62.1, SD = 12.3; M = 68.4, SD = 14.5), $t(23) = 2.145$, $p = .04$. HbA1C levels trended downward from baseline (M = 8.6, SD = 1.3) to 90-day follow up (M = 8.2, SD = 1.2), $t(21) = 1.05$, $p = .30$. Similar non-significant trends were seen for pre- and post-program reductions in problem

areas related to diabetes ($M = 7.9$, $SD = 5.0$; $M = 6.3$, $SD = 5.1$) $t(18) = 11.51$, $p = .15$, and enhanced self-management of glucose ($M = 6.5$, $SD = 1.5$; $M = 6.8$, $SD = 1.3$) $t(19) = 0.52$, $p = .61$.

Conclusion: These trends show promising outcomes for this group-based diabetes treatment, though the small number of patients in this pilot limits statistical power. These findings support further exploration and expansion of holistic health programs for Veterans.

P08.29

Cooking with Plants'- Culinary Medicine Capstone Experience to Build Community Engagement

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Abstract

Background: The purpose of this project was for medical and graduate nutrition students to engage with community members to inform the development of community cooking classes. A second purpose was to determine if this capstone experience would increase a student's confidence and competence in providing nutrition and culinary education to diverse community members.

Methods: Students worked to develop a community/participant needs assessment survey to assess interest in nutrition and culinary topics, identify days/times, learning format, etc. This data then informed the cooking class curriculum development. After presentation of curriculum within the community, participant feedback was collected and curriculum improvements were made as necessary as well as continued assessment of program reach. Capstone student feedback was gathered to assess the quality of the learning experience.

Results: 100% of participant surveys ($n=24$) state that they agreed to wanting to have more cooking classes offered. Participants reported increase in confidence and likelihood of preparing one of the recipes in the future. Participants stated barriers to healthful cooking were cost, time and 'not knowing where to start'. To date 32 students have been involved, 47 unique cooking classes and demonstrations have been developed. Curriculum included a class session guide for instructors, topic education, 2-3 recipes, discussion questions, grocery and supply lists. Over half have successfully been conducted in the community in either an in-person or virtual cooking environment. Students report a high or highly

satisfied, along with increased confidence and competence in providing this form of nutrition programming.

Conclusion: This project has been a highly valuable experience for community members, partners and students. Overall, the program has identified unique topics and valuable learning experiences for students to build skills in developing relationships and effective interventions for various populations. Even still, continued care in expanding the catalog of diverse recipes and curriculum at appropriate literacy levels is warranted.

P08.30

Veteran Engagement in Well-being Programming in the VA Whole Health System of Care Prior to and During COVID-19 Operations

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Abstract

Background: Well-being programming (WBP) is a core part of delivery of Whole Health (WH). During the COVID response, there was a pronounced decrease in delivery of WBP care, with a shift of delivery from face-to-face to virtual. This study describes the impact of COVID on delivery of WBP within the VA WH System (WHS).

Methods: The population included Veterans enrolled in the WHS nationally. Students t-test was used to assess the difference in unique Veterans engaged in WBP the six quarters prior to COVID (pre-COV) and the six quarters during COVID response (resp-COV). The differences in delivery of virtual WBP was assessed, including: (RFLX) Intro to WH Group, (HTAC) Take Charge of My Life & Health Group, (SCHC) EVP WH, (SNVC) EVP Mindful Movement, (HTFC) WH Partner Indiv., (WCHC) WH Coaching Indiv., (WCDC) WH Coaching Group, (CGQC) Qigong, (TAIC) TAI CHI, (YOGA) YOGA, (GIMA) Guided Imagery, (RLXT) Relaxation Techniques, (MANT) Mantram Repetition, (MDTN) Meditation, (MMMT) Mindfulness (non-MBSR), (REIK) REIKI, and (TPHT) Therapeutic/ Healing Touch.

Results: Pre-COV, a total of 58,165 unique Veterans were engaged in 14,163 tele-health WBP encounters, compared to 63,648 unique Veterans engaged in 334,472 tele-health WBP encounters resp-COV. A significant increase in average number of tele-health WBP encounters per quarter was observed: 2,593

(95%CI 1537, 3649) telehealth pre-COV compared to 52,548 (95%CI 34169, 70926) during resp-COV, $p=0.0008$. There were significant increases in the delivery of all virtual WBP offerings (all $P < 0.05$), except for SCHC and TPHT.

Conclusion: These data suggest that the response to COVID had little impact on the number of unique Veterans engaged in WBP overall, but the number of virtual WBP encounters increased significantly, comparing the same time periods. This analysis shows that the VA COVID response to increase delivery of virtual WBP as part of the national offering of the WHS was effective.

P08.31

Anti-Inflammatory Pantry Kit: Delivering Foods for Chronic Pain to the Patient's Kitchen

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Abstract

Background: The Anti-Inflammatory Pantry Kit was designed during the covid-19 pandemic as a way to continue to offer hands-on culinary medicine to participants at the University of Vermont's Comprehensive Pain Program in the comfort and safety of their own home.

Methods: Participants of the 13 week program, Partner's Aligned in Transformative Healing (PATH), receive an Anti-Inflammatory Pantry Kit containing one retail size quantity of extra-virgin olive oil, avocado oil, pumpkin seeds, Brazil nuts, green tea, ground flax seed, dried lentils, maple syrup, ground turmeric, ground ginger, and coconut milk. During week 5 of the program participants spend 90 minutes with the registered dietitian (virtual or in-person, depending on the group) for an interactive education and sensory experiential. Participants leave with the food and knowledge of the ingredients and how to use them. The registered dietitian procures the ingredients and puts together the kits. Food costs are reimbursed by Blue Cross Blue Shield of Vermont as it has been incorporated into the program's bundled payment model for each PATH participant.

Results: What emerged from this experimental adjustment to the curriculum is an innovation that has engaged participants to make modifications to their diets to increase whole food sources of omega-3 fatty acids, phytonutrients, dietary fiber, zinc, selenium, plant-based

protein, and healthy fat; all of which are evidenced based nutrients that have been demonstrated to impact inflammatory and immune systems in individuals experiencing chronic pain.

Conclusion: Culinary medicine at the Comprehensive Pain Program looks different now that it did prior to the pandemic and the changes have been received with enthusiasm. The Anti-Inflammatory Pantry Kit is a dynamic tool for nutrition and culinary medicine education for chronic pain participants. This tool and approach to medical nutrition therapy has been made sustainable by the reimbursement by Blue Cross Blue Shield of Vermont and the engagement of participants.

P08.32

Revisiting Priorities and Evaluating Progress in Massage Therapy Research for the Health of Canadians

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Abstract

Background: Good progress has been made in the field of MT research globally. And yet more is needed to provide direction for both the profession of massage therapy and the field of massage therapy research. In 2021, a virtual summit was convened to follow up on a 2012 MT Research Summit held in Toronto, Canada. The objectives of the recent summit were to: 1) determine what is still relevant in the grand vision from 2012); 2) identify areas that require continued focus, and 3) identify activities to be initiated in the short term.

Methods: The 2021 MT Research Summit took place on February 22, 2021 and was held using the Zoom platform. The 2-hour meeting was recorded with the participants' permission. Participants were provided with pre-meeting reading material to enable a fulsome discussion and the context in relation to the 2012 Summit. A qualitative analytic approach was used to generate themes which became the refreshed vision and guiding principles.

Results: Fourteen participants, representing a variety of backgrounds perspectives, and experiences in relation to MT research attended the facilitated meeting. The refreshed vision is

underpinned by four guiding principles and contains eight vision statements. The grand vision for MT research may be expressed as an aspirational statement: Research-informed knowledge is embedded in how MTs are educated and how they work, enabling continuous improvement in the MT profession.

Conclusion: The follow up summit provided an excellent opportunity for a small group of international massage therapy researchers and stakeholders to revisit the published vision and priorities, and to assess the progress in relation to the published action plan. This meeting and the dissemination of the knowledge gained by assessing progress and guiding direction or redirection of priorities and resources, contributes to the important foundation and future of massage therapy and the research that informs its development.

P08.33LB

Association between Cervical Artery Dissection and Spinal Manipulative Therapy among Medicare Beneficiaries – A Case Control Study

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Abstract

Background: Cervical Artery Dissection and subsequent ischemic stroke is the most serious safety concern associated with Cervical Spinal Manipulation.

Methods: We evaluated the association between Cervical Spinal Manipulation and Cervical Artery Dissection among older Medicare beneficiaries with neck pain. We employed case control and case crossover designs in the analysis of claims data for individuals aged 65+, continuously enrolled in Medicare Parts A and B for at least two consecutive years during 2007-2015. The primary exposure was Cervical Spinal Manipulation; the secondary exposure was a clinical encounter for Evaluation and Management. The primary outcomes were occurrence of Cervical Artery Dissection, either (1) vertebral artery dissection or (2) carotid artery dissection. The cases had a new primary diagnosis on at least one inpatient hospital claim or primary/secondary diagnosis for outpatient claims on at least two separate days. Cases were compared to 3 different control groups: 1) matched population controls having at least one claim in the same

year as the case; 2) Ischemic stroke controls without Cervical Artery Dissection; and 3) case-crossover analysis comparing cases to themselves in the time period 6-7 months prior to their Cervical Artery Dissection. We made each comparison across three different time frames: up to 1) 7 days; 2) 14 days; and 3) 30 days prior to Evaluation and Management diagnosis.

Results: The odds of Cervical Spinal Manipulation versus Evaluation and Management did not significantly differ between Vertebral Artery Dissection cases and any of the control groups at any of the timepoints (ORs 0.84 to 1.88; $p > 0.05$). Results for Carotid Artery Dissection cases were similar.

Conclusion: Among Medicare beneficiaries aged 65 and older with neck pain who received Cervical Spinal Manipulation, the risk of Cervical Artery Dissection is no greater than that among control groups.

P08.34LB

Effect of Lay Advisor Interventions on Lifestyle Behaviors in Patients with Hypertension: A Systematic Review

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Abstract

Background: Guidelines recommend lifestyle modifications for all patients with hypertension. Lay advisor interventions can potentially support hypertensive patients with lifestyle modifications within their daily lived contexts. However, there are no systematic reviews assessing lifestyle behavior outcomes of lay advisor interventions. Objective: In this systematic review, we aim to examine the effect of lay advisor interventions on lifestyle behaviors in patients with hypertension.

Methods: We searched several databases, including Medline, CINAHL, SCOPUS, from 1980 to December 2020. Search terms included peers, community health workers, barbers, and faith-based activists. Cochrane's Risk of Bias tool was used to assess study quality. Two coders independently extracted the data.

Results: Of 5986 citations, 23 studies met the criteria of lay advisor interventions in hypertension, of which only ten reported lifestyle outcomes. Six articles reported diet and physical activity measures, eight reported weight outcomes, and nine reported smoking outcomes. Studies used diverse measures where quantitative summarization was not possible. Six studies showed some improvement in diet components (i.e., fruit and vegetable intake, salt intake). Six studies

demonstrate improvements in physical activity components. Of the eight studies that tracked weight measures, seven reported some improvement, and one showed no change. For smoking outcomes, six studies showed improvement in quitting rates, whereas three studies showed no effect. None of the improvements for any lifestyle behaviors were statistically significant, but lifestyle behaviors were not the primary outcomes in any of the studies either.

Conclusion: Few lay advisor intervention studies measured and targeted lifestyle modifications in patients with hypertension, where most studies showed some improvements. Since lifestyle modifications are recommended for hypertension management and lay advisors can support patients in their daily lived contexts, future studies of these interventions with lifestyle behaviors as primary outcomes are needed.

P08.35LB

Quality Improvement: Licensed Acupuncturist National Standard of Practice Effort in Veterans Health Administration

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Abstract

Background: The VA is developing a national standard of practice for licensed acupuncturists and 49 other healthcare professions (i.e. - physician, nurse, chiropractor, etc.). National standards will eliminate cross state variation among VA facilities and standardize the scope of practice for most healthcare professionals employed in VA. Additional goals include ensuring safe, high-quality care, standardizing VA's electronic health record, and efficiently allocating resources across state lines. Prior to the national standard, state

standards have been used in the practice of acupuncture in VHA. Reducing variation across VA facilities will likely broaden duties for VA health care professionals. Licensed acupuncturists joined the VA in 2018 with a qualification standard that permitted hiring under their professional license.

Methods: Analyze the variance in state scope of practice for licensed acupuncturists in the 50 states, territories and the District of Columbia (DC). Review of states, territories and DC with published Acupuncture Practice Acts to discover variances. Consultation with state acupuncture associations and the National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) for needed clarifications. As of February 2022, 92 licensed acupuncturists are employed by VHA. Estimates of the number of licensed acupuncturists in the US is 37,886 (Fan et al., 2018).

Results: Areas of variance include entry level examination requirements, role as licensed independent practitioners (LIPs), ability use western medical diagnosis and terminology, ability to perform treatment approaches such as exercises, lifestyle modifications, soft tissue treatments, nutritional/herbal medicine as well as Acupuncture Injection Therapy.

Conclusion: As the largest healthcare organization in the country moves to a national standard of practice, a more uniform definition of acupuncture will emerge potentially affecting how acupuncture is practiced inside the VA, among sister agencies like CMS, and in the community. As the role of the acupuncturist in the integrative healthcare team takes shape, changes in reimbursement and coverage may also develop.

P08.36LB

Utilization Patterns of Integrative Medicine Modalities Among Patients With Obesity in the PREMIER Study

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Abstract

Background: Obesity is associated with increased disease burden and use of conventional medicine. Previous studies suggest that adults with obesity are less likely to use integrative medicine (IM) modalities than normal weight adults.

We sought to determine which IM modalities were used by patients with obesity in a large observational cohort study, and to examine changes in patient-reported outcomes over time.

Methods: The PRIMIER (Patients Receiving Integrative Medicine Interventions Effectiveness Registry) study enrolled 4,954 patients from August 2013–October 2017 across 17 US-based Integrative Medicine sites. Recruited patients gave permission for extraction of their medical record data and were asked to complete online surveys, including the PROMIS-29, a validated instrument for patient reported outcomes including physical function, pain interference, fatigue, and patient activation [EJRI]. For this subgroup analysis, we analyzed 636 patients with a BMI ≥ 30 kg/m² who completed at least two surveys within one year of enrollment and had evaluable EHR data. We assessed their baseline conditions, modality use, and change in patient reported outcomes over time.

Results: Included patients had a mean BMI of 35.9 (SD ± 5.4) kg/m², age of 51.8 (± 13), were 81% female, 83% white, and 9% black. Patients were most likely to be 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%), acupuncture (28%), chiropractic care (11%), nutritionist visit (10%), and supplements/botanicals/vitamins (9%). Patients with obesity showed significant improvements from baseline to 12 months in physical function ($p=0.0375$), pain interference ($p=0.0057$), fatigue ($p=0.0001$), and patient activation ($p<.0001$).

Conclusion: Integrative medicine 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.

P08.37LB

Use of Chiropractic Care in a Large Healthcare System in 2019: A Case Study

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Abstract

Background: To describe the use of chiropractic care in a large integrated healthcare delivery system over a one year period.

Methods: This is a cross-sectional analysis of patient visits to three doctors of chiropractic (DCs) working in seven clinical locations in northeast Ohio in 2019. All DC are employed by

the Cleveland Clinic's Tanya I. Edwards, MD Center for Integrative and Lifestyle Medicine. Data was collected via electronic medical records including patient demographics (age, gender, race/ethnicity), primary diagnosis at index visit (e.g., back pain, neck pain, headache), treatment/procedures (CPT codes), number of visits, referral source (e.g., self-referral, medical provider), and insurance coverage (public/private). Chiropractic team was asked to list implementation strategies used to increase adoption of chiropractic care.

Results: Overall, a total of 9504 visits for 2645 patients (21 days to 95 years old, 46.1 average age; 63% female; 77% white) were reported for chiropractic care in 2019. Patients (62% new, 38% established) were most often self-referred (54%) and having private insurance (75%). Majority of visits were to treat patients with one diagnosis (69%). For all visits including patients with more than one diagnosis, most common conditions included pain associated with low back (48.9%), neck (42.7%), shoulders/upper back (15.3%), pelvic (8.2%), upper/lower extremities (4%) or other (4%). Patients had a median of 2 chiropractic care visits in 2019 (interquartile range: 1-4). Implementation strategies reported by DCs included communication strategies (e.g., direct messaging in EHR), ease of referral in EHR, relationships with referring providers, co-location with other specialists (e.g., orthopedics, sports medicine), and pairing of DCs with a massage therapist.

Conclusion: Providing chiropractic care in a large healthcare delivery system is feasible. Chiropractors working in this environment managed mostly spinal pain. Implementation strategies emphasized the importance of developing relationships and channels of communication with other healthcare providers.

Research Methodology

P09.01

Collecting Treatment Data Efficiently in Acupuncture Trials: STANDARDS for Reporting Interventions in Clinical Trials of Acupuncture meets Technology

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Abstract

Background: STRICTA (STANDARDS for Reporting Interventions in Clinical Trials of Acupuncture) is an extension of the CONSORT statement providing guidance on how to clearly describe the acupuncture treatments administered in acupuncture clinical

trials. The BackInAction Trial, a four health care system 789-person trial of acupuncture for older adults with chronic low back pain (compared to usual medical care) includes two acupuncture groups. One group receives up to 15 acupuncture treatments in 90 days. The second group also includes a maintenance period of up to six additional treatments in the next 90 days). As part of pre-trial activities, we developed a standalone database to capture elements of the acupuncture treatments that were not pre-determined by the acupuncture protocol.

Methods: After completion of a modified Delphi process that developed the trial's flexible acupuncture intervention guidelines, we created a treatment form to capture treatment details required by STRICTA and additional information that allows a detailed description of the treatments. This form serves as the web interface for our HIPAA compliant, SQL server database.

Results: Our database captures information on treatment dates and visit durations, assessments and needling details (number of needles/person/treatment visit; specific acupuncture points used; whether or not de qi was achieved; needle retention time; at the first visit only, typical needle gauge(s), whether or not needles were coated, and manufacturer). The final STRICTA item captures details of lifestyle advice given to patients. All acupuncture adjuncts (e.g., heat, cupping, massage) are prohibited. In addition, we ask about the impact of protocol restrictions on the acupuncturist's perceived ability to deliver a good treatment and the patient's status at the end of each treatment (e.g., treatment continuing, treatment completed).

Conclusion: We built a HIPAA compliant, secure database to capture elements of treatment needed to report acupuncture treatment details according to STRICTA as well as to continuously monitor treatments.

P09.02

Determining the Completeness of Reporting in Systematic Reviews in Yoga for Health

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Abstract

Background: To evaluate the protocol availability or PROSPERO registration and PRISMA adherence for systematic reviews (SRs) of yoga for health.

Methods: We used a previously assembled database of SRs of yoga for health outcomes. Two authors independently

extracted data on protocol availability, PROSPERO registration, and reporting of each PRISMA 2009 checklist item. Discrepancies were discussed or referred to a third author. We used Stata 10 software to produce descriptive statistics and tests for relationships between registration, reporting, and review characteristics obtained from the overview.

Results: We included 147 SRs published between 2005 and 2019. 76% of authors were from the USA, Germany, UK, China, Canada, or Australia. SRs were published primarily in a specialty (71/147) or complementary medicine journals (43/147). Most SRs (116/147) made no mention of a protocol or registration, while 16/147 mentioned a protocol without providing a citation or other means of access, 1/147 mentioned a protocol and provided a citation, and only 14/147 provided a PROSPERO registration number. More than half of SRs mentioned or cited PRISMA (97/147) and reporting of individual PRISMA items ranged from 99% (review rationale) to below 50% (protocol mention, full electronic search strategy). PRISMA reporting demonstrated improvement over time but we did not find relationships between reporting completeness and country of author or type of journal.

Conclusion: This study identifies a need for increased preregistration of yoga SRs. While trends in PRISMA reporting are encouraging, the assessment of PRISMA reporting did not evaluate the comprehensiveness of each item reported, and there is likely room for improvement. We recommend registering all yoga SRs and closely following PRISMA 2020 guidelines in reporting. Together with the development of and adherence to specific reporting guidance for yoga interventions, this will increase transparency, minimize bias, and produce high-quality data to support clinicians' use of evidence-based yoga practices.

P09.03

From Anecdotal Evidence to Scientific Case Reports – The Example of an Integrative Medicine Case Report Project

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Abstract

Background: Strong effects from treatments are exchanged between lay persons and professionals as anecdotal evidence. Often these anecdotes have an uncertain validity of the reported data, but sometimes valuable contributions can be retrieved from them. We therefore investigated anecdotal evidence in an integrative medicine case report project.

Methods: We asked doctors for cases of *Viscum album* extract (VAE) therapy in cancer patients which they regarded to show a clinically significant outcome connected to VAE therapy. The recruitment strategy included requests via email 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; discussion with experts. All patients/relatives gave informed consent.

Results: 112 cases were recruited. 93 cases were excluded in the assessment process, mainly for relevance and validity. 11 cases were published in peer-reviewed medical journals, 8 are still being investigated. Older patient data often were incomplete and made validation impossible. VAE was administered subcutaneously, intravenously and intralesionally. In some of the cases unusually high doses 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. However, many cases showed poor data quality or low relevance after reevaluation. Our search and elaboration procedure could be a model of how to investigate anecdotal evidence.

P09.04

Semantic Web demonstration of medicinal plants and traditional Chinese medicine from the perspective of Integrated Medicine

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Abstract

Background: Through popular technologies such as artificial intelligence, the implicit semantics of the nature and taste of traditional Chinese medicine are analyzed intelligently, so as to provide a new path for clinical scientific understanding of visceral manifestation theory, discovering new drug clues related to disease and syndrome and diagnosis and treatment, expounding traditional Chinese medicine theory, and improving medical model combined with Western medicine integration.

Methods: The standard database was established for data integration and analysis. Protégé 5.5 beta 3.0 and later versions were used to integrate traditional Chinese medicine information into the semantic network based on extensible markup language (XML). Jena was used as a reasoning tool to reason and save the ontology in the semantic network of traditional Chinese medicine, and the ontology library of traditional Chinese medicine was formed. Lucene was used to establish the index of the ontology library of traditional Chinese medicine, and the retrieval was carried out. A new drug research and development platform for medicinal plants was built to display and output the results.

Results: This article envisages the use of information technology to improve the field of traditional Chinese medicine, the combination of Chinese and Western medicine, highlighting the concept of integrated medicine.

Conclusion: To discover new knowledge through the semantic web of traditional Chinese medicine, accelerate the progress of new drug development, improve the level of clinical diagnosis and treatment, and guide clinicians to use drugs rationally.

P09.05

Quantitative Evaluation of Digitized Images of Tai Chi/Qigong Performance Associated with Changes in Blood Flow Measured by Laser Doppler Flowmetry

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Abstract

Background: Tai Chi/Qigong practices have numerous healthful effects on mind and body functions. The purpose of this study is to explore methodology for quantifying such movements for correlative studies on physiological changes.

Methods: A half dozen male/female subjects of college age were involved in this pilot study. Qigong movement “Big Eagle Spreading Wings” and Tai Chi movement “Needle at Bottom of the Sea” were performed in front of a Microsoft Kinect Camera system and IC Measure was used to measure the angle (vertical = 0°) of the arm and the backbone in the Kinect skeleton figures derived from the two movements, respectively. Blood flow/perfusion at the center of the palm was measured as “flux” with a laser

Doppler flowmetry instrument (Model DRT4 from Moor).

Results: During Big Eagle Spreading Wings, a subject had both arms stretched straight out at shoulder height, and then flexed the body from side to side at the rate of 4 cycles/minute, resulting with each hand going as high and as low as possible. When the hand with the laser probe was at the highest or lowest positions, the angle of the arm was at $32\pm 13^\circ$ SD vs $148\pm 8^\circ$ from vertical and blood perfusion was $129\pm 17\%$ SD% of resting position with hands at waist high vs $253\pm 20\%$ (n=20%), respectively. During Needle at Bottom of the Sea, when the hand was highest or lowest, the angle of the back bone of the Kinect skeleton was $24\pm 13^\circ$ vs $45\pm 4^\circ$ and perfusion was $142\pm 17\%$ vs $271\pm 27\%$ (n=13), respectively.

Conclusion: This study shows that different stages of Tai Chi/Qigong movements analyzed on computer-generated skeletal figures can produce quantified changes in blood flow/perfusion in real time. This methodology could be applicable for future studies dissecting and comparing changes of different health markers by these mind/body practices.

P09.06LB

Multisite Recruitment for a Positive Psychological Intervention for Patients with Chronic Musculoskeletal Pain: LARKSPUR

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Abstract

Background: This proposal reviews the multisite recruitment for a pilot study of LARKSPUR, a web-based, positive psychology intervention for patients with chronic musculoskeletal pain seeking treatment at an integrative health clinic.

Recruitment occurred at four BraveNet-affiliated integrative medicine sites: Osher Center for Integrative Health at Northwestern University (Osher-NU), University Hospitals Connor Whole Health (UH Connor), University of Colorado Health Integrative Medicine Center (UCHealth), and Osher Center for Integrative Health at Vanderbilt (Osher-Vanderbilt).

Methods: A combination of active and passive methods was used to recruit participants, including in-person provider referrals, flyers, and letters from medical providers (physical mail and email). The research design was consistent at each site and the recruitment materials were standardized. Any variation in recruitment method was due to differences in each institution's local IRB (Institutional Review Board) approvals.

Results: Northwestern University conducted recruitment for 2.8 years and consented n=36. Three additional sites were added in early 2021 with a goal of enrolling n=10 each. Recruitment at the additional sites was complete within 75 days (UH Connor, n=15), 22 days (UCHealth, n=14), and 40 days (Osher-Vanderbilt, n=11), respectively, and all three exceeded the initial recruitment goal. Overall, 117 patients were screened for participation; 83.8% (n=98) met the eligibility criteria, and 77.5% (n=76) of eligible patients consented for participation. There was no significant difference in Mean Pain Intensity (T-score) across sites (F(3)=5.7, p=0.64).

Conclusion: By leveraging a practice-based research network (BraveNet), the LARKSPUR trial achieved its aim to establish feasibility of enrolling adults with chronic musculoskeletal pain seeking integrative healthcare (enrollment of > 50% of eligible). The addition of three sites exceeded the recruitment goal in 75 days or less. Future research should examine strategies for improving and sustaining recruitment in this population, to inform dissemination and implementation of eHealth interventions in clinic settings.

Other Research

P10.01

Are Acupoints “Hot Spots”? A Systematic Review of Thermal Assessments of Acupoints in Healthy vs. Clinical Populations

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Abstract

Background: According to classical acupuncture theory, acupoints are characterized as dynamic functional entities that are sensitized in pathological conditions. Based on this premise, some have claimed that acupoints are thermally distinct between healthy and clinical populations, but no systematic review has been conducted to synthesize and evaluate the quality of studies supporting such claims. In this review, we provide a summary and quality assessment of the existing literature addressing the question of whether changes in temperature of specific acupoints are indicative of pathological conditions.

Methods: A systematic literature search was performed in PubMed, EMBASE, and AltHealthWatch (EBSCO Host), by combining variations of search terms relevant to the concept of acupoint and temperature. Search was limited to the English language, and publication dates ranged from database inception to December 2020. Two authors independently abstracted information on study design, study sample, acupoints, thermal assessments (e.g., device type, ambient temperature), and main findings as well as evaluated the methodological quality of thermal assessments in the included studies.

Results: The search strategy yielded a total of 1771 studies, of which 10 articles met the eligibility criteria. There were seven clinical conditions of interest examined in the included studies: chronic bronchial asthma, chronic hepatitis, hyperplasia of mammary glands, infertility, intracranial hypertension, obesity, and primary dysmenorrhea. Eight studies with case-control designs reported significant differences between healthy and clinical populations in temperature of certain acupoints. Two studies with pre-post designs reported that changes in health status or symptom severity may be associated with changes in temperature at specific acupoints. There were numerous methodological quality issues related to skin temperature measurements, and substantial heterogeneity existed across included studies.

Conclusion: Given the methodological limitations and heterogeneity across included studies, no definitive conclusion could be drawn as to whether specific acupoints are thermally distinct between healthy and unhealthy states. More rigorous studies are needed.

P10.02

Are Acupoints Sensitized in Pathological Conditions? A Systematic Review of Pain Sensitivity Assessments of Acupoints

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Abstract

Background: The concept of acupoints is fundamental to acupuncture practice, yet the physical substrate of an acupoint remains inconclusive. In recent years, various disease models have been increasingly utilized in animal studies to assess whether and how acupoints are affected in pathological conditions. Findings from these studies demonstrate that acupoints may represent specific locations on the body surface sensitized by neurogenic inflammation under pathological conditions. While several human studies have been conducted to examine the relation between pain sensitivity of acupoints and clinical conditions, no systematic review has been conducted to summarize and assess the quality of findings. Thus, the aim of this study is to synthesize existing literature on this topic.

Methods: A systematic literature search was conducted using combinations of terms related to acupoint and pain sensitivity in PubMed, EMBASE, and AltHealthWatch (EBSCO Host). Two investigators independently screened titles and abstracts and reviewed full-text articles for eligibility. Data on study design, assessed acupoints, pain sensitivity assessments (e.g., device type), and main findings were extracted from the included studies. Quality was evaluated using a modified Newcastle-Ottawa Scale (NOS) for case-control and cross-sectional studies.

Results: Of 3,096 studies identified, 14 met the eligibility criteria. Eight studies were of case-control design and examined pain sensitivity of acupoints in healthy vs. clinical populations. The remaining six studies entailed a cross-sectional design and investigated an association between acupoint tenderness and severity of symptom or clinical condition of interest. Seven studies assessed body acupoints, while the other seven studies examined auricular acupoints. The methodological quality of studies were generally poor, and there was a substantial heterogeneity across included studies regarding acupoints and clinical conditions of interest.

Conclusion: Given the methodological limitations and heterogeneity of included studies, no definitive conclusion could be made in regards to whether acupoints are sensitized in pathological conditions. More rigorous studies are needed.

P10.03

Exploring Healthcare Leaders' Descriptions of Implementing Mindfulness in the Workplace During the COVID-19 Pandemic

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Abstract

Background: This is a time of rapid change and uncertainty in healthcare in the United States. The emergence of the COVID-19 pandemic has intensified ambiguity in healthcare and amplified the conditions, needs, and potential value in integrative health approaches. Mindfulness meditation is one integrative health approach that has been linked to more resilient leadership. Mindful healthcare leaders may more easily navigate the volatile and complex environment of the pandemic and facilitate resilience and innovation during the crisis. This descriptive qualitative analysis investigated how healthcare leaders trained in mindfulness describe their experience implementing their training in the workplace during the COVID-19 pandemic.

Methods: Purposive snowballing sampling recruitment strategy was used to recruit eight leaders who worked in a clinical healthcare setting, and who have trained in and currently maintained a mindfulness practice. Data collection included remote, semi-structured interviews, a demographic questionnaire, and a follow-up conversation. Thematic analysis was conducted deductively using Hougaard and Carter's (2018) mindfulness-selflessness-compassion (MSC) framework and then inductively.

Results: Themes were identified that supported each MSC category. Listening was an overarching theme. Three progressive patterns were associated with the MSC categories: (a) mindfulness as an entry point, (b) compassion as an entry point, and (c) progression toward collaborative leadership. Three outlier themes emerged: (a) spirituality as a foundation, (b) empathy as catalyst for emotional resonance, and (c) mindfulness as a way of life.

Conclusion: The MSC categories were a sound structure for future research and practice. However, an approach that includes the interrelationships among the categories, including the outlier themes identified here, would better represent the phenomenon of mindfulness and create a more authentic system-based framework. Contributions of this study included a) an evidence-based definition of being present, b) a two-part process for developing emotional self-regulation, and c) an assessment of dynamics among mindfulness elements describing a system-based, holistic phenomenon of mindfulness.

P10.04

Increasing Access to Integrative Oncology in a Urology Setting: A Quality Improvement Pilot

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Abstract

Background: Access to complementary and integrative health (CIH) specialists remains a roadblock for oncology patients interested in incorporating integrative medicine into their health management. This study reports on a novel interdisciplinary clinical model where patients were seen by their oncologist and a CIH specialist in a joint appointment to develop a holistic care plan.

Methods: Integrative oncology joint appointments were provided to 63 patients, 32 of whom consented to completing surveys pre- and post-visit. A research coordinator collected data on demographics, patient experience, patient satisfaction, and patient reported outcomes (e.g. anxiety and quality of life). Scores pre- vs post-visit were compared using t-tests.

Results: Patients were primarily diagnosed with muscle invasive (n=12) and non-muscle invasive urothelial carcinoma (n=7). From pre- to post-visit, we observed statistically significant decreases in patients' anxiety (p<0.01) and increases in positive emotions (p=0.03). The average ratings for the visit, physicians' abilities, and likelihood to recommend the clinic to other patients were all a mean of 4.93/5. Patients showed a statistically significant increase in self-reported confidence in their treatment plan (p=0.04) and a statistically significant decrease in feeling fearful (p<0.01) and nervous (p<0.01). The qualitative data indicate that interactions with physicians and staff, pace of the clinic, comprehensive care received, and efficiency are a few of the clinic elements patients found most helpful.

Conclusion: Based on a small pilot sample, our quality improvement project suggests that patients benefit from an interdisciplinary approach with their oncologist and a CIH specialist. Such a clinic model bypasses limited CIH specialist availability and clinic space, effectively reducing barriers to access and improving patient satisfaction. Exploring sustainability of integrative oncology joint appointments – such as billing practices and insurance coverage – is an important area of future work.

P10.05

US Acupuncture Profession Planning Project: Quantitative Workforce Study

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Abstract

Background: The object of this study, funded by the David and Lura Lovell Foundation, was to collect important demographic information on acupuncturists and acupuncture practice in the U.S.

Methods: Data collection and analysis was performed by a strategic consulting firm. The data collection instrument was a 39-question online survey conducted on the Qualtrics platform and was distributed by 36 state and 2 national acupuncture associations. One thousand nine hundred ninety-two completed responses collected between September 16-28, 2020, were analyzed. Results are deemed to be representative of the profession at a 95% confidence interval with a 5% margin of error, assuming a population of 30,000.

Results: Over 70% of respondents identify as female. 65.8% identify as white, 15.5% as Asian, 3.1% as multiracial, 2.9% as Latino / Hispanic, and 1.8% as Black / African American. 67.3% work in private practice as a sole proprietor, 16.3% in a group practice, and 5.1% in a private outpatient center. Key findings include significant gender disparities related to income, teaching and use of research and evidence. Almost 40% of female respondents reported income below the median wage bracket of \$45-65k, compared to 25.3% of male respondents. Conversely, 48.7% of male respondents reported income above the median wage bracket, compared to 33.7% of female respondents. There is a statistically significant relationship between length of practice and income. Male respondents are almost two times more likely to read peer-reviewed journals compared to females. Significantly more male respondents are in teaching and education roles than female respondents (12.6% male, 6.5% female).

Conclusion: This workforce report provides baseline data for future exploration into the US acupuncture profession. Further investigation is warranted to understand the origins of the gender differences in income, teaching and use of research and evidence and explore opportunities to close gaps.

P10.06

US Acupuncture Profession Planning Project: Qualitative Interviews

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Abstract

Background: The purpose of this study was to gain a qualitative perspective of the state of the US Acupuncture profession, the education system, their scholarly journal and the local and national societies that serve the profession.

Methods: The survey and analysis was performed by a strategic consulting firm in 2020. A mixed-methods approach was used involving survey development and administration, and qualitative interviews with key stakeholders. Initially, four interviews of industry leaders were conducted to gain perceptions of the American Society of Acupuncturists, their 36 member states and the Journal of The American Society of Acupuncturists. Findings informed the development of a 39 question quantitative research survey instrument. 1,087 survey respondents opted- in for further research. Of these, 88 were identified across various demographics (gender, geographic location, income, type of practice setting) and 7 additional interviews were conducted. This abstract reviews the qualitative responses.

Results: Analysis of the interviews revealed themes of: diversity, equity and inclusion, insurance coverage and reimbursement, education, debt and career stage, work/career satisfaction and quality of life. Across all interviews, a common theme is the high value acupuncturists place on autonomy and independence. At several levels, interviewees address a need for more inclusivity within the profession and as part of American healthcare. Although most prefer their private practice setting, some would seek the opportunity to work in an integrative or a hospital setting.

Conclusion: This is the first mixed-methods analysis of the US Acupuncture profession. Respect for individuality and independence related to acupuncturists' practice preferences, whether they wish to take insurance, work with colleagues in the American healthcare system, or prefer to practice independently were themes. Most interviewees believe a top priority for the national organizations is to support initiatives that enable LAC's to be covered as Medicare providers.

P10.07

Binge Eating Disorder Treatment Barriers: Modified Delphi Panel Findings

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Abstract

Background: This data elucidates the perceptions held by binge eating disorder experts regarding binge eating disorder treatment barriers.

Methods: Binge eating disorder experts were identified and recruited based on R01 funding, PubMed publications, active practice in the field, leadership in relevant societies, and clinical and popular press recognition. Semi-structured interviews were recorded anonymously then analyzed qualitatively for themes using a phenomenological approach. Participants expressing positive/supportive or negative/skeptical perspectives on each theme were quantified by two investigators.

Results: Fourteen (14) researchers, clinicians, and healthcare administrators participated, including 8 Doctorates in Philosophy or Science (PhD/ScD, 62%), 4 Doctors of Medicine (MD, 31%), 4 psychologists or psychiatrists (LP/R.Psych/FRCPsych, 31%), 3 Licensed/Registered Dieticians (LD/RD/CEDRD, 23%), and 2 healthcare administrators (15%). Several themes emerged that related to internal and external barriers to receiving a diagnosis of binge eating disorder and receiving treatment. These included: costs and insurance coverage (43%); desire to avoid weight stigma from healthcare providers (36%); insufficient provider screenings (29%); misunderstandings about who can have an eating disorder (21%); recognizing associated problems (e.g., weight, gastrointestinal issues) but not underlying eating disorders (21%); denial or stigma related to mental health- and eating disorder diagnoses (21%); geographic access (21%); eating disorder specialist scarcity (21%); and time constraints preventing finding/coordinating care and treatment participation (7% each).

Conclusion: Treatment costs and insufficient diagnostic information were the two treatment barriers most commonly raised by binge eating disorder experts during this study. Low-cost interventions made accessible through virtual delivery or other modes may have considerable potential for impact. Further qualitative research should include individuals with binge eating disorder to better understand barriers to receiving a diagnosis and receiving treatment. Approved by NUNM IRB. GRANT# 2 R90AT008924-01.

P10.08

Complementary and Integrative Health Interventions for Binge Eating Disorder: Findings from a Modified Delphi Panel

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Abstract

Background: This study reports the perceptions and experiences of binge eating disorder experts regarding complementary and integrative health (CIH) interventions for binge eating disorder.

Methods: Experts were identified and recruited based on R01 funding, PubMed publications, active practice in the field, leadership, and clinical/popular press recognition. Semi-structured interviews were recorded anonymously, then analyzed qualitatively for themes using a phenomenological approach. Participants expressing positive/supportive or negative/skeptical perspectives on each theme were quantified by two investigators.

Results: Fourteen (14) binge eating disorder researchers, clinicians, and healthcare administrators participated, including 8 Doctorates in Philosophy or Science (PhD/ScD, 62%), 4 Doctors of Medicine (MD, 31%), 4 psychologists or psychiatrists (LP/R.Psych/FRCPsych, 31%), 3 Licensed/Registered Dieticians (LD/RD/CEDRD, 23%), and 2 healthcare administrators (15%). Nine (9) participants expressed positive/supportive views of CIH interventions (64%); 4 expressed mixed views (29%), which varied according to the intervention or related to the lack of empirical support. Ten (10) participants expressed a need for more CIH research (71%) and 50% expressed opinions that CIH interventions need to be implemented correctly. Seventeen (17) CIH interventions were spontaneously reported, including: mindfulness (64%); yoga (64%); supplements/vitamins/probiotics/herbs (50%); acupuncture (43%); meditation (36%); and massage (21%). Clinical indications for CIH interventions included: managing stress, anxiety, or mood disorders (36%); addressing biological issues, e.g., inflammation, gastrointestinal symptoms (29%); healing trauma (29%); coping with change (14%); coping with symptoms of the disorder (43%); and connecting with the body (21%). Most interventions were viewed positively; however supplements/vitamins/probiotics/herbs had mixed views.

Conclusion: Binge eating disorder experts expressed some familiarity with CIH interventions for binge eating disorder and their opinions and experiences were generally positive. They generally agreed on the need for more research on CIH interventions and

that the use of CIH must be implemented correctly and with care. Approved by NUNM IRB. GRANT# 2 R90AT008924-01

P10.09

Using Elimination Diet to Treat Migraine Headaches in VA Primary Care Clinics

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Abstract

Background: To evaluate the effectiveness of elimination diet as a complementary modality to treat patients with migraine headaches. Elimination diets can be used to assess whether certain foods may be causing or exacerbating symptoms. Recommended changes to the diet can become a method to treat these symptoms.

Methods: From April 2019 to April 2021, all patients who were seen by one primary care provider at a VA outpatient clinic and who had a diagnosis of migraine headache were referred to nutritionist. The nutritionist educated them about elimination diets. Number of headaches per month, duration of headaches in hours, average pain score of acute headaches, frequency of medicines used per month for acute attacks were assessed before and after the elimination diet. They were asked if they continued the diet.

Results: 19 patients (10 women, 9 men) met the criteria and kept the appointment with the nutritionist. Average age was 39.4 (range 26-50). Pre-elimination diet, patients reported an average of 9.5 headaches/month (range 4-30), 7.7/10 pain score (range 5-10/10), duration 26.8 hours (range 4-96) and frequency of medication of 6.4/month (range 0-17). Post-elimination diet, patients reported an average of 6.5 headaches/month (range 1-20), 6.1/10 pain score (range 2-10/10), duration 12.7 hours (range 1-48) and frequency of medication of 4.5/month (range 0-15). Pain score and duration of headaches were reduced significantly (t-test $p < 0.05$). 52% percent of patients reported less medication use and 68% of patients continued the diet.

Conclusion: Elimination diet can be useful adjunct for treatment of headaches to reduce or eliminate need for abortive medications. It is very safe if a variety of foods are eaten to supply essential nutrients. Future study can assess headaches in patients who did and did not follow the elimination diet, along with study of resistance or barriers to elimination diet as a treatment modality

P10.10

Remote, Virtual Yoga: Benefits and Suggestions for Protocols and Applications

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Abstract

Background: Since the beginning of social distancing which occurred during the SARS-CoV-2 pandemic, it has been necessary to switch to remote ways of interacting including conducting mind-body classes via remote video platforms. To date, there is limited research with respect to the effectiveness of distant virtual mind-body classes. Current research indicates that mind-body therapies, such as yoga, are useful interventions for mental health treatment. For example, the application of yoga for mental health includes depression, anxiety, grief, and addiction. Virtual yoga creates the opportunity for greater cultural diversity and the inclusion of persons who are unable to travel to on-site classes. Remote classes help connect persons who lack the financial or physical means to access traditional classes. The purpose of this research proposal is to present needs and logistics for remote class protocols, assessment tools, self-report and outcome measures, and technological concerns.

Methods: This research proposal focuses on remote yoga therapy with respect to tools and outcome measures. Outcome measures discussed include those for depression and anxiety and also demographics such as age, gender, race, location (urban or rural), as well as self-report measures such as pain, sleep, self-efficacy, and quality-of-life.

Results: We present data on the benefits and logistics of using yoga as a remote learning platform such as feasibility, attendance, self-report measures, and other important outcomes. Result from a current study using remote yoga for breast cancer patients shows participants' attendance above 95%. Results are reported from a breast cancer and yoga study which became remote due to the pandemic.

Conclusion: Virtual yoga is an important tool to enable persons to interact with therapists and practitioners. We present these benefits and propose future research protocols and assessment tools which could be used by both researchers and yoga practitioners to ensure effective and safe outcomes.

P10.11

The Chemo-Gut Pilot Study: Associations between Gastrointestinal and Psychosocial Symptoms, Gut Microbiota and Cortisol in Young Adult Cancer Survivors

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Abstract

Background: Chemotherapy adversely affects the gut microbiome, inducing dysbiosis, and negatively impacts gastrointestinal (GI) and psychosocial function during treatment, but little is known about the long-term effects or how these factors are related. Understanding the long-term effects of chemotherapy on the gut microbiota, GI and psychosocial outcomes and associations among outcomes is crucial to improve the health of cancer survivors, but remains unexamined.

Methods: This cross-sectional pilot study investigated the effects of chemotherapy on gut microbiota, hair cortisol, and patient reported GI and psychosocial outcomes in cancer survivors aged 18-39 year old, compared to healthy controls of the same age and sex.

Results: Survivors (n=17) and healthy controls (n=18) participated; 46% were male. The mean age at diagnosis was 31 years (SD=5.3). Mean time off treatment was 16.9 months (SD=16.4). Diagnoses included hematologic (n=11) and solid tumor (n=6) cancers. Compared to controls, survivors had significantly higher levels of gas and bloating, belly pain, and constipation ($p < .05$), and anxiety, depression, fatigue, post-traumatic stress symptoms, social isolation, and pain behaviour, and poorer cognitive function ($p < .05$). In survivors, anxiety, depression, fatigue, social isolation, and pain behaviour were significantly positively correlated, and cognitive function was negatively correlated ($p < .05$), with GI symptoms. Cortisol was significantly negatively correlated with social isolation ($p = .010$), and positively correlated with cognitive function ($p = .038$) in survivors. These associations were not found in controls.

Conclusion: In this small exploratory study, survivors report significantly higher levels of GI and psychosocial problems than controls. In survivors, psychosocial outcomes

were associated with GI symptoms. Cortisol was associated with social isolation and cognitive function in survivors, but not in controls. Persistent post-chemotherapy GI and psychosocial issues may suggest ongoing dysbiosis of the gut microbiota as a potential co-causal factor and area for probiotic-dietary intervention.

P10.12

Ayurveda Practice during COVID-19 - Lessons from a Cross Sectional Survey

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Abstract

Background: To understand the ayurveda practice patterns in the United States during COVID-19

Methods: A cross-sectional study was conducted by sending a survey developed using SurveyMonkey. Local IRB approved the study. Responding to the survey was implied as providing consent. The survey was sent to all ayurveda professionals practicing in the United States. The list of professionals were obtained from the National Ayurveda Medical Association and through personal contacts of the principal investigator. The survey was open for 45 days and reminders were sent twice to the potential participants.

Results: Eighty eight ayurvedic professionals completed the survey. Majority were females from California and belonged to Ayurveda Practitioner category and practiced mostly part-time. Ayurveda counselors and Ayurveda doctors (India based education) were the other categories of professionals, who also responded to the survey. The respondents reported that they adopted telehealth to continue their practice during the closures, but still majority reported that there was an economic impact of COVID-19 on their practices. Health promotion was the predominant type of service provided by these professionals. The methods included diet and lifestyle advices that incorporated dosha based diet and yoga and meditation practices. Additionally, they also provided some classical ayurveda formulas and simple herbal teas such as coriander tea and hot water to prevent easy susceptibility to viral infections. An important advice included a specific dosha based individual daily routine to improve general and mental health.

Conclusion: Ayurveda, the oldest Indian System of Medicine may be a useful natural health care system that can be used for health promotion during a pandemic. The self-care practices do provide patient empowerment.

P10.13LB

Evaluation of Plasma, Salivary and Tear Levels of Vitamin D3

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Abstract

Background: The importance of vitamin d3 in the entire human organism, including the eyes, is increasingly observed, and levels of this vitamin, actually a pre-hormone, are measured in plasma, and little importance has been given to its tear and salivary levels. The aim of this study is to simultaneously evaluate, for the first time in the medical literature, the levels of vitamin D3 in plasma, saliva and tears in healthy individuals.

Methods: Blood, saliva and tear samples were collected from 12 healthy individuals, with blood collected by venipuncture, saliva was collected in appropriate tubes and tears were collected by Schirmer stripes. The method used to detect vitamin D3 in all these fluids was electrochemiluminescence and the exams were evaluated at the Clinical Analysis Department, Faculdade de Medicina do ABC, Brazil.

Results: Plasma, tear and salivary levels of vitamin D3 were evaluated in 12 healthy individuals, between 29 and 61 years old, mean of 45,33 years, 6 men and 6 women, and the mean results found were: 90.71 ng/ml (sd +/- 11,62) in the tear, 86,46ng/ml (sd +/- 13,95) in saliva and 25,77 ng/ml (sd +/- 9,17) in plasma. No statistically significant difference was found between tear and salivary vitamin d3 values (p <0,05), but a statistically significant difference was found between tear and plasma vitamin D3 levels (p<0.00001) and between salivary and plasma vitamin D3 levels (p<0.00001).

Conclusion: The results obtained show that there was no statistical difference between tear and salivary vitamin d3 levels, however, there was a very important statistically significant difference (p<0.00001) between tear and plasma levels and between salivary and plasma vitamin D3. More research will need to be done to understand why plasma values are so significantly lower than levels in the other fluids studied.

P10.14

Barriers and Facilitators to Smoking Cessation: A Qualitative Study of Healthy Chinese Smokers

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Abstract

Background: To explore potential barriers and facilitators for smokers in self-sensing healthy status to stopping smoking.

Methods: This qualitative study used semi-structured, one-on-one, face-to-face online interviews with 30 smokers who were apparently healthy, in different job positions and at different ages with convenience. Interviews lasting between 20 to 35 minutes were conducted from January 2021 to February 2021 with ethical approval (2021BZYLL03010). Theory-framework analysis was used to explore the four pre-set themes including capability, opportunity, motivation, and behaviour (COM-B system) based on the Behavior Change Wheel theory regarding smoking and stopping smoking.

Results: Thirty smokers between the ages of 13 and 63 were interviewed. The content obtained from the interviews were summarized into COM-B system and one more additional theme as suggestions for stopping smoking. Smoking promoted socialization which was an important barrier to stopping smoking and also acted as a facilitator. Smoking habits and emotions made it difficult to stop smoking. Attention to and responsibilities about their own and family's health were the main reasons for willing to stopping smoking. Many participants used e-cigarettes but few people agreed on their effectiveness. Few participants had heard about smoking cessation clinics. Most participants tended to ignore relevant publicity. All participants tried to stop smoking by their willpower. Participants believed that the legislation and regulations of family, school, and the government were perceived as the main way to prevent teenagers from smoking initially.

Conclusion: Smoking and stopping smoking are closely related to the social environment, an individual's motivations, and tobacco control policies. Smokers tend to stop only through willpower rather than medical support. Further

studies should consider the socio-environmental factors related to smoking cessation, the medical support to address preventing negative emotions developing due to abstinence, and additionally dissemination of access to smoking cessation clinics, and implementation of more stringent tobacco control policies.

P10.15

Chinese Herbal Remedy Tangcao Tablets for the Treatment of HIV/AIDS: A Systematic Review of Controlled Clinical Trials

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Abstract

Background: To evaluate the effectiveness and safety of Tangcao tablets, an only listed Chinese patent medicine that are consist of 20 kinds of herbs such as Erodii Herba Geranii Herba, Lonicerae Japonicae Flos, Trichosanthis Pericarpium, Bupleuri Radix etc. to serve as an adjuvant treatment for HIV-infection and/or acquired immunodeficiency syndrome (HIV/AIDS), for treating people with HIV/AIDS.

Methods: A systematic review was performed of controlled trials on HIV/AIDS patients treated with Tangcao Tablets alone or in combination with highly active antiretroviral drugs (HAART). Four English and four Chinese databases were searched up to 7 April 2021. Included studies were assessed using the Cochrane risk of bias tool.

Results: Four trials (267 patients) met the inclusion criteria, including three randomized controlled trials and one controlled clinical trial. The meta-analysis from two trials revealed: after 3-months of treatment, the combination of Tangcao tablets and HAART was no different to HAART alone in raising CD4+T (CD4) cell count (CD4: pooled MD: -12.24cells/uL, 95%CI: -25.5, 1.02). One trial compared Tangcao tablets with placebo showed an improvement in CD4 (3-months: MD: 61.02cells/uL, 95%CI: 27.96, 94.08; 6-months: MD: 93.55cells/uL, 95%CI: 64, 123.1), and body weight (MD: 5.17Kg, 95%CI: 2.79, 7.55) in the Tangcao group.

Conclusion: Tangcao tablets may be effective for HIV/AIDS patients in terms of improving both CD4 cell count and body

weight. Its use for 3 to 6 months appeared to be safe. Large, rigorous trials are warranted to confirm its effectiveness, safety, and any potential interactions with antiretroviral drugs.

P10.16LB

The Impact of Tai Chi Chuan on Childhood Asthma: An Integrative Review

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Abstract

Background: To evaluate the effect of Tai Chi Chuan (TCC) training on childhood asthma control.

Methods: Integrative review of clinical studies about the impact of TCC training on the pulmonary function, airway inflammation, symptoms, and quality of life of asthmatic children. We searched the databases Pubmed, BVS, Scielo, and Lilacs between February 2021 and January 2022. We used the search-key: children AND "Tai Chi" AND asthma. Inclusion criteria: interventional studies about TCC in childhood asthma. Exclusion criteria: Studies that investigated others activities besides TCC.

Results: Four studies were included. A total of 101 asthmatic children, in different degrees of severity, performed TCC practices for 12 weeks. All studies assessed pulmonary function, bronchial quality, and quality of life pre and post-intervention. All of them observed improvement in most parameters. The four studies demonstrated an increase in the forced expiratory volume in one minute (FEV1) in the TCC group. There was a maximum increase of up to 7.01%. The relationship between FEV1 and forced vital capacity (FVC) increased by up to 3.38. The peak expiratory flow increased by up to 56.1L/min, all these data being statistically significant ($p < 0.05$). It showed an important contribution of TCC in improving the pulmonary function of these patients. The expiratory fraction of nitric oxide (FeNO) - a non-invasive marker of airway inflammation - decreased in three studies. The researches evidenced a reduction in the total amount of leukocytes and peripheral eosinophils. So, this immunomodulation reduced the IgE-mediated process of the pathophysiology of allergic asthma. Symptom scales and quality of life assessment showed improvement. Two hospitalizations for asthma were identified in the control group, while no child in the TCC group was hospitalized.

Conclusion: The current literature demonstrates a high potential for TCC to contribute as a complementary therapy to conventional treatments in the management of childhood asthma.

P10.17

Acupuncture Research Dissemination: Advocacy Initiative for Literacy

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Abstract

Background: The Society for Acupuncture Research (SAR) 2019 PCORI stakeholder meeting created a space to critically examine the barriers to acupuncture research dissemination and implementation with the goal of strengthening and disseminating the evidence base. Fueled by the PCORI meeting, this survey project was developed to provide research literacy training to acupuncturists and to disseminate acupuncture research to acupuncturists to encourage access to and utilization of research and evidence.

Methods: Seventy-two 72 industry leaders were recruited to assist in survey development and dissemination. An introduction to the project, and a 15- question data collection instrument was deployed to members and affiliates of American acupuncture societies to assess research literacy skills. Baseline results informed development of a 90-minute research literacy education module and supplements that will be deployed to the group. In turn, the group was added to the Medical Acupuncture Journal house list to receive free scholarly content alerts. The 15- question survey will be re-deployed at the end of the project to assess impact.

Results: Preliminary results reveal strong interest in improving research literacy skills. The first email sent to 9755 acupuncturists had a 41.7% open rate, more than doubling the industry average of 16%. Baseline survey collected 311 completed responses and revealed gaps in understanding reporting of research findings, peer review and what qualifies as evidence.

Conclusion: Acupuncturists in the US have an interest in improving their research literacy skills. The results of the data collected from survey respondents will further identify gaps in understanding how acupuncturists access, critique and interpret evidence and will be used to inform future research education initiatives.

P10.18

Pediatric Oncologists' Knowledge, Attitudes and Beliefs about Pediatric Integrative Oncology Programming in an Academic Medical Center

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Abstract

Background: Children with cancer suffer a heavy symptom burden due to both disease and therapy. Pediatric hematology-oncology (PHO) clinicians worry about the use of non-traditional therapies in immunocompromised children during cancer treatment as most available data stems from adult cancer patients. The goal of this project is to understand underlying PHO provider beliefs that facilitate or hinder implementation of integrative oncology (IO) programming in academic centers for children with cancer.

Methods: A cross-sectional survey instrument was created to assess provider knowledge, attitudes and beliefs about the use of integrative medicine in PHO patients. The instrument underwent expert review and iterative multidisciplinary pilot testing to assure content and face validity. Surveys were delivered electronically to physicians (MD/DO) and advance practice providers (NP/PA; APP) caring for PHO patients at St. Jude Children's Research Hospital. Survey responses were summarized by descriptive statistics and associations were calculated using Chi-square or Fisher's exact test.

Results: Seventy-eight PHO physicians and APPs participated (RR 30%). Regrettably, 23.1% of participants describe feeling confident in their ability to answer patient and family integrative oncology (IO) questions. Few providers (1.3%) believe that a patient's primary oncology team is the primary source of IO information. The majority (87.1%) are willing to engage trained IO providers for patient referral. Participants overwhelmingly believe additional educational opportunities for PHO providers are required to learn about IO (85.9%). Participants requested formal education in medical cannabis, botanical medications/supplements, acupuncture, meditation, and massage for children with cancer. Only 2.6% of participants expressed no interest in any of the integrative topics offered.

Conclusion: Not only are additional therapeutic studies of pediatric IO interventions to assess for safety and efficacy in this medically complex population imperative, educational opportunities for PHO clinicians are vital to bridge the gap between patient and family desire for IO services and PHO clinician comfort level with recommending interventions.

P10.19

Circadian Patterns and Day-Night Differences in Heart Rate Dynamics

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Abstract

Background: Heart rate variability (HRV) measures have been commonly used to assess mind-body interventions. However, the physiology underlying these indices are complex and interpretation for the mind-body field has not been straightforward. In particular, prior studies have examined averaged long-term (24-hour) HRV, while day-night differences in heart rate dynamics have been largely ignored. We aimed to characterize day-night differences and circadian patterns by examining profiles of heart rate dynamics in healthy young, healthy old, and patients with cardiopulmonary conditions.

Methods: Using 24-hour heart rate data from patients (n=16) with chronic obstructive pulmonary disease (COPD) and/or heart failure (HF) and healthy controls (n=42 old and n=136 young), we conducted an analysis using conventional time and frequency domain HRV indices and a non-linear measure (multiscale-entropy-based complexity index, CI) specifically comparing day-night differences and circadian patterns.

Results: Among the three groups, multiple differences were seen comparing day-night profiles (e.g., Δ RMSSD, Δ SDSD, Δ pNN50, Δ HF, Δ nLF, Δ LF/HF, Δ CI). Among these indices, Δ LF/HF (2.13 ± 2.35 vs 1.1 ± 2.47 vs -0.35 ± 1.25 , $p < 0.001$) and Δ CI (0.15 ± 0.24 vs 0.02 ± 0.28 vs -0.21 ± 0.27 , $p < 0.001$) were significant in each pair-wise comparison. During the day, heart rate complexity, CI, was the highest in the younger healthy group and the lowest in the older cardiopulmonary patient group (1.37 ± 0.12 vs 1.01 ± 0.27 , $p < 0.001$). Younger healthy subjects showed a heart rate complexity dipping pattern (lower at night), older healthy subjects showed non-dipping, and cardiopulmonary patients showed reverse dipping (higher at night).

Conclusion: Heart rate variability and complexity fluctuates throughout the day and there are large day-night differences in healthy individuals which are blunted, or even reversed, in subjects with cardiopulmonary pathology. Prior interpretations of HRV have been oversimplified and understanding circadian/day-night differences in heart rate dynamics could inform the field of mind-body research.

P10.20

Chinese Herb *Patrinia Herba* (Bai Jiang Cao) and Its Compounds for Acute Respiratory Tract Infections: A Systematic Review of Clinical Studies

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Abstract

Background: To evaluate the clinical effectiveness and safety of Chinese herb *Patrinia herba* for acute respiratory tract infections (ARTIs).

Methods: We searched the China National Knowledge Infrastructure, Wanfang Database, Vip, SinoMed, EMBASE, MEDLINE, CINAHL, Cochrane Central Register of Controlled Trials, and PubMed from their inception to 4th July 2021 for clinical studies that tested single herb or formulae containing *Patrinia herba* for ARTIs. The Cochrane Risk of Bias 2 (RoB2) tool was used for assessment of randomized trials. The Newcastle Ottawa Scale (NOS) would be used for cohort and case control studies. Only randomized trials were retrieved. Revman 5.3 software was used to analyze data using risk ratio (RR) with its 95% confidence interval (CI).

Results: Six trials, including four randomized trials (1528 participants) and two clinical controlled trials (579 participants), were identified. The results showed that single *Patrinia Herba* granules or injection improved cold intolerance (RR: 1.42, 95% CI [1.11, 1.81]), general malaise (RR: 1.61, 95% CI [1.26, 2.05]), nasal obstruction (RR: 1.63, 95% CI [1.26, 2.09]), running nose (RR: 4.44, 95% CI [2.47, 8]), sore throat (RR: 2.39, 95% CI [1.48, 3.87]), cough (RR: 2.10, 95% CI [1.5, 2.93]), headache (RR: 2.01, 95% CI [1.49, 2.71]), and dizziness (RR: 2.13, 95% CI [1.59, 2.87]) in adults and children with influenza. For adults and children with pneumonia, *Patrinia Herba* compound preparations plus antibiotics appeared better than antibiotics alone in relieving fever, cough, shortness of breath, chest pain, lung rale, and constipation. The overall risk of bias of included trials was rated as unclear or high. No severe adverse events was reported.

Conclusion: Low quality evidence demonstrates that the single herb or compound of *Patrinia herba* may be effective for relieving symptoms of ARTIs. More high-quality studies are needed to confirm its potential in treating ARTIs.

P10.21LB

Brain Health and Wellness Virtual Shared Medical Appointment (vSMA) to Improve Cognitive Function and Overall Health: A Pilot Study

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Abstract

Background: Dementia has increased over the past several decades and is expected to triple worldwide to 152M people with healthcare costs exceeding \$1 trillion by 2050. Pharmacologic treatments for dementia have reported modest benefit, thus, new therapies with an emphasis on prevention are critical. While there is evidence showing health benefits of long-term individual lifestyle interventions on dementia, the short-term effects of an intensive multidisciplinary lifestyle program for patients with mild or subjective cognitive impairment (MCI, SCI) has not been demonstrated.

Methods: Cleveland Clinic's Brain Health & Wellness vSMA, a 90-minute/6-session/10-week comprehensive lifestyle intervention, is designed to improve cognitive function for patients with MCI or SCI. The vSMA, facilitated by a physician, nurse, and yoga therapist, enrolls seven patients/group and consists of medical assessments, lifestyle education (diet, physical activity, stress management, sleep), and group activities (yoga, exercise, meditation). Outcome measures include biometrics (BMI, BP), biomarkers (lipid panel), cognitive function (Montreal Cognitive Assessment), and patient-reported outcomes for stress (PSS-4), sleep (PSQI), anxiety and depression (PHQ-4).

Results: Overall, 22 adults (ages 23-86; average 64) meeting criteria of SCI (50%) or MCI (50%) participated in the vSMA from June 2021 through January 2022. Demographics represented 86% female, 27% African American, 89% with higher education, and 32% employed. Comparing pre/post vSMA, we observed improvement in cognitive function with SCI (5 of 7 patients) and MCI (6 of 7 patients), anxiety/depression (6 of 12 patients) and stress (5 of 12 patients). Changes in biometrics/biomarkers were inconsistent; there was no change in sleep quality or BMI.

Conclusion: In this pilot study, a short-term comprehensive lifestyle intervention delivered in a vSMA was associated with improved cognitive function, anxiety, depression and stress for adults with SCI and MCI. The virtual model may provide easier access to preventative therapies to reach more people with SCI and MCI.

P10.22

The S3 Study: Self-treatment of Symptoms affecting Quality of Life of Older Adults: A Community-based Survey

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Abstract

Background: This study aimed to determine self-treatment choices for the management of bothersome symptoms experienced by older adults in diverse communities, prevalence of use of complementary approaches, and outcomes. Bothersome symptoms due to chronic illness and aging significantly affect quality of life (QOL) of older adults and include pain, itch, disrupted sleep and mood. Symptom clusters which multiply the burden on one's life, and socio-demographic factors (gender, community of residence, race, ethnicity, culture) which influence self-care choices are explored in relationship to symptom management and QOL outcomes. Understanding prevalence and patterns of complementary therapy use will assist healthcare providers challenged with identifying a complex array of self-treatment choices among community-residing older adults.

Methods: An exploratory/descriptive study design using Structural Equation Modeling (SEM) of data collected from adults 60 years of age and older (N = 250) with reported symptoms was conducted. Participants of varying ethnic/racial/socio-economic groups were recruited from community centers in urban, suburban, and rural areas of the Midwest U.S. to complete questionnaires (English & Spanish versions) exploring socio-demographic and health data, symptom experiences and severity, self-treatment approaches, and QOL outcomes. Measures included: Demographic Health History, Brief Pain Inventory-SF, Perceived Stress Scale, Rand SF-36, Pittsburg Sleep Quality Index, Pruritis Severity Scale, Self-treatment Report.

Results: Analysis in progress for 1st cohort (N=200 older adults of diverse race/ethnicity/socio-economic levels in urban, rural and suburban communities); data collection currently in progress for the 2nd study cohort of Hispanic adults (N=50) reporting symptoms. SEM will be used to determine path coefficients between socio-demographic characteristics, symptoms, symptom burden, self-treatment (use of conventional and complementary therapies) and QOL.

Conclusion: Awareness of the symptoms that older adults experience with aging, choices made about self-treatment, including use of complementary therapies, and potential outcomes related to QOL is crucial to a comprehensive/holistic plan for integrative nursing care of aging adults.

P10.23

Therapeutic Pluralism Policies in Latin America: Advances, Gaps, and Opportunities towards Inclusive, People-Centered Health Care Systems

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Abstract

Background: The World Health Organization (WHO) has encouraged member states to develop national policies that advance the integration of T&CM in national healthcare systems to harness their potential contribution to health, wellness, and people-centered health care. Yet, little is known about the characteristics and level of implementation of existing T&CM policies, and no global guidelines have been developed for assisting countries in structuring and developing such policies.

Methods: A qualitative research design was used to conduct a landscape analysis characterizing existing therapeutic pluralism policies in Latin American countries through a comprehensive literature review, a policy-focused qualitative content analysis, key informant interviews, and a case study analyzing the formulation process of a landmark policy (Brazil's National Policy for Integrative and Complementary Health Practices -PNPICS). A technical cooperation tool to guide T&CM policy development and update for Latin American countries was proposed based on the study's findings, and refined through face validation and an expert consensus method (Delphi process). Data categorization and analysis were performed in MS Excel and NVivo, using deductive and inductive coding.

Results: A total of 74 T&CM policy documents from the 16 Latin American countries were identified. Policies were enacted through various legal/administrative mechanisms including: constitutional provisions, national laws, national policies, national healthcare models, national guidelines, specific and supportive regulation. A typology of Latin American policy approaches identified policies as: health services-centered, model of care-based, participatory, and indigenous people-focused. The selection of T&CM practices for policy inclusion varies across countries. The proposed technical cooperation tool for T&CM policy development incorporated 17 identified key policy elements and was structured based on the policy cycle.

Conclusion: With a few exceptions, policy implementation in Latin America seems to be a real political challenge, often reducing policies to cultural and political symbols. Continued research is

needed on assessing the various stages of the T&CM policy process.

P10.24

Systematic Review of Specialized Diets for Fibromyalgia Symptoms

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Abstract

Background: The management of Fibromyalgia (FM) is challenging given the lack of effective treatments. The current consensus on the management of FM recommends both pharmacological and non-pharmacological therapies (e.g. exercise therapy, CBT, other integrative medicine modalities including holistic diets). However, the effects of specific diets on FM symptoms are not well known. The aim of this study was to systematically review the scientific literature on specific diets and their role in improving the symptoms of FM.

Methods: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for systematic reviews were followed and seven databases were searched: Medline/PubMed, Embase, Scopus, CINAHL, Cochrane, SciELO, and clinicaltrials.gov. The search was restricted to primary research articles in the English language, including studies on natural diets improving FM symptoms. Studies on supplementation and vitamins were excluded. Due to the heterogeneity of the included studies, results were synthesized narratively.

Results: Of 485 articles identified, 14 studies were included, including 1232 FM patients and five types of diets (uncooked Vegan, Gluten-Free Diet, hypocaloric, Mediterranean diet, and Monosodium Glutamate elimination diet). Six studies were randomized controlled trials and the remaining were cohort studies with an intervention. FM symptoms were elicited utilizing validated scales including Visual Analog Scale, Fibromyalgia Impact Questionnaire, and SF-36 Quality of Life. All five diets reported improvements in several domains of FM including pain, sleep, quality of life, and mood.

Conclusion: The results of our systematic review indicate dietary modification may have a potential beneficial role in the management of FM symptoms. This is also important given that many patients with FM report food sensitivities. Clinicians who care for patients with FM may want to incorporate dietary inquiries in their clinical assessments. Our systematic review provides the basis for further research into specialized diets and the mechanisms by which they improve FM symptoms.

P10.25

Stressors and Resilience in Children with Food Intolerances: Implications for Integrative Practice

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Abstract

Background: Stress is often associated with poor quality of life in patients with gastrointestinal disorders. We aimed to: 1) Describe stressors and resilience factors in patients with food reactions, and 2) Explore the association between these factors and the prescription of integrative modalities.

Methods: A cross-sectional retrospective chart review of children who presented to a pediatric Food Reactions Clinic from 2017 to 2020 was performed. In this clinic, each patient was offered dietician prescribed nutritional guidance and patient-specific physician-prescribed interventions. Demographic, patient illness, social history and medical intervention data was collected. Two coders applied a qualitative analysis to assess stress and resilience themes. Correlation between stressors and integrative modalities was assessed using a chi-square test.

Results: The study included 130 children: 57% males, 76% white, mean age = 10 (SD 4 years, range 4-19 years). The majority presented with symptoms of food intolerances (55%), abdominal pain (48%), and constipation (29%). Stressors were reported by 72% (n=98) with management of the presenting symptom as the most common stressor (37%). Other stressors included learning difficulties and bullying in school (24%), family dynamics (22%), and managing mental health (15%). Resilience strategies (n=92, 71%) included physical activity (56%), music or art (38%), and mindfulness practices (24%). Majority (53%) of all patients were prescribed an integrative modality. Aromatherapy was the most common (17%), followed by meditation and breathing exercises (8%). Of patients with any stressor, 59 (60%) were prescribed integrative modalities ($\chi^2=8.1$, $p=.004$).

Conclusion: Psychosocial distress is prevalent in children presenting with food reactions suggesting perturbation of the brain-gut axis. Even though a majority of children had prior resilience strategies, clinical assessment determined their condition could further benefit from integrative modalities. Future studies should include formal clinical screening for child adversity to better understand its relationship to clinical response.

P10.26

An Investigation of Tracking Technology in the Setting of an Established Exercise Program for Individuals with Parkinson's Disease

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Abstract

Background: To investigate the introduction of physical activity trackers as an adjunct to a long-term exercise program for older individuals with Parkinson's disease. Can activity trackers extend the reach and impact of an exercise program? Trackers have the potential to "nudge" individuals toward healthy lifestyle choices, but devices alone, or with minimal behavioral change support, have generally not been effective. Because there is little precedent for the use of activity trackers in this population, we approached this as an exploratory program.

Methods: This investigation was not funded to develop a new device for this population, so the investigation started with an evaluation of available commercial products. We recruited seventeen members of the "5K Training Team" to pilot the use of trackers as an adjunct to ongoing team activities. Data on step count and distance were recorded and reported, both during the face-to-face season and during seasonal vacations. With the exception of two individuals, all participants wore the device for 10 months. In addition to recording activity data the investigation included a schedule of surveys, with questions about quality of life and response to the program.

Results: The selected tracker is water-resistant and has a long-lasting battery, so the demand on motor skills was minimized. Although the participants had phones, they were tracker-naïve, so set-up was managed by the research team. Once set up, there were few technical issues and general acceptance of the trackers and evaluation methods. This new program was fully enrolled as soon as it was announced to

these individuals, which indicates a willingness to engage with new technology in this context.

Conclusion: This investigation demonstrated enthusiasm for the technology, along with positive evaluations. The selection of device, in retrospect, was a key element. Future investigators should be mindful of the user-friendliness of devices for populations who have age and/or disease-related challenges.

P10.27LB

Mild Whole-Body Hyperthermia Reduces Pain Intensity in Patients With Fibromyalgia Syndrome— A Randomised Sham-Controlled Trial

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Abstract

Background: The majority of patients with fibromyalgia syndrome (FMS) use heat applications and rate them as an effective treatment strategy. Heat applications are also explicitly recommended as a self-management method in the German guidelines on FMS. No specific recommendation is made for outpatient whole-body hyperthermia due to the limited number of studies. This randomised sham-controlled trial evaluated the efficacy of mild water filtered infrared whole-body hyperthermia in FMS patients in an outpatient setting.

Methods: N=41 FMS patients were randomised into two groups: a whole-body hyperthermia group (intervention) and a whole-body sham hyperthermia group (control). Patients in both groups received hyperthermia or sham hyperthermia 2 times per week for 3 weeks. We present data for the primary outcome pain intensity as measured with the Brief Pain Inventory (BPI) (mean pain intensity in the last 24 hours) after the intervention was completed at week 4.

Results: N=21 patients were randomized to the intervention group (IG; Age 54.62 ± 7.65; 90.5% female) and n=20

patients to the control group (CG; 56.40 ± 4.86; 100% female). After the intervention was completed at week 4, pain intensity was statistically significant lower in the intervention group (Baseline/post-intervention: IG: 5,53±1,40/3,83±1,64; CG: 5,26±0,95/4,76±1,92; 95% Confidence Interval [0,24-2,10]; $\eta^2 = .146$; $p = .015$). Ten patients (47,6%) in the intervention group and four patients (20%) in the control group showed a clinically relevant reduction in pain intensity (>30%).

Conclusion: Mild whole body hyperthermia is effective in reducing pain intensity in patients with FMS. Study registration: clinical trials ID20079

P10.28LB

Assessing Completeness of Reporting of Movement-Based Mind-Body Interventions in Cancer Survivors: A Review of Randomized Controlled Trials

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Abstract

Background: Reliably replicable research is important for successful translation into clinical practice, which depends upon clear, complete reporting of complex interventions in clinical trials. Movement-based mind-body exercises, such as tai chi, qigong, and yoga (TQY), have been reported as beneficial for patient-centered outcomes in cancer survivors. This review analyzes the completeness of intervention reporting of randomized controlled trials of TQY in cancer survivors.

Methods: We conducted a systematic search of PubMed, CENTRAL, Embase, and CINAHL for clinical studies on TQY for cancer survivors between 2000 and 2020. We independently screened the records and extracted study characteristics. We evaluated each study using the Consensus on Exercise Reporting Template (CERT), which assesses completeness of reporting exercise interventions. For each of the 19 CERT checklist items, we calculated the number of studies that clearly report the item. We further evaluated completeness after contacting authors for more study details.

Results: We included 35 publications reporting 28 TQY interventions in this analysis. 21 of the 28 studies focused on

breast cancer, with other cancer types including ovarian/gynecological(2), head/neck(1), lung(1), and prostate(1). None of the studies reported sufficiently on all 19 of the CERT checklist items. The median completeness of reporting score was 12 and ranged from 7 to 17 of 19. The most frequently incompletely reported items (number reporting, percentage of studies) were “progression rule” (n=3, 11%) and “progression description” (n=3, 11%). Other incompletely reported items included “fidelity or adherence (planned)” (n=8, 29%), “tailored (how)” (n=8, 29%), and “non-exercise component” (n=10, 36%).

Conclusion: The studies analyzed incompletely report the TQY interventions used, lacking important details for reproducibility. The results suggest that improvements in reporting are especially needed for exercise program progression, participant adherence monitoring, individualized intervention tailoring, and non-exercise components. Future studies should focus on describing these details more completely to better aid clinicians in developing interventions for patients.

P10.30LB

Integrative Medicine and Health – A Thematic Synthesis and Mapping of its History, Evolving Definition and Core Values

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Abstract

Background: Integrative medicine is a care philosophy and global movement that was birthed from the domains of CAM, holistic medicine and other patient-centered concepts. The field continues to evolve and become more inclusive with the adoption of the term “health” by the Academic Congress and NCCIH. In order to support dialogue and reflections on the future evolution and value of the field, we reviewed the literature for the historical and evolving conceptual definitions of integrative medicine and health.

Methods: We conducted a literature review of Pubmed from 1980-2021 for the definitions, history, and related concepts to integrative medicine and health. Qualitative thematic synthesis and relational conceptual mapping were used for analysis to find common themes and questions.

Results: Key reflections and conceptual maps emerged of the intentions and ways of integration within the field of integrative

medicine and health, which included: a)Who is involved? E.g., patient/human-being, provider/practitioner, family/community, stakeholders, society, earth. b)What is being integrated? E.g., treatments/therapies, lifestyle, care-approaches and philosophies, personal/collective trauma. c)Where is the integration? E.g., care setting (clinic, office, hospital), non-medical spaces (homes, nature, community-healing spaces), healthcare, academic, public health and medical education settings. d)When is the integration? E.g., prevention/risk-reduction, treatment phases, secondary prevention, phases-of-life, phases-of-education. e)How of the integration? E.g., core guiding values, principles and viewing- lenses/philosophy of the entire field, and to what degree and what differences exists within individuals and systems. f)Why? E.g. wide-view questions: What are the roots of the split that is trying to be “integrated” and healed (e.g.cartesian-dualism and historical conditions)? How much integration is enough? What would a fully envisioned integrative system look and be like?

Conclusion: IM, when viewed as an evolving movement and network of shared values and beliefs, opens up broader questions and maps to support potential inquiry and calibration to our deeper purposes and missions individually and as a field.

P10.31LB

The Effects of Kefir Consumption on Human Health: A Systematic Review of Randomized Controlled Trials

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Abstract

Background: Kefir is a fermented dairy beverage that has gained popularity in most western cultures as a yoghurt alternative since the late 2010s. Compared with other commercially-available fermented food and beverage products, including kimchi, sauerkraut, miso, tempeh and kombucha, kefir has become the most widely available in the food retail setting. Previous reviews conclude that existing evidence for a health benefit of fermented milk kefir in humans is based on a limited number of poor-quality clinical trials. This review aimed to synthesize evidence from randomized controlled trials testing oral kefir consumption to inform therapeutic applications for clinical practice.

Methods: A systematic search of electronic databases from inception to 31 July 2021 was conducted. Eligible articles were randomized controlled trials testing oral consumption of fermented milk kefir on any outcome of human health or disease. Record screening and data extraction were conducted by two authors independently with outcomes summarized thematically.

Results: A total of 18 articles were included. Results show that fermented milk kefir may have potential as a complementary therapy in reducing oral *Streptococcus mutans* – thereby reducing dental caries risk, in *Helicobacter pylori* eradication therapy and may aide treatment of adult dyslipidemia and hypertension. Safety was only assessed in five of 18 included trials and overall risk of bias was high in 12 out of 18 studies having high risk for bias.

Conclusion: Oral consumption of fermented milk kefir has potential therapeutic applications in eradicating *H. pylori* infection and reducing *S. mutans* count in the oral microbiota and thereby increasing protection against tooth decay. Kefir consumption was also associated with improvements in dyslipidemia and hypertension. However, findings are based on poor quality trials, and generally small sample sizes with varying dosages. Future trials in humans in larger patient samples using validated assessment tools are required to establish the health benefits of milk kefir.

PI0.32LB

Using a Learning Health System to Optimize the Clinical Care of Patients with Chronic Illness Treated with a Functional Medicine Approach

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Abstract

Background: To utilize a Learning Health System that collects patient-reported outcomes (PRO) to improve the implementation of a functional medicine approach in the management of patients with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)

Methods: A retrospective observational study collected PRO data generated by integrating REDCap (a web-based research application) and an Electronic Health Record (EHR) in an outpatient center for patients with ME/CFS. PRO instruments measured health-related quality of life (36-item Short Form survey–SF36), fatigue (Multidimensional Fatigue Inventory–MFI), and anxiety/depression (Hospital Anxiety and Depression Scale–HADS). PRO data was collected through online surveys in REDCap, transferred to the EHR as

part of the encounter note, and was available for provider review. We included encounters with ME/CFS diagnosis and PRO data for initial and six-month follow-up.

Results: 147 subjects met inclusion criteria, most of them were women (78.2%), White (95%), with a mean age of 47 years (range 18–80,SD 13.33). The mean BMI was 25.95 (SD 6.3). At baseline, the mean SF-36 domains were below average compared to the general population (physical functioning 39 and social functioning 28). MFI domains corresponded with worse fatigue levels (general fatigue 85). After 6 months of intervention with a functional medicine approach, there were significant score improvements and small effect size in SF-36 physical functioning ($p=0.024$, Cohen's $d=0.269$), SF-36 social functioning ($p=0.033$, Cohen's $d=0.250$), and MFI general fatigue ($p=0.034$, Cohen's $d=0.204$)

Conclusion: This Learning Health System shows the feasibility of tracking health improvement with a functional medicine approach in a population with chronic illness using patient-generated data. The observed effect size of the PRO scores supports their use to provide system feedback to decide about best practices for patient-centered care. Prospective studies using this learning health system enhanced by data capture with mobile devices for home monitoring and educational interventions are warranted.

PI0.33LB

Impact of Telemedicine on Patient Experience at an Academic Integrative Medicine Practice

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Abstract

Background: Utilization of telemedicine increased exponentially during the Covid-19 pandemic. There is some expectation that telemedicine will continue to expand beyond the Covid-19 pandemic, allowing patients ongoing access to remote medical care. While patient experience with this modality has been studied in several medical disciplines, its impact and applicability to integrative medicine practices remains unknown. The purpose of this study was to assess the impact of visit modality (TELE vs. F2F) on patient experience at an integrative medicine practice at a single academic medical center. Given the central role of the patient-physician relationship in integrative medicine, we hypothesized that

telemedicine (TELE) would result in reduced patient experience compared to traditional, “face to face” (F2F) encounters.

Methods: A retrospective examination of validated patient experience surveys at an academic integrative medicine practice was conducted. Surveys completed by patients >18 years old who had TELE or F2F appointments from April 4, 2020 through February 2, 2022 were analyzed via ANOVA and Chi-Square, with a significance threshold of p-value <0.05.

Results: A total of 191 surveys were completed (55 TELE and 136 F2F). Overall, 80.1% of respondents were female and 74% were over 50 years of age with a median age of 58. There were no significant differences with respect to sex, age, race, ethnicity, or payor across encounter modalities. Overall, patient experience with TELE was comparable to F2F, with no significant differences in score. Patients’ selection of the “top box” score for “likelihood to recommend” the practice was 89.1% following TELE encounters vs. 91% after F2F visits.

Conclusion: Overall patient experience with telemedicine is comparable to traditional, face-to-face visits. This data supports continued efforts to leverage telemedicine in integrative medicine settings. Despite the inherent differences in these types of visits, top level patient experience is attainable with telemedicine comparable to face-to-face visits.

P10.34LB

Movement-Based Mind-Body Interventions in Cancer Patients During Treatment: A Review of Randomized Controlled Trials

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Abstract

Background: In translating interventions into clinical practice effectively, clear and concise reporting of exercise interventions is key. Tai chi, qigong, and yoga (TQY) are complex movement-based mind-body exercises that have been reported to be beneficial for symptom management in cancer patients. In this review, we analyze the completeness of intervention reporting in randomized controlled trials of TQY in cancer patients.

Methods: We developed a systematic search strategy for PubMed, CENTRAL, EMBASE, and CINAHL for TQY exercise trials in cancer patients between 2000 and 2020. We independently screened the records, extracted study characteristics, and utilized the Consensus on Exercise Reporting Template (CERT) checklist to evaluate each study. For each of the 19 items on the CERT checklist, the number of studies that clearly reported the item was calculated. We further analyzed the completeness after contacting authors for more details about their studies.

Results: We included 56 publications reporting 49 TQY interventions in the analysis. 30 of the 49 studies targeted breast cancer patients. Other cancer types included lung(5), colorectal(2), prostate(2), nasopharyngeal(1), esophageal(1), and lymphoma(1). None of the studies reported sufficient details on all 19 CERT items. The median completeness of reporting score was 11 and ranged from 4 to 16 out of 19. The most frequently incompletely reported items (number reporting, percentage of studies) were “progression rule” (n=0, 0%) and “progression description” (n=3, 6%). Other incompletely reported items included “tailored (how)” (n=9, 18%), “motivations” (n=10, 20%), and “starting level rule” (n=13, 27%).

Conclusion: Important details regarding TQY interventions were incompletely reported in the included studies. The results from this study suggest that items such as program progression and tailoring of the program can be improved in intervention reporting. For future replication and implementation of TQY and other exercise interventions in studies and clinical practice, researchers should describe intervention details and CERT items clearly and completely.

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