

# 2021 Integrative Medicine & Health Symposium Abstracts

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## Oral Abstracts

### COVID-19 Pivots

#### OA01.01

### Add-on Chinese Medicine for Coronavirus Disease 2019 (ACCORD): A Retrospective Cohort Study of Hospital Registries

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#### Abstract

**Objective:** Previous studies showed that the effect of antivirals for COVID-19 was promising but varied across patient population, and was modest among severe cases. Chinese Medicine (CM) was extensively used to treat

COVID-19 in China. We aimed to evaluate the real-world effectiveness of add-on semi-individualized CM during the outbreak.

**Methods:** A retrospective total sampling cohort of 1788 adult confirmed COVID-19 patients were recruited from all 2235 consecutive records retrieved from 5 hospitals in Wuhan during 15 January to 13 March 2020. Consultation notes, laboratory/imaging investigations, pharmacy and prognosis records were linked by an electronic medical record system and verified by at least 2 researchers independently. The mortality of add-on semi-individualized CM users and non-users was compared by inverse probability weighted hazard ratio (HR) and by propensity score matching. Change of biomarkers was compared between groups and the frequency of CMs used was analysed. Subgroup analysis was performed to stratify disease severity and dose of CM exposure. Sensitivity analyses were conducted to test the robustness. Change of key biomarkers and the prescription were analysed.

**Results:** The crude mortality was 3.8% in the semi-individualized CM user group and 17.0% among the non-users. Add-on CM was associated with a mortality reduction of 58% (HR = 0.42, 95% CI: 0.23 to 0.77) among all COVID-19 cases and 66% (HR = 0.34, 95% CI: 0.15 to 0.76) among severe/critical COVID-19 cases demonstrating dose-dependent response, after inversely weighted with propensity score. The result was robust in various stratified, weighted, matched, adjusted and sensitivity analyses. Severe/critical patients received add-on CM had a trend of stabilized D-dimer level after 3–7 days of admission when compared to baseline. Anti-inflammatory, immunomodulating and anti-asthmatic CMs were most used.

**Conclusion:** Add-on semi-individualized CM was associated with significantly reduced mortality demonstrating dose-dependent response, especially among severe/critical COVID-19 patients. Chinese medicine could be considered as an add-on regimen for trial use.



## OA01.02

### Impact of Low Vitamin D Levels on COVID-19-Related Hospitalization and Mortality: Results From a National Cohort of Veterans Affairs Patients

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#### Abstract

**Objective:** This study investigated whether low vitamin D levels are independently associated with COVID-19-related hospitalization and mortality.

**Methods:** A retrospective cohort of 5,634 COVID-19+ patients with recent Vitamin D labs receiving care at US Department of Veteran Affairs (VA) health care facilities from February 20, 2020 to November 8, 2020, was identified. Vitamin D level was ascertained using the 25-hydroxyvitamin D3 or D2 + D3 test result within 90 days preceding the index positive COVID-19 test. Study outcomes were: (1) inpatient hospitalization requiring isolation and (2) 30-day mortality among those hospitalized. Poisson Generalized Linear Models with robust errors and adjusted for sociodemographics and comorbidities were used to estimate outcome probabilities conditional on the log of Vitamin D levels.

**Results:** Of 5,634 veterans with a positive COVID-19 test, 707 (12.6%) were female, mean age was 62.5 (SD +/-15.1); 1,920 (34.1%) identified as non-White, and 623 (11.1%) as Latinx. Low vitamin D levels (<20 ng/ml) were found in 794 (14.1%) and 1,162 (20.6%) were hospitalized for COVID-19 infection. After adjusting for all covariates, the probability of hospitalization was 23.7% for those with Vitamin D levels of 15ng/ml, but decreased to 19.8% for patients with higher vitamin D levels of 40 ng/ml, [Adjusted Relative Risk (ARR) = 1.20 (1.06, 1.36, p = .004)]. Among 1,162 hospitalized patients, 186 (16.0%) died within 30 days. The adjusted mortality rate for patients with Vitamin D levels of 15 ng/ml was 22.3% and decreased to 14.4% for patients with higher vitamin D levels of 40 ng/ml, [ARR = 1.55 (1.11, 2.18, p = .011)].

**Conclusion:** Vitamin D level may have a role in predicting COVID-19-related hospitalization and mortality; larger trials are needed to determine if vitamin D supplementation improves COVID-19-related clinical outcomes.

## OA01.03

### A Positive Emotion Skills Intervention Improves Psychological Well-Being in U.S. Residents Coping With Coronavirus Pandemic

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#### Abstract

**Objective:** The coronavirus pandemic has presented a stressor on a global scale that has resulted in increased rates of depression and anxiety. We tested whether learning a positive emotion skills intervention developed for people coping with health-related stress improved positive emotion, meaning and purpose, social isolation, depression, and anxiety among people in the United States. Our aims were to 1) offer a positive emotion regulation intervention to the general public as one way of coping with the COVID-19 pandemic and 2) examine pre-post changes in well-being as a result of participating in the program.

**Methods:** The PARK (Positive Affect Regulation sKills) program consisted of 5 weekly sessions that present 8 skills previously demonstrated to improve psychological well-being (noticing positive events, savoring, gratitude, mindful awareness and nonjudgment, positive reappraisal, personal strengths, attainable goals, and self compassion). The skills were delivered online in a self-guided format. Participants were recruited through online recruitment sites and social media. Outcomes were assessed with PROMIS computer adaptive tests for depression, anxiety, positive affect, meaning and purpose, and social isolation. PARK was made available starting May 1, 2020, and data collection is ongoing. Results presented are for data through September 22, 2020.

**Results:** 68 participants completed the post-intervention assessment. Anxiety ( $t(109) = -4.38, p < .001$ ), depression ( $t(95) = -4.24, p < .001$ ), and social isolation ( $t(80) = -2.89, p = .005$ ) all decreased significantly, and positive affect ( $t(3.76) p < .001$ ) and meaning and purpose ( $t(76) = 2.10, p = .04$ ) increased significantly from the baseline to post assessment (8 weeks after baseline). At the post assessment, participants' anxiety ( $M = 56.45, SE = 0.86$ ) and depression ( $M = 53.53, SE = 0.88$ ) levels were within the normative range.

**Conclusion:** These data demonstrate that a self-guided online positive emotion regulation intervention can help participants maintain emotional well-being in the face of the stress of an ongoing global pandemic.

## OA01.04

### “Even Over Video, We Still Bond”: VHA’s Rapid Implementation of Virtual Peer-Led Wellbeing Groups in the Wake of the COVID-19 Pandemic

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#### Abstract

**Objective:** Committed to implementing a person-centered, holistic (Whole Health) system of care, the Veterans Health Administration (VHA) developed a peer-led, group-based, multi-session “Taking Charge of My Life and Health” (TCMLH) program wherein Veterans reflect on values, set health and wellbeing-related goals, and provide mutual support. Prior work has demonstrated the positive impact of these groups. After face-to-face TCMLH groups were disrupted by the COVID-19 pandemic, VHA facilities rapidly implemented virtual (video-based) TCMLH groups. We sought to understand staff perspectives on the feasibility and value of conducting TCMLH groups virtually.

**Methods:** We completed semi-structured telephone interviews with 18 staff members involved in the rapid implementation of virtual TCMLH groups at 5 VHA facilities about their perspectives and experiences. Interview transcripts were analyzed using rapid qualitative analysis.

**Results:** Virtual TCMLH groups posed technological and logistical challenges and were perceived as disruptive of the relationship-building and communication observed in face-to-face groups. However, participants noted that Veterans still found ways to bond and group facilitators adjusted their approach to improve flow and engagement. Participants also described perceived advantages of the virtual format: (1) participating from home was less stressful for Veterans and more conducive to them opening up; (2) being in one’s home environment organically facilitated Veteran reflection on values and goals; (3) there are opportunities for wider-scale recruitment, greater accessibility, and potentially better Veteran retention.

**Conclusion:** Faced with the disruption posed by COVID-19, VHA successfully pivoted by rapidly implementing virtual TCMLH groups and addressing challenges of the new

format. These groups may offer a crucial lifeline for Veterans who are feeling isolated and/or whose wellbeing has suffered during the pandemic. A virtual group-based program in which participants set and pursue personally meaningful goals related to health and well-being in a supportive environment of their peers is a promising innovation that can be replicated in other health systems.

### Health & Healthcare Equity

## OA02.01

### Reducing Cultural Bias Through an Indian Classical Dance Program in a Sample of Adolescents

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#### Abstract

**Objective:** The normalization of cultural misrepresentation in Western education has perpetuated racial bias and stigma, which directly affects the mental and physical wellbeing of marginalized communities. This study examined the possible role of an 8-week Indian Classical Dance course on self-reported cultural anti-bias behaviors and attitudes in a non-randomized, single-arm pilot study with a sample of high school students.

**Methods:** Freshman at a medium-sized Midwestern high school completed an IRB-approved 8-week Indian Classical Dance course through the organization Mindful Kala. Rooted in ancient Bharatanatyam principles, this program teaches a developmentally sequenced beginner-level dance repertoire comprised of a series of hand and foot gestures that emphasize rhythm, pattern, speed, and form all while communicating a cultural story through emotionally expressive facial and bodily movements. Education on the historical, cultural context and implications of the art form was emphasized. At baseline, four and eight weeks, participants completed the 17-item Personal Self-Assessment of Anti-Bias Behavior scale. Survey items focus on self-awareness of personal attitudes and behaviors about other races and cultures. Data analyses included descriptive statistics, paired t-tests, and Cohen’s d effect size coefficients.

**Results:** Forty-six students were enrolled and completed the intervention and assessments. The majority were

female (62%), Caucasian (80%), and were on average 14 years old. Most (59%) reported exercising between 2–5 times a week. Controlling for exercise frequency, statistically significant decreases ( $p < .001$ ) were observed between baseline and 8 weeks in cultural anti-bias behaviors and attitudes with a large effect ( $d = 1.2$ ).

**Conclusion:** This study provides initial evidence for this 8-week Mindful Kala Indian Classical Dance course on improvements in self-awareness of anti-bias behavior and offers a novel approach to heighten cross-cultural understanding and challenge the deep-rooted effects of racism on adolescent development.

## OA02.02

### BEWEHL: Community-Based Wellness Education Pilot Program to Promote Mental & Behavioral Health for CHOP's Underserved Patients

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#### Abstract

**Objective:** There is a paucity of mental and behavioral health supports for children and their families in underserved communities, despite the evidence of extremely high rates of anxiety and depression. Adverse childhood experiences impact brain development and may perpetuate poor social determinants of health (SDOH) such as economic stability, social supports, systemic racism and environment. Integrative therapies are effective in reducing anxiety, depression, and stress for a variety of conditions, including trauma exposure. Yoga and mindfulness enhance coping strategies, resilience, and academic performance in underserved communities. These outcomes serve as a buffer and can positively impact child development. To determine if a wellness-based education program to promote mental and behavioral health is feasible and acceptable

**Methods:** Our therapist will deliver weekly in-home or virtual wellness education to a total of 25 patients followed at CHOP for their mental health diagnosis and their families. The five-week wellness program will include mindfulness, breathwork, yoga, and massage education to the entire family. Elements of sleep hygiene and nutrition education will be embedded into the curriculum as they are foundational to general well-being. Tools to support the

class and promote practice will be provided. Feedback will be obtained after every class and at the end of the education series. We will invite five caregivers who have completed the program to teach the course to their community. Using the “train the trainer” model, we will train and supervise these caregivers to conduct in-person or virtual group classes in their community

**Results:** To date we have enrolled 16 families. One family completed the curriculum and the parent signed up to be a caregiver instructor. Survey data for parent and child showed high level of satisfaction

**Conclusion:** Offering a wellness-based curriculum to promote mental and behavioral health in underserved patients with mental health disorders and their families is feasible and accepted.

## OA02.03

### Mindfulness for Medication Adherence in Urban Youth Living With HIV: An RCT

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#### Abstract

**Objective:** Individuals 13–24 years old make up an alarming 21% of new HIV diagnoses, with minorities disproportionately impacted. Unfortunately, this age group is only half as likely to achieve HIV viral suppression (only 30%) than older individuals, leading to significant vulnerability to illness and limiting efforts to end the HIV epidemic. Our previous research shows that mindfulness-based stress reduction (MBSR) for HIV-infected youth improves coping, life satisfaction, and potentially HIV medication adherence. This NCCIH-funded study aims to further assess MBSR for adolescents and young adults living with HIV (AYALH) on antiretroviral therapy (ART) adherence.

**Methods:** This is a randomized controlled trial (RCT) of MBSR vs. health education (HT) among AYALH. Data were collected at baseline, 3, 6, and 12 months. Generalized linear additive modeling was conducted to determine differences by arm over time. In-depth interviews were conducted with 20 individuals at baseline and follow-up.

**Results:** Seventy-four 13–24 year old participants completed baseline data collection and were randomized to MBSR or HT. Following program participation, MBSR participants had increased ART adherence ( $p = 0.001$ ) and decreased HIV viral load ( $p = 0.052$ ) at 3-month follow-up, but not at 6 or 12 months. Qualitative data describe challenges of managing

HIV as a stigmatized condition, amidst significant stressors and social inequalities. MBSR participants perceived program benefit related to social support and enhanced capacity to non-judgmentally observe and accept difficult thoughts, feelings, and experiences associated with living with HIV, which they believe facilitated ART adherence.

**Conclusion:** This trial shows that MBSR participants had increased ART adherence and reduced HIV viral load following program participation, but not at follow-up. MBSR participants perceive greater capacity for acceptance of the complex and difficult thoughts and emotions related to living with HIV, leading to improved ART adherence. Given the importance of achieving HIV viral suppression in this vulnerable population, MBSR remains a promising approach among AYALH.

#### OA02.04

### Meharry Vanderbilt Health Coaching Program Demonstrates Improved Understanding and Skill Development in First-Year Medical Students at Historically Black College/University Meharry Medical College

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#### Abstract

**Objective:** For three years, Meharry Medical College (MMC) and the Vanderbilt Health Coaching Program have partnered to train all 1st-year HBCU medical students as board-eligible health coaches. In their first months, medical students complete a course to learn foundational skills in patient-centered communication, sustainable behavior change, and self-care. Asynchronous instruction occurs via online modules; synchronous experiential training provides practical skills development in small groups, mentored by expert faculty from Vanderbilt and MMC.

**Methods:** Medical students from 3 incoming classes completed self-assessments both before and after the course. For asynchronous modules, students from all 3 years rated their knowledge of content on a scale of 1–5. For practical skills, students in one class rated their perceived effectiveness on a scale of 1–100.

**Results:** For the 20 asynchronous modules (n = 369), mean(sd) pre-scores = 3.0(0.17), range 2.6–3.3; post-scores = 4.4(0.11), range 4.2–4.6. Paired t-tests revealed statistically significant knowledge acquisition for all 20 modules; change scores = 1.4(0.16), range 1.3–1.8; p < 0.001. The largest improvements were observed in patient-centered care concepts, key communication skills (including motivational interviewing), and understanding of behavior change processes. For the 18 practical skills (n = 111), pre-scores = 52(4.6), range 44–59; post-scores = 73(3.1), range 66–79. Paired t-tests revealed statistically significant improvements for all 18 skills; change scores = 21(3.7), range 16–29; p < 0.001. The greatest improvements were observed in 1) goal-setting: specifically, in guiding patients to set SMART goals and design action steps; 2) eliciting intrinsic motivation to make changes; and 3) helping patients work with ambivalence.

**Conclusion:** Training 1st-year HBCU medical students as health coaches improves patient-centered communication and behavior change strategies. Asynchronous instruction appears useful for acquiring knowledge on foundational concepts from motivational interviewing and behavior change, whereas experiential practice and mentoring appear helpful to train practical skills around goal-setting and eliciting intrinsic motivation.

#### Lifestyle Medicine & Nutrition

#### OA03.01

### Tai Chi and Mindful Breathing in Patients With COPD: A Randomized Controlled Feasibility Trial

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#### Abstract

**Objective:** Mind-body interventions may be particularly relevant for addressing the biopsychosocial processes involved in chronic obstructive pulmonary disease (COPD). Understanding the relative effects of different mind-body interventions may inform therapeutic options

for COPD management. The aim of this study was to examine the feasibility and preliminary effects of two mind-body interventions, a mind-body breathing intervention focused on mindful breathing (MBB) and a tai chi exercise program (that included MBB), among individuals with COPD.

**Methods:** Participants with moderate-to-severe COPD were randomized to 12 weeks of tai chi or MBB and were assessed at baseline, 12 weeks, and 24 weeks. Feasibility was assessed via intervention adherence. Preliminary estimates of between group differences in COPD symptoms, health-related quality of life, cognitive-emotional function, and functional status were assessed across timepoints.

**Results:** In total, 92 participants with COPD were randomized to tai chi ( $n = 61$ ) or MBB ( $n = 31$ ). In the first 12 weeks, overall intervention attendance was 75% in MBB and 62% in tai chi. From baseline to 12 weeks, there were between group differences favoring tai chi in depressive symptoms (Cohen's  $d$  effect size (ES) =  $-.53$ ; adj mean diff =  $-2.31$ ), 6-minute walk test distance (ES =  $.47$ ; adj mean diff =  $62.04$ ), social support (ES =  $.36$ ; adj mean diff =  $.19$ ) and chair stand (ES =  $.44$ ; adj mean diff =  $.91$ ). Improvements in social support were maintained at the 24-week follow-up for tai chi.

**Conclusion:** Both tai chi and MBB are feasible for patients with COPD. Tai chi, but not MBB alone, lead to short-term improvements in depression, social support, and functional capacity. Future research should continue to explore the potential utility of MBB for COPD and identify methods for maintaining the positive benefits of tai chi over time.

### OA03.02

#### A Systematic Review of Practice-Based Research of Complementary and Integrative Health Therapies Provided in Clinical Settings: A Focus on Pain

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#### Abstract

**Objective:** The goal of this systematic review was to evaluate real-world, longitudinal effectiveness research of individualized complementary and integrative health (CIH) therapies provided in CIH outpatient clinics for pain management.

**Methods:** A systematic review was conducted using PubMed, OVID, Cochrane, Web of Science, Scopus and Embase through Dec 2019. The study was listed in the PROSPERO database (CRD42020159193). Major categories

of variables extracted included study details and demographics; intervention characteristics; and outcome characteristics.

**Results:** The literature search yielded 2,949 records with 259 assessed for full text review in Covidence. Of those, 22 studies were specific to pain conditions or pain-related measures as a main outcome. The total sample size across all studies was  $\sim 8,291$ , with more than half of the studies having a sample size of less than 100 participants ( $n = 12$ , 52.2%). Retention rates ranged from 53% to 91%, with studies offering monetary incentives showing the highest retention. The 0–10 numerical rating scale (NRS) was the most common pain questionnaire ( $n = 10$ , 45.5%). The average percent improvement in NRS across all studies and timepoints was 37%, ranging from 18–60%. NRS improvements from the included chiropractic and acupuncture studies are comparable to NRS improvements reported from randomized controlled trials.

**Conclusion:** Findings from this systematic review of practice-based research indicate that CIH therapies have profound effects on pain intensity, interference and disability. However, the variability across studies limits the overall understanding of how CIH can be utilized/optimized in clinical settings. Based on this review, we conclude that a future practice-based research initiative is needed. We propose specific recommendations to facilitate a CIH practice-based research platform to implement across the Academic Consortium for Integrative Health and Medicine. With widespread enactment, the new Consortium platform could inaugurate national/international benchmarks as well as evidence-informed clinical guidance to assist patients and CIH clinicians with available treatment options.

### OA03.03

#### Sheetali/Sheetkari Pranayama and the Autonomic Nervous System

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#### Abstract

**Objective:** Over 35 million adults in the United States utilize some form of yoga, making it one of the most commonly used complementary health therapies. Chronic health conditions such as hypertension, are directly affected by the parasympathetic nervous system (PNS) and yoga practices that focus on the breath, such as pranayama,

have been shown to regulate PNS activation. In this study, we fill a gap in the field of deep breathing research, by evaluating the effects of several pranayama components on the PNS, using heart rate variability (HRV) as an indicator of PNS response.

**Methods:** In this controlled trial, 25 healthy adults were allocated to practice each of five breathing activities, during five separate visits, in random sequence: 1) sitting quietly, 2) self-paced deep breathing, 3) externally-paced deep breathing, 4) self-paced Sheetalī and Sheetkari pranayama, and 5) externally-paced Sheetalī and Sheetkari pranayama. HRV and respiratory rate were measured before, during, and after the intervention at each visit and compared within and between conditions.

**Results:** All breathing activities significantly decreased respiratory rate and increased HRV parameters (RMSSD and SDNN, from before to during practice) as compared to sitting quietly ( $p < 0.05$ ). Externally paced breathing exercises produced a significantly greater increase in HRV parameters than self-paced breathing exercises (RMSSD,  $p = 0.02$ ; SDNN,  $p = 0.04$ ).

**Conclusion:** To our knowledge, this is the first trial comparing the contributions of specific components of a pranayama practice. Our results confirm previous reports that sitting quietly, paired with slow, deep breathing increases PNS activity. Further investigations in larger sample sizes are needed to confirm differential outcomes produced by breathing style (i.e. Sheetalī/Sheetkari vs. deep breathing alone), and may also include further variations on the practice and explorations of duration, time of day and more.

#### OA03.04

### Innovations in Lifestyle Medicine for Depression

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#### Abstract

**Objective:** There is an increasing awareness of the negative implications of modernity on lifestyle factors which may impact mood. Concerns include alterations to the sleep/wake cycle, increased social competition causing less intimate engagement with the family unit, sedentary lifestyle, poorer diets, social isolation, and substance/alcohol misuse. These factors may have implications on both mental and physical health, with the therapeutic application of lifestyle modifications being regarded as 'lifestyle medicine'.

**Methods:** Data is presented assessing the relationships between 6 key lifestyle factors and depressed mood in

individuals with a history of or current Major Depressive Disorder (MDD), and healthy controls (HC). Cross-sectional analyses were performed in the UK Biobank baseline sample, and longitudinal analyses were conducted in those who completed the Mental Health Follow-up of the UK Biobank study.

**Results:** Cross-sectional analysis of 84,860 participants showed that in both MDD and HCs, physical activity, healthy diet and optimal sleep duration were associated with less frequency of depressed mood (all  $p < 0.001$ ; ORs 0.62 to 0.94), whereas screen-time and also tobacco smoking were associated with higher frequency of depressed mood (both  $p < 0.0001$ ; ORs 1.09 to 1.36). In the longitudinal analysis, the lifestyle factors which were protective of depressed mood in both MDD and HCs was optimal sleep duration (MDD OR = 1.10;  $p < 0.001$ , HC OR = 1.08;  $p < 0.001$ ), and lower screen time (MDD OR = 0.71;  $p < 0.001$ , HC OR = 0.80;  $p < 0.001$ ). There was also a significant interaction between healthy diet and MDD status ( $p = 0.024$ ), while a better-quality diet was indicated to be protective of depressed mood in HCs (OR = 0.92;  $p = 0.045$ ), but was not associated with depressed mood in the MDD sample.

**Conclusion:** While data is increasingly demonstrating lifestyle elements as crucial to mental and physical wellbeing, further research is needed to enhance successful lifestyle change, while dealing with common challenges such as time restrictions, motivational issues, and financial limitations.

#### Resilience & Well-Being

#### OA04.01

### Contribution of Live and Recorded Online Mindfulness Training: Evidence From an Employee Stress Reduction Program

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#### Abstract

**Objective:** While many companies provide mindfulness training for employees, the ease and low cost of reproducing recorded content has led to many "on demand" programs without demonstrated efficacy. These programs may inappropriately leverage mindfulness research from live training, but the relative impact of live versus recorded programs is unknown.

**Methods:** We used anonymized data from a 30-day online eMindful program to evaluate live and recorded training in explaining changes in stress over time. With 10–15 live guided practices offered daily and dozens of “on-demand” recorded offerings available, back-end data provided Days of Mindfulness (number of days practiced; log-transformed) by modality (live or “on demand” recorded). Participants completed the 4-item Perceived Stress Scale (PSS-4) before and after the program (Cronbach’s  $\alpha = .82$ ).

**Results:** The dataset contained 8,439 participants from 43 organizations with average age 46.4 (10.91). Both pre and post assessments were provided by 29% ( $n = 2,407$  completers) and most engaged at least once (90%;  $n = 2,154$ ); 15% engaged daily and 10% not at all. We analyzed all available data ( $n = 7,281$ ) in linear mixed effects models controlling for completer status to adjust for bias. A significant reduction in stress from pre to post,  $p < .001$  yielded Cohen’s  $d = -1.02$ . Days of Mindfulness further impacted stress reduction over and above general program engagement,  $B = -.03$ ,  $p = .007$ ,  $d = -.09$ . Each additional day of practice conferred more improvement in a linear fashion. Further, participation in live (versus recorded) offerings overwhelmingly drove these decreases in stress,  $B = -.03$ ,  $p = .002$ ,  $d = -.11$ .

**Conclusion:** Engaging at all in this 30-day mindfulness program reduced stress; engaging more days resulted in greater improvement. Participation in live training drove the stress reduction while participation in recorded offerings alone did not uniquely impact stress.

#### OA04.02

### Resilient Provider: In the Eye of the Hurricane

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#### Abstract

**Background:** The COVID-19 pandemic caused providers to experience additional stress and difficulty coping in and out of the hospital. A literature review identified that staff wellbeing and resilience initiatives contribute to increased job satisfaction and decreased turnover.

**Objective:** To help health care providers become resilient by addressing self-care needs and increasing compassion satisfaction during COVID-19 utilizing integrative modalities.

**Methods:** The Resilient Provider program was developed, consisting of seven, one-hour virtual sessions. Sessions were interprofessional and covered resiliency, yoga, mindfulness, nutrition, caring touch, aromatherapy, qi, and acupuncture.

All sessions were interactive, with experiential components. Attendees were provided with simple but effective exercises that could be completed in less than 5 minutes. Sessions were recorded and loaded into a virtual library to provide ongoing support to staff experiencing increased stress.

**Results:** 103 providers completed all 7 sessions. Outcomes were measured using the Professional Quality of Life scale with the aim to increase compassion satisfaction and decrease burnout and secondary traumatic stress. Participants were sent the survey prior to the first session, as well as at the 30 and 90 day post-session mark. Compassion satisfaction remained high and burnout and secondary traumatic stress remained consistent, suggesting that the skills learned were helpful during the increased stress of COVID-19. Data from session evaluations shows that 96% ( $n = 103$ ) of participants named one new skill they would implement. 53 sessions have been watched in the online library.

**Conclusion:** Offering self-care and resiliency education was feasible and well-received, while meeting organizational needs.

#### OA04.03

### Listening to the Body as a Guide: Interoceptive Tendency Mediates the Effect of Mindfulness Training on Behavior Change Initiation

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#### Abstract

**Objective:** Mindfulness training in primary care promotes health behavior change and chronic illness self-management. Interoception, awareness of internal body sensations, can impact emotion regulation, motivation, and health-related behavior change. In pilot data, 8-week Mindfulness Training for Primary Care (MTPC), increased body listening and body trusting. The present study aims to analyze the mediating effects of interoceptive awareness on MTPC’s ability to help patients initiate health-related behavior change. As an exploratory aim, we report differences in interoception at baseline across race/ethnicity and primary language.

**Methods:** We randomized 274 primary care patients at Cambridge Health Alliance to either the MTPC intervention ( $n = 183$ ) or a low-dose comparator (LDC) consisting of a 1-hour mindfulness introduction ( $n = 91$ ). Participants ( $n = 205$ ) completed the Multidimensional Assessment of Interoceptive Awareness (MAIA) at both weeks 0 and 8. At week 7, participants set a short-term illness self-management or health behavior action plan and reported their level of action plan initiation at weeks 8, 9 and 10.

**Results:** Baseline MAIA scores varied based on race/ethnicity and language. Using a mixed effects linear regression model, MTPC increased MAIA noticing, not-worrying, attention regulation, emotional awareness, self-regulation, body listening, and body trusting ( $\beta$  range  $[0.55 - 0.84]$ ,  $p < 0.01$  for all) from baseline to week 8. Changes in MAIA body listening ( $\beta = 0.38$ ,  $p < 0.001$ ) and trusting ( $\beta = 0.33$ ,  $p < 0.001$ ) demonstrated effects on action plan initiation. In a combined multi-mediator structural equation model, both body listening and trusting mediated the effect of MTPC on action plan initiation ( $\beta = 0.29$ ,  $p < 0.001$ ;  $\beta = 0.20$ ,  $p < 0.05$ , respectively), accounting for a joint indirect effect of  $\beta = 0.376$  ( $p < 0.001$ ), reducing MTPC's direct effect ( $\beta = 0.84$ ,  $p < 0.01$ ).

**Conclusion:** Increased body listening and trust partially mediate the effect of MTPC on behavior change initiation. Further analysis may identify additional mechanisms that mediate the effect of MTPC on action plan initiation.

**Methods:** From March to June 2020, healthcare workers in a large, urban U.S. healthcare system were invited via hospital emails and departmental announcements to complete an online questionnaire (REDCap). Self-report measures assessed sociodemographic characteristics and job roles, health uncertainty, and emotional wellbeing variables (anxiety, depression, loneliness, self-compassion, and coping confidence). Health uncertainty levels were compared using t-tests and ANOVAs.

**Results:** Healthcare workers ( $N = 440$ ) were on average 44.5 years of age, 88.9% female, and 84.5% non-Hispanic white. Over half (52%) of healthcare workers reported at least some health uncertainty; pharmacists had the highest uncertainty, and technicians had significantly higher uncertainty than physicians ( $p < .05$ ) and mental health and spiritual counselors ( $p < .05$ ). Additionally, higher health uncertainty was associated with higher anxiety ( $p < 0.001$ ), depression ( $p < 0.001$ ), and loneliness ( $p < 0.001$ ), higher self compassion ( $p = 0.02$ ), and lower coping confidence ( $p < 0.001$ ).

**Conclusion:** Collectively, these findings have implications for targeted coping skills interventions for healthcare workers, including particular pharmacists and technicians, who are essential in delivering healthcare services to the public during the COVID-19 pandemic.

#### OA04.04

### Health Uncertainty Among Healthcare Workers During the COVID-19 Pandemic

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#### Abstract

**Objective:** The degree to which healthcare workers experience uncertainty about their health has yet to be examined as a contributor to the psychological toll of the COVID-19 pandemic. In this report, we aimed to (1) characterize health uncertainty levels among healthcare workers in a large, U.S. hospital system during the COVID-19 pandemic, and (2) examine factors associated with higher levels of health uncertainty.

## Poster Abstracts

### Basic Science

#### P01.01

### A Systematic Review of In Vivo Animal Stretching Regimens on Inflammation and Its Relevance to Yoga Research

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#### Abstract

**Objective:** To conduct a systematic review evaluating the impact of stretching on inflammation and its resolution using in vivo animal models. Findings are broadly evaluated for their potential to inform the design of clinical yoga studies to assess the impact of stretching on inflammation and health.

**Methods:** Studies were identified using four databases. Eligible publications included English original peer-reviewed articles between 1900–May 2020. Studies included those investigating the effect of different stretching techniques administered to a whole animal model and evaluating at least one outcome related to inflammation. Studies, including muscle, skin, and connective tissue stretching, were considered. Two reviewers used the Covidence software to remove duplicates, screen abstracts, and conduct full-text reviews. Reviewers used a modified checklist to assess methodological quality.

**Results:** Of 1411 studies identified by our search, 28 were included for synthesis. The quality assessment gave a mean score of  $11 \pm 2$  SD (out of 16). Stretching results in a continuum of inflammatory responses ranging from therapeutic to injurious effects, depending on a combination of three primary stretching parameters—stretching duration, frequency, and intensity. Relative to injurious effects,

therapeutic stretching was longer and less intense. Histopathological outcomes consistently showed edema, necrosis, and myofibers degeneration among muscle studies indicating an injurious effect. Evidence of therapeutic effects was found in 6 skin and connective tissue chronic stretching studies (e.g., reduced lesion size, decreased inflammatory cells, increased pro-resolution mediators, and M2 macrophage polarization).

**Conclusion:** Both injurious and therapeutic stretching induce acute inflammatory responses. Inflammatory markers, including cytokines, resolvins, cell regeneration, and migration are potential outcomes to consider in clinical yoga studies. Future translational research evaluating therapeutic benefits must consider active vs. passive stretching, longer-term vs. acute interventions, animal models resembling human anatomy, systemic versus local inflammatory effects, models targeting combined myofascial systems, and gross musculoskeletal posture.

### Clinical Research: Acupuncture and Traditional Chinese Medicine

#### P02.01

### Prioritizing Chinese Medicine Clinical Research Questions in Cancer Palliative Care: International Delphi Survey

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#### Abstract

**Objective:** Chinese medicine modalities, including acupuncture and Chinese herbal medicine (CHM), have been used as palliative interventions among cancer patients. More

research should be conducted to confirm their effectiveness. The objective of this study was to prioritize Chinese medicine clinical research questions for cancer palliative care.

**Methods:** Twelve international experts, including physicians, Chinese medicine practitioners, nurses, and clinical research methodologists ( $n = 3$  from each category), from Asia, North America, Australia, and Europe participated in a two-round Delphi survey for prioritizing 29 research questions identified from existing systematic reviews. The experts were asked to 1) rate clinical importance of answering the questions on a nine-point Likert scale; 2) provide qualitative comments on their ratings; and 3) suggest outcome measurement approaches.

**Results:** Eight research priorities reached positive consensus after the two-round Delphi survey. Six of the priorities focused on acupuncture and related therapies, of which median ratings on importance ranged from 7.0 to 8.0 (interquartile range: 1.00 to 2.50), and the percentage agreement ranged from 75.0% to 91.7%. The remaining two priorities related to CHM, with median ratings ranged from 7.0 to 8.0 (interquartile range: 1.00 to 1.50) and percentage agreement ranged from 75.0% to 83.3%. Neither positive nor negative consensus was established among the remaining 21 questions.

**Conclusion:** The findings will inform rational allocation of scarce research funding for evaluating the effectiveness of Chinese medicine for cancer palliative care, especially on acupuncture and related therapies. Further research on herb safety and herb-drug interaction should be performed before conducting international trials on CHM.

## Clinical Research: Herbs and Supplements

### P03.01

#### Dietary and Herbal Supplements for Fatigue: A Quality Assessment of Online Consumer Health Information

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#### Abstract

**Objective:** The etiology and pathophysiology of fatigue are multifactorial and poorly understood, making its treatment especially challenging. As a result, many patients turn to dietary and herbal supplements (DHSs) for symptom relief. As the Internet has become an increasingly popular source of health information, patients commonly seek information or even guide their healthcare decisions surrounding

DHSs based on what they read online. This study assessed the quality of websites providing DHSs consumer health information (CHI) for fatigue.

**Methods:** Searches were conducted on Google across four countries: Australia, Canada, the UK, and the USA. Six terms relating to DHSs and fatigue were searched, and the first 20 results of each search were screened. Eligible websites contained DHSs CHI for the treatment/management of fatigue, and were quality assessed using the DISCERN instrument, a standardized index of CHI quality. DISCERN is comprised of 16 items, each evaluated on a 5-point scale.

**Results:** Of 480 webpages, 48 websites were deemed eligible; the mean summed DISCERN score was 47.64 (SD = 10.38) out of 75 and the mean overall rating was 3.06 (SD = 0.9) out of 5. Websites operated by healthcare facilities and patient education websites generally scored higher, whereas commercial websites typically received lower scores. It was found that websites that scored more highly typically cited sources, acknowledged uncertainties in existing evidence, identified alternative treatment options, and described risks associated with the therapies they discussed. Irrespective of type, websites were mostly lacking in the description of no-treatment options and the effect of treatment options on overall quality of life.

**Conclusion:** Healthcare professionals should be aware of the high variability in the quality of online information regarding DHSs for fatigue, and facilitate open communication with patients in order to guide them towards reliable and appropriate online health information.

### P03.02

#### Xanthohumol Microbiome and Signature in Healthy Adults (the XMaS Trial): Safety and Tolerability Results of a Phase I Triple-Masked, Placebo-Controlled Clinical Trial

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#### Abstract

**Objective:** As the use of natural products expands, rigorous investigations on product safety in humans are necessary for the protection of the public. One such product, xanthohumol, a prenylflavonoid from hops, has possible anti-inflammatory and microbiome-modulating effects relevant

to multiple chronic diseases. Although extensively studied preclinically, limited research has been conducted in human subjects on xanthohumol. Therefore, a triple-masked, placebo-controlled phase I clinical trial was conducted to examine the safety and tolerability of xanthohumol.

**Methods:** Thirty healthy volunteers were randomized to 24 mg/day xanthohumol (99.8% pure) or matching placebo. Comprehensive metabolic panels, complete blood counts, body weight, vital signs, and health-related quality of life (PROMIS-29) were assessed every 2 weeks for 8 weeks. Participants were interviewed according to a multi-system adverse events (AEs) questionnaire throughout the trial and also requested to report any spontaneously occurring AEs.

**Results:** Twenty-seven participants completed the trial. Participant attrition was <13% in either group throughout the trial. There were no withdrawals due to AEs and no clinically relevant, between-group differences in laboratory biomarkers, body weight, vital signs, or health-related quality of life resulted. Furthermore, there were no severe or FDA-defined serious AEs, although transient mild to moderate AEs occurred in both groups.

**Conclusion:** Over an eight-week period, 24 mg daily xanthohumol was safe and well-tolerated by healthy adults. This investigation sets a framework for future investigations into the mechanisms and tolerability of xanthohumol in disease populations where it may provide benefit.

### P03.03

## A Literature Review on the Effects of Cannabidiol on Sleep

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### Abstract

**Objective:** Cannabidiol (CBD) is a chemical derived from both the cannabis plant and the hemp plant. It is one of two prevalent cannabinoids in therapeutic use today, the other being  $\Delta^9$ -tetrahydrocannabinol (THC). CBD differs from THC in its lack of psychoactive effects, making it less controversial for therapeutic use than THC. While there is an ample amount of research surrounding the effects of CBD in pain management, the effects of CBD on sleep disorders are less well understood. The aim of this review is to collect and summarize existing research on the possible therapeutic effects of CBD on sleep.

**Methods:** PubMed, PsycINFO, Science Direct, CINAHL, Embase, EBSCO, and MegaFILE were the databases used to collect relevant articles for this review. Eligible articles

included all articles which assessed the effects of CBD on sleep as either a primary or secondary objective. Eligible types of CBD included pure forms of CBD as well as drugs which consisted of CBD in combination with other substances, such as THC in the case of the drug Sativex. Twenty articles met this criteria.

**Results:** Of the 20 articles reviewed, 16 (80%) reported that CBD had a positive relationship with sleep, either by improving sleep quality or increasing sleep quantity. Most articles cited the effects of CBD on sleep as a secondary objective and all but two articles used subjective measures (i.e. numeric rating scales) to assess CBD's effect on sleep.

**Conclusion:** The results of a majority of reviewed articles (including case studies, clinical trials, and surveys) suggest CBD may have a positive therapeutic relationship with sleep outcomes. More research focusing on the effects of CBD on sleep as the primary objective is needed using objective measurements to assess effects on sleep quality and quantity.

## Clinical Research: Manual Therapies

### P04.01

## Partner and Self-Delivered Massage: A Systematic Review of Feasibility, Scope, and Evidence

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### Abstract

**Objective:** Massage has demonstrated mental, physiological, and physical benefits across various demographics and can be taught for self-application or to non-clinicians for partner-delivered treatments. While literature for self- and partner-delivered massage exists, there is no systematic review to appraise or synthesize this work. We report a PRISMA compliant systematic and scoping review to assess evidence quality and understand the feasibility of self- or partner-delivered massage.

**Methods:** Inclusion criteria: English, peer-reviewed research investigating self- or partner-delivered massage with health outcomes for either massage provider or

recipient. Exclusion criteria: Studies specific to infants prior to post-birth discharge, Eastern based massage approaches (e.g., reflexology, acupressure). Nine electronic databases were searched including PubMed, CINAHL, PsycInfo, Google Scholar, and Cochrane. The Effective Public Health Practice Project Quality Assessment Tool was used. **Results:** N = 105 articles (title/abstract screening = 1840; full-text article assessment = 240). Most study designs were RCTs (n = 66), observational (n = 23), or quasi-experimental (n = 12). Most articles (45.7%) received a Strong quality assessment rating, 34.3% were assessed as Moderate, and 20% as Weak. Massage delivery modes were self (n = 18), parent for adolescent (n = 71), and adult for adult (n = 16). Feasible massage delivery and training settings included hospitals (28.8%), health clinics (12.4%), universities (10.5%), community centers (11.7%), and homes (9.6%). Self-massage studies primarily examined treatment for non-cancer pain (n = 13) and most (82.5%) reported significant health benefits. The distinct emergent theme among partner-delivered studies was that outcomes were mutually beneficial; individuals who delivered massage also experienced health benefits or improved their relationship with the massage recipient.

**Conclusion:** Self- or partner-delivered massage demonstrates feasibility beyond a clinical setting in mainly strong or moderate quality research. Non-therapist administered massage seems to provide several health benefits while providing an alternative delivery method to overcome access, economic, and convenience related massage barriers. Various populations demonstrate the capacity to learn, implement, adhere to, and adopt self- and partner-delivered massage.

#### P04.02

### Inadequate Reporting in Medical Case Reports Describing Treatments for Massage Induced Adverse Events

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#### Abstract

**Objective:** Massage is considered safe when performed by trained clinicians yet several medical case reports massage for causing adverse events (AEs). Case reports are fundamental sources of practice reflective clinical evidence and guidelines exist outlining necessary reporting needs. When case reports describe the response to and treatment of

some healthcare related treatment's AE, additional reporting needs reflecting those of AE reporting recommendations should be included to thoroughly describe the expected AE cause. The current study sought to determine the extent to which medical case reports describing treatment for massage induced AEs reflect case report and AE reporting necessities and recommendations.

**Methods:** 1) PRISMA compliant systematic identification of published, peer-reviewed case reports through mid-2020 for treatment of massage related AEs, 2) audit development based on CAsE REport (CARE) and AE reporting guidelines, 3) audit implementation, and 4) descriptive analysis. Included case reports were peer-reviewed, English, and identified massage as AE instigator. Exclusions: techniques outside therapeutic massage scope.

**Results:** Searches identified 1,568 unique citations; N = 103 met study inclusion criteria. Less than 15% of AE causing details (massage and provider) were reported on average. Only 36% or fewer reports included massage provider descriptor items: setting, training, scope-of-practice, experience level, or credentialing. Most articles included massage identification (88%) but few included massage descriptors: depth (6%), number (40%), length (12%), frequency (8%), or duration (4%). Sixty-four percent failed to identify who provided the AE causing massage and treatment descriptor item reporting varied from high to low. Various implications of concern are discussed.

**Conclusion:** Most articles implicated massage for AEs yet lacked enough detail to adequacy inform massage practice and education or identify massage's role in these medically treated situations. Separate and specified AE case reporting guidelines are needed and should be adhered to if AEs attributed to professional massage and other complementary providers are to be appropriately documented and understood.

#### P04.03

### Posttraumatic Stress, Dissociation, and Alexithymia Instruments for Possible Implementation in Massage Research: A Mini-Systematic Review

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#### Abstract

**Objective:** Posttraumatic stress disorder (PTSD) affects approximately 5.2 million people in the United States annually. Clusters of symptoms, such as dissociation, and comorbid conditions like alexithymia, depression, anxiety, and

chronic pain can increase suffering. Massage therapy shows promise as an affective intervention for several of these issues. Identifying instruments common in PTSD, dissociation, and alexithymia research and supporting domains of interest will help create a structured affective outcome measure approach for massage therapy research.

**Methods:** A mini-systematic review was completed following PRISMA guidelines. Search terms “posttraumatic disorder (PTSD)” “dissociation” and “alexithymia” were used to return studies focused on measuring the three topics from PubMed(Medline), Cochrane Library, PsycINFO, and PTSDpubs. Instruments were identified and classified by topics measured. Frequency of use and common support domains with corresponding instruments were identified.

**Results:** Systematic search returned 51 studies. Screening and exclusion left 11 studies for review and 41 unique instruments. Instruments used for PTSD, dissociation, and alexithymia were identified and frequency calculated to find The PTSD checklist (45.5%), Dissociative Experiences Scale (72%), and Toronto Alexithymia Scale-20 (91%) as most common. Support domains were identified as childhood abuse, relationship difficulties, depression and anxiety with corresponding most used instruments: The Childhood Trauma Questionnaire (27%), Inventory of Interpersonal Problems (27%), and Brief Symptom Inventory (18.2%).

**Conclusion:** Common, easily administered, and valid instruments are widely used across the literature for which integration within affective massage therapy research by massage practitioners is possible. The PTSD checklist, Dissociative Experiences Scale, and Toronto Alexithymia Scale-20 may be particularly good instruments to implement across a network of practitioners due to these measures’ availability and ease of administration. Such implementation may support the continued development of evidence for massage therapy’s affective benefits and efficacy for those with PTSD and related symptoms. These efforts’ next steps will allow pilot testing these measures during “real-world” massage therapy intake.

## Clinical Research: Mind-Body

### P05.01

#### Adaptive Body Awareness Meditates the Relationship Between Trait Mindfulness and Symptoms of Central Sensitization: A Cross-Sectional Study Among Individuals With Chronic Pain

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#### Abstract

**Objective:** Central sensitization (CS), defined as the amplification of neural signaling within the central nervous system, is hypothesized to be a characteristic of many chronic pain disorders. CS is associated with maladaptive body awareness, characterized by increased hypervigilance and catastrophizing in response to body sensations. Less is known about the relationship between adaptive body awareness and CS. Primary aims were to investigate relationships among self-reported CS-related symptoms, adaptive body awareness, and trait mindfulness and further delineate potential indirect links among these constructs.

**Methods:** In a cross-sectional study, online surveys administered to 301 adults with chronic pain evaluated severity of CS-related symptoms (Central Sensitization Inventory; CSI), adaptive body awareness via interoceptive awareness (Multidimensional Assessment of Interoceptive Awareness; MAIA-2), body responsiveness (Body Responsiveness Questionnaire; BRQ), postural awareness (Postural Awareness Scale-English), and trait mindfulness (Non-Judgmental Awareness of Five Facet Mindfulness Questionnaire; FFMQ). Pearson’s correlations characterized overall relationship between variables. A linear regression analysis investigated whether adaptive body awareness and trait mindfulness were unique predictors of CS-related symptoms. Path analyses assessed mediational effects of adaptive body awareness on the relationship between mindfulness and CS-related symptoms.

**Results:** CS-related symptoms had strong, inverse correlations with mindfulness and adaptive body awareness. The regression model explained a substantial portion of the variance in CSI scores ( $R^2 = 0.70$ ). Trait mindfulness, three subscales of interoceptive awareness, and body responsiveness were observed to be independently associated with CSI scores. Two separate path analyses revealed that the relationship between trait mindfulness and CSI scores was mediated through interoceptive awareness [point estimate: 0–0.76; 95% bootstrap confident intervals (CI): –1.08,

−0.45] and body responsiveness [point estimate: −0.008; 95% CI-0.015, −0.02].

**Conclusion:** These novel findings provide greater understanding of the relationships between adaptive body awareness and CS-related symptoms. Results support longitudinal studies to explore how these variables all relate to progression, maintenance or remission of chronic pain.

## P05.02

### Using Pain-Related Evoked Potential to Assess Pain Habituation and Interoceptive Awareness in Chronic Low Back Pain

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#### Abstract

**Objective:** Pain habituation is a central pain-inhibiting mechanism that is less effective or absent in chronic low back pain patients (cLBP). Brain structures associated with habituation are also implicated in interoceptive awareness. Primary aims are to: (1) compare habituation between healthy controls and cLBP patients and (2) explore the relationship between habituation and interoceptive awareness.

**Methods:** Participants completed self-report measures of clinical pain (PROMIS) and interoceptive awareness (Multidimensional Assessment of Interoceptive Awareness; MAIA-2) and underwent a pain paradigm with recorded EEG activity. Three blocks of 20 stimuli were applied using tri-polar electrodes with a fixed inter-block interval of five minutes. Latencies of pain-related evoked potentials (PREP) components and baseline-to-peak ERP amplitudes were analyzed. Early-potentials (N1) arise from somatosensory cortices and are sensitive to intensity of stimulation. Late latency potentials (P2) arise from the insula and ACC and reflect threat and hedonic appraisal of pain. Habituation was measured by calculating percentage change in P2 amplitude between Blocks 1 and 3. Negative percentage values indicated habituation. Due to COVID, research was halted, therefore, preliminary data analyses using nonparametric tests were conducted.

**Results:** Healthy controls (n = 4) demonstrated habituation, evidenced by reduced P2 amplitude from block 1 (Mdn = 228.51) to block 3 (Mdn = 216.30; p = 0.06). In cLBP patients (n = 4), pain habituation was absent evidenced by an increase in P2 amplitude from block 1 (Mdn = 221.67) to block 3 (Mdn = 234.86). Median differences were found in P2 habituation between healthy controls (Mdn = −3.12) and

cLBP patients (Mdn = 5.80; p = .02). Habituation was positively associated with disability (r = 0.86) and negatively associated with several subscales on the MAIA-2.

**Conclusion:** PREP's may be a potential biomarker for pain habituation. Testing in the larger planned sample will provide insight into the relationship between pain habituation and interoceptive awareness in cLBP.

## P05.03

### Differential Impacts of Mindfulness Training on Insula Response to Interoception in Primary Care Patients With Anxiety and Depression

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#### Abstract

**Objective:** Interoception is the process by which the nervous system senses and integrates signals originating from within the body. Interoceptive dysfunction is present in some mood disorders including 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 pre- vs. post-MTPC changes in insula activation during an interoception fMRI task would be associated with post-intervention changes in survey measures of anxiety and depression.

**Methods:** Adults (n = 37) with anxiety and/or depression completed baseline and post-MTPC fMRI visits. Six participants were excluded due to excessive head motion. During a 10-min fMRI scan, participants alternated between focusing on their heartbeat (interoception (INT); 10s) and performing a visual attention task (exteroception (EXT); 10s). We examined baseline and post-MTPC brain response (INT > EXT contrast), using both whole-brain and region-of-interest (ROI) approaches. Six ROIs covered right anterior, middle, and posterior insula, and left anterior and posterior insula. We examined associations between post-MTPC changes in insula responses and anxiety as well as depression.

**Results:** Whole-brain fMRI signal was greater during the INT > EXT task contrast in right insula, midline prefrontal cortex, inferior frontal gyrus, and posterior cingulate cortex (cluster-corrected at  $z > 2.3$ ,  $p < 0.05$ ). We observed a significant post-MTPC increase in the right anterior insula ROI

( $p=0.036$ ). Lower baseline PROMIS anxiety scores were significantly associated with greater post-MTPC increases in right anterior insula ( $F(1,26)=5.17$ ,  $p=0.032$ ). This association was only observed for those with no/mild depression ( $F(1,13)=6.24$ ,  $p=0.027$ ), and not for those with moderate/severe depression.

**Conclusion:** Our interoceptive awareness task activated brain areas consistent with similar interoceptive awareness fMRI tasks, including anterior insula. We found significantly greater response for INT>EXT processing in right anterior insula at post-MTPC compared to baseline; this effect was greater among participants with less severe anxiety and depression. This study may inform mindfulness-based treatment approaches for primary care patients with anxiety and depression.

#### P05.04

### Tai Chi Interventions for Adults With Cardiovascular Disease: Insights From a Comprehensive Systematic Review and Meta-analysis

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#### Abstract

**Objective:** Preliminary evidence suggests that Tai Chi (TC) improves selected cardiovascular (CV) risk factors and psychological symptoms in adults with CV disease (CVD). Previous reviews have focused on specific conditions, thus limiting the number of included studies. At present, we have not had a comprehensive evaluation of the effects of TC on CV risk factors and psychological health; missing have been estimates of the effects across all CV conditions and how intervention dose and other characteristics may modify intervention effects. This systematic review and meta-analysis evaluated the efficacy of TC on psychological and CV outcomes in adults with CVD and potential moderators of intervention efficacy (e.g., TC dose, sample characteristics, home practice).

**Methods:** We conducted systematic searches in 10 bibliographic databases. Records were eligible if (a) the study evaluated TC compared to a control condition, (b) sampled adults with CVD, and (c) reported physical and/or psychological outcomes. Sample/intervention characteristics were extracted by two coders.

**Results:** A qualitative summary is reported; final quantitative analyses will be available at the conference. Forty

studies reported on 42 TC interventions (40/42 TC only; 2 multi-component). Sample sizes ranged from 16 to 1,084 (M age = 65 years; 43% women). CV conditions included hypertension (12), heart failure (11), stroke (5), CHD (10) or any CVD (2). The median number of sessions was 24 (range: 10–468). Sixteen studies included home practice recommendations. Compared to controls, TC reduced depressive symptoms in 8/12 studies. Systolic and diastolic blood pressure was improved in 14/20 and 10/19 studies, respectively. Anxiety was reduced in 2/4 studies. Lipids showed mixed results (total cholesterol: 2/7; low-density lipoprotein: 3/7; triglycerides: 3/7).

**Conclusion:** TC reduces depressive symptoms and blood pressure in adults with CVD. Quantitative meta-analytic assessments will summarize the effects of TC on CV outcomes and the role of important moderators of TC effect.

#### P05.05

### Feasibility of Yoga for Chronic Low Back and Neck Pain in Military Personnel

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#### Abstract

**Objective:** Chronic low back pain (cLBP) and neck pain (cNP) are prevalent conditions that are leading causes of disability among active-duty military personnel. Yoga is an evidence-based intervention for these chronic pain conditions. However, yoga has not been well-studied among military personnel. Our objective was to conduct a pilot RCT examining the feasibility/acceptability of two types of yoga for military personnel with CLBP/cNP.

**Methods:** Military personnel with cLBP and/or cNP were recruited at a military medical facility and were randomized to either active yoga or restorative yoga. Participants were assessed at baseline, 12 weeks, and 6 months. The intervention included 1–2 classes weekly for 12 weeks and recommended daily yoga home practice. Feasibility outcomes included recruitment rates, intervention attendance, retention, and satisfaction/acceptability.

**Results:** IRB approval took 11 months to accomplish. In 7 months, 49 participants were enrolled, meeting recruitment goals. Of 49 participants randomized, 39 (80%) attended yoga 1 or more times. Seven participants stopped attending yoga because of deployment, injury, or other health problems. Among those who attended and did not drop (65%), the average number of weeks attending yoga was 8.9 (74%). Participant retention was good; 86% at 12 weeks and 80% at

6 months. Satisfaction ratings were high, with 80–90% strongly agreeing on “enjoyed participation”, “liked instructors”, “continuing yoga”. Reductions in pain severity over time were present for both interventions, but participants with cLBP (and not cNP) had more consistent improvement. Participants in restorative yoga tended to attend better and report higher program satisfaction.

**Conclusion:** In conclusion, feasibility criteria were met in this study. However, further work to strengthen and adjust interventions for military personnel with chronic neck pain appears warranted. Offering yoga at various times of the day is also important for this population.

#### P05.06

### Feasibility and Acceptability of a Pilot RCT of Brief Mindfulness or Relaxing Music During Radiation Therapy for Prostate Cancer

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#### Abstract

**Objective:** To evaluate the feasibility/acceptability of delivering brief, audio-based mindfulness and relaxing music programs during radiation therapy (RT) for prostate cancer.

**Methods:** Recordings created by study team members represented a variety of listening options. Using an RCT design, two slightly different delivery programs were consecutively pre-tested in a subset of patients to fine-tune recordings and identify an optimal intervention time frame. Program A (n = 7) began on day one of week one for seven consecutive weeks; Program B (n = 12) began on day one of week three for five consecutive weeks. After reviewing dropout and patient feedback, a refined Program C (n = 26) was delivered on day one of week two for four consecutive weeks. Additional refinements included increased variety of music recordings and male vocal representation in mindfulness recordings. RT front desk staff provided participants with listening devices. Men selected their preferred audio track for their RT session. Feasibility was defined as  $\geq 70\%$  enrollment rate, study retention, and audio program adherence. Acceptability was defined as  $\geq 70\%$  on post-intervention survey questions where categories “somewhat”, “quite a bit”, and “very much” were aggregated to indicate total endorsement.

**Results:** Overall, 38/50 approached men enrolled (76% response rate). Programs A and B had similar retention

rates (57%-58%) with 100% adherence for those remaining (n = 11). Program C's retention rate was 89% with 100% adherence for those remaining (n = 24). Program C's Mindfulness arm reported enjoying participation more than Music (93% vs. 67%, respectively), including looking forward to listening (93% vs. 67%, respectively). The Music arm reported listening was helpful more than Mindfulness (78% vs 47%, respectively) including affecting them more positively (67% vs 53%, respectively). Both groups reported high ratings ( $\geq 70\%$ ) of ease in participating.

**Conclusion:** This pilot study was largely feasible to deliver and acceptable by patients. Pre-testing refinements appeared to play an important role.

#### P05.07

### Adapting Mindfulness-Based Cognitive Therapy for Videoconferencing Delivery for Patients with Depressive Symptoms After Acute Coronary Syndrome

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#### Abstract

**Objective:** Up to 40% of patients report elevated depressive symptoms following acute coronary syndrome (ACS), which doubles the risk of mortality. Cognitive-behavioral therapy is recommended but the benefits are limited, and it is not widely accessible. Mindfulness-Based Cognitive Therapy (MBCT) delivered via group videoconferencing could offer benefit. To inform MBCT adaptation for a clinical trial, this qualitative study explored ACS patients' (a) symptoms and needs, and perspectives on (b) MBCT and (c) videoconferencing delivery.

**Methods:** From 2/2019-11/2019, we conducted semi-structured individual telephone interviews with patients with a lifetime history of ACS (N = 10 with elevated depressive symptoms; N = 12 without elevated depressive symptoms, to identify resiliency factors). Interviews included a brief mindfulness practice. Content analysis was conducted by three independent coders and compared participants with and without depressive symptoms.

**Results:** Participants with depressive symptoms wanted help with emotional (depression, anxiety) and physical problems (fatigue, weakness) and health behaviors (physical activity, diet). Participants without depressive symptoms

reported positive coping skills, including meditation, acceptance, and appreciation. Most participants had positive reactions to the mindfulness practice (“calming, relaxing”), were willing to participate in a mindfulness group program, and thought the MBCT structure (8-weekly 1.5-hour sessions) was feasible. Almost all were willing to participate over videoconferencing; some preferred in-person was preferred and anticipated needing support to use the technology, but greater accessibility and convenience outweighed these cons.

**Conclusion:** ACS patients with elevated depressive symptoms need help managing physical, emotional, and behavioral problems. An MBCT approach is of interest, and patients without depressive symptoms already benefit from MBCT skills. The MBCT protocol should be adapted to target depression and anxiety; link mindfulness skills to positive health behaviors; and emphasize appreciation of the present moment and acceptance of life changes. Participants are amenable to a video-delivered approach and would benefit from initial training in the videoconferencing system.

#### P05.08

### An Integrative Group Movement Program (PLIÉ) Improves Cognitive and Brain Function in Individuals With Mild Cognitive Impairment: Results From a Pilot Clinical Trial

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#### Abstract

**Objective:** We previously reported that Preventing Loss of Independence through Exercise (PLIÉ)—an innovative, integrative group movement program for adults with mild-to-moderate dementia—is associated with clinically meaningful improvements in physical, cognitive, and social/emotional domains. The multi-domain PLIÉ program is based on procedural memory, practicing key movements from daily activities, fostering mindful interoceptive bodily awareness and social interaction. This pilot single-arm trial investigated PLIÉ’s effect on objective MRI brain function in older adults with mild cognitive impairment (MCI).

**Methods:** Participants ( $\geq 55$  y) with MCI diagnoses or self-reported cognitive decline + Montreal Cognitive Assessment (MoCA) scores of 18–26 were assessed before and after participating in twice weekly PLIÉ classes

over 12 weeks with resting state functional magnetic resonance imaging (rs-fMRI; 3-Tesla scanner) and validated tests of cognitive function (Alzheimer’s Disease Assessment Scale cognitive subscale, ADAS-cog); physical performance (Short Physical Performance Battery); and self-report questionnaires (Neuro-QOL Positive Affect and Well-Being, Geriatric Depression Scale, Quality of Life in Alzheimer’s Disease, PROMIS Social Isolation, Neuro-QoL Mobility, and Multidimensional Assessment of Interoceptive Awareness (self-regulation; attention regulation).

**Results:** 18 participants completed the pre-post intervention pilot trial. We observed significant post-PLIÉ improvements in cognition (ADAS-cog, standardized effect size [ES] = 0.33,  $p = 0.002$ ) and increased functional connectivity within the brain’s default mode network (DMN). Improved ADAS-cog scores were significantly correlated with increased DMN connectivity (medial prefrontal cortex [MPFC]-left lateral parietal cortex [LLP]: Spearman’s  $\rho = -0.74$ ,  $p = 0.001$ ); MPFC-right hippocampus [RHP]: Spearman’s  $\rho = -0.83$ ,  $p = 0.001$ ). We also observed significant reductions in social isolation (ES = 0.62,  $p = 0.02$ ); improvements in interoceptive self-regulation (ES = 0.55,  $p = 0.005$ ) and positive affect and well-being (ES = 0.55,  $p = 0.03$ ); and trends for increases in total hippocampal, CA4 and dentate gyrus volumes, interoceptive attention regulation, depression, quality of life, and physical performance.

**Conclusion:** These preliminary findings of post-PLIÉ improvements in DMN functional connectivity, cognitive function, interoceptive self-regulation, and social isolation warrant larger randomized, controlled trials.

#### P05.09

### Preliminary Efficacy of a Brief Mindfulness Audio Intervention Delivered During Radiation Therapy for Prostate Cancer: Findings From a Pilot RCT

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#### Abstract

**Objective:** Men treated with radiation therapy (RT) for prostate cancer often experience a host of physical and emotional side effects, including symptoms of fatigue, sleep disturbance, anxiety and depression. While mindfulness-based programs (MBPs) have been shown to

reduce these symptoms, never before has an MBP been delivered on a daily basis during multiple weeks of RT. The objective of this randomized controlled pilot study is to examine the preliminary efficacy of a brief audio-based mindfulness intervention compared to a relaxing music active control to attenuate RT-related physical and emotional side effects.

**Methods:** Participants (N=24) receiving at least seven-weeks of daily RT for prostate cancer were randomized to receive four weeks of daily mindfulness audio recordings (treatment arm) or four weeks of daily relaxing music audio recordings (active control arm) between weeks 2–5 of RT. PROMIS Anxiety, Fatigue, Depression and Sleep Disturbance short forms, as well as the Intolerance of Uncertainty Scale (IUS) were administered at baseline, 7-weeks and one and three-month follow ups. Descriptive statistics and general linear models were conducted.

**Results:** Controlling for age and number of sessions, participants who received mindfulness demonstrated a significant reduction in IUS compared to music controls ( $p = .046$ ;  $F(3, 20) = 4.540$ ;  $M = 6.73 \pm 4.76$  (mindfulness);  $M = 11.11 \pm 7.25$  (music)). At the one-month follow up, IUS benefits were non-significant although mindfulness participants reported lower levels of IUS than music participants ( $p = .502$ ;  $F(3, 20) = .467$ ;  $M = 7.13 \pm 6.30$  (mindfulness);  $M = 8.89 \pm 7.82$  (music)). At the three-month follow up, mindfulness participants reported significantly greater reductions in fatigue ( $p = .049$ ,  $F(3, 13) = 4.733$ ;  $M = 50.05 \pm 5.17$  (mindfulness);  $M = 54.53 \pm 4.66$  (music)) and sleep disturbance ( $p = .035$ ,  $F(3, 13) = 5.33$ ;  $M = 46.93 \pm 7.91$  (mindfulness);  $M = 55.46 \pm 5.82$  (music)) compared with music participants.

**Conclusion:** Brief audio-based MBPs may be effective in decreasing RT-related physical and emotional side effects immediately following intervention, and at three months.

## P05.10

### Neurobiological Mechanisms of Pain Modulation From Tai-Chi: A Single-Arm Pre/Post Pilot Study

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#### Abstract

**Objective:** A pre/post pilot study was designed to investigate neurobiological mechanisms in an 8-week Tai-Chi group intervention in subjects with knee osteoarthritis using resting-state functional magnetic resonance imaging (rs-fMRI) and diffusion tensor imaging (DTI), with a focus on cortico-limbic interactions that play important roles in emotional/affective behaviors and pain modulation. The association between neurobiological effects and pain/physical function was also explored.

**Methods:** Twelve postmenopausal women underwent Tai-Chi group exercise for 8 weeks (60 min/session, 3 times/week). Clinical outcomes were measured: pain (VAS), WOMAC, and Brief Pain Inventory (BPI); and rs-fMRI (10 minutes; eyes open), DTI (12 minutes), and structural MRI (4.5 minutes). Clinical data were analyzed using t-test; and rs-fMRI data were analyzed using seed-based correlations of the left and right amygdala in a two-level mixed-effects model (FSL software). Correlations between amygdala-mPFC connectivity and corresponding changes in clinical outcomes were examined. DTI connectivity of each amygdala was modeled using a Bayesian approach and probabilistic tractography.

**Results:** Significant pre/post changes were observed suggesting reduced knee pain ( $n = 12$ ; VAS:  $d = 1.369$ ,  $p = 0.001$ ; WOMAC:  $d = 1.089$ ,  $p = 0.003$ ; BPI:  $d = 1.145$ ,  $p = 0.002$ ) and improved physical function ( $n = 12$ ,  $d = 1.457$ ,  $p = 0.001$ ) with Tai-Chi. A non-significant, pre/post increase in rs-fMRI connectivity was observed between bilateral mPFC and the amygdala seed regions (i.e., left:  $n = 7$ ,  $d = 0.988$ ,  $p = 0.355$ ; right:  $n = 7$ ,  $d = 0.600$ ,  $p = 0.282$ ). Increased DTI connectivity was observed between bilateral mPFC and left amygdala ( $n = 7$ ,  $d = 0.713$ ,  $p = 0.108$ ). There were moderate-high correlations ( $r = 0.28-0.60$ ) between Tai-Chi-associated pre-post changes in amygdala-mPFC functional connectivity and pain/physical function improvement.

**Conclusion:** While not statistically significant, the observed moderate to large effect sizes suggest an important role for cortico-amygdala interactions derived from Tai-Chi on pain and physical function in postmenopausal women with knee osteoarthritis. The results also support therapeutic strategies aimed at strengthening functional and structural connectivity between the mPFC and the amygdala. Controlled clinical trials are warranted to confirm these observed preliminary effects.

#### P05.11

### A 4-Week Video-Conference Delivered Mindfulness-Based Pilot RCT in Advanced Prostate Cancer: Feasibility, Acceptability, & Proof of Concept

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#### Abstract

**Objective:** Men with advanced prostate cancer experience significant declines in health related quality of life including pain, fatigue, sleep difficulty, depressive symptoms and anxiety. Mindfulness-based interventions (MBIs) have demonstrated efficacy in improving these domains in different disease groups, however, in person participation in MBIs is challenging for men with metastatic disease. The purpose of this pilot RCT was to examine the feasibility, acceptability, and initial proof of concept of a 4-week MBI delivered using video conferencing technology.

**Methods:** A 4-week pilot RCT of abbreviated MBSR was conducted. Following baseline assessment of PROMIS short forms (Anxiety, Depression, Fatigue, Sleep Disturbance, Pain), Self-Compassion, and Uncertainty Intolerance, men were randomized to either in-person or video-conference (Zoom) delivered mindfulness training. A post-intervention assessment was administered using the same baseline measures, including a feasibility/acceptability survey. Descriptive statistics and general linear models were calculated using SPSS v27.

**Results:** Overall, 19 men were enrolled (n = 8 in-person; n = 10 online); 3 dropped out from the in-person course and 2 dropped out from the online course prior to study completion. There were no statistically significant differences on demographic characteristics or self-report assessments at baseline between groups. At 4-weeks there were no significant group differences on outcomes. Both groups demonstrated significant ( $p < .05$ ) declines in

uncertainty intolerance at 4 weeks. A majority of men in the online course reported being quite a bit/very much satisfied (highest response options) with their experience participating (100%), liking the mindfulness program (100%), finding it interesting (100%), planning to practice after the course (100%), finding it simple to take the course online (100%), finding online made it easier to fit the course into their lives (75%), and being able to adequately see, hear, and follow along (100%).

**Conclusion:** This pilot study demonstrated initial feasibility, acceptability, and proof of concept of a brief MBI delivered using video conference technologies with this population.

#### P05.12

### MBSR vs. HA Education: A Randomized Clinical Trial Showing MBSR Treats Total Migraine Burden

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#### Abstract

**Objective:** Determine if mindfulness-based stress reduction (MBSR) improves migraine frequency, disability, quality of life, self-efficacy, pain catastrophizing, depression scores, and experimentally induced pain compared to Headache (HA) Education

**Methods:** Determine if mindfulness-based stress reduction (MBSR) improves migraine frequency, disability, quality of life, self-efficacy, pain catastrophizing, depression scores, and experimentally induced pain compared to Headache (HA) Education

**Results:** Most participants: were 43.9 years (SD 13.0), female (92%), with 7.3 (SD 2.7) migraine days/month and high disability (HIT-6: 63.5 (5.7)), attended class (median attendance 7/8), and followed-up through 36 weeks (73% of both groups). Participants in both groups had fewer migraine days at 12 weeks (MBSR: -1.6 migraine days/month; 95% CI: [-0.7, -2.5]; HA Education -2.0; [-1.1, -2.9]), without group differences ( $p = 0.51$ ). MBSR participants, compared to HA Education, had improvements from baseline at all

follow-up time points on measures (point estimates of effect differences between groups reported) of disability (5.92 (95% CI 2.8, 9.0)  $p < 0.001$ ); quality of life (5.1 (1.2, 8.9)  $p = 0.01$ ); self-efficacy (8.2 (0.3, 16.1,  $p = 0.04$ ); pain catastrophizing (5.8 (2.9, 8.8),  $p < 0.001$ ); depression scores (1.6 (0.4, 2.7)  $p = 0.008$ ), and decreased experimentally induced pain intensity and unpleasantness ( $p = 0.004$  and  $0.005$ , respectively, at 36 weeks) One reported adverse event was deemed unrelated to study protocol.

**Conclusion:** Both MBSR and HA Education improved migraine frequency. MBSR also had clinically meaningful improvements of disability, quality of life, self-efficacy, pain-catastrophizing, and depression out to 36 weeks, with decreased experimentally induced pain suggesting a potential shift in pain appraisal. MBSR may help treat total migraine burden.

## COVID Pivots

### P06.01

#### Integrative Medicine Post-COVID-19 Myalgic Encephalomyelitis (ME) Program: A Case Study

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#### Abstract

**Objective:** An Integrative Medicine Center created a Post-COVID-19 Myalgic Encephalomyelitis (ME) program in response to a July 2020 Centers for Disease Control and Prevention (CDC) document that described ME-associated symptoms to include fatigue and other functional symptoms. The objective is to present a case study of a patient in the Post-COVID-19 ME program to improve quality of life in “long haulers.”

**Methods:** JR is a 35 year old male in previously good health referred from an infectious disease specialist for 6 months of ongoing neck, upper extremity, and lower extremity pain and functional gastrointestinal disorders (FGID) for which he was taking Omeprazole. He took melatonin before bed for insomnia. He participated in a PT program to rehabilitate bicep and hamstring tendonitis and frozen shoulder. A hands-on physical exam demonstrated myofascial trigger points in the trapezius muscle. The Center’s evidence-based Integrative Medicine model informed a treatment protocol for the patient as follows: 1) anti-inflammatory diet and supplements to include turmeric and ginger, both cyclooxygenase (COX) inhibitors, and a Botanical Tincture that contained 8 evidence-based botanicals to promote digestive

health; 2) mind-body stress reduction with breath work to reduce anxiety; 3) non-opioid pain management that included evaluating for and treating myofascial trigger points in the cervical and thoracic muscles; and 4) lifestyle medicine including 30 minutes walking 5 days a week and sleep hygiene recommendations of stimulus control, sleep restriction, and cognitive behavioral therapy (CBT).

**Results:** The patient’s pain and functional gastrointestinal symptoms lessened after 4 weekly treatments. He also reported improved quality of life in home, social, and financial analyst work contexts.

**Conclusion:** The case study demonstrated improved quality of life with the Post-COVID-19 ME program. A process improvement initiative is underway to measure health-related quality of life (HRQOL) scores on a validated instrument after 6 weekly Integrative Medicine treatment sessions relative to baseline.

### P06.02

#### Pivot to Telehealth: Preference for Telehealth Measured Quantitatively Sustained Over Three Months at Outpatient Center for Integrative Medicine

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#### Abstract

**Objective:** Interdisciplinary integrative medicine is key to treatment of chronic pain conditions. In-person visits can burden this population, particularly in rural and underserved areas with limited transportation options. Telehealth visits, were historically unsupported by payment models, delivery platforms, health and technological literacy, and clinician buy-in. The COVID-19 pandemic initiated a rapid transition to telehealth at our interdisciplinary outpatient integrative medicine center. This poster will describe the quantitative experience of telehealth integrative medicine services among stakeholders.

**Methods:** Patients ( $n = 472$ ), clinicians ( $n = 25$ ), and staff ( $n = 12$ ) ranked telehealth vs in-person visits by survey with custom scale quality judgments and discrete choice after transitioning to telehealth and three months later.

**Results:** Patient quality judgements significantly favored telehealth at baseline,  $B = .77$  [0.29–1.25],  $SE = .25$ ,  $t(712) = 3.15$ ,  $p = .002$ , and increased in preference for telehealth at three months,  $B = .27$  [–0.03–0.57],  $SE = .15$ ,  $t(712) =$

1.76,  $p = .079$ . Quality of technology, residing outside the county, and experiencing multiple disciplines predicted patient telehealth favorability. Clinicians did not favor one modality over the other,  $B = -1.00$   $[-1.56--0.44]$ ,  $SE = .29$ ,  $t(799) = -3.48$ ,  $p < .001$ . Patient discrete choice split at baseline and favored telehealth at three months. Overall, discrete choice favored telehealth at follow-up across clinicians and patients. Administrative staff's overall impression of telehealth was most favorable of all groups.

**Conclusion:** Telehealth is a promising care modality for patients experiencing chronic pain. Far from a temporary preference, after three months, the majority of patients indicated they would choose telehealth visits over in-person visits, if they were equally safe. Policy that does not support telehealth for outpatient integrative medicine cannot do so under the name of patient preference, perceptions of quality, patient choice, or access.

#### P06.03

### American Acupuncturists Respond to the COVID-19 Pandemic: Results of a National Survey

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#### Abstract

**Objective:** In the summer of 2020, we surveyed all members of the United States professional acupuncture association, The American Society of Acupuncturists (ASA), concerning their experiences of the effects of COVID-19 on business practices. The goal is to learn more about members' experiences and perhaps gather helpful suggestions that can be shared with other members.

**Methods:** All members of the ASA were invited to participate in the survey by their state organizations between 6/3/2020 until 6/19/2020. The survey was administered via the SurveyMonkey (c) platform. The 40 question survey included both close and open-ended questions concerning how the pandemic may have influenced work practices, home life, and professional plans. We used SPSS to tabulate the quantitative responses for presentation. The qualitative responses are being double coded, with analysis directed by Grounded Theory.

**Results:** IRB oversight was attained (IRB#113020C). We received over 5000 responses. Demographics were similar to the population of America acupuncturists. Practitioners reported the ability to respond to federal and local health messages, and if practicing, the ability to find tools

necessary for safety. Many used the closure time for education and family activities. Many had concerns for the future of their business even after solution of the pandemic.

**Conclusion:** Not enough is known about the business practices of acupuncturists in the US, and certainly even less is known of how COVID-19 is currently affecting the profession. Similar documents have been produced by other allied health professional organizations, for example Ayurveda. We found that acupuncturists were able to respond to federal and local mandates, and modify business practices to meet the needs of public health during the pandemic.

#### P06.04

### How Does Telehealth Compare to In-Person Care? Qualitative Perspectives from an Outpatient Integrative Medicine Setting

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#### Abstract

**Objective:** Integrative medicine is a key framework for the treatment of chronic medical conditions, particularly chronic pain. In-person visits pose notable barriers for individuals with pain or limited mobility, particularly in rural or underserved areas. However, many barriers are pertinent to the expansion of telehealth use in integrative medicine settings, such as concerns about maintaining patient-clinician rapport in the delivery of holistic, relationship-based care. The COVID-19 pandemic served as impetus for an immediate and complete transition to telehealth services in this interdisciplinary outpatient integrative medicine clinic. This poster will present rich qualitative perspectives from multiple stakeholder levels on the experience of virtual visits to examine whether telehealth represents an acceptable, accessible, and high-quality option for providing integrative healthcare.

**Methods:** Patients (N=180), providers (N=19), and administrative staff (N=7) in our outpatient integrative health clinic were surveyed about their experience of providing or receiving care via telehealth. Specifically, participants were asked to describe what telehealth visits were like in comparison to in-person visits. Free-text responses were analyzed for major and minor emergent themes.

**Results:** Major themes identified from the data included acceptability, ease/convenience, comfort, interpersonal connection, technology difficulties, application of telehealth to group/movement classes, and equity/access.

Overwhelmingly, participants described telehealth as an acceptable and adequate, at times equal or superior, alternative to in-person visits. Importantly, telehealth improved comfort for patients who could hold visits at home where they were most comfortable. Challenges were also well-described including technological issues and loss of interpersonal connection.

**Conclusion:** Telehealth visits represent an acceptable, at times preferable, way to deliver care in an outpatient integrative medicine setting. Telehealth represents a particularly promising care modality for patients experiencing chronic pain or limited mobility, or those residing in rural and underserved communities. Detailed qualitative results provide rich perspective to inform future implementation and health policy regarding telehealth use.

#### P06.05

### Reassured by Zoom? Pivoting to Online Delivery of an NCI-Funded Multi-Site Mindfulness Randomized Controlled Trial in Prostate Cancer “REASSURE ME”

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#### Abstract

**Objective:** In early 2020, our research teams at Northwestern University, NorthShore University HealthSystem, University of Michigan, and Fox Chase Cancer Center prepared to launch the final year of interventions for an NCI-funded RCT titled REASSURE ME (R01 CA193331). This study examines the extent to which training in mindfulness helps men diagnosed with prostate cancer on active surveillance and their partners be able to cope with the uncertainties of this treatment approach. Challenges associated with COVID-19 and shelter-in-place orders abruptly halted in-person study activities, prompting our team to quickly pivot and rethink how best to proceed.

**Methods:** Our strategy consisted of four primary components: (1) examining COVID-19's impact on the research (what affect, if any, it had on the study's purpose, design, procedures, findings); (2) re-evaluating plans underway before COVID-19 struck (including recruitment, interventions, data collection, multisite communications); (3)

determining if video-conferencing would be a viable delivery solution, and if so, how to adapt content for that platform; and (4) identifying best resources/practices for the virtual environment.

**Results:** Preparations for an additional year of the study included: (1) holding site meetings to determine funding needs, (2) requesting an NIH no-cost extension, and (3) submitting modifications to each site's Institutional Review Board. Procedural changes/additions included: (a) online intervention trainings and creation of tutorial aids for the research team; (b) video-conferencing training sessions, tutorial aids, and ongoing technical assistance for research participants; (c) development of online versions of the treatment and control interventions; (d) postal delivery of paper-based intervention materials/supplies to research participants; (e) electronic/postal qualitative data collection; and (f) establishing a coordinating assistant to be on call for intervention facilitators during sessions.

**Conclusion:** The unprecedented constraints of COVID-19 presented our team with the opportunity to re-envision and develop a new approach for online delivery of mindfulness that can be used by future researchers.

#### P06.06

### Levels and Predictors of Depression, Anxiety, and Social Isolation During COVID-19 in the United States

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#### Abstract

**Objective:** The coronavirus disease 2019 (COVID-19) has high infectivity rates, impelling people across the globe to make and sustain substantial behavioral changes. As a result, many individuals developed concerns regarding their mental well-being. This study aimed to determine levels and predictors of depression, anxiety, and social isolation during COVID-19 in the United States.

**Methods:** We examined demographic, physical health, and COVID-19 psychological and physical exposure predictors of mental health in 260 U.S. adults who completed online questionnaires from May 05 through September 28, 2020. Depression, anxiety, and social isolation were measured using PROMIS computer adaptive tests which allows comparison of mean levels in this sample to normative levels.

**Results:** Mean depression ( $M = 57.1$ ,  $SD = 7.9$ ) and anxiety ( $M = 60.0$ ,  $SD = 7.8$ ) were elevated relative to general population norms ( $M = 50$ ,  $SD = 10$ ), and social isolation ( $M = 53.1$ ,  $SD = 8.3$ ) was only slightly higher than normative levels ( $M = 50$ ,  $SD = 10$ ). These values suggest that participants had mild to moderate symptoms of depression and anxiety. Social isolation remained within normal limits. Over time, depression levels increased but anxiety and social isolation remained steady. Univariate linear regressions for each outcome indicated that younger age, being negatively financially impacted by COVID-19, and having difficulty getting basic resources predicted higher levels of depression, anxiety, and social isolation. Participants who consumed 3 or more hours of media focused on COVID-19 also reported significantly increased anxiety and depression. Participants who were married or partnered had significantly lower levels of social isolation. All findings remained statistically significant in multivariate regression models examining all predictors simultaneously.

**Conclusion:** By identifying individuals at risk for poorer mental health during a pandemic, these findings offer guidance for how best to target interventions that help individuals maintain their psychological well-being in the face of an ongoing global pandemic.

## P06.07

### Creating Community as Innovation: COVID-19 Virtual Delivery of Mindfulness in Motion

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#### Abstract

**Objective:** Mindfulness in Motion (MIM) is an organizationally sponsored resiliency building program for faculty and staff at a large academic metropolitan health center. It has consistently produced significant reductions in burnout and perceived stress, alongside significant increases in work engagement and resilience. COVID-19 necessitated the transition to 100% virtual delivery of this programming. This study compared outcome measures of virtual delivery to the traditional in-person delivery where community building amongst participants has always been a program strength.

**Methods:** Outcome measures from the Autumn 2020 (AU20) MIM cohorts ( $n = 31$ ) were compared with the Autumn 2019 (AU19) MIM cohorts ( $n = 42$ ). Participants in the AU19 session received in-person facilitated MIM programming, whereas, the participants of the AU20 session

received 100% virtual delivery of MIM via Zoom. To determine if virtual delivery of MIM to the AU20 cohorts rendered the same results as the traditional in-person programming of MIM in AU19, comparison analyses were conducted.

**Results:** Total burnout was determined by scores on the subscales of the Maslach Burnout Inventory (MBI). The MBI subscales of the AU19 and AU20 cohorts revealed no significant differences in participant emotional exhaustion ( $p = 0.2177$ ), depersonalization ( $p = 0.4063$ ), and personal accomplishment ( $p = 0.1407$ ). The Connor Davidson Resiliency Scale (CDRS), also produced no significant difference ( $p = 0.3891$ ) between groups. Similar trends were observed for the remaining outcome measures, showing no significant differences in scores for the Perceived Stress Scale ( $p = 0.5290$ ) and the Utrecht Work Engagement Scale ( $p = 0.2087$ ). Qualitative analysis of AU20 cohorts reported community support during COVID as a substantial intervention benefit.

**Conclusion:** Virtual delivery of MIM had not been previously tested as MIM was designed as an in-person program. Results of the first virtually delivered MIM reflect that participants achieved very similar results suggesting that method delivery did not impact program effectiveness. Additionally, MIM created a community in a time where community was not readily accessible.

## P06.08

### Chinese Herbal Medicine Used With or Without Conventional Western Therapy for COVID-19: An Evidence Review of Clinical Studies

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#### Abstract

**Objective:** To present the evidence of the effectiveness and safety of Chinese herbal medicine (CHM) used with or without conventional western therapy on COVID-19.

**Methods:** Clinical studies on effectiveness and safety of CHM for COVID-19 were included. We summarized general characteristics of included studies, evaluated methodological quality of randomized controlled trials (RCTs),

analyzed the use of CHM, estimated the effectiveness and safety of CHM.

**Results:** A total of 58 clinical studies were identified including RCTs (17.24%, 10), non-randomized controlled trials (1.72%, 1), retrospective studies with a control group (18.97%, 11), case-series (20.69%, 12) and case-reports (41.38%, 24). No high methodological quality RCTs were identified. The most frequently tested Chinese patent medicine, Chinese herbal medicine injection or prescribed herbal decoction were: Lianhua Qingwen granule/capsule, Xuebijing injection and Maxing Shigan Tang. In terms of aggravation rate, pooled analyses showed that there had statistical differences between the intervention group and the comparator group (RR 0.42, 95% CI 0.21 to 0.82, 6 RCTs; RR 0.37, 95% CI 0.22 to 0.64, 4 retrospective studies with control group), that is, CHM plus conventional western therapy appeared better than conventional western therapy in reducing aggravation rate. In addition, compared with conventional western therapy, CHM plus conventional western therapy had potential advantages in increasing the resolution rate and shortening the duration of fever, cough and fatigue, improving the negative conversion rate of nucleic acid test, and increasing the number of patients with inflammatory disappearance or shortening the time from receiving treatment to beginning of inflammation disappearance. For adverse events, pooled data showed that there was no statistical difference between the CHM and the control groups.

**Conclusion:** Current low certainty evidence suggests that there may be a tendency that CHM plus conventional western therapy is superior to conventional western therapy alone. The use of CHM did not increase the risk of adverse events.

## P06.09

### The Perspective and Need of Health-Care Workers for COVID-19 on the Frontline: A Systematic Review of Qualitative Research

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#### Abstract

**Objective:** We aimed to synthesize the current qualitative research evidence on health-care workers' perspective and experiences on the frontline, so as to listen to their need and to provide the support, and also to indicate a better management and policy for COVID-19 control and other similar outbreak.

**Methods:** We conducted searching systematically in 6 English and Chinese databases including Chinese National Knowledge Infrastructure, SinoMed, Chinese Academic Conference Papers Database and Chinese Dissertation Database (Wan fang), Chinese Scientific Journal Database, MEDLINE, and EMBASE from December 20th 2019 to 29th May 2020. Data were extracted by two authors independently, and narrative reported the general characteristics and processed by thematic analysis and meta-ethnography. CASP (Critical Appraisal Skills Program) was used to assess the methodology quality.

**Results:** 25 qualitative studies by in-depth interview with 882 health-care workers found out the perspective, experience, and mental condition of the health-care workers. The mental condition of health-care workers was very terrible and even influence their physical condition. Lack of clinical experience with infectious diseases is one of the main reasons to make health-care workers have negative feelings such as stress, anxiety, fear. Family's support would give a tremendous impact on health-care workers. The results demonstrated that sufficient training about infectious disease outbreak and psychological counseling for health-care workers were very important for further health service management. And for public health, government should pay more attention to disseminate knowledge of infectious diseases to the public.

**Conclusion:** Health-care workers suffered from intense pressure in mental and physical level on the frontline

during pandemic and support from family and government will be helpful.

#### P06.10

### Complementary and Integrative Health (CIH) Services During the COVID-19 Pandemic: Telehealth Brings Wellness Home to Veterans

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#### Abstract

**Objective:** The emergence of COVID-19 pandemic and subsequent shut down of in-person CIH wellness activities at Greater Los Angeles Veterans' Affairs Healthcare System (GLA-VAHCS) required a rapid pivot in the mode of care delivery. To assess the success of this pivot, here we examine the transition from Tai chi, Yoga and Meditative Movement services delivered by either traditional in-person classes (InP) or via classes in which Veterans attend their local clinic and participate in live classes transmitted from a different site via video (InPV) to fully remote, in-home VA Video Connect (VVC) classes.

**Methods:** Fiscal year 2020 encounter data was pulled from the VA's electronic record to evaluate program improvement. Average monthly clinic encounters were calculated for InP and InPV classes from October-February and for VVC clinics from April-September. Due to the Los Angeles County lock down in mid March and time to transition to the VVC format, data was not utilized for that month.

**Results:** Tai chi had 248, 162, and 263 encounters/month for InP, InPV, and VVC respectively. Yoga had 123, 130 and 111 encounters for InP, InPV, and VVC respectively. Meditative Movement had 222 InP and 240 VVC encounters. We noted slow growth of VVC services initially followed by growth in June-August. Demographic data reveals that Veterans of all ages participated in VVC-CIH services but Veterans >65 were represented at higher rates than overall GLA-VAHCS encounters (49.1% vs 37.7%). Women Veterans made up 33.6% of VVC class attendees versus 17.3% of overall encounters.

**Conclusion:** The GLA-VAHCS was able to successfully transition CIH services to virtual care during the COVID-19 pandemic. The most vulnerable Veterans, age > 65 years, were also most likely to use these services. We attribute this success to robust existing infrastructure and robust collaboration between Telehealth and Integrative Medicine services.

#### P06.11

### COVID Coping: The Potential of Dot Phrases to Allow for Quick Uptake of Integrative Health Approaches

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#### Abstract

**Objective:** COVID-19 caused a demand for information about integrative approaches to health and well-being during the pandemic; however, there was both a lack of this information, and effective ways to quickly disseminate it. To address these gaps, we created a dot phrase in EPIC entitled "COVID Coping". It was introduced via a department-wide email in mid-March 2020.

**Methods:** The number of times per month accessed, the number of providers using per month, provider department, and provider type for the COVID Coping dot phrase was obtained from the electronic health records from March 15th to November 30th. Data was also obtained for Acupuncture and DASH Diet dot phrases, to provide an integrative and non-integrative comparison. Differences in counts and percentages by month between phrases were calculated using Chi-squares.

**Results:** COVID Coping was used n = 92 (range 3–37, 6.8%), Acupuncture n = 69 (range 1–14, 5.1%), and Dash Diet n = 1187 (range 64–222, 88.1%). COVID Coping was significantly (p < 0.000) more likely to be accessed as a proportion of the three dot phrases in March (18.5% vs. 1.4% and 3.9%, COVID, Acupuncture and Dash Diet, respectively) and April (40.2 vs. 8.7% and 5.6%, COVID, Acupuncture and Dash Diet, respectively). COVID Coping was equally as likely to be accessed in May, June, and July. August through November it was used significantly less (p < 0.05) than either Acupuncture or Dash Diet. 26 unique providers accessed COVID Coping, of which 16 were faculty, 6 residents, and 4 nurses. Of these, 6 were from integrative medicine, 19 from family medicine, and 1 from neurology.

**Conclusion:** The COVID Coping dot phrase was quickly and frequently used by both integrative and non-integrative providers even when compared to commonly used legacy dot phrases—particularly at the beginning of the pandemic. Integrative medicine dot phrases are a possible innovative and quick method to disseminate integrative medicine approaches.

## P06.12

### Whole Health and Self-Care Resources to Support Employees During the COVID-19 Pandemic in the Veterans Health Administration

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#### Abstract

**Objective:** The Whole Health System (WHS) is an approach to healthcare that empowers and equips people to take charge of their health and well-being. The model creates space for individual exploration of self-care goals providing opportunities to grow skills for goal attainment. The VA healthcare system has been working to implement the WHS for Veterans for years, but the COVID-19 pandemic highlighted the need to offer similar self-care and well-being resources to all employees.

**Methods:** Concerted efforts were taken starting in March 2020 to increase the virtual delivery of resources to support employee self-care across the system including creation of an Employee Resource webpage. Important partnerships were formed with key program offices [Patient Centered Care & Cultural Transformation, Mental Health & Suicide Prevention, National Center for Organization Development, Veteran Experience Office, and Chaplain Services] to provide virtual offerings on the webpage to employees for their mind, body, and spirit. Examples include brief relaxation/mindfulness exercises, spiritual health handouts, resilience tools, and brief CIH videos that employees can access from home or work. Website analytics were collected to evaluate use over time; specifically, pageviews and average time on page.

**Results:** The Employee Resource page was created on April 7, 2020. It was populated with preliminary information for initial promotion on April 10th. Thru October 31, 2020, there have been a total of 35,593 pageviews; monthly pageviews were highest in May 2020 (n = 9,025). Average time on the page has ranged from 05:22mins to 08:58mins, again with the highest average in May 2020.

**Conclusion:** The Employee Resource page has been an important platform to offer self-care to employees during the pandemic. Efforts at local VA medical centers and regional integrated networks to support employee resilience and well-being have increased dramatically over the same time period with hundreds of virtual self-care offerings now available weekly for employees.

## P06.13

### Virtual Whole Health Passport Group: Empowering Veterans With SMART Goals and Community During COVID-19

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#### Abstract

**Objective:** The Veterans Health Administration is implementing Whole Health cultural transformation to equip Veterans with tools to take charge of their health. The onset of COVID-19 created a need for innovation in virtual care delivery of Whole Health education.

**Methods:** The San Francisco VA adapted a “Whole Health Passport Group” from an in-person workshop series to a drop-in workshop series on a Web-Ex platform co-facilitated by a veteran peer support specialist and clinician. Veterans learned about the eight dimensions of Whole Health: Working the Body, Surroundings, Personal Development, Food & Drink, Recharge, Family, Friends & Co-workers, Spirit & Soul, Power of the Mind. Each virtual workshop began with a mindful moment and meet-&-greet to foster community and included Whole Health education. Each workshop culminated in group members creating a personalized health plan comprised of SMART (specific, measurable, actionable, realistic, time-bound) goals based on each veteran’s personal values. To pilot the Whole Health Passport Group, two veterans were recruited from the Whole Health coaching program. Qualitative feedback was solicited from participating veterans through brief, informal interviews at the last workshop.

**Results:** The two enrolled veterans successfully participated in the pilot via phone and video, respectively. One completed all eight workshops via phone; the other completed 7 workshops via video. The veteran attending the full cycle described the program as “something that helps with our humanity and everything that we have to do in our personal lives.” He added: “It’s important that we continue to grow, and this is helping us do that. Tools discussed enhance skills of the individual personally, socially and professionally.”

**Conclusion:** Based on limited but positive observations, the Whole Health Passport Groups will leverage the virtual platform to expand and to serve veterans across Northern California. Future steps include further Quality Improvement evaluation and diversification of referral pathways to reach more veterans.

## P06.14

### DASH-SAFE: A Multi-Modal Geographic Information System (GIS) Dashboard for Near Real-Time Mapping of Perceived COVID Risk/Safety in a Campus Environment

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#### Abstract

**Objective:** To provide near-real-time information for risk assessment, risk management and stress reduction during COVID campus re-entry.

**Methods:** The DASH-SAFE dashboard (DASHboard-Stress At-Risk Facilities Environment), shows safer and riskier areas for COVID-re-entry to the University of Arizona (UArizona) campus by overlaying inputs from multiple surveillance technologies onto an interactive GIS campus map, including: survey of perceived feelings of safety/risk related to observed health behaviors (face coverings, physical distancing); predictive modeling of people's movement through campus; building coding related to viral spread risk (occupancy/density, ventilation rate). Users also rated their stress level and DASH-SAFE's stress reducing effect. Survey responses appear as color-coded points on the map. A pilot study using QR code prompt posters, user observations, user interviews, and a qualitative survey to explore user expectations and assess ease of use was carried out at UArizona Libraries. Predictive modeling for movement through campus was based on class schedules and known mealtimes.

**Results:** Beta testing through a campus-wide e-mailing garnered 67 responses. 61% noted areas of safety; 9% areas of distancing risk; 7.5% areas of masking risk; 58% noted low stress. 3 of 6 respondents who scored the tool's stress reduction effect rated it 4 stars and 2 as 5 stars. 21 respondents in the UArizona Libraries pilot study provided data that improved understanding of how they perceive safety in addition to masking and distancing space, e.g., monitoring and hand sanitizers, and informed improvements for ease of use (e.g. simplify instructions, improve location instructions, specify COVID-related stress reduction). Predictive modeling revealed anticipated pinch points and maximal building occupancy over time.

**Conclusion:** DASH-SAFE can help users assess and avoid areas of risk and help reduce their stress. Beta and pilot

testing data will be used to modify and improve the tool and a navigation and alarm tool will be added in subsequent versions.

## P06.15

### Designing a Malaysian Health Literacy Survey for Future Healthcare Professionals on Integrative Medicine Use in Dengue

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#### Abstract

**Objective:** Dengue infections remain at critical endemic levels in Malaysia but are at risk of being overshadowed with current focus and resources diverted towards battling the Covid-19 pandemic. Since effective antivirals and vaccines are lacking for dengue, along with the fear of contracting Covid-19 in healthcare facilities, local communities are increasingly turning to alternative treatment options such as integrative medicine (IM). Despite the high prevalence of dengue in Malaysia, research is lacking on the health knowledge, attitude, and practice (KAP) of future healthcare professionals (HCPs) on IM use in dengue. Thus, this study aims to design a Malaysian survey to study the KAP of future HCPs towards IM use in dengue.

**Methods:** A comprehensive literature review was carried out in Ovid MEDLINE, PubMed, and Cochrane Library to identify articles related to the following keywords: "KAP", "IM" and "dengue". A questionnaire was then systematically designed and divided into key sections including demographics, knowledge on dengue, knowledge, attitude, practice, sources, and barriers of IM use in dengue. The questionnaire was administered to a panel of subject experts (n=8) for content validation and to a sample of the target population (n=10) for face validation. The eligibility criteria of the questionnaire and clarity of understanding were subsequently revised.

**Results:** The finalized questionnaire was formatted into an online version for the convenience of distribution to survey participants from pre-clinical and clinical years of HCP courses.

**Conclusion:** The data obtained from this questionnaire-based survey will provide essential information regarding the KAP of future HCPs towards IM use in dengue. This is important as Malaysian HCPs need to manage growing numbers of dengue patients in their clinical practice and must be knowledgeable and aware of IM, and, even to the

extent of possibly incorporating evidence-based IM in their dengue management.

#### P06.16

### Perception of Undergraduate Medical Students on the Role of Integrative Medicine in Dengue Treatment

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#### Abstract

**Objective:** While grappling with the Covid-19 outbreak, Malaysia continues to confront rising dengue cases. With no vaccines or antivirals available, integrative medicine (IM) increasingly offers popular alternatives to treat dengue infections. Thus, future healthcare professionals (HCPs) need to have adequate knowledge, attitude, and practice (KAP) of IM in their management of dengue cases to better advise the public and patients regarding IM use. Therefore, this study aimed to explore existing KAP towards IM for treatment of dengue among future HCPs.

**Methods:** An online cross-sectional survey was carried out with 216 medical students- 49% pre-clinical (Years 1 & 2) and 51% clinical (Years 4 & 5) students from a Malaysian medical school.

**Results:** Only 30.1% of medical students reported learning about IM in their undergraduate course. The main sources of IM usage for dengue were family members (70.8%), friends (57.9%), internet websites, and social media (48.6%). Prevalent IM modalities known and used by medical students for dengue treatment were papaya leaves, followed by isotonic drinks. The majority of students (pre-clinical 65.1%, clinical 45.4%) supported the use of IM in combination with conventional allopathic medicine for dengue treatment. However, some expressed concern with safety issues as pre-clinical (32.1%) and clinical (54.5%) students perceived IM could be harmful to patients' health. Lastly, most medical students (65.3%) concurred that greater integration of IM modalities for dengue into the undergraduate curriculum was required.

**Conclusion:** This questionnaire-based survey provided essential information regarding the KAP of future HCPs towards IM use in dengue. This is important as Malaysian HCPs need to manage growing numbers of dengue patients in their clinical practice and be knowledgeable and aware of IM use in dengue. Hence, medical schools must be prepared

to incorporate evidence-based IM in dengue treatment in their medical curriculum.

#### P06.17

### Improving Virtual Integrative Medical Group Visits for Patients With Chronic Pain: Lessons Learned During the COVID-19 Pandemic

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#### Abstract

**Objective:** The COVID-19 pandemic prompted implementation of the Integrative Medical Group Visit (IMGV) intervention to transition from a face-to-face format to telehealth delivery. This billable, evidence-based program offers adapted mindfulness-based stress reduction and chronic-pain self-management experientials (acupressure, self-massage, and chair yoga) to patients with chronic pain. This study assesses common barriers and facilitators to participation in a telehealth IMGV. Using participant feedback, we evaluate how the transition to an internet-based video conferencing platform can enhance or detract from the delivery and accessibility of this integrative chronic pain program.

**Methods:** Semi-structured phone interviews were conducted with eight adult participants (ages 31 to 57) who completed a nine-session, weekly 2-hour telehealth IMGV led by a physician and a certified yoga teacher via Zoom Video Communications. The mean attendance was 6 sessions, with attendance ranging from 3 to 9 sessions. Participants reflected on their experiences, the extent of their participation, and potential areas of improvement. All interviews were recorded, transcribed, and inductively coded for barriers and facilitators to telehealth delivery.

**Results:** Participant reported facilitators to participating in the telehealth IMGV program included feeling safer at home during the pandemic, ease of participation, socialization during pandemic-associated social isolation, and no need to find transportation or childcare in comparison to in-person visits. Barriers included feeling uncomfortable with technology, content not targeting virtual audiences,

concerns about finding private spaces to participate, and lack of motivation to retain involvement in an online program.

**Conclusion:** Telehealth IMGV programs are uniquely poised to provide services for patients with chronic pain, as they can alleviate barriers to care associated with transportation, mobility, and childcare. Current telehealth IMGV programs, however, can improve by incorporating more technical information about how to navigate telehealth platforms while also offering a curriculum that specifically includes internet-based, group activities to motivate participation in an online community.

#### P06.18

### Online Mindfulness Targets Psychological Distress During COVID-19 and Participants Demonstrate Altruistic Efforts During Pandemic

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#### Abstract

**Objective:** To assess 1) the impact of online mindfulness on psychological distress, 2) altruistic efforts, and 3) the quantity, quality, and availability of online mindfulness resources during the COVID-19 pandemic.

**Methods:** 233 participants (203 U.S.; 20 international; 10 unknown) participated in this prospective, single-arm, non-randomized clinical trial of a single online mindfulness meditation session with pre- and post-surveys. Main outcome measures: (a) Mindfulness session helpfulness, online platform effectiveness, and immediate pre- to post-session changes in momentary stress, anxiety, and COVID-19 concern; (b) qualitative themes representing how people are helping others during the pandemic; (c) absolute changes in quantity of mindfulness-oriented web content and free online mindfulness resource availability from May to August 2020.

**Results:** Most participants felt the online mindfulness session was helpful and the electronic platform effective for practicing mindfulness (89%, 95% CI: [82 to 93%]), with decreased momentary anxiety (76%; 95% CI: [69 to 83%]), stress (80%; [72 to 86%]), and COVID-19 concern

(55%; [46 to 63%]), ( $p < 0.001$  for each measure). Participants reported helping others in a variety of ways during the pandemic, including following public health guidelines, conducting acts of service and connection, and engaging in self-renewing and self-care activities to be able to better help others. "Mindfulness + COVID" search results increased by 52% from May to August 2020. Most (73%) Academic Consortium for Integrative Medicine and Health member websites offer free online mindfulness resources, with 56% of them offering online classes.

**Conclusion:** Virtual mindfulness is an increasingly accessible intervention available world-wide that may reduce psychological distress during this isolating public health crisis. Kindness and altruism are being demonstrated during the pandemic. The consolidated online mindfulness resources provided may help guide clinicians and patients.

#### P06.19

### Evaluating 'Creating Caring Communities': A Medical Student Pilot Wellness Program to Aid in the Transition to Medical School During COVID-19

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#### Abstract

**Objective:** The transition to medical school is challenging; even more so with the added stress and isolation from the COVID-19 pandemic. While studies have examined medical student wellness programs, few have been implemented during a pandemic, a time of high uncertainty and change. The purpose of this study was to evaluate a novel wellness program, Creating Caring Communities (CCC), its impact on students, and its helpfulness in their transition to medical school during COVID-19.

**Methods:** All incoming first-year medical students (N = 183) were required to participate in the mandatory first two of six, one-hour virtual sessions of CCC; a "check-in" with 10 students and 2 trained facilitators to create a safe space for connectivity and sharing. An online SurveyMonkey was administered to all participants after the sixth session to assess program impact, social isolation, meaningful experience, and helpfulness of CCC in the transition to medical school. Descriptive and bivariate analyses, including crosstabs, were completed using SPSS.25. Open-ended questions were thematically analyzed.

**Results:** 126 MI participants completed the post-CCC evaluation (68.9% response rate). Social isolation scores

were consistent with the national average for the U.S. general adult population ( $M=51.96$ ,  $SD=6.94$ ). MIs who attended more than two sessions (39%) had significantly greater reports of meaningful experiences and helpfulness in transitioning to medical school (respectively, 58.1%; 70.8%) compared to MIs who attended two or fewer sessions (respectively, 41.9%; 29.2%;  $p<.05$ ). When asked about the most valuable aspects of CCC, the most common themes reported were: building connections (49.6%), having a safe place to share experiences (17.0%), and not feeling alone (12.6%).

**Conclusion:** Many students found that CCC was helpful with their transition to medical school. Future program refinement should consider whether sessions should be mandatory, the timing and length of the program, and participant input prior to starting CCC for group placement based on individual needs and interests.

## P06.20

### Trauma-Sensitive Yoga and Cognitive Processing Group Therapies for Women Veterans With PTSD: A Multisite Randomized Controlled Trial Adapted for COVID-19

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#### Abstract

**Objective:** Trauma-Sensitive Yoga shows promise as an effective alternative therapy for reducing posttraumatic stress disorder (PTSD) symptomatology. The objective of this study was to improve outcomes of PTSD, mental health symptoms, and psychophysiological hyperresponsivity among women veterans with PTSD from military sexual trauma (MST) in a multisite randomized controlled trial (RCT). We hypothesized that participants in the yoga group would show improvements in PTSD symptoms and psychophysiological hyperresponsivity commensurate with those in cognitive processing therapy (CPT). Initially designed as an in-person study, substantial modifications were made to our protocol to comply with strict COVID-19 related restrictions; we present those research methodologies here.

**Methods:** Women veterans with PTSD related to MST were recruited from two VA Medical Centers. We used

virtual means for processes of informed consent, enrollment, data collection, and intervention facilitation. Participants were randomized to 10 weekly sessions of yoga or 12 weekly sessions of CPT. Encrypted email, phone, HIPAA-compliant REDCap, Zoom Video Teleconferencing, and VA Video Connect were used to accommodate in-person restrictions while maintaining confidentiality. Portable electrocardiogram machines, heart rate variability monitors, and finger-prick dried blood spot collection were used in conjunction with virtual staff-assistance to guide participants through self-administered collection of psychophysiological data. Data were collected at baseline, during the intervention, and at two follow-up timepoints.

**Results:** The methodological modifications made to the study processes allowed the research to proceed in a virtual format and resulted in data collection for 55 participants for both sites. Other outcomes from the RCT, including changes in PTSD symptoms (primary outcome), mental health symptoms (secondary outcomes), and psychophysiological hyperresponsivity (exploratory outcomes) will be reported in the future.

**Conclusion:** The adaptations of the consent, enrollment, data collection, and group interventions for this study provide an example of research methodologies for other investigators employing virtual means for group interventional studies during COVID-19 and after.

## P06.21

### Strategies for Efficient Adaptation in a Pandemic: A Decision-Making Flowchart From an Integrative Oncology Wellness Center

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#### Abstract

**Objective:** To support implementation at other integrative health institutions, this poster describes the processes and tools necessary to rapidly establish virtual and distance healthcare options for a variety of integrative treatment modalities to serve as a template for other healthcare facilities.

**Methods:** The Wellness and Integrative Health Center (WIHC) at Huntsman Cancer Institute (HCI) provides primarily in-person and hands-on patient visits for supportive oncology services. With the COVID-19 pandemic dramatically changing the landscape of in-person healthcare, The

WIHC worked to quickly roll-out virtual and telemedicine appointments for most of its offerings over the course of only two weeks in March and April 2020. This poster visually showcases key decision-making processes and workflows to prepare and implement necessary technologies, documents, staff trainings, and other key components for a successful and swift transition to telehealth and virtual wellness services. The poster will also display ideas and strategies for utilizing and retaining staff and funding for hands-on modalities that cannot translate to a virtual alternative.

**Results:** The WIHC successfully transitioned physician physical assessments, supervised exercise prescriptions, nutrition, music therapy, art therapy, and group fitness classes to virtual and online alternatives with a high rate of patient retention and satisfaction. Full-time acupuncturists and massage therapists were reassigned to work-from-home tasks or other administrative and COVID-safety related tasks within the HCI building.

**Conclusion:** The COVID-19 pandemic prompted many healthcare facilities to quickly adapt healthcare treatments and day-to-day operations into online and telehealth offerings. The in-person and hands-on modalities found at Huntsman Cancer Institute's WIHC forced our team to utilize creative and unprecedented measures to ensure continuity of care for our patients. The WIHC team and its leadership hope that by sharing its rapid and adaptable response to clinical and supportive services it can help other wellness programs and healthcare facilities adapt to future emergency and disaster situations.

## Education Research

### P07.01

#### Impact of Evidence Informed Practice Education Upon Faculty Clinical Instruction and East Asian Medicine Student's Skills, Knowledge, Attitudes and Behaviors

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#### Abstract

**Objective:** Between 2013–2018 Pacific College of Health and Science substantially revised the curriculum of the Master of Science in Traditional Oriental Medicine (MSTOM) program to incorporate evidence informed practice (EIP) content. A three-credit (45 hour) Foundations of EIP course, and online EIP learning modules, were used for faculty and student training. In addition, EIP was incorporated into 73% of the MSTOM program. Clinical integration of EIP in the College clinic was enhanced by improving access to reference sources, including additional EIP-related questions on patient intake forms, incorporating a patient-centered outcome instrument, and assessing clinical EIP competencies. The objective of this study was to determine the impact of the EIP course upon student's EIP skills, knowledge, attitudes and behaviors, and the impact of the changes to the College clinic upon faculty's clinical instruction.

**Methods:** Student's EIP skills, knowledge, attitudes and behaviors were assessed before and after taking the Foundations of EIP course using a 17-question paper-based survey with an additional open-ended comments section. The survey was administered in 29 courses across all three Pacific College campuses. Clinical faculty EIP instruction was evaluated on the New York City campus using a paper-based survey before and after changes were made to enhance the clinical integration of EIP.

**Results:** A total of 1181 completed EIP-course surveys, consisting of 657 pre-EIP and 524 post-EIP course surveys, were analyzed. There was a statistically significant improvement in student's EIP skills, knowledge and behaviors after completing the EIP course. Students' perception of the importance of EIP was high before and after the EIP course. Little change in Faculty's EIP-related clinical

instruction was evident following the EIP-related changes that were made to the Clinic.

**Conclusion:** Students' self-assessed EIP skills, knowledge and behaviors improved after EIP training. Different approaches may be required to improve implementation of EIP in clinical settings.

## P07.02

### Integrative Medicine in Residency 10 Year Graduate Impact Evaluation Survey

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#### Abstract

**Objective:** Integrative Medicine in Residency (IMR) is a 200-hour competency-based, interactive online curriculum designed for incorporation into residency education. The first and most extensive national curricular project introducing Integrative Medicine (IM) to residents. Launched in 2008 with eight pilot sites, IMR has expanded to 99 sites across the United States and internationally (1,469 alumni). **Methods:** A survey was sent to IMR program graduates. The survey included: background characteristics; current employer/practice setting; patient population; IMR impact professionally; IMR impact on self-care; applying IM in clinical practice; interprofessional collaboration; impact of IM approach on patient care; barriers incorporating IM into clinical practice; and IM training since graduation

**Results:** One hundred fifty-nine graduates completed the survey (13%). Respondents were female (79%), white (69%), MDs (67%), and provide primary care (89%). Most felt the IMR met their needs in preparing for clinical practice (84%) and gave them tools to practice IM (91%). Half rated IMR highly for its influence on their well-being (51%) and wellness behaviors (42%). IM approaches were most likely to be applied in Preventive/Lifestyle medicine, Sleep Management/Insomnia, Pain Management, Weight Management, Mood Disorders and Gastroenterology. Graduates were most likely to provide nutrition counseling, botanicals/supplements information, mind-body medicine, and health coaching to patients, referring out for manual medicine and acupuncture. Less than half reported an IM approach improved patient impact (satisfaction (43%), knowledge (41%), communication (39%), outcomes (32%). Most (73%) reported prescription use decline. The major barrier to incorporating IM into clinical practice was financial (insurance, cost,

etc.). Twenty-six percent received additional IM training after graduation; 76% would like additional IM training.

**Conclusion:** A limited number of IMR graduates responding to this survey rated their experience of IMR positively, both personally and professionally in preparing for clinical practice. The graduates reported providing IM approaches in their practice, with the strongest patient impact was decreased prescription use.

## P07.03

### Evaluating the Quality of Online Consumer Health Information at the Intersection of Complementary and Alternative Medicine and Three Common Chronic Pain Conditions

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#### Abstract

**Objective:** Complementary and alternative medicine (CAM) is commonly used by patients experiencing a variety of chronic pain-related conditions (CPCs). Approximately one-third of patients experiencing CPCs use the internet to seek information about their condition. Specifically, arthritis, neck pain, and low back pain are CPCs for which patients use CAM with a high prevalence (between 30–70%). Despite this, little is known about the quality of online consumer health information (CHI) found at the intersection of CAM and these pain-related conditions.

**Methods:** Searches were conducted on Google, and search terms were comprised of one synonym of “CAM” in conjunction with one of the three CPCs, across four English-speaking countries to obtain a more internationally representative selection of commonly-visited websites. Eligible websites included at least one webpage containing CHIs found at the intersection of CAM and one of these CPCs; the first 20 results of each search were collected. Websites were assessed in duplicate using the DISCERN instrument, which consists of a five-point Likert scale across 16 questions to assess CHI quality. Means and standard deviations for summed scores (questions 1–15) and overall quality (question 16) were calculated.

**Results:** Across all websites, mean summed DISCERN scores and mean overall quality scores were as follows: 55.53 (SD = 9.37) and 3.71 (SD = 0.63) for arthritis; 45.90 (SD = 9.84) and 3.04 (SD = 0.76) for neck pain; 53.25

(SD = 10.41) and 3.47 (SD = 0.70) for low back pain. The quality of CHI available online for these CPCs was found to be useful but had several shortcomings. Most websites discussed the benefits and variety of treatment options available but inadequately reported the risks and adverse side-effects.

**Conclusion:** Given the varying quality of online CHI for these CPCs, healthcare providers should be aware of the information their patients may access online and should play a role in guiding them towards high quality, trustworthy information resources.

## Health & Healthcare Equity

P08.01

### Neutrophil-Lymphocyte Ratio and Inflammatory Bowel Disease: A Systematic Scoping Review of the Literature

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#### Abstract

**Objective:** Neutrophil-lymphocyte ratio (NLR) is an emerging biomarker of systemic inflammation. Preliminary evidence suggests it may have clinical utility in a variety of health conditions, including inflammatory bowel disease (IBD). NLR is easily calculated from a routine blood count, potentially making NLR an attractive alternative to more costly biomarkers. However, while the role of NLR in IBD has been explored, to date no systematic reviews been published.

**Methods:** We conducted a systematic scoping review of available literature to explore the relationship of NLR with IBD, specifically ulcerative colitis and Crohn's disease. PubMed, Embase, CENTRAL, CINAHL, ClinicalTrials, Cochrane Specialized Register, DOAJ, PDQT, EMBASE, Biosis Citation Index, Scopus Conferences, and Web of Science were searched. Inclusion and exclusion criteria were applied independently by two reviewers. Data were extracted, charted, and summarized from eligible studies independently and in duplicate.

**Results:** Fifty-five primary studies met inclusion criteria. Studies ranged in size (10 to 4,739 participants), were conducted primarily in Turkey (n = 12), China (n = 9), and the United States (n = 6), and were predominantly retrospective cohort or case-control studies. The studies assessed NLR in terms of generating cut-off thresholds (n = 29),

stratifying disease severity (n = 23), determining disease presence (n = 22), comparing performance to conventional inflammatory biomarkers (n = 16), endoscopic/mucosal activity (n = 11), predicting treatment response (n = 10), and predicting complications (n = 10).

**Conclusion:** Data from multiple studies suggest NLR may potentially discriminate between patients with IBD and healthy controls and NLR may be a cost-effective biomarker for initial screening, medical management, and prediction of IBD complications. Considering the low cost, ease, and ubiquitous availability of patient blood count data to compute NLR, these findings, although preliminary, are promising particularly to improving healthcare equity. Additional research into the utility of NLR as a surrogate biomarker of inflammation in IBD is needed to better understand how NLR might be appropriately implemented in clinical practice.

## Health Services Research

P09.01

### Documentation of Non-Pharmacological Therapies in the Electronic Health Record: A Scoping Review

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#### Abstract

**Objective:** management. National organizations recommend the use of non-pharmacological therapies and documentation of these therapies in the electronic health record (EHR). Yet, non-pharmacological therapy documentation in the EHR is poorly understood. The purpose of this review is to examine the current state of clinical documentation practices of non-pharmacological therapies in the EHR.

**Methods:** We conducted a literature search using six electronic databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Ovid MEDLINE, Scopus, Google Scholar, Embase, and Pubmed. We used predefined search terms ("informatics," "documentation," "non-pharmacological approaches," "electronic health records") using AND/OR statements. No restriction was placed on publication date. Inclusion criteria included: 1) described non-

pharmacological therapy documentation practice used in the research; 2) original research; 3) focused on non-pharmacological/integrative therapies; 4) peer reviewed full paper in English.

**Results:** We identified 782 articles and 13 met criteria for full review. A majority of the studies were conducted in the US (9) and in a hospital (9). The majority of study designs were Retrospective (6) or Cross-sectional (3). Of the 13 studies, eight used EHR data as a data source for analysis. Documentation practices varied widely across all studies, ranging from feasibility of documenting integrative therapies (i.e. homeopathy) to creating changes with the EHR to support documentation (i.e. flowsheet). Documentation of integrative therapies is predominately nurse driven.

**Conclusion:** This scoping review identified trends in documentation of integrative therapies within the EHR. EHR data is a growing data source to analyze integrative therapies in clinical practice. Informatics approaches such as data standards, templates, or predefined scripts may support documentation. Recommendations include practice and policy changes to support non-pharmacological therapy documentation such as development of core data elements to enable sharable and comparable data across organizations.

#### P09.02

### An Innovative Model for the Primary Care of Spinal Pain: Implementation at an Academic Medical Center

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#### Abstract

**Objective:** Primary Spine Care (PSC) is an innovative approach to the first-line management of patients with spine-related disorders (SRDs). PSC clinicians serve as the initial or early point of contact for spine patients and utilize evidence-based spine care pathways for clinical decisions to improve outcomes and reduce escalation of care (EoC) (e.g., specialist visits, spinal injections). The present study examined 6-month outcomes for patients seen at an academic primary care facility. We hypothesized that patients seen by a PSC clinician would utilize fewer healthcare resources as compared to patients seen by a primary care clinician.

**Methods:** We evaluated 6-month outcomes associated with care provided by a PSC clinician implementation, as

compared to usual care by a primary care physician. All patients were seen for a primary diagnosis of a spine-related disorder at an academic primary care facility. Outcomes for 2,692 patients were examined for two groups: Group A (1,363 PSC patients) and Group B (1,329 Primary Care Patients).

**Results:** Within six months of an initial visit for an SRD, a significantly smaller proportion of PSC patients utilized healthcare resources compared to Group B. Specifically, a smaller percentage of PSC patients filled prescriptions for pain medication (3.7% vs. 14.4%,  $p < .001$ ), had hospitalizations (1.5% vs. 4%,  $p < .001$ ), had surgeries (0.7% vs. 1.7%,  $p = .03$ ), had referrals to a specialist (e.g., the facility's spine center) (4.4% vs. 9.3%,  $p < .001$ ), had diagnostic imaging (7.7% vs. 14.1%,  $p < .001$ ), and had spinal injections (3.4% vs. 5.9%,  $p = .002$ ).

**Conclusion:** In our evaluation of this innovative model of spine care, patients who received PSC experienced significantly less escalation of their spine care within 6 months of their initial visit. The PSC model may offer a more efficient approach to the primary care of spine problems, as compared to usual primary care.

#### P09.03

### Managing Pain Better: Strategies to Advance Integrated Pain Management Programs

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#### Abstract

**Objective:** Chronic musculoskeletal pain is a leading cause of disability in the United States, with significant economic, emotional, and societal costs. Prevailing approaches to managing pain often favor pharmacological and procedure-oriented interventions to address the biological causes or contributors to pain. However, a growing evidence base suggests that integrated pain management (IPM) models – which incorporate an array of treatments to address the biopsychosocial and functional needs of patients – can be effective in managing and reducing the burden of pain. The Duke Department of Orthopaedic Surgery and the Duke-Margolis Center for Health Policy conducted a multi-stakeholder study to understand how health systems have

developed and implemented IPM models and how such models can be replicated and scaled.

**Methods:** We conducted 40 semi-structured stakeholder interviews with a variety of payers, health care administrators, providers, policymakers, and researchers to explore how health systems have effectively managed pain for their populations as well as identify the challenges and enabling factors that affected program implementation and financing. Interviews were qualitatively analyzed to generate themes.

**Results:** We identified several policy barriers that have challenged the adoption and viability of IPM programs, such as workforce credentialing, lack of reimbursement for integrative services, utilization review requirements, and a predominant fee-for-service payment model. Deeply engrained practice patterns, patient beliefs, and stigma around pain management were additional barriers. Several health systems have overcome these challenges by developing innovative approaches to organizational buy-in, financial sustainability, quality measurement, care navigation, and service integration.

**Conclusion:** IPM programs can effectively reduce the burden of pain but are often stymied by coverage, reimbursement, and organizational challenges. The experiences of leaders who have achieved success in implementing IPM programs offer real-world best practice models for other health care systems looking to provide better outcomes for their patients through integrative pain care.

#### P09.04

### An Academic Integrative Healthcare Centre: Protocol for Longitudinal Evaluation

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#### Abstract

**Objective:** Given increasing evidence and consumer demand, the combined use of traditional, complementary and integrative medicine (TCIM) and conventional care, has the potential to reduce healthcare costs and chronic disease burden. As such, it is important to study models of how TCIM and conventional care can be provided in coordinated ways. Australia's first academic integrative healthcare centre, delivering a model of care which is patient-centred, in a team-

based collaborative setting, that is evidence-based and evidence generating. Underpinning the centre is a mixed-methods study to examine the value and safety of this model of care, and whether the objectives are being achieved.

**Methods:** The evaluation is a longitudinal, prospective observational study of patients and the practitioners and staff who care for them. The mixed-methods study design incorporates a broad range of primary measures. Subjective self-report quantitative instruments and other routinely collected data will be used to measure the extent to which the centre meets objectives in delivering evidence-based, whole-person care in a multidisciplinary and team-based environment in order to improve health outcomes. A patient registry will be established and assess the extent to which the Centre is achieving its aims (summative evaluation) and to inform patient care and future directions of the integrative healthcare program at the Centre (formative evaluation). Secondary sources of data will include electronic medical record extracts and linkage with other Australian health datasets.

**Results:** The analysis will be conducted within the context of the Quadruple Aim. Analysis will measure health outcomes, per capita cost of care, the extent to which quality healthcare and person-centredness is provided, and practitioner satisfaction and wellbeing.

**Conclusion:** Integrative healthcare is a "whole systems" approach that employs multiple TCIM modalities in a collaborative way. Studying outcomes and cost effectiveness from this approach is complex and requires a hybrid of implementation and effectiveness science.

#### P09.05

### Familiarity, Use and Interest in Integrative Modalities for Diagnosed and Misdiagnosed Lyme Disease With Persistent Symptoms

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#### Abstract

**Objective:** Approximately 10% of patients diagnosed with Lyme Disease (LD) continue to have symptoms of pain, fatigue, cognitive and mood issues. Often, patients receive multiple courses of antibiotics with little benefit. The purpose of this study was to assess the familiarity, use and interest in Integrative Medicine (IM) modalities amongst patient with LD or misdiagnosed LD.

**Methods:** Patients at the Integrated Lyme Program at the University of Maryland completed clinical intake forms which included questions on their familiarity, use and

interest in the following: meditation, yoga, breathwork, tai chi, hypnosis/guided, herbal medicine, vitamin and mineral supplementation, chiropractor, massage, acupuncture, qi gong, reiki, healing touch, Ayurveda, Traditional Chinese Medicine (TCM), homeopathy, naturopathy, special diets.

**Results:** Participants were most familiar with the following: vitamin and mineral supplementation (73.96% n = 153), massage (73%, n = 152), yoga (71.9%, n = 153), meditation (71.9%, n = 153), chiropractor (68.4%, n = 152), acupuncture (61%, n = 152), herbal medicine (59.5% n = 153), and breathwork (52.9%, n = 153). They were least familiar with qi gong (12.7%, n = 150), and Ayurveda (12.0%, n = 150). Patients had used vitamins and mineral supplementation most often (60.4%, n = 154) followed by chiropractic (46.4% n = 153), massage (43.8%, n = 153), yoga (41.8%, n = 153) and acupuncture 39.2%, (n = 153). Only 2.6% (n = 153) had ever used Ayurveda and only 9.8% (n = 153) had ever used TCM. Participants were most interested in vitamin and mineral supplementation (64.4% n = 149) and herbal medicine (59.1%, n = 149). Approximately 40- 50% (n = 149) of patients were interested in breathwork, special diets, massage, acupuncture, meditation, yoga and naturopathy. For Ayurveda and TCM, 34.9% and 39.6% of participants respectively expressed interest.

**Conclusion:** Patients with persistent symptoms after diagnosed LD are familiar with, use and express interest in many IM modalities. There was interest in Ayurveda and TCM despite low familiarity and usage. Further research is needed for evaluation of IM modalities as a treatment option for patients with persistent symptoms attributed to LD.

#### P09.06

### A Qualitative Systematic Review of Pharmacists' Knowledge of Dietary and Herbal Supplements

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#### Abstract

**Objective:** Pharmacists are one of the most accessible healthcare professionals, and routinely counsel patients on the safe use of pharmaceutical medications, as well as over-the-counter products which include dietary and herbal supplements (DHSs). Past research has established that patients and pharmacists alike, both believe that the latter should be knowledgeable about DHSs, even though their training on this topic is typically limited. The objective of

this qualitative systematic review was to examine pharmacists' knowledge, attitudes, and awareness of DHSs.

**Methods:** MEDLINE, EMBASE, AMED, and CINAHL were searched from inception to May 2020. Eligible studies reported qualitative data regarding pharmacists' knowledge, attitudes, and awareness of DHSs. Relevant data was extracted from each eligible article, and a thematic analysis was performed to identify themes and subthemes.

**Results:** Of 1379 unique search results, a total of 13 articles were deemed eligible and included in this review. Three main themes were identified as follows: 1) lack of time and inadequate evidence-based literature about DHSs preventing pharmacists from safely and confidently counselling patients on these products, 2) pharmacists' existing lack of knowledge, training, and education on DHSs and drug-DHS interactions, despite pharmacists' perception that this topic is of importance to their profession, and 3) lack of regulations governing the sale and services of DHSs and ambiguity surrounding pharmacists' professional role in relation to these products.

**Conclusion:** Inadequate and inaccessible DHS information resources in the pharmacy, as well as lack of DHS education and training in the field, were some of many factors which influenced pharmacists' perceived knowledge and awareness of DHSs. A poor knowledge base, poor regulations of DHSs and lack of time reduced pharmacists' abilities to counsel patients with confidence. Research surrounding the incorporation of DHSs into workplace training and revising pharmacy education curricula as well as regulations surrounding DHSs warrant further investigation.

#### P09.07

### Supply of Clinicians Who Provide Spinal Manipulation to Medicare Beneficiaries

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#### Abstract

**Objective:** Spinal manipulation (SM) is recommended for first-line treatment of patients with low back pain. Inadequate access to SM may result in inequitable spine care for older US adults, but the supply of clinicians who provide SM under Medicare is uncertain.

**Methods:** We examined Medicare administrative data from 2007–2015 for SM services identified by procedure code. We identified unique providers by National Provider Identifier, and distinguished between chiropractors and other specialties by Physician Specialty Code. We calculated supply as number of providers per 100,000 beneficiaries, stratified by geographic location and year.

**Results:** Of all clinicians who provide SM to Medicare beneficiaries, 97–98% are Doctors of Chiropractic (DCs). The geographic supply of DCs providing SM services in 2015 ranged from 20/100k in the District of Columbia to 260/100k in North Dakota. The supply of other specialists performing the same services ranged from less than 1/100k in eleven states to 8/100k in Colorado. Nationally, the number of Medicare active chiropractors declined from 47,102 in 2007 to 45,543 in 2015. The count of other clinicians providing SM rose from 700 in 2007 to 1,441 in 2015.

**Conclusion:** Chiropractors constitute the vast majority of clinicians who bill for SM services to Medicare beneficiaries. The supply of Medicare-active SM providers varies widely by state. The overall supply of SM providers under Medicare is declining, while the supply of non-chiropractors who provide SM is growing.

## P09.08

### Development of Evidence-Based Chinese Medicine Clinical Service Recommendations for Cancer Palliative Care Using Delphi Approach Based on the Evidence to Decision Framework

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## Abstract

**Objective:** Existing evidence supports the use of certain Chinese medicine (CM) interventions for symptom management among palliative cancer patients. However, evidence-based service recommendations tailored to the local context are needed for CM planning and implementation. In response, we aimed to establish consensus on CM clinical service recommendations for cancer palliative care among Hong Kong experts.

**Methods:** Seven CM interventions showing statistically significant favorable results in existing systematic reviews (SRs) and overviews of SRs were subjected to a GRADE-ADOLOPMENT–based 2-round Delphi survey. Twelve Hong Kong experts in cancer palliative care, including conventionally trained physicians, CM practitioners, and nurses (n = 4 from each category), were invited to participate. Use of the Evidence to Decision framework within the GRADE-ADOLOPMENT approach enabled experts to consider aspects of problem priority, benefits, harms, equity, acceptability, and feasibility when making CM recommendations in cancer palliative care.

**Results:** Three evidence-based CM interventions reached positive consensus as service recommendations, namely: (1) acupuncture for reducing fatigue among palliative cancer patients; (2) acupressure for reducing fatigue among palliative cancer patients; and (3) moxibustion for reducing nausea and vomiting among patients receiving chemotherapy. Median rating of recommendation ranged from 2.5 to 3.0 (interquartile range = 0.00–1.00) on a 4-point Likert-type scale, and the percentage agreement ranged from 83.4% to 91.7%.

**Conclusion:** The GRADE-ADOLOPMENT approach facilitates a consensus-based process of reaching 3 evidence-based CM recommendations for cancer palliative care. Future studies may develop tailored strategies to implement these recommendations in the Hong Kong health system.

## P09.09

### The Feasibility and Acceptability of Health and Wellness Coaching for Neuroendocrine Tumor Patients and Their Caregivers

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**Abstract**

**Objective:** Neuroendocrine tumor (NET) patients and caregivers report significant negative psychosocial consequences from living with this rare, insidious cancer. Nonetheless, limited wellness interventions have been tailored to this population. As a nonprofit that provides education, advocacy, and support to the NET community, LACNETS (Los Angeles Carcinoid Neuroendocrine Tumor Society) launched the first health and wellness coaching (HWC) program for NET patients and caregivers. The objective of this study to assess feasibility and acceptability of HWC for NET patients and caregivers.

**Methods:** NET patients (n = 20) and caregivers (n = 10) were offered 8 HWC sessions (45-60 min) funded by LACNETS and an optional two sessions subsidized for a fee of \$20 each. Sessions were delivered telephonically or virtually by nationally board-certified HWCs. Feasibility was assessed through enrollment and retention. Program acceptability was assessed through 4 Likert questions at program completion.

**Results:** Thirty-three participants requested information; 27 enrolled, and 21 have completed more than 6 sessions thus far (6 still enrolled). Fifteen (10 NET patients, 5 caregivers) attended all 8 sessions, with the mean (SD) = 6.8 (1.94). Ten opted for additional sessions [mean (SD) = 0.9 (0.99)], bringing the mean (SD) of sessions completed to 7.6 (2.70). Ten of 16 (63%) who have finished the program provided acceptability ratings on a 5 point scale. All participants (100%) rated HWC at 4 or 5 for “helping [them] make positive changes in [their] overall health and wellness,” and all “would recommend HWC to another NET patient/caregiver.” Eighty percent rated HWC at 4 or 5 as “a valuable investment” through which they “gained new insights and/or skills that helped them better thrive while living with NET.”

**Conclusion:** Enrollment met projections; retention surpassed them. Strong program acceptability was also demonstrated in this compromised population with high psychosocial needs. Further research on this innovative approach is warranted in NET patients and caregivers.

**Lifestyle Medicine & Nutrition****P10.01****Efficacy of a Multimodal Online Lifestyle Intervention for Depressive Symptoms and Quality of Life in Individuals With a History of Major Depressive Disorder**

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**Abstract**

**Objective:** Major depressive disorder (MDD) is a complex bio-psycho-social syndrome that affects millions of individuals and is one of the leading causes of impaired quality of life (QOL). Many individuals with MDD suffer from isolation without the sense of a supportive, surrounding community. This randomized controlled trial was designed to determine the efficacy of a multimodal, online and community-based lifestyle intervention for improving depressive symptoms and QOL in individuals with a history of MDD.

**Methods:** 71 individuals were randomized to either participate in a 44-day lifestyle intervention or placed on a wait-list. The multimodal intervention involved a self-directed learning program where individuals were guided to make lifestyle changes including adopting a whole-foods diet, increasing movement, and adopting stress management and mindfulness practices.

**Results:** 37 participants were randomized to participate in the multimodal intervention with 26 completing three questionnaires at both time points. 27 participants in the control group showed no clinically nor statistically significant changes in the MSQ, PHQ-9 or any subdomains of the SF-36. When compared to the control group, the intervention group showed statistically and clinically significant improvements in median (M) scores of the SF-36 subdomains of vitality and mental health. There were additional statistically and clinically significant improvements in the mean score of the MSQ and M scores of the PHQ-9 (treatment pre-intervention M = 10.5, inter-quartile range [IQR] = 14, to treatment post-intervention M = 5, IQR = 8.25; control pre-intervention M = 15, IQR = 8, to control post-intervention M = 13.5, IQR = 12.5).

**Conclusion:** Our randomized controlled study provides evidence for the role of a multimodal, community-based lifestyle intervention to improve depressive symptoms, QOL, and symptom burden in individuals with MDD. Given the growing challenges of effectively supporting individuals suffering with MDD, it appears critical to further explore the utilization of novel, multimodal and self-directed lifestyle interventions.

## P10.02

### Constitution (Prakriti) as Defined by Ayurveda Is a Risk Factor for Stroke

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#### Abstract

**Objective:** Ayurveda (traditional Indian medicine) describes the prakriti (constitution) of an individual in terms of three factors, called vata, pitta and kapha. Prakriti has recently been found to correlate with genomic variations, enzymatic polymorphisms, and severity of disease manifestation. It is also believed to influence disease susceptibility. We performed a Case-control study to investigate whether prakriti is associated with risk for stroke.

**Methods:** Adult subjects diagnosed with an ischaemic, haemorrhagic or venous stroke (n = 166) and their caregivers/bystanders (n = 159) in the hospital without a history of stroke, were enrolled for the study. A 62-item yes/no questionnaire previously developed for prakriti analysis, was administered to the cases and controls. Statistical regression was used to model stroke risk using known risk factors – hypertension, diabetes, high cholesterol, smoking, and alcohol. The modelling was repeated with prakriti information as a factor to determine if prakriti had any independent predictive value besides these factors.

**Results:** Stroke patients – both ischaemic and haemorrhagic – had significantly lower kapha scores compared to controls (40.8 ± 14 vs 48.1 ± 18; P < 0.0001). Pitta and vata scores showed no significant difference. This difference appeared to be primarily in males in our sample, however we had low numbers of female stroke patients (n = 50), so this needs to be verified. Regression analysis showed that kapha score added statistically significant information to the

model of stroke risk, i.e. kapha score was a predictor of stroke risk independent of known vascular risk factors.

**Conclusion:** Prakriti appears to be an independent predictor of stroke risk in addition to known vascular risk factors. Specifically, a low kapha score appears to be associated with risk for stroke. Further epidemiological study of prakriti in stroke is warranted.

## P10.03

### Dietary Supplement Use and Sources of Information for Use in a Population of Breast Cancer Patients

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#### Abstract

**Objective:** To identify natural product (e.g. fish oil), vitamin, or mineral dietary supplements (DS) in current use by breast cancer (BC) survivors.

**Methods:** An online survey was developed to self-report current DS use; breast cancer history, including concurrent treatments; and primary influences on DS choice. Recruitment focused on social media advertising.

**Results:** The majority of participants completing the survey to date (N = 1,318) were non-Hispanic Caucasian (94.8%) females (100%) living in the US (96.8%), 62 +/- 10 years of age, with an average age at diagnosis of 57 +/- 10 years. Estrogen receptor and/or progesterone receptor-positive (ER+/PR+) tumors were the most commonly reported subtype (64.9%). Vitamin and/or mineral (VM) DS use was reported by 80.7%. Among those reporting VM DS use, vitamin D (84.1%), calcium (55.3%), multivitamin (47.9%), and vitamin C (34.8%) were the most prevalent. Health care providers (HCP) were a primary source of information for VM DS use (e.g. 88.7% of calcium users took it based on HCP recommendations). Natural product (NP) DS use was reported by 65.9%. Among these women, probiotics (31.9%), turmeric (28.8%), fish oil/omega-3 (28.4%), melatonin (26.0%), and cannabis (21.1%) were the most prevalent. Primary sources of information for NP DS use varied. For instance, for turmeric, family/friends or internet/social media were primary sources (49.8%). Patterns of use also varied by tumor subtype, being more common with ER+/PR+, and concurrent treatments (e.g. greater cannabis use concurrent with chemotherapy).

**Conclusion:** While vitamin/mineral DS use was primarily driven by HCP recommendations, NP DS use by BC survivors was often based on recommendations of family, friends, and social media, with a prevalence 3-fold higher

than for US adults. Because risks and benefits of NP DS are not well described and drug interactions are possible, open lines of communication between survivors and HCP about DS use is essential.

#### P10.04

### The International Cohort on Lifestyle Determinants of Health Study: The Associations Between Mindfulness, Stress and Sleep in Postsecondary Education students Studying Complementary and Integrative Health

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#### Abstract

**Objective:** There is a paucity of data evaluating the health and lifestyle behaviors amongst adults studying complementary and integrative health (CIH). The International Cohort on Lifestyle Determinants of Health (INCLD Health) study aims to evaluate health behaviors and lifestyle practices performed by students enrolled at accredited colleges and universities studying CIH. More specifically, the objectives are to assess how utilization of CIH practices change over time and how they impact physical health, mental health, wellness, and changes to the gut microbiome. Here we present preliminary data describing the associations between mind-body practices on stress and sleep amongst students at the flagship site for INCLD

**Methods:** Unadjusted and adjusted linear regression models evaluated the associations of meditative mind-body practices, stress, and sleep quality with area under the curve (AUC) cortisol. Unadjusted and adjusted logistic regression models evaluated the effects of meditative mind-body practices on stress and sleep. Mind-body practices, stress, sleep quality, and AUC cortisol were assessed via the stress management and self-care survey, 10-item Perceived Stress Scale (PSS), patient-reported outcome measures information system-29 (PROMIS-29) sleep subscore, and salivary cortisol, respectively.

**Results:** 71.8% (n = 107) of the cohort reported use of meditative mind-body practices. There were no significant correlations between meditative practices on stress, sleep, or area under the curve (AUC) cortisol in both unadjusted and adjusted models (all p > 0.05). Poor sleep was the only predictor of AUC cortisol after adjusting for race, ethnicity, sex, and program enrollment ( $\beta = 7.7$ , p = 0.046) which was no longer significant after adjusting for BMI and waist circumference ( $\beta = 8.3$ , p = 0.06).

**Conclusion:** In this prospective cohort of adults receiving a CIH education, despite the majority of participants partaking in meditative mind-body practices, no significant associations between meditative practices on AUC cortisol, perceived stress, or sleep quality were found.

#### P10.05

### Initial Feasibility & Acceptability of an Interactive, Self-Directed Mindfulness App, Wakeful: Preliminary Findings From a Cardiac Rehab Pilot Study

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#### Abstract

**Objective:** While technology-based mindfulness programs (MPs) have become mainstream, most offer a collection of different guided meditation practices to listen to as needed versus a prescribed, developmentally sequenced pedagogy. The Wakeful app offers a sequentially paced curriculum, inquiry-centered didactics, and community support features, all within a self-directed user experience. The objective of this presentation is to provide initial feasibility/acceptability evidence of Wakeful in a cohort of cardiac rehab (CR) patients.

**Methods:** CR patients are currently being enrolled into a small, single-arm, 9-week feasibility/acceptability pilot study, which we recently paused half-way through to review initial data and make necessary refinements prior to recommencing. Feasibility/acceptability is measured with a post-course survey, from which response categories “somewhat”, “quite a bit” and “very much” were aggregated to reflect overall endorsement. Percentages  $\geq 70\%$  were considered feasible/acceptable.

**Results:** Fifteen participants have completed the post-course survey. For feasibility, the majority of users found Wakeful to be easy to use (80%) including ease in logging in (80%), navigating (87%), using the dashboard (67%), hearing audio clearly (100%), viewing content clearly (93%), and having the right amount of information on each screen (87%). For acceptability, the majority of users reported enjoying their experience with the app (73%), felt that information was presented well (93%), felt the tool had appealing features (60%), looked forward to using it (67%), liked the content (80%), and wanted to continue using it after the study (73%). Of note, only 29% endorsed that community posts helped them feel connected to others or feel supported.

**Conclusion:** Through these reports, feasibility/acceptability indicators were largely above the  $\geq 70\%$  endorsement threshold, with the exception of certain acceptability indicators, most notably the community feature. This initial information is promising and suggests that usability-focused refinements could improve user experiences and increase adherence and satisfaction during the second half of our study.

## Other

### P11.01

#### Client Perceptions of a Therapeutic Garden at an Inner-City Substance Abuse Recovery Facility: Findings From a Community-Engaged Qualitative Evaluation

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#### Abstract

**Objective:** To present client perceptions of a therapeutic garden at an inner-city outpatient addictions recovery center using community engaged qualitative methods. Long-term addiction recovery requires discovering new modalities that are healthy alternatives to substance use. Healing gardens provide opportunities for creativity, mindful reflection, physical movement, and the creation of social networks, which may aid recovery. We used qualitative methods to gather clients' perspectives of their experiences in a healing garden, information that will be used to guide design of future programming.

**Methods:** Semi-structured interviews were conducted with ten members of a community advisory board

comprised of current clients at a Chicago-area outpatient substance abuse treatment clinic. Interviews were conducted by telephone and recorded. Following transcription, Grounded Theory qualitative methods were used for data analysis. Using DeDoose, team members developed a coding scheme collaboratively then openly coded one transcript together to create an initial code book. All coders subsequently demonstrated acceptable inter-rater reliability scores ( $\kappa > .70$ ) in order to proceed to code the following 2–3 transcripts independently. Selective and axial coding followed, in which team members created high-order categories and themes.

**Results:** One hundred forty-seven codes were applied, which were grouped into 14 unique categories, and then elevated into 4 overarching themes. The themes included: Personal Transformation, which represented 35% of all passages coded (e.g. codes: emotionally invested, expressing gratitude); Sensory Experiences, representing 33% of all passages (e.g. smelling tree bark, hearing birds); Garden Engagement, representing 24% of coded passages (e.g. Comes naturally to me, gardening not hard); and Garden Features, representing 7% of coded passages (e.g. Benches in the garden, flowers/flowerbeds seen in the garden).

**Conclusion:** Overall participant enthusiasm for engaging with the garden was high as was enthusiasm for participating in the interviews. Results will be presented to clients and facility staff as part of future program planning steps.

### P11.02

#### A Scoping Review of Research Trends on Mindfulness Interventions Over the Past Two Decades

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#### Abstract

**Objective:** There has been significant growth in the scientific literature investigating mindfulness-based therapies. This retrospective bibliometric analysis aimed to describe

overarching trends in publications of randomized controlled trials (RCTs) investigating mindfulness to broadly identify strengths/gaps in this field and inform strategic plans for further advancing this research area.

**Methods:** We retrieved mindfulness-focused RCTs available on PubMed in the past two decades (2000-2019). We synthesized the literature with respect to publication numbers, countries of publication, journal type, areas of research focus, characteristics of study designs, sample size, and trends in remote intervention delivery.

**Results:** The resulting 1389 publications represent a nearly exponential growth trend over the past 20 years. Publications from the top three countries (United States, United Kingdom and the Netherlands) with the highest productivity accounted for 60% of the total number of publications. The most published modalities include acceptance-based therapy (n = 260), mindfulness-based stress reduction (MBSR, n = 238), mindfulness-based cognitive therapy (MBCT, n = 174) and dialectical behavior therapy (DBT, n = 82). Stress, depression, anxiety, pain, cancer, diet/healthy eating, and sleep were the most common major areas of focus. Studies included active (46%) or inactive controls (44%), and increasingly more studies with both types of controls (10%). The top 10 journals that published the most mindfulness RCTs were from behavioral sciences and psychiatry or psychology. There were 187 RCTs utilizing remote delivery, with 146 (87.1%) in the most recent 5 years.

**Conclusion:** Publications of mindfulness-focused RCTs show a continuously increasing trend. Mindfulness research from non-Western countries and studies published in biomedical journals were less prevalent and potentially represent future opportunities. Trends of studies with both inactive and active controls support an overall advancement in research methodology. There has been a significant expansion of studies of remotely-delivered mindfulness interventions. Future research might consider an evaluation of a broader range of modalities and further examine optimal delivery formats.

### P11.03

## Clinical Practice Guidelines in Oncology: Status and Quality of Complementary, Alternative, and Integrative Medicine Recommendations

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### Abstract

**Objective:** Complementary and alternative medicine (CAM) therapies are commonly used among patients with cancer. Despite this popularity, conventional practitioners may lack the knowledge and training surrounding these therapies, and thus rely on evidence-based clinical practice guidelines (CPGs) to guide decision-making in integrative cancer care. We therefore sought to quantify and characterize CAM recommendations CPGs for the treatment/management of 5 common cancer types and cancer-related pain (CRP).

**Methods:** We conducted 6 systematic reviews (SR) to identify cancer CPGs as follows: breast, head/neck, lung, ovarian, colon, and CRP. For each SR, we searched over the last decade for and identified eligible CPGs using MEDLINE, EMBASE and CINAHL databases, and the Guideline International Network and the National Centre for Complementary and Integrative Health websites. For each eligible CPG identified to contain CAM recommendations, two reviewers independently used the Appraisal of Guidelines, Research and Evaluation II (AGREE II) instrument twice to evaluate: the reporting quality overall, and the specific section providing CAM recommendations.

**Results:** We found the following number of cancer CPGs to contain CAM recommendations per SR: CRP (n = 11), breast (n = 4), head/neck (n = 4), lung (n = 3), colon (n = 0), and ovarian (n = 0). For the 4 SRs that identified CPGs including CAM recommendations, the AGREE II scaled domain percentages were highest for the domain of scope and purpose and lowest for applicability. Across the cancer CPGs captured by these 4 SRs, the most common CAM therapies found in recommendations were as follows: mind-body modalities (n = 16), herbal therapies/supplements (n = 13), acupuncture (n = 9), behavioral therapy/counseling (n = 9). Of all CPGs with CAM recommendations, 55% were published within the last five years.

**Conclusion:** Given the high prevalence of CAM use among patients with cancer, these findings indicate a knowledge gap in oncology care. Future cancer CPGs should incorporate

evidence-based CAM recommendations to better support shared decision-making between clinicians and patients.

#### P11.04

### Evidence-Based Nonpharmacologic Strategies for Comprehensive Pain Care: A Report on the Dissemination and Impact of the Consortium Pain Task Force White Paper

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#### Abstract

**Objective:** To collate metric reports on the reach and impact of the Consortium Pain Task Force White Paper: Evidence-based Nonpharmacologic Strategies for Comprehensive Pain Care.

**Methods:** Update data from ResearchGate, [www.nonpharmpaincare.org](http://www.nonpharmpaincare.org), PlumX Metrix (Explore), Altmetrics and personal communications with policy stakeholders on the number of reads, citations and direct use of the White Paper on policy strategies. In turn, positive dissemination avenues and areas that can be better utilized may be identified.

**Results:** The White Paper has over 11,000 reads or downloads and is cited in over 100 publications. Early downloads were by organization faculty/leaders from CMS, the Joint Commission, VA, DOD, other parts of the military, state agencies and academic health centers who forwarded to their member lists. For example, Military Department of Defense sponsored a workshop by IFM that chose the WP as basis for the workshop. The WP has been cited by authors from US, Canada, UK, Germany, Australia, South Korea, China, France, Norway, Finland, Scotland, Sweden, Switzerland, New Zealand, Israel, Chile, Iran, Turkey, Cyprus, Brunei, Macedonia and South Africa. The WP has also contributed to policy determinations in Minnesota, Ohio, Pennsylvania and with the Centers for Medicaid and Medicare. Customary academic channels proved effective for dissemination to academics, but social media has been underutilized as a dissemination option.

**Conclusion:** The WP continues to have a significant impact that has been facilitated and tracked by posting on ResearchGate, a dedicated website and an open-access publication in a peer-reviewed Journal Explore. Journal articles and book chapters citing the WP include medical, clinical and health sciences, public health, nursing, neuroscience, oncology, psychology, pharmacology, pediatrics, integrative

medicine and veterinary medicine. The WP has contributed to national and state health policy determinations. Academic dissemination strategies are successful. Social media dissemination might be better utilized to increase access to the evidence for nonpharmacologic pain care options.

#### P11.05

### Insomnia Clinical Practice Guidelines: What Is the Prevalence and Quality of Complementary and Alternative Medicine Recommendations?

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#### Abstract

**Objective:** Approximately 25% of the adult population in the United States experiences acute insomnia. While insomnia is conventionally managed with pharmacological medications, the negative side effects associated with such therapies may prompt patients to seek other treatment modalities, including complementary and alternative medicine (CAM). An estimated 4.5% of adults with insomnia utilize CAM to manage their condition. However, it is unknown whether there is consensus surrounding the safe/effective use of these CAMs across clinical practice guidelines (CPGs). This systematic review seeks to identify the quantity and assess the quality of CAM recommendations for the treatment and/or management of insomnia in CPGs.

**Methods:** We searched MEDLINE, EMBASE, and CINAHL databases systematically from 2009 to 2020, in addition to the Guidelines International Network, the National Center for Complementary and Integrative Health, National Institute for Health and Care Excellence, and the Emergency Care Research Institute websites. CPGs were eligible if they provided treatment/management recommendations for insomnia; those containing CAM recommendations were assessed twice (once for the overall CPG, once for the CAM section) using the Appraisal of Guidelines, Research and Evaluation II (AGREE II) instrument.

**Results:** Of 277 total results, 250 results were unique, and 13 CPGs were eligible. Nine of these CPGs made mention of CAM, of which 6 made CAM recommendations. The scaled domain percentages from highest to lowest were as follows: scope and purpose, clarity of presentation, editorial independence, stakeholder involvement, rigour of development, and applicability. The overall quality varied within and across CPGs.

**Conclusion:** CPGs which scored highly could be used by healthcare professionals to inform discussion with patients surrounding the safe and effective use of CAM therapies for the treatment/management of insomnia. In contrast, CPGs which scored poorly in quality could be improved in future updates based on the AGREE II instrument and other guideline resources.

## P11.06

### Group Acupuncture Therapy With Yoga Therapy for Chronic Neck, Low Back, and OA Pain in Safety Net Setting for an Underserved Population (GAPYOGA) Feasibility Pilot Study: Preliminary Results

Raymond Teets<sup>1</sup>, Arya Nielsen<sup>1</sup>, Paul Meissner<sup>2</sup>, Steffany Moonaz<sup>3</sup>, Hyowoun Jyung<sup>4</sup>, Donna Mah<sup>5</sup>, Belinda Anderson<sup>6</sup>, Mirta Millanes<sup>4</sup>, Eve Walter<sup>4</sup>, and Ben Kligler<sup>7</sup>

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#### Abstract

**Objective:** To investigate the feasibility of a combined group acupuncture and yoga intervention for chronic pain in an underserved population.

**Methods:** The study was conducted at Federally Qualified Health Centers (FQHCs) in New York City. Study participants were referred by their primary care provider and had documented lower back, neck, or osteoarthritis pain for greater than 3 months. Each participant received 10 weeks of intervention: 10 weeks of acupuncture in a group setting; and 8 weeks of yoga therapy directly following acupuncture during weeks 3–10. The primary outcome was pain interference and pain intensity at the 10-week assessment, using the Brief Pain Inventory (BPI), repeated again at 24 weeks.

**Results:** COVID-19 halted our study in March 2020, with 94 patients enrolled. Participant demographics confirmed significant underserved status, with 62% covered by Medicaid; and 23% reporting yearly income less than \$20,000. 47% of participants self-reported “Black” as race; and 44% “Latino/Hispanic” as ethnicity. At the time of the preliminary analysis, we had 10-week assessment data on 57 participants and 24-week assessment data on 31

participants. BPI data for pain interference at 10 weeks showed a 36% improvement from baseline, and for pain severity a 45% improvement from baseline. Pain interference improvement at 24-weeks showed a 20% improvement from baseline; while pain severity at 24 weeks over baseline showed a 57% improvement. All BPI measures had statistical significance at less than .01.

**Conclusion:** Our pilot study illustrated “proof of concept” that we could successfully recruit and treat underserved participants with group acupuncture combined with yoga therapy for chronic pain. Preliminary results also suggest that participants achieved improvements in pain interference and pain severity after treatment. These improvements may be maintained in some measure two months after intervention. Further analysis is pending.

## Research Methodology

### P12.01

### The Association of Intervention Attendance With Changes in Pain Severity in a Clinical Trial of Yoga for Veterans With CLBP

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#### Abstract

**Objective:** Chronic low back pain (cLBP) is a leading cause of disability among military veterans and a common reason for prescribing potentially addictive opioids. Evidence-based non-pharmacological treatments for cLBP, such as yoga, have been shown to improve pain severity and mental health outcomes. A recent clinical trial with 150 military veterans found that yoga participants reported significant improvements in disability, pain severity, fatigue, and quality of life. Secondary analyses examined whether changes in pain severity were influenced by yoga attendance.

**Methods:** Participants in both study arms were eventually offered 60-minute yoga sessions, 2x weekly for 12 weeks. Attendance was recorded and health outcomes were measured before and after the yoga program. Linear multivariable regression with backward selection (removal at  $p > 0.10$ ) was used.

**Results:** Yoga attendance was significantly associated with decreased pain severity ( $\beta = -0.209$ ;  $P = 0.04$ ). Moreover, there was a significant correlation between being homeless in the past 5 years which was significantly associated with smaller decreases in pain severity ( $\beta = 0.229$ ;  $P = 0.03$ )

**Conclusion:** Results suggest that better yoga attendance led to greater pain reductions, reflecting a dose-response relationship. This analysis and the main trial results indicate that yoga is an effective option for treating cLBP, while avoiding potentially addictive opioids in at-risk populations. Furthermore, a greater emphasis should be put on promoting yoga attendance and identifying barriers that prevent people from attending yoga sessions. Persons with a history of homelessness may need special programs or assistance to promote participation.

## P12.02

### Operational Definition of Complementary, Alternative, and Integrative Medicine Derived From a Systematic Search

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#### Abstract

**Objective:** Identifying what therapies constitute complementary, alternative, and/or integrative medicine (CAIM) is complex for a multitude of reasons. An operational definition is dynamic, and changes across both historical time period in light of new evidence generated from medical research, but also as a result of geographical location whereby many jurisdictions may integrate or consider their traditional system(s) of medicine as conventional care. To date, only one operational definition of “complementary and alternative medicine” has been developed for the Cochrane collaboration, however, it is nearly a decade old as of 2020 and the study did not utilize systematic methods to compile their operational definition of therapies. Furthermore, this previous study did not capture the term “integrative medicine”, thus an updated operational definition reflective of CAIM is warranted given the rapidly increasing body of CAIM research literature published each year.

**Methods:** Four peer-reviewed or otherwise quality-assessed information resource types were used to inform the development of the operational definition: peer-reviewed articles resulting from searches across seven academic databases; the “aims and scope” webpages of peer-reviewed CAIM journals; CAIM entries found in

online encyclopedias, and highly-ranked websites identified through searches of CAIM-related terms on Health On the Net (HONcode). Screening of eligible resources, and data extraction of CAIM therapies across them, were each conducted independently and in duplicate. CAIM therapies across eligible sources were deduplicated.

**Results:** A total of 101 eligible resources were identified: peer-reviewed articles (n = 19), journal “aims and scope” webpages (n = 22), encyclopedia entries (n = 11), HONcode searched websites (n = 49). The total number of unique CAIM terms identified for inclusion in the operational definition exceeded 1000.

**Conclusion:** This updated operational definition is the first to be informed by systematic methods, and could support the harmonization of CAIM-related research through the provision of a standard of classification, as well as support improved collaboration between different research groups.

## P12.03

### Development of an Observational Tool to Assess Health Coaching Fidelity

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#### Abstract

**Objective:** This study describes the development of the Health Coaching Index (HCI), an observational tool for assessing fidelity to implementing health coaching practical skills.

**Methods:** Initial HCI items were developed, adapted following cognitive interviews, and refined during coding training. Participants (n = 42) were trainees who completed a National Board for Health and Wellness Coaching (NBHWC)-approved training program and coached a standardized patient. Interrater reliability for the HCI was determined by calculating interclass correlations from ten videos coded by three raters. Construct validity was evaluated from 42 recordings using Spearman’s Rho between HCI and Roter Interaction Analysis System (RIAS) codes.

**Results:** The interclass correlation (ICC) for HCI total score was 0.81, considered an excellent level of inter-

rating agreement. Some significant correlations between HCI and RIAS codes supported construct validity (e.g., patient activation:  $Rho = .32$ ; empathy:  $Rho = 0.36$ ).

**Conclusion:** The HCI total score can reliably be used to assess fidelity to health coaching skills, and the HCI has construct validity similar to the RIAS as a measure of patient activation. Adoption and further study of the HCI tool will allow for a more consistent implementation of health coaching skills, and may facilitate more robust training of health coaches for clinical practice and research.

## Resilience & Well-Being

### P13.01

#### Virtual Community Outreach to Examine Resilience During the COVID-19 Pandemic

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#### Abstract

**Objective:** COVID-19 has had profound effects on individuals' physical and mental health. Resilience, the ability to adapt in the face of adversity, is an emerging topic in health-care, grounded by several international public health frameworks. Promisingly, when people report their strengths, it promotes resilience and prepares individuals to encounter challenges. The purpose of this study was to examine individual and community strengths, challenges, and needs in two metropolitan mid-western cities during the COVID-19 pandemic using a web-based application, MyStrengths+MyHealth (MSMH).

**Methods:** We employed a virtual outreach using social media messaging via Facebook (20), Instagram (5), LinkedIn (5), Twitter (5), Email messages (43) and WhatsApp (10); ResearchMatch (1627). Participants (>18) were invited to participate and self-identify their strengths, challenges, and needs using MSMH. MSMH uses a consumer-facing plain language version of the Omaha System, a multi-disciplinary standardized health terminology. Data were analyzed using descriptive and inferential statistics

**Results:** Preliminary results showed (N = 319) participants had more strengths than challenges and needs with an average "strengths" self-reported rating 4.11 out of 5. Top strength Safe at work and home (84.3%); Top Challenge limited social time (50%); and Top Need Info/Guidance for

Mental Health (40.5%). Communication with community resources (Connecting in MSMH) was found to uniquely correlate with strengths.

**Conclusion:** It was feasible to examine resilience operationalized as strengths by health concept using MSMH application. Communication with community resources pattern of correlated strengths suggests MSMH may offer a simple yet meaningful measure of resilience. Findings emphasized the importance of resilience as a way to work within communities to address the challenges we face during extreme circumstances. Assessing whole-person health, including strengths, can facilitate person-centered care and enable focused clinical conversations and the 'right' allocation of resources. Self-reported community needs provide actionable data for community-members, decision-makers, and researchers.

### P13.02

#### Provider Experiences Implementing Integrative Medical Group Visits for Patients With Chronic Pain

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#### Abstract

**Objective:** The Integrative Medical Group Visit (IMGV) model is an innovative approach to delivery of integrative care that offers mindfulness-based stress reduction, acupuncture and chair yoga to patients with chronic pain. Participants enrolled in the IMGV participate in nine weekly 2-hour sessions. In previous studies, anecdotal evidence has suggested that IMGV may help address the fourth aim of the Quadruple Aim-Improving Practitioner Experience. In an ongoing pilot study developing and evaluating implementation strategies to support application of IMGV at scale, we assessed providers' experiences with implementation and delivery of the IMGV.

**Methods:** IMGV was co-facilitated by an integrative care team consisting of a billing clinician (MD), naturopathic physician (ND) and registered yoga teacher. Field notes from weekly team meetings captured provider experiences. Two periodic reflections (group interviews) with the co-facilitators during the nine-week session were led by a research assistant. Group-interview recordings and team-meeting field notes were analyzed to assess themes related to providers' experiences with implementation and delivery of the IMGV.

**Results:** Themes include the importance of incorporating diverse professional perspectives; and challenges with technological literacy of participants in a virtual setting, scheduling participant visits, diagnostic medical coding and the participant check-in process maximizing group time and engagement. The hierarchy of the integrative care team was flattened and bred mutual respect within the team itself, as reflected in the dynamic of this IMGV. Co-facilitators/interventionists valued the importance of having an execution strategy, preparation time to develop cohesiveness within the group, as well as communication and bonding to ensure a seamless flow of the IMGV.

**Conclusion:** This pilot study demonstrates communication among provider facilitators on conducting the IMGV, group cohesion and challenges with implementation. The periodic reflections were insightful and may be helpful for the implementation of IMGV curricula and suggest that IMGV provider experiences should be rigorously examined in future trials.

### P13.03

#### Resilient Living Program for Caregivers of Patients With Advanced Cancer

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#### Abstract

**Objective:** Family caregivers (FCGs) tend to experience high levels of stress and anxiety due to extensive demands in providing care for patients with head and neck cancer (HNC).

**Methods:** The purpose of this single-arm, prospective pilot study was to examine the feasibility and acceptability of a Stress Management and Resiliency Training (SMART) intervention among 26 FCGs of HNC patients at Mayo Clinic. In addition, measures of self-compassion, resilience, stress, anxiety, and mindfulness were assessed at baseline and eight weeks after the initial intervention.

**Results:** Effectiveness data indicate statistically significant improvements in self-compassion ( $p = .03$ ) and anxiety ( $p = .02$ ), with positive trends noted for resilience, stress and mindfulness.

**Conclusion:** Study outcomes denote support for the feasibility and acceptability of the SMART program among FCGs. Further research is warranted with a larger, more diverse sample, and controlled trials.

### P13.04

#### Family Matters: An Exploratory Study of Mindfulness, Social Support, and ART Adherence Among Youth Living With HIV

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#### Abstract

**Objective:** Taking antiretroviral therapy (ART) daily is essential to achieving viral suppression (VS), yet only 30% of youth living with HIV (YLHIV) in the United States have achieved VS. Previous research shows that mindfulness instruction increases HIV self-acceptance, self-regulation and ART adherence, and influences social relationships. This study explored mindfulness, ART adherence and sources of support among YLHIV to assess the potential of a youth/caregiver mindfulness program.

**Methods:** Consecutively recruited YLHIV (10-24 years) from three HIV clinics in Baltimore completed a cross-sectional questionnaire that measured who helps them live and cope with HIV, whether they had incomplete ART adherence defined as a 48-hour consecutive gap in taking ART in the prior three months, and mindfulness (using the Mindfulness Awareness Attention Scale).

**Results:** Out of 106 YLHIV, 57% were male, 68% 20–24 years and 87% Black. Most (74%) identified at least one family member and fewer (26%) identified at least one friend who helps them live and cope with HIV. Average mindfulness score was 3.72 out of 6, and 46% had incomplete adherence. In adjusted regression analyses, mindfulness [AOR.487, 95% CI.215-1.10, 0.018] and having at least one family member who helps them live and cope with HIV [AOR.315, CI.122-.811, 0.017] were associated with decreased odds of incomplete adherence.

**Conclusion:** Among YLHIV, mindfulness and family support were associated with ART adherence, an essential component in HIV disease management. Future research should explore youth/caregiver mindfulness programs as a potential strategy to further support this population.

## P13.05

### Education and Experience Delivered in Community and Healthcare Settings

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#### Abstract

**Objective:** Whole Health is a revolutionary approach to health and well-being that empowers and equips people by focusing on what matters to them – not, what is the matter with them – while leveraging evidence-based integrative approaches. Pioneered by the Veterans Health Administration, Whole Health has transformed healthcare delivery at the VA and demonstrated benefits for clinical outcomes, patient satisfaction, and healthcare costs. Building on this success, Whole Health recently expanded outside the VA through the founding of the Whole Health Institute, with the mission of making Whole Health available to all people in all communities.

**Methods:** In 2020, the Whole Health Institute deployed 24 trainings to 336 participants from 33 community and healthcare settings. Participants in one course self-assessed their skills, before and after, and post-course surveys were administered for all programs.

**Results:** T-tests revealed statistically significant improvements in 5 of 15 measures ( $n = 26$ ;  $p < 0.05$ ); all other measures trended toward significance. The largest improvements were seen in linking values to health goals, accountability, and supporting others in behavior change. In other programs, post-scores ( $n = 204$ ) revealed participants' highest confidence was in implementing self-care strategies, discussing emotional well-being, shared goal-setting, and connecting patients to community resources. Another set of measures assessed how Whole Health would translate from the VA into the private sector. The Net Promotor Score (NPS), which is shown to correlate with participant satisfaction and program expansion, suggested all courses were extremely well-received, with NPS scores above 58. One training received an NPS score of 74, representing 'best of the best.'

**Conclusion:** These promising results from delivery of Whole Health in community and healthcare settings suggest that principles of Whole Health – connecting with purpose, self-care, intrinsic motivation, shared goal-setting, and integrative approaches – have potential to radically redefine how our nation addresses health and well-being on a broad systems level.

## P13.06

### Using a Whole Health Approach to Support Health Care Employees During the SARS-CoV-2 Pandemic

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#### Abstract

**Objective:** In recent years, the Veteran's Health Administration (VA) has been engaged in a large-scale transformation towards a Whole Health System (WHS) model of care. Major shifts include moving from a disease-focused model to one that incorporates complementary and patient-centered approaches to improve overall health and well-being. A key component of this model is supporting employee well-being. The SARS-CoV-2 pandemic disrupted VA healthcare systems and increased stress and anxiety for employees. This study sought to examine how VA's WHS transformation efforts intersected with its SARS-CoV-2 pandemic response.

**Methods:** A single, multi-person qualitative interview was conducted at each of the 18 VA Medical Centers as part of an ongoing, multi-year evaluation of WH transformation. Sixty-one Whole Health leaders and staff participated in the interviews that focused on how WH transformation had been affected by the SARS-CoV-2 disruption and how WH was used to support employee needs during the pandemic. We used a rapid approach to conduct a directed content analysis, using a priori and emergent categories.

**Results:** While the pandemic initially slowed organizational and cultural transformation efforts, medical centers intentionally embraced a Whole Health approach to support employees during this crisis. These efforts included promoting complementary and integrative Health (CIH) therapies and WH concepts to combat stress. Sites supported employee well-being by offering an extensive variety of self-care activities for staff. The need for stress-reducing supports elevated the perceived value of the WHS, generating endorsement from hospital leadership.

**Conclusion:** At a time of crisis, most sites leaned into Whole Health, using it as a key strategy to support employee well-being. This demonstrates the promise of using a WH approach for addressing stress and anxiety in health care workers. Additionally, aligning ongoing transformation efforts with immediate crisis-related needs can help ensure continued progress even while organizational priorities may temporarily lie elsewhere.

## P13.07

### Evaluation of a Reiki Program for Healthcare Workers Negatively Impacted by the Pandemic

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#### Abstract

**Objective:** To conduct a pragmatic effectiveness trial of a Reiki program for healthcare professionals negatively impacted by the COVID-19 pandemic.

**Methods:** Reiki Medic-Care is a non-profit organization that provides remote Reiki to National Health Service (NHS) healthcare professionals in the UK. Healthcare professionals (physicians, nurses, and ambulance paramedics) whose physical and/or mental health had been negatively impacted by COVID-19 were eligible to sign up for the Reiki program and were also invited to participate in the research study. Each participant was assigned eight certified, licensed, and fully insured Reiki practitioners who gave them 20 minutes of remote Reiki 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 (MYMOP) questionnaire. Measures were completed by participants online when signing up to receive Reiki (pre) and the day following the final Reiki session (post). Participants were also asked to give written feedback about the sessions at post.

**Results:** Twenty healthcare professionals agreed to be in the study and provided some survey data (pre or post), and of those, seventeen participants completed both the pre and post survey (85% retention). All participants were female. Paired samples t-tests revealed statistically significant improvements in stress ( $p = .001$ ,  $d = 1.06$ ), anxiety ( $p = .001$ ,  $d = .94$ ), pain ( $p = .003$ ,  $d = .86$ ), and wellbeing ( $p = .029$ ,  $d = .61$ ) from pre to post. There were no significant differences in sleep quality ( $p = .150$ ,  $d = .37$ ). Participants also provided positive feedback about the program, including feeling more relaxed, calm, and resilient.

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

## P13.08

### Assessing Stress and Integrative Medicine Interest Among Correctional Staff

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#### Abstract

**Objective:** This study sought to assess stress levels and interest in stress management interventions among correctional staff at a jail in the U.S. mid-South.

**Methods:** An anonymous online survey was emailed to all 245 employees at the jail. The survey included the PSS-10 to assess self-perceived stress. Interest in integrative medicine/health interventions were also surveyed. Additional questions probed stressors and stress management preferences. Finally, we provided several open-ended questions to which respondents could suggest specific recommendations related to stress management. Survey responses were collected between October and November 2020.

**Results:** A total of 65 respondents (26.5%) participated in the survey. Participant race was evenly distributed between White and Black respondents (48% and 48%, respectively; 4% "other") The majority of respondents were over 40 years old and just over half respondents were female (50.8%) with respect to preferences in integrative health practices (e.g. chiropractic care, massage/chair massage, meditation/mindfulness, guided imagery/relaxation, yoga, Tai Chi, or treadmill/stationary bike), the most preferred modalities were: massage/chair massage ( $n = 39/60\%$ ); chiropractic care ( $n = 34/52.3\%$ ); and meditation/mindfulness ( $n = 29/43.1\%$ ). The median score for the PSS-10 surveys ( $n = 64$ ) was 18.74 ( $SD = 8.5$ ) indicating moderate self-perceived stress. Themes that arose about concerns with a stress management program from the open ended survey questions included respondents wanting more time off of work, expressing concern about environmental safety issues, such as security issues, and indicating a need for more mental health services at the jail.

**Conclusion:** There is interest among correctional staff in this jail setting for onsite integrative medicine interventions to reduce stress and increase health and well-being.

## P13.09

### Mindfulness to Promote Healthy Aging in Older Adults With Mild Cognitive Impairment: A Mixed-Methods Feasibility and Acceptability Study

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#### Abstract

**Objective:** Older adults are the most rapidly growing segment of the US population and rates of mild cognitive impairment (MCI) are expected to rise accordingly. Although psychological distress can worsen impairment and quality of life in MCI, targeting psychological well-being is not typically part of routine care. Thus, a mindfulness-based integrated care approach may be helpful.

**Methods:** The primary purpose of this pretest-posttest pilot study (goal  $n=28$ ) was to evaluate the feasibility, acceptability, and clinical effectiveness of an adapted 6-week mindfulness group program for older adults with MCI and their caregivers at the New Jersey Institute for Successful Aging (NJISA), housed within the Rowan School of Osteopathic Medicine (RowanSOM) in Stratford, NJ.

**Results:** Enrollment (86%) and retention (90%) rates suggested this program was feasible, although time of day and location impacted feasibility for some dyads. Quantitative (Client Satisfaction Questionnaire:  $M [SD] = 27 [3]$  out of 32) and qualitative data suggest strong acceptability across themes of personal growth, relationship health, mindfulness, coping with MCI, and social support. MCI participants showed small but clinically significant objective improvements in Immediate ( $d=.38$ ) and Delayed Memory ( $d=.28$ ), as measured by the Repeatable Battery for Neuropsychological Status (RBANS). However, no other cognitive functioning scales or measures of well-being improved. Caregivers reported increased use of mindfulness in daily life ( $d=.58$ ), but caregiver burden and well-being were unchanged. Measures of cardiovascular health (HR, BP, BMI) were also unchanged.

**Conclusion:** Group-based mindfulness interventions may be well-received by MCI patients and caregivers. Such programs may help improve or maintain some aspects of cognitive functioning in MCI, but mindfulness training may not be sufficient to improve caregiver burden, psychological well-being, or vascular health. Future trials should consider contextual factors to optimize participation and the expansion of healthy aging programs beyond mindfulness training alone.

## P13.10

### Leading With Compassionate Care: Evaluating the Implementation of a Mindful Student Leadership Program (MSLP) for Health Sciences Graduate Students

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#### Abstract

**Objective:** Burnout is an emotionally exhaustive syndrome that affects 55% of U.S. healthcare students and providers, which has led to declining levels of job satisfaction, and work-life balance. There is a need to develop and test innovative, mind-body programs designed to help students improve compassion to self and others, build resilience to stress, enhance leadership, and better manage difficult emotional challenges. This study assessed the feasibility of implementing and evaluating the efficacy of an 8-week MSLP targeting compassion, mindfulness, and leadership skills among health sciences graduate students at the University of California, San Diego (UCSD).

**Methods:** Curriculum development and implementation modeled on an existing Mindful Physician Leadership Program, augmented with material from leaders in the mindfulness for racial justice space. Program efficacy evaluated pre-post-intervention through quantitative measures of mindfulness, compassion, and burnout and a focus group discussion. Participants were recruited via email announcements and social media.

**Results:** The course occurred over Zoom every Monday from 3–5PM from September 21 – November 9, 2020. 10 medical, 3 MPH, and 5 pharmacy students attending the 1st class. Final enrollment included 7 medical and 3 MPH students who received 1-unit elective credit. Course content included Racial Justice, Mindfulness, Compassion, and Burnout modules, guided by a diverse team of 7 experts in mindfulness, leadership, and compassion education. 10 pre-survey and 5 post-survey outcome scores were collected, and 3 students attended the focus group.

**Conclusion:** The MSLP addresses the gap between the minimal leadership training that UCSD health science graduate students currently receive and the high expectations of being leaders in their independent research, team projects, and patient care practice. This program demonstrated the feasibility of implementing a program that promotes inter-professional education on mindful leadership and racial

justice practices across various spheres of the health sciences at UCSD.

### PI3.11

#### Mindfulness Moderates the Relationship Between Health Perception and Physiological Stress Reactivity

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#### Abstract

**Objective:** Health perception is a subjective rating by an individual regarding their health status (Wilson & Cleary, 1995), and is an important predictor of mortality (Castañeda-Vázquez, Campos-Mesa, & Castillo-Andrés, 2016), life quality, and health (Schmidt, 2012). Health perception negatively correlates with stress (Kim et al., 2010; Oh & Kim, 2018), and lower health perception has been positively related to physiological stress reactivity during a stressor task (Gecaite et al., 2019). Despite the association between health perception and physiological stress reactivity, little is known about factors that may influence this relationship. Trait mindfulness, defined as present-moment, non-judgmental awareness (Kabat-Zinn & Hanh, 2009) may moderate this relationship by promoting non-reactivity to thoughts and perceptions (Iani, Lauriola, Chiesa, & Cafaro, 2019). Trait mindfulness relates to health anxiety (Kashiwazaki, Takebayashi, & Murakami, 2020), health perception (Asensio-Martínez et al., 2019), and acute physiological stress reactivity (Christopher et al., 2018).

**Methods:** This study investigated the role of trait mindfulness in moderating the relationship between health perception and physiological stress reactivity, as evidenced by respiration rate (RR) during a stressor task (Portland Arithmetic Stress Task [PAST]; (Atchley, Ellingson, Klee, Memmott, & Oken, 2017)) in a sample (n = 59) of mildly stressed older adults.

**Results:** Results indicated that mindfulness significantly moderated this relationship ( $p = .007$ ), such that participants with high (+1 SD) levels of mindfulness exhibited a nonsignificant relationship between health perception and physiological stress reactivity, whereas there was a significant positive(?) correlation among participants with low (-1 SD;  $p < .001$ ) and average (Mean;  $p = .018$ ) levels of mindfulness.

**Conclusion:** These results provide insight into the relationship between health perception and acute physiological

reactivity, as well as the role of mindfulness in buffering this relationship. These findings suggest that trait mindfulness may be a potential target for interventions among individuals who experience significant perceived disability and related dysfunction. Further implications will be discussed.

### PI3.12

#### Teach Self-Regulation Skills & Relieve Unpleasant Hand Sensations During Chemotherapy Using Interoceptive Fasciotherapy

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#### Abstract

**Objective:** An oncology department surveyed (yoga, art therapy or massage therapy) patients to improve resilience/well-being, massage won and I was hired. The oncologists/nurses informed me of chemotherapy-induced peripheral neuropathy (CIPN), and not to expect relief of unpleasant hand sensations: tingling, pins-and-needles, sharp/stabbing pain, burning or shock-like. CIPN is common and one reason some stop chemotherapy early. A temporary problem for some lasting a few days/weeks, months/years for others and can become a lifelong problem.

**Methods:** Chemotherapy receiving patients (seated/reclined) accepted/refused upper limb massage (shoulder, arm, elbow, forearm, wrist and hand), after I explained the five-step interoceptive manual fasciotherapy process: 1) apply a constant two-hand wrap-around firm-holding supportive pressure on a body part, to nurture a feeling of safety and provide co-regulation; 2) encourage description of any interoceptive sensations (location, type, intensity) to practice self-awareness/mindfulness; 3) demonstrate and guide voluntary inhale thru nose (5 seconds), and effortlessly exhale thru mouth with a sigh/yawn like Aaaaah! (5 seconds), to stimulate vagus nerves, secrete tranquilizing acetylcholine, release myofascial tensions, increase blood flow and self-regulate; 4) ask for sensation reassessment; 5) change location and repeat steps, when sensations decrease/cease.

**Results:** One month, 13 visits, totaling 34 hours of fasciotherapy with 50 patients, averaged 41 minutes/patient. Prior to fasciotherapy, all reported a myriad of mild to severe hand sensations. After fasciotherapy, all reported a complete relief of unpleasant hand sensations, and comfortable warm hands/feet. None stopped chemotherapy. Moreover, 49/50 patients reported having cold nose/hands/feet for years/decades before the cancer diagnosis: chronic

peripheral vasoconstriction is a nervous system dysregulation to states of hyperarousal, stress and/or trauma (developmental, emotional, physical).

**Conclusion:** Results suggest patients learned self-regulation skills during chemotherapy, using the interoceptive fasciatherapy process, and improved resilience/well-being. Moreover, CIPN may not be induced by chemotherapy drugs per se, but a prolonged exposure to them from peripheral vasoconstriction which can be self-regulated.

### P13.13

#### Effects of a Mindful Recovery Program During Buprenorphine Treatment on Trauma-Related Self-Compassion Deficits: A Pilot Study

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#### Abstract

**Objective:** People with Opioid Use Disorder (OUD) have high rates of adverse childhood experiences, disrupting emotion regulation development and leading to substance use. Self-compassion facilitates emotion regulation and resilience, reducing shame and substance use. Mindfulness practice enhances self-compassion and emotion regulation during office-based opioid treatment (OBOT). This pilot study aims to gain a deeper understanding of the effects of Mindful Recovery OUD Care Continuum (M-ROCC) on self-compassion among patients with OUD.

**Methods:** Qualitative interviews were conducted at weeks 4 (n = 9) and 24 (n = 7) with M-ROCC patients (N = 18). Interviews were transcribed, and content analyzed. The Self-Compassion Scale (SCS-SF) was assessed at baseline, weeks 4, and 24. The Adverse Childhood Events Scale (ACES) measured trauma at baseline and scores were dichotomized, i.e., 0–3, 4+. A concurrent mixed methods design integrated qualitative and quantitative findings.

**Results:** Participants attested to compassionate responding (e.g., self-kindness) more often than uncompassionate responding (e.g., isolation) during interviews following M-ROCC participation despite reports of challenges (e.g.,

SUD-related shame). Participants referenced increased kindness towards family/others and less impulsive violence. M-ROCC significantly increased overall self-compassion ( $\beta = 2.7$ ,  $p = 0.028$ ,  $d = 0.3$ ) from baseline to week 24. Prior to M-ROCC, participants in the high ACES group reported lower levels of self-compassion than participants in the low ACES group, though this did not reach significance ( $X^2(1, N = 15) = 2.8$ ,  $p = 0.09$ ). At week 24, these differences were attenuated ( $p = 0.7$ ).

**Conclusion:** M-ROCC may increase self-compassion among patients with OUD. While the sample was not sufficiently powered, these preliminary findings suggest that M-ROCC may have increased self-compassion among this population by increasing mindfulness, self-kindness, and a sense of common humanity, particularly among those with higher levels of childhood adverse events who may have deficits in these areas.

### P13.14

#### Increasing Health-Related Quality of Life, Body Appreciation, and Mindfulness Following an Indian Classical Dance Program With Adolescents

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#### Abstract

**Objective:** To examine the effects of an 8-week Bharatanatyam, Indian Classical Dance intervention on self-reported outcomes of health-related quality of life, body appreciation, and mindfulness in a non-randomized, single-arm pilot study with a sample of high school students.

**Methods:** Freshman at a medium-sized Midwestern high school completed an IRB-approved 8-week Indian Classical Dance course through the organization Mindful Kala. Rooted in Bharatanatyam principles, this program teaches a developmentally sequenced beginner-level dance repertoire comprised of a series of hand and foot gestures that emphasize rhythm, pattern, speed, and form all while communicating a cultural story through emotionally expressive facial and bodily movements. Education on historical and cultural foundations is also emphasized. At baseline, four and eight weeks, participants completed PROMIS-25 short forms of Physical Function Mobility, Anxiety, Depressive Symptoms, Fatigue, Peer Relations, Pain

Interference, and Pain Intensity. They also completed the Body Appreciation Scale and the State Mindfulness Scale for Physical Activity with Youth, which has subscales of mindfulness and embodied awareness. Data analyses included descriptive statistics, paired t-tests, Cohen's d effect size coefficients.

**Results:** Forty-six students were enrolled and completed the intervention and assessments. The majority were female (62%), Caucasian (80%), and were on average 14 years old. Most (59%) reported exercising between 2–5 times a week. Controlling for exercise frequency, statistically significant decreases ( $p < .05$ ) were observed between baseline and 8 weeks in PROMIS Anxiety ( $d = .80$ ), Depressive Symptoms ( $d = .51$ ), Fatigue ( $d = .61$ ), and Pain Intensity ( $d = .77$ ), while significant increases were seen in Peer Relations ( $d = 0.80$ ), Body Appreciation ( $d = .97$ ), Mindfulness ( $d = .52$ ), and Embodiment ( $d = .86$ ).

**Conclusion:** This pilot study provides initial evidence for this 8-week Mindful Kala course on improvements in emotional and physical health for adolescents. Given increasing life-stressors and risk factors for mood disorders, sedentaryness, and overweight among this age group, this program offers a novel approach to address these issues.

### PI3.15

#### Integrative Medicine in a Dutch Pediatric Neurology Outpatient Clinic

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#### Abstract

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

**Methods:** This was a cross-sectional survey of patients attending the integrative medicine outpatient clinic of

child neurology in Juliana Children's Hospital between November 2017 and March 2020. Patients characteristics, neurological diagnosis, the integrative approach and suggested CIM therapies were recorded. Caregivers and patients experience with CIM treatments were evaluated.

**Results:** 110 Patients data were recorded. The mean age of the neurology patients was 11,5 years. Main complaints were headaches 32 (28%), epilepsy 26 (23%), fatigue 21 (18%) and insomnia 14 (12%). All patients received one or more types of CIM, most common types being biochemical remedies (71), mind-body therapies (51), bio-energetic remedies (36) and biomechanical therapy (36). 61 Percent of CIM users reported benefits, and 25 percent experienced no effects. Personal experience of the integrative approach were positive in 83%.

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

### PI3.16

#### Whole Coaching for Employees During the COVID-19 Pandemic at One VA Medical Center in New York

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#### Abstract

**Objective:** An innovative opportunity for employees to participate in Whole Health (WH) coaching was provided in response to the COVID-19 pandemic at one VA medical center in New York. The Whole Health System (WHS) is an approach to healthcare that empowers and equips people to take charge of their health and well-being. The model creates space for individual exploration of self-care goals providing opportunities to grow skills for goal attainment while working with a WH coach.

**Methods:** VA employees were offered an opportunity to participate in four telephone coaching sessions from July-September 2020. Employees completed a brief questionnaire pre- and post-coaching sessions. The 10-item

Perceived Stress Scale (PSS) was used to assess changes in stress; the 2-item Connor Davidson Resilience Scale (CD-RISC2) was used to assess changes in resiliency. Paired *t*-tests were used to compare within-person changes pre- and post-coaching. The overall benefit of working with a WH coach was assessed on a 10-point scale. Qualitative measures of perceived impacts on work and personal life and were also assessed.

**Results:** Of employees referred, a majority (80%, *n* = 39) participated with most participants (95%, *n* = 37) completing all four coaching sessions. Of these, 85% (*n* = 33) completed a post-coaching questionnaire. Employees chose to work on a variety of different self-care goals. Overall, average stress reduction on the PSS was 3.2 points (*p* = 0.0216). The average increase in resiliency on the CD-RISC2 was 0.6 points (*p* = 0.0485). The average overall benefit of working with a WH coach was 8.6 (range 4–10). Approximately 94% and 70% of participants felt coaching impacted their personal and work lives, respectively.

**Conclusion:** Overall perceived benefits of working with a WH coach was high. As VA continues to implement the WHS model for employees, coaching should be included to support employees in self-care and resiliency building efforts.

### P13.17

#### An Individualized Worksite Wellness Program at a Small Integrative Health University: 1-Year Follow-Up

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#### Abstract

**Objective:** This study explores the 1-year follow-up outcomes of an individually tailored 12-week integrative worksite wellness program built around health coaching and health education principles and included yoga, Qi gong, acupuncture, and meditation. The original pilot intervention had positive effects on participant stress, well-being and job-related outcomes. This study seeks to understand the change in those outcomes during a one year follow-up period that included quarantining and working from home.

**Methods:** 1-year after the YOU Wellness intervention, all participants (*n* = 15) were contacted to complete the 10-item validated Perceived Stress Scale (PSS), 5-item validated World Health Organization – Five Well-being Index (WHO-5) and the 14-item mixed methods YOU Wellness Survey,

designed for this study, which examined satisfaction with overall health and wellness, job satisfaction, job productivity, morale, and engagement, absenteeism and presenteeism.

**Results:** From post-intervention to 1-year follow-up, the overall scores slightly decreased on the PSS and WHO-5, neither at a level demonstrating statistical significance. The YOU Wellness Survey showed statistically significant improvements in employment satisfaction at post (*M* = 2.13, *SD* = .74) vs. 1-year (*M* = 2.8, *SD* = .42; *p* = 0.017). Participant work morale went up and work stress decreased insignificantly. At 1-year, 100% of participants reported being satisfied (20%) or very satisfied (80%) with their employment at MUIH and 100% said their work morale was good (70%) or very good (30%). Participants stated dedication to self-care, setting SMART goals, journaling and 1:1 health coaching/education sessions were the most helpful program components in helping them maintain their health over the year. 60% reported it helped quite a bit (40%) or a lot (20%).

**Conclusion:** A year after completion, the YOU Wellness intervention may positively affect overall stress, work engagement, and job morale even while participants were quarantining and working from home due to a pandemic. Future studies should focus on offering the intervention online, including a control group, and incorporating more participants.

### P13.18

#### Implementing a Mind-Body Skills Group in Psychiatry Resident Training

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#### Abstract

**Objective:** 1. To examine the impact of a 10-week Mind-Body Skills Group (MBSG) amongst residents and fellows. 2. To explore the participants' experience in the MBSG and measure the influence of the MBSG on participant behavior and clinical practice 3. To evaluate the feasibility of such a course in residency and fellowship training

**Methods:** At the end of the 10-week MBSG, 44/50 participants who completed the MBSG from 2018–2020 completed a survey that gauged satisfaction with the course and its content, whether participants felt comfortable in sharing experiences with the group, how frequently participants use mind-body skills (MBS) for their own self-care and wellness, participants' intentions to use MBS with patients in the future, and their likelihood of recommending the course.

**Results:** Eighty-four percent (84%) of the participating residents and fellows were satisfied or very satisfied with the MBSG. Eighty percent (80%) of participants used the MBS for their own self-care on at least a weekly basis. Eighty-nine percent (89%) indicated that they were likely or very likely to use the MBS in patient care. Ninety-five percent (95%) of participants said they would likely recommend or strongly recommend the course. Sixteen (16) participants partook in virtual MBSG and reported feedback consistent to in-person MBSG.

**Conclusion:** MBSG was well received by participants and influenced their behavior. Adopting these skills may provide residents with the tools to cope with the stress of medical residency and build their resiliency and prevent burnout, a need of the hour in times of unprecedented stress. Furthermore, MBS gives participants additional tools to enhance patient care. Consistent feedback on virtual MBSG point to preliminary results that MBS can be effectively delivered over telehealth platforms with equivalent efficacy.

### P13.19

#### Supporting Employee Wellness Within a Large Health System During the COVID-19 Crisis

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#### Abstract

**Objective:** Due to COVID-19, medical providers faced stress, feelings of isolation and fear. To support employees' health, Cleveland Clinic created a "Wellness and self-care during COVID-19" taskforce which developed and implemented new programs to address COVID-19 related anxiety. The objective of this quality improvement report is to describe the development and implementation of wellness services for medical providers and evaluate the program's effectiveness.

**Methods:** The program was evaluated using a cross-sectional survey. The survey included questions on circumstances related to COVID-19, wellness services used, fulfillment and burnout. We described our results using Pearson's chi-square and Student's t-tests. We grouped responders who reported change in "none or some" responsibilities together and responders with change in "most" or "all" responsibilities together.

**Results:** The Taskforce implemented neighborhood support groups, mindfulness and anxiety resources for

employees, and a free thirty-minute sessions of mental health counseling. The response rate was 45%. A quarter of responders (27%) needed child care or elder care; 8% had been quarantined; 42% reported that most or all of their work responsibilities changed in the prior month. The highest levels of burnout was reported by those who had most or all of their responsibility changed. Eighty-percent of the respondents felt that leadership kept them informed. Daily information tips, online self-help resources, and virtual yoga and meditation classes were the most utilized offerings.

**Conclusion:** Creating a task force to address employee's emotional wellbeing was an important part of our organizational response to COVID-19. The wellness assistance program appeared to be used and appreciated. Many of our interventions may have been impactful due to their ability to drive connection since social connectedness can drive health, reducing major depression, and suicide. We observed that employees whose responsibilities were mostly or all changed experienced higher levels of burnout compared to those whose responsibility was minimally or not changed.

### P13.20

#### Fostering Holistic and Spiritual Wellbeing for Older Women: A Protocol for a US-Based Feasibility Study of Forest Bathing

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#### Abstract

**Objective:** In the US, most attendees of forest bathing (Shinrin-yoku) are older women. During perimenopause and menopause, women often deal with anxiety or depression, or seek new meaning in life. Forest bathing research from Japan and Korea identifies both physiologic and psychological benefits. However, little research has investigated holistic wellbeing outcomes, including spiritual wellbeing, and few studies have focused on women or have been located within the US culture.

**Methods:** In this protocol paper we delineate a mixed-methods feasibility study to: (1) investigate forest bathing experiences while preserving fidelity to the intervention; and (2) explore relevant holistic outcomes. Forest bathing, as practiced in the US by certified Association of Nature and Forest Therapy (ANFT) guides, consists of a forest-based sensory experience lasting 120 – 180 minutes.

Forty women over 40 years old will be recruited to participate in one of four forest bathing experiences. Validated self-report measures will be collected before and after the experience, as well as, 1 and 2 weeks later.

**Results:** Holistic wellbeing will be quantified using the Self-Assessment of Change (SAC), a rigorously created measure for integrative medicine whole systems research (Ritenbaugh, 2011). Spiritual wellbeing, as previously defined (Fisher, 2011), will be measured as the quality of the relationship one has with self, community, nature, and transcendent other(s). Other validated scales will assess perceived stress, depression, anxiety, and both positive and negative affect states. Qualitative data will derive from participant drawings and interviews designed to illicit the women's experiences in forest bathing. We will also report adaptations in implementation that are necessitated by COVID times.

**Conclusion:** This protocol focuses on exploring older women's experiences during and after a manualized forest bathing intervention led by certified forest therapists. The completed feasibility study will set the stage for a large randomized controlled trial of forest bathing in older women in the US.

### P13.21

#### Social Isolation of Older Adults: A Qualitative Study of the Effects of Group Outdoor Health Walks on Social Wellbeing

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#### Abstract

**Objective:** In these times of COVID, social isolation is a problem especially affecting older adults. Outdoor social gathering, with appropriate physical distancing, is often recommended. Group outdoor health walks (GOHW) are nature-based interventions that promote physical activity, positive emotions, and mental wellbeing. However, results of quantitative social health scales often do not match qualitative reports of enhanced social wellbeing. In this qualitative study, we explore older adults' experiences of a GOHW to learn how the walks might mitigate social isolation and promote social wellbeing.

**Methods:** Eight individual or paired interviews were recorded among nine walkers six months after a 12-week GOHW. Analysis was conducted by a multi-disciplinary

team. The coding frame included both a priori and emergent codes. An iterative process identified key themes.

**Results:** Three themes illustrated the social dimensions of GOHW. First, individuals' social relatedness changed loneliness, social confidence and the quality of friendships, through mixing during and after the walks. Second, social support was experienced through emerging group cohesion and the supportive environment for inexperienced or physically challenged individuals. Tensions were also identified. Third, the social component of GOHW was related to walker wellbeing, by providing an opportunity to safely exercise outdoors, while the socializing helped them overcome their physical ailments and offered something to look forward to each week. Together these themes provide insight into the social elements of nature-based interventions, the mediating effects of group cohesion and social support, and the contribution to wellbeing.

**Conclusion:** GOHWs mitigate social isolation by providing a low-risk social activity that develops and strengthens relationships among members of the walking group. Socializing, group cohesion and social support contribute to both physical and social wellbeing. With attention to physical distancing, GOHW may be beneficial in COVID times. Findings also can inform selection and development of social health measures for use in studies of nature-based interventions.

### P13.22

#### The Development of a Mindfulness Informed Support Group for Women in Methadone Maintenance Treatment to Address Their Stressors: A Qualitative Study

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#### Abstract

**Objective:** Women with opioid use disorder (OUD) experience gender-specific challenges. As such, substance use treatment for women that takes into consideration their unique needs is considered most effective. However, to our knowledge there are no manualized gender-specific support groups for women with OUD who receive methadone maintenance treatment (MMT). Mindfulness is a burgeoning treatment modality for substance use that could provide a forum to address stressors related to OUD. The aim of this study was to learn from women engaged

in MMT regarding their needs and to learn about their familiarity with mindfulness.

**Methods:** We conducted three focus groups with a total of 19 women at an MMT center. The focus group transcripts were coded using thematic analysis to consider over-arching themes as related to strengths and challenges of taking MMT; and to consider if a mindfulness intervention could support women.

**Results:** Women described significant stressors related to taking methadone; including side effects and persistent stigma from every branch of society. This stigma impacted their ability to procure financial and social resources. Women also described the support that they receive from counseling services that are non-judgmental and described a desire for women-focused groups. From these

findings, we created a strengths-based curriculum to address the stressors related to MMT by introducing mindfulness-based concepts. For example, the mindfulness concept of non-judgment can infuse a caring attitude towards one's self to support healing from stigma.

**Conclusion:** More tailored services, as identified by women in treatment, are needed to help women engaged in MMT deal with the multiple challenges they confront. Women need support to cope with the pervasive stigma associated with being in an MMT program. The group manual we created could be one potential support. In addition, structural interventions are needed to address societal stigma towards OUD and MMT.

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