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The Role of Non-traditional Practices in the Management of PTSD

Complementary and integrative health (CIH) comprises a diverse group of non-traditional (i.e., not associated with Western medicine) practices intended to supplement conventional treatment (National Center for Complementary and Integrative Health, *Complimentary, Alternative, or Integrative Health*, 2021). Emphasizing the health and well-being of the whole person, CIH practices may include nutrition, drugs (e.g., botanicals or supplements), mind-body practices (e.g., meditation, yoga, manual therapies), and devices (e.g., acupuncture; National Center for Complementary and Integrative Health, *Whole Person Health*, 2021). Despite substantial evidence demonstrating the efficacy of currently recommended PTSD treatments (VA/DoD, 2023), many Veterans do not engage in these treatments (Farmer et al., 2020; Meis et al., 2023; O'Loughlin et al., 2023), drop out of them prematurely (Niles et al., 2018), or retain their PTSD diagnosis after completion (Steenkamp et al., 2015). Thus, there is a need for additional approaches that may facilitate Veterans' readiness to participate in traditional treatments, complement trauma-focused care, resolve residual symptoms, improve daily functioning, or provide alternatives. In a national sample of 3,346 Veterans, 52% reported engagement with CIH practices in the past year, and 84% expressed interest in learning more about or trying them (Taylor et al., 2019). Although eight CIH practices have been designated for inclusion in the Veteran medical benefits package (Veterans Affairs, 2023), these interventions may not be indicated for all presenting complaints. Thus, it is important for providers to understand the state of the evidence for CIH in the management of PTSD

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and to consider the possibilities for synergistic interplay between evidence-based therapies and non-traditional practices (Reed et al., 2023).

Mind-body practices have been subjected to the greatest amount of empirical scrutiny for the management of PTSD, in part because they are among the fastest-growing types of CIH approaches (Nahin et al., 2024). Mindfulness-Based Stress Reduction (MBSR) is a well-developed, intensive eight-week mindfulness training program that received a weak recommendation in the 2023 Department of Veterans Affairs (VA)/Department of Defense (DoD) Clinical Practice Guideline (CPG) for the Management of PTSD and Acute Stress Disorder. Two RCTs compared MBSR to Present-Centered Group Therapy (PCGT) in Veterans; in one, Veterans assigned to MBSR demonstrated greater reductions in PTSD symptom severity than those assigned to PCGT, whereas the other found that both conditions reduced PTSD symptoms but did not significantly differ from one another (Polusny et al., 2015; Davis et al., 2019). In another trial, Veterans with anxiety assigned to MBSR achieved comparable outcomes to those who took escitalopram, suggesting that MBSR was a non-inferior alternative to the medication (Hoge et al., 2023).

Several other meditation-based practices show promise as well. Loving-Kindness Meditation (LKM) involves the repetition of phrases intended to elicit positive thoughts and feelings towards oneself and others; in an RCT comparing LKM

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to Cognitive Processing Therapy (CPT), [Kearney et al. \(2021\)](#) found that Veterans assigned to an LKM intervention achieved comparable reductions in PTSD symptom severity to Veterans assigned to CPT. Transcendental Meditation (TM) involves the repetition of a word or sound (i.e., a mantra) that is intended to guide the meditator to a relaxed state of awareness; in one RCT, TM was a non-inferior alternative to Prolonged Exposure (PE) for Veterans with PTSD ([Nidich et al., 2018](#)). However, other investigations of TM have produced mixed results, rendering the current state of the evidence inconclusive (VA/DoD, 2023). The Mantram Repetition Program (MRP) is like TM in that it involves the repetition of a spiritually meaningful word or phrase, though MRP involves a self-chosen word and can be practiced at any time while TM involves an assigned word and regular seated practice. In one RCT, Veterans assigned to MRP demonstrated greater reductions in PTSD symptom severity and insomnia than Veterans assigned to Present-Centered Therapy (PCT; [Bormann et al., 2018](#)). In another, MRP plus usual care was associated with greater symptom reduction than usual care alone (Bormann et al., 2013). [Bayley and colleagues \(2022\)](#) found that a breathing-based meditation, Sudarshan Kriya Yoga (SKY), decreased Veterans' PTSD and depression symptoms that were comparable to Veterans who received CPT. A major challenge in developing clinical recommendations from this literature is knowing whether meaningful differences exist between these different types of meditation in terms of treatment utility, or whether findings could be pooled to support meditation practices in general.

Movement-based approaches are another subset of CIH practices frequently studied for application with PTSD. Yoga is a multifarious practice that incorporates movement, mindfulness, and spirituality (Strauss et al., n.d.), and has become popular among Veterans (Taylor et al., 2019). One RCT demonstrated that Veterans assigned to a holistic yoga program showed greater improvements in PTSD symptom severity than Veterans assigned to a wellness lifestyle program ([Davis et al., 2020](#)), but the empirical consensus regarding its efficacy remains inconclusive. The safety of yoga for this population is established, and it is frequently associated with the improvement of self-reported symptoms (Nejadghaderi et al., 2024) but not always clinician-rated change. As with meditation, yoga may be practiced in very different ways, including variations in emphasis on physical movement vs meditation and whether adaptations are made for individuals who have experienced trauma. Initial evidence suggests that treatment effects may depend on the type of yoga practiced (Nejadghaderi et al., 2024), so it would not be indicated to group all types of practice when considering recommendations.

Meta-analytic data suggest the positive impact of exercise on PTSD symptoms, but studies are limited ([Björkman & Ekblom, 2022](#); [Powers et al., 2015](#); [Goldstein et al., 2017](#)). Although two pilot studies have shown that exercise combined with psychotherapy decreased PTSD symptom severity ([Powers et al., 2015](#); [Goldstein et al., 2017](#)), [Young-McCaughan et al. \(2022\)](#) found no significant impact of exercise on PTSD either as a standalone intervention or when integrated with an imaginal exposure component of PE for active-duty service members. Tai chi and qigong, which combine movement and meditation, may improve the well-being of Veterans with PTSD and reduce their symptoms, but further research is needed to form a consensus as the current evidence base includes only pilot trials to establish feasibility and acceptability ([Niles et al., 2022](#)).

Acupuncture involves strategic placement of needles into various regions of tissue or muscle in the body (Engel et al., 2014) and has shown encouraging results for Veterans with PTSD. In one randomized effectiveness trial, Veterans assigned to receive acupuncture in conjunction with their conventional PTSD care demonstrated significant improvements in both their self-reported and clinician-rated PTSD symptoms compared to Veterans assigned to receive conventional PTSD care alone (Engel et al., 2014). Building on prior evidence that acupuncture performed similarly to group cognitive behavioral therapy for PTSD and better than a waitlist control ([Hollifield et al., 2007](#)), [Hollifield and colleagues \(Hollifield et al., 2024\)](#) recently found that verum acupuncture outperformed sham acupuncture in reducing clinician-rated PTSD symptoms. Challenges in establishing acupuncture's effectiveness for PTSD, include determining the use of different types (e.g., auricular vs standard), operationalizing clinician judgment in terms of needle placement, and interpreting sham controls ([Birch et al., 2022](#)).

Other popular CIH interventions that do not yet have sufficient evidence for recommendation include using service dogs, nature-based experiences, and somatic experiencing. Despite the prevalence of service dogs, there is little evidence suggesting that they significantly impact a person's PTSD symptoms ([Lang et al., 2024](#)) and may even have unintended negative consequences, such as negative effects on family members ([Nieforth et al., 2022](#)). Nature-based experiences involve outdoor activities such as hiking, surfing, and camping, and may improve Veterans' psychological well-being and PTSD symptoms ([Shirazi et al., 2024](#)). Somatic experiencing involves focusing on sensations inside the body that may be connected to a traumatic event; in one randomized controlled outcome study, [Brom et al. \(2017\)](#) found that participants assigned to the somatic experiencing condition achieved significant decreases in clinician-rated PTSD symptoms immediately following completion of the intervention compared to participants on a waitlist; however, the differences between these groups were not maintained at follow-up.

As highlighted, one major challenge in establishing the role of CIH in clinical care is the wide range of practices studied. Not only is CIH an umbrella term for a vast array of approaches, but each type of practice has subtypes. Although innovation may be an advantage in terms of securing support for additional studies, replication and consistent operationalization will be critical to building an evidence base that will impact care for Veterans.

A second challenge is understanding the best ways that non-traditional practices may be applied. Alternative use describes the case in which the non-traditional practice is used in place of traditional care. Given the lack of efficacy data to support first-line treatment of PTSD using any CIH approach, alternative care is generally not recommended; however, much of the evidence base evaluates a CIH practice as compared to a control approach in the absence of other active treatments. CIH can also be used as part of stepped care ([Roberts & Nixon, 2023](#)), such that individuals may "step up" to evidence-based care after an initial experience with CIH or "step down" to CIH to manage residual symptoms after the completion of another type of care. Supporting this idea, [Etingen and colleagues \(2023\)](#) found that individuals who engaged in Whole Health were more likely to enter evidence-based treatment in the next year than those who did not. Unfortunately,

it is unknown what aspects of Whole Health (for example, Whole Health counseling vs engagement in a non-traditional practice), may have contributed to this difference. Finally, the model that is frequently suggested but unstudied is integrative care, in which traditional and non-traditional practices are applied together to create synergistic effects. One example is from Powers et al.'s pilot trial (2015), which showed that exercise integrated with PE produced significantly greater reductions in PTSD symptoms than PE alone.

There is demand for CIH and while it appears to be safe, there is much work to be done before it can be considered an evidence-based approach for PTSD. There are many well-conducted, promising trials, but an emphasis on novelty over replication has prevented sufficient compilation of evidence to draw conclusions. Additionally, trials typically ignore the question of how CIH is being applied. Replication of previous findings as compared to active controls, refinement of study methodology (e.g., use of clinician-based assessment), and resolution of best implementation practices for CIH will get us one step closer to giving Veterans the care they need and want.

Featured Articles

Bayley, P. J., Schulz-Heik, R. J., Tang, J. S., Mathersul, D. C., Avery, T., Wong, M., Zeitzer, J. M., Rosen, C. S., Burn, A. S., Hernandez, B., Lazzeroni, L. C., & Seppälä, E. M. (2022). **Randomised clinical non-inferiority trial of breathing-based meditation and cognitive processing therapy for symptoms of post-traumatic stress disorder in military veterans.** *BMJ Open*, *12*, e056609. doi:10.1136/bmjopen-2021-056609 *Objective:* Test whether Sudarshan Kriya Yoga (SKY) was non-inferior to cognitive processing therapy (CPT) for treating symptoms of post-traumatic stress disorder (PTSD) among veterans via a parallel randomised controlled non-inferiority trial. *Setting:* Outpatient Veterans Affairs healthcare centre. Participants: 85 veterans (75 men, 61% white, mean age 56.9) with symptoms of PTSD participated between October 2015 and March 2020: 59 participants completed the study. *Interventions:* SKY emphasises breathing routines and was delivered in group format in a 15-hour workshop followed by two 1-hour sessions per week for 5 weeks. CPT is an individual psychotherapy which emphasises shifting cognitive appraisals and was delivered in two 1-hour sessions per week for 6 weeks. *Measures:* The primary outcome measure was the PTSD Checklist-Civilian Version (PCL-C). The secondary measures were the Beck Depression Inventory-II (BDI-II) and Positive and Negative Affect Scale (PANAS). *Results:* Mean PCL-C at baseline was 56.5 (± 12.6). Intent-to-treat analyses showed that PCL-C scores were reduced at 6 weeks (end of treatment) relative to baseline (SKY, -5.6 , $d = 0.41$, $n = 41$; CPT, -6.8 , $d = 0.58$, $n = 44$). The between-treatment difference in change scores was within the non-inferiority margin of 10 points (-1.2 , 95% CI -5.7 to 3.3), suggesting SKY was not inferior to CPT. SKY was also non-inferior at 1-month (CPT-SKY: -2.1 , 95% CI -6.9 to 2.8) and 1-year (CPT-SKY: -1.8 , 95% CI -6.6 to 2.9) assessments. SKY was also non-inferior to CPT on the BDI-II and PANAS at end of treatment and 1 month, but SKY was inferior to CPT on both BDI-II and PANAS at 1 year. Dropout rates were similar (SKY, 27%, CPT, 34%: OR = 1.36, 95% CI 0.51 to 3.62, $p = 0.54$). *Conclusions:* SKY may be non-inferior to CPT for treating symptoms of PTSD and merits further consideration as a treatment for PTSD.

Bormann, J. E., Thorp, S. R., Smith, E., Glickman, M., Beck, D., Plumb, D., Zhao, S., Ackland, P. E., Rodgers, C. S., Heppner, P., Herz, L. R., & Elwy, A. R. (2018). **Individual treatment of posttraumatic stress disorder using mantram repetition: A randomized clinical trial.** *American Journal of Psychiatry*, *175*(10), 979–988. doi:10.1176/appi.ajp.2018.17060611 *Objective:* Previous studies suggest that group "mantram" (sacred word) repetition therapy, a non-trauma-focused complementary therapy for posttraumatic stress disorder (PTSD), may be an effective treatment for veterans. The authors compared individually delivered mantram repetition therapy and another non-trauma-focused treatment for PTSD. *Method:* The study was a two-site, open-allocation, blinded-assessment randomized trial involving 173 veterans diagnosed with military-related PTSD from two Veterans Affairs outpatient clinics (January 2012 to March 2014). The mantram group ($N = 89$) learned skills for silent mantram repetition, slowing thoughts, and one-pointed attention. The comparison group ($N = 84$) received present-centered therapy, focusing on currently stressful events and problem-solving skills. Both treatments were delivered individually in eight weekly 1-hour sessions. The primary outcome measure was change in PTSD symptom severity, as measured by the Clinician-Administered PTSD Scale (CAPS) and by self-report. Secondary outcome measures included insomnia, depression, anger, spiritual well-being, mindfulness, and quality of life. Intent-to-treat analysis was conducted using linear mixed models. *Results:* The mantram group had significantly greater improvements in CAPS score than the present-centered therapy group, both at the posttreatment assessment (between-group difference across time, -9.98 , 95% CI = -3.63 , -16.00 ; $d = 0.49$) and at the 2-month follow-up (between-group difference, -9.34 , 95% CI = -1.50 , -17.18 ; $d = 0.46$). Self-reported PTSD symptom severity was also lower in the mantram group compared with the present-centered therapy group at the posttreatment assessment, but there was no difference at the 2-month follow-up. Significantly more participants in the mantram group (59%) than in the present-centered therapy group (40%) who completed the 2-month follow-up no longer met criteria for PTSD ($p < 0.04$). However, the percentage of participants in the mantram group (75%) compared with participants in the present-centered therapy group (61%) who experienced clinically meaningful changes (≥ 10 -point improvements) in CAPS score did not differ significantly between groups. Reductions in insomnia were significantly greater for participants in the mantram group at both posttreatment assessment and 2-month follow-up. *Conclusions:* In a sample of veterans with PTSD, individually delivered mantram repetition therapy was generally more effective than present-centered therapy for reducing PTSD symptom severity and insomnia.

Davis, L. L., Whetsell, C., Hamner, M. B., Carmody, J., Rothbaum, B. O., Allen, R. S., Bartolucci, A., Southwick, S. M., & Bremner, J. D. (2019). **A multisite randomized controlled trial of mindfulness-based stress reduction in the treatment of posttraumatic stress disorder.** *Psychiatric Research and Clinical Practice*, *1*(2), 39–48. doi:10.1176/appi.prcp.20180002 *Objective:* Posttraumatic stress disorder (PTSD) is often difficult to treat, and many patients do not achieve full remission. Complementary and integrative health approaches, such as mindfulness meditation, are intended to be integrated with evidence-based treatment. This study examined the efficacy of mindfulness-based stress reduction (MBSR) in the treatment of PTSD in U.S. military veterans. *Methods:* Veterans with a diagnosis of PTSD ($N = 214$) were randomly assigned to

either 90-minute group MBSR or present-centered group therapy (PCGT) for eight weeks. Follow-up assessments were obtained at baseline and weeks 3, 6, 9 (primary endpoint), and 16. *Results:* Both the MBSR and PCGT groups achieved significant improvement in PTSD as measured by the Clinician-Administered PTSD Scale for *DSM-IV* (CAPS-IV), with no statistically significant differences between groups. However, compared with PCGT, the MBSR group showed a statistically significant improvement in PTSD on the self-reported PTSD Checklist for *DSM-IV* over the nine weeks. This difference was not maintained posttreatment, at week 16. Strengths of the study include its large sample size, multisite design, active control group, single-blind outcome ratings, fidelity monitoring, large minority representation, and randomized approach. The study was limited by its high attrition rate and low representation of women. *Conclusion:* Both MBSR and PCGT appear to have beneficial effects in treating PTSD in veterans, with greater improvement observed in self-reported PTSD symptoms in the MBSR group. No differences between groups were observed on the CAPS-IV scale.

Davis, L. W., Schmid, A. A., Daggy, J. K., Yang, Z., O'Connor, C. E., Schalk, N., Do, A-N. L., Maric, D., Lazarick, D., & Knock, H. (2020).

Symptoms improve after a yoga program designed for PTSD in a randomized controlled trial with veterans and civilians.

Psychological Trauma: Theory Research Practice and Policy, 12(8), 904–912. doi:10.1037/tra0000564 *Objective:* Although yoga shows promise as a treatment for posttraumatic stress disorder (PTSD), there are few randomized controlled trials that demonstrate significant benefits for individuals with PTSD. The present study addresses this need by comparing the effects of a holistic yoga program (HYP) to that of a wellness lifestyle program (WLP) on PTSD symptom severity with a randomized clinical trial. *Method:* The sample consisted of 209 participants (91.4% veterans; 66% male; 61.7% White) who met diagnostic criteria for PTSD at baseline. Participants were randomly assigned to attend one of the 2 weekly interventions for 16 weeks. The HYP consisted of yoga instruction, while the WLP consisted of didactics, discussions, and walking. PTSD severity was measured using the Clinician-Administered PTSD Scale (CAPS-5) and the PTSD Checklist (PCL-5). *Results:* Analyses revealed that the HYP reduced PTSD severity measured by the CAPS-5 significantly more than the WLP at treatment end (mean difference = -5.4, effect size = 0.46, $p < .001$), but not at 7-month follow up (mean difference = -0.9, $p = .603$). Similarly, the HYP reduced PTSD severity measured by the PCL-5 significantly more than the WLP at treatment end (difference = -6.0, $p = .001$), but not at 7-month follow up (mean difference = -1.0, $p = .682$). *Conclusion:* Yoga may be an effective intervention for PTSD in addition to standard treatments. Future yoga trials should consider adding a social component to interventions or booster classes to maintain effects long term.

Etingen, B., Smith, B. M., Zeliadt, S. B., Kaitz, J. E., Barker, A. M., Hyde, J. K., Fix, G. M., Reed, D. E., Anderson, E., Hogan, T. P., & Bokhour, B. G. (2023). **VHA whole health services and complementary and integrative health therapies: A gateway to evidence-based mental health treatment.**

Journal of General Internal Medicine, 38(14), 3144–3151. doi:10.1007/s11606-023-08296-z *Background:* Engagement in evidence-based psychotherapy (EBP) among veterans with behavioral health conditions is often low. The Veterans Health

Administration (VHA) is implementing a "Whole Health (WH)" system of care, to identify veteran personal health goals, align care with those goals, and offer services designed to engage and empower veterans to achieve well-being. *Objective:* To examine the relationship between veteran WH utilization and subsequent engagement in EBP. *Design:* Retrospective analysis of VHA administrative records from 18 facilities implementing WH. *Subjects:* Veterans ($n = 265,364$) with a diagnosis of depression, post-traumatic stress disorder (PTSD), and/or anxiety who had a mental healthcare encounter, but no EBP use in fiscal year (FY) 2018. Among this cohort, 33,146 (12.5%) began using WH in FY2019. *Main measures:* We examined use of an EBP for depression, anxiety, and/or PTSD within 1 year of the index date of WH use compared to use of an EBP anytime during FY2019 for veterans not identified as using WH. We used multiple logistic regression to examine the association between veteran WH use and EBP engagement. *Key results:* Approximately 3.0% ($n = 7,860$) of the veterans in our overall cohort engaged in an EBP in the year following their index date. Controlling for key demographic, health, and utilization variables, WH users had 2.4 (95% CI: 2.2-2.5) times higher odds of engaging in an EBP the following year than those with no WH utilization. Associations between utilization of specific WH services (vs. no utilization of that service) and engagement in an EBP in the subsequent year ranged from 1.6 (95% CI: 1.0-2.6) to 3.5 (95% CI: 3.2-3.9) across the different types of WH services used. *Conclusions:* WH use was associated with increased engagement in EBPs among veterans with depression, anxiety, and/or PTSD. Future interventions intended to promote veteran engagement in EBPs may benefit from leveraging WH services and therapies.

Hoge, E. A., Bui, E., Mete, M., Dutton, M. A., Baker, A. W., & Simon, N. M. (2023). **Mindfulness-based stress reduction vs escitalopram for the treatment of adults with anxiety disorders.**

JAMA Psychiatry, 80(1), 13–21. doi:10.1001/jamapsychiatry.2022.3679 *Importance:* Anxiety disorders are common, highly distressing, and impairing conditions. Effective treatments exist, but many patients do not access or respond to them. Mindfulness-based interventions, such as mindfulness-based stress reduction (MBSR) are popular and can decrease anxiety, but it is unknown how they compare to standard first-line treatments. *Objective:* To determine whether MBSR is noninferior to escitalopram, a commonly used first-line psychopharmacological treatment for anxiety disorders. *Design, setting, and participants:* This randomized clinical trial (Treatments for Anxiety: Meditation and Escitalopram [TAME]) included a noninferiority design with a prespecified noninferiority margin. Patients were recruited between June 2018 and February 2020. The outcome assessments were performed by blinded clinical interviewer at baseline, week 8 end point, and follow-up visits at 12 and 24 weeks. Of 430 individuals assessed for inclusion, 276 adults with a diagnosed anxiety disorder from 3 urban academic medical centers in the US were recruited for the trial, and 208 completed the trial. *Interventions:* Participants were 1:1 randomized to 8 weeks of the weekly MBSR course or the antidepressant escitalopram, flexibly dosed from 10 to 20 mg. *Main outcomes and measures:* The primary outcome measure was anxiety levels as assessed with the Clinical Global Impression of Severity scale (CGI-S), with a predetermined noninferiority margin of -0.495 points. *Results:* The primary noninferiority sample consisted

of 208 patients (102 in MBSR and 106 in escitalopram), with a mean (SD) age of 33 (13) years; 156 participants (75%) were female; 32 participants (15%) were African American, 41 (20%) were Asian, 18 (9%) were Hispanic/Latino, 122 (59%) were White, and 13 (6%) were of another race or ethnicity (including Native American or Alaska Native, more than one race, or other, consolidated owing to low numbers). Baseline mean (SD) CGI-S score was 4.44 (0.79) for the MBSR group and 4.51 (0.78) for the escitalopram group in the per-protocol sample and 4.49 (0.77) vs 4.54 (0.83), respectively, in the randomized sample. At end point, the mean (SD) CGI-S score was reduced by 1.35 (1.06) for MBSR and 1.43 (1.17) for escitalopram. The difference between groups was -0.07 (0.16; 95% CI, -0.38 to 0.23; $P = .65$), where the lower bound of the interval fell within the predefined noninferiority margin of -0.495, indicating noninferiority of MBSR compared with escitalopram. Secondary intent-to-treat analyses using imputed data also showed the noninferiority of MBSR compared with escitalopram based on the improvement in CGI-S score. Of patients who started treatment, 10 (8%) dropped out of the escitalopram group and none from the MBSR group due to adverse events. At least 1 study-related adverse event occurred for 110 participants randomized to escitalopram (78.6%) and 21 participants randomized to MBSR (15.4%). **Conclusions and relevance:** The results from this randomized clinical trial comparing a standardized evidence-based mindfulness-based intervention with pharmacotherapy for the treatment of anxiety disorders found that MBSR was noninferior to escitalopram.

Hollifield, M., Hsiao, A-F., Smith, T., Calloway, T., Jovanovic, T., Smith, B., Carrick, K., Norrholm, S. D., Munoz, A., Alpert, R., Caicedo, B., Frousakis, N., & Cocozza, K. (2024). **Acupuncture for combat-related posttraumatic stress disorder: A randomized clinical trial.** *JAMA Psychiatry*, 81(6), 545–554. doi:10.1001/jamapsychiatry.2023.5651 **Importance:** Current interventions for posttraumatic stress disorder (PTSD) are efficacious, yet effectiveness may be limited by adverse effects and high withdrawal rates. Acupuncture is an emerging intervention with positive preliminary data for PTSD. **Objective:** To compare verum acupuncture with sham acupuncture (minimal needling) on clinical and physiological outcomes. **Design, setting, and participants:** This was a 2-arm, parallel-group, prospective blinded randomized clinical trial hypothesizing superiority of verum to sham acupuncture. The study was conducted at a single outpatient-based site, the Tibor Rubin VA medical Center in Long Beach, California, with recruitment from April 2018 to May 2022, followed by a 15-week treatment period. Following exclusion for characteristics that are known PTSD treatment confounds, might affect biological assessment, indicate past nonadherence or treatment resistance, or indicate risk of harm, 93 treatment-seeking combat veterans with PTSD aged 18 to 55 years were allocated to group by adaptive randomization and 71 participants completed the intervention protocols. **Interventions:** Verum and sham were provided as 1-hour sessions, twice weekly, and participants were given 15 weeks to complete up to 24 sessions. **Main outcomes and measures:** The primary outcome was pretreatment to posttreatment change in PTSD symptom severity on the Clinician-Administered PTSD Scale-5 (CAPS-5). The secondary outcome was pretreatment to posttreatment change in fear-conditioned extinction, assessed by fear-potentiated startle response. Outcomes were assessed at pretreatment, midtreatment,

and posttreatment. General linear models comparing within- and between-group were analyzed in both intention-to-treat (ITT) and treatment-completed models. **Results:** A total of 85 male and 8 female veterans (mean [SD] age, 39.2 [8.5] years) were randomized. There was a large treatment effect of verum (Cohen d , 1.17), a moderate effect of sham (d , 0.67), and a moderate between-group effect favoring verum (mean [SD] Δ , 7.1 [11.8]; $t_{90} = 2.87$, d , 0.63; $P = .005$) in the intention-to-treat analysis. The effect pattern was similar in the treatment-completed analysis: verum d , 1.53; sham d , 0.86; between-group mean (SD) Δ , 7.4 (11.7); $t_{69} = 2.64$; d , 0.63; $P = .01$). There was a significant pretreatment to posttreatment reduction of fear-potentiated startle during extinction (i.e., better fear extinction) in the verum but not the sham group and a significant correlation ($r = 0.31$) between symptom reduction and fear extinction. Withdrawal rates were low. **Conclusions and relevance:** The acupuncture intervention used in this study was clinically efficacious and favorably affected the psychobiology of PTSD in combat veterans. These data build on extant literature and suggest that clinical implementation of acupuncture for PTSD, along with further research about comparative efficacy, durability, and mechanisms of effects, is warranted.

Kearney, D. J., Malte, C. A., Storms, M., & Simpson, T. L. (2021). **Loving-kindness meditation vs cognitive processing therapy for posttraumatic stress disorder among veterans.** *JAMA Network Open*, 4(4), e216604. doi:10.1001/jamanetworkopen.2021.6604 **Importance:** Additional options are needed for treatment of posttraumatic stress disorder (PTSD) among veterans. **Objective:** To determine whether group loving-kindness meditation is noninferior to group cognitive processing therapy for treatment of PTSD. **Design, setting, and participants:** This randomized clinical noninferiority trial assessed PTSD and depression at baseline, posttreatment, and 3- and 6-month follow-up. Veterans were recruited from September 24, 2014, to February 5, 2018, from a large Veterans Affairs medical center in Seattle, Washington. A total of 184 veteran volunteers who met *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) criteria for PTSD were randomized. Data collection was completed November 28, 2018, and data analyses were conducted from December 10, 2018, to November 5, 2019. **Interventions:** Each intervention comprised 12 weekly 90-minute group sessions. Loving-kindness meditation ($n = 91$) involves silent repetition of phrases intended to elicit feelings of kindness for oneself and others. Cognitive processing therapy ($n = 93$) combines cognitive restructuring with emotional processing of trauma-related content. **Main outcomes and measures:** Co-primary outcomes were change in PTSD and depression scores over 6-month follow-up, assessed by the Clinician-Administered PTSD Scale (CAPS-5; range, 0-80; higher is worse) and Patient-Reported Outcome Measurement Information System (PROMIS; reported as standardized T-score with mean [SD] of 50 [10] points; higher is worse) depression measures. Noninferiority margins were 5 points on the CAPS-5 and 4 points on the PROMIS depression measure. **Results:** Among the 184 veterans (mean [SD] age, 57.1 [13.1] years; 153 men [83.2%]; 107 White participants [58.2%]) included in the study, 91 (49.5%) were randomized to the loving-kindness group, and 93 (50.5%) were randomized to the cognitive processing group. The mean (SD) baseline CAPS-5 score was 35.5 (11.8) and mean (SD) PROMIS depression score was 60.9 (7.9). A total of 121 veterans (66%) completed 6-month follow-up.

At 6 months posttreatment, mean CAPS-5 scores were 28.02 (95% CI, 24.72-31.32) for cognitive processing therapy and 25.92 (95% CI, 22.62-29.23) for loving-kindness meditation (difference, 2.09; 95% CI, -2.59 to 6.78), and mean PROMIS depression scores were 61.22 (95% CI, 59.21-63.23) for cognitive processing therapy and 58.88 (95% CI, 56.86-60.91) for loving-kindness meditation (difference, 2.34; 95% CI, -0.52 to 5.19). In superiority analyses, there were no significant between-group differences in CAPS-5 scores, whereas for PROMIS depression scores, greater reductions were found for loving-kindness meditation vs cognitive processing therapy (for patients attending ≥ 6 visits, ≥ 4 -point improvement was noted in 24 [39.3%] veterans receiving loving-kindness meditation vs 9 [18.0%] receiving cognitive processing therapy; $P = .03$). **Conclusions and relevance:** Among veterans with PTSD, loving-kindness meditation resulted in reductions in PTSD symptoms that were noninferior to group cognitive processing therapy. For both interventions, the magnitude of improvement in PTSD symptoms was modest. Change over time in depressive symptoms was greater for loving-kindness meditation than for cognitive processing therapy.

Nidich, S., Mills, P. J., Rainforth, M., Heppner, P., Schneider, R. H., Rosenthal, N. E., Salerno, J., Gaylord-King, C., & Rutledge, T. (2018). **Non-trauma-focused meditation versus exposure therapy in veterans with post-traumatic stress disorder: A randomised controlled trial.** *The Lancet Psychiatry*, 5(12), 975–986. doi:10.1016/s2215-0366(18)30384-5 **Background:** Post-traumatic stress disorder (PTSD) is a complex and difficult-to-treat disorder, affecting 10-20% of military veterans. Previous research has raised the question of whether a non-trauma-focused treatment can be as effective as trauma exposure therapy in reducing PTSD symptoms. This study aimed to compare the non-trauma-focused practice of Transcendental Meditation (TM) with prolonged exposure therapy (PE) in a non-inferiority clinical trial, and to compare both therapies with a control of PTSD health education (HE). **Methods:** We did a randomised controlled trial at the Department of Veterans Affairs San Diego Healthcare System in CA, USA. We included 203 veterans with a current diagnosis of PTSD resulting from active military service randomly assigned to a TM or PE group, or an active control group of HE, using stratified block randomisation. Each treatment provided 12 sessions over 12 weeks, with daily home practice. TM and HE were mainly given in a group setting and PE was given individually. The primary outcome was change in PTSD symptom severity over 3 months, assessed by the Clinician-Administered PTSD Scale (CAPS). Analysis was by intention to treat. We hypothesised that TM would show non-inferiority to PE in improvement of CAPS score ($\Delta = 10$), with TM and PE superior to PTSD HE. This study is registered with ClinicalTrials.gov, number NCT01865123. **Findings:** Between June 10, 2013, and Oct 7, 2016, 203 veterans were randomly assigned to an intervention group (68 to the TM group, 68 to the PE group, and 67 to the PTSD HE group). TM was significantly non-inferior to PE on change in CAPS score from baseline to 3-month post-test (difference between groups in mean change -5.9, 95% CI -14.3 to 2.4, $p = 0.0002$). In standard superiority comparisons, significant reductions in CAPS scores were found for TM versus PTSD HE (-14.6 95% CI, -23.3 to -5.9, $p = 0.0009$), and PE versus PTSD HE (-8.7 95% CI, -17.0 to -0.32, $p = 0.041$). 61% of those receiving TM, 42% of those receiving PE, and 32% of those receiving HE showed clinically significant

improvements on the CAPS score. **Interpretation:** A non-trauma-focused-therapy, TM, might be a viable option for decreasing the severity of PTSD symptoms in veterans and represents an efficacious alternative for veterans who prefer not to receive or who do not respond to traditional exposure-based treatments of PTSD.

Nieforth, L. O., Miller, E. A., Wadsworth, S. M., & O'Haire, M. E. (2022). **Posttraumatic stress disorder service dogs and the wellbeing of veteran families.** *European Journal of Psychotraumatology*, 13(1), 2062997. doi:10.1080/20008198.2022.2062997 **Background:** Benefits and challenges associated with service dogs for veterans with posttraumatic stress disorder (PTSD) may extend beyond veterans to their families. **Objective:** The purpose of the current study is to evaluate the impact of veterans' PTSD service dogs on spouses and families in a parallel-group, longitudinal design with assessments at baseline and three months follow-up. **Method:** A total of 88 United States military veteran spouses completed a survey composed of multiple standardized measures at baseline and three months later. In the intervention group ($n = 48$), veterans received service dogs shortly after baseline while the waitlist control group ($n = 40$) did not. **Results:** Linear regression analyses demonstrated significantly lower caregiver satisfaction, higher caregiver burden and higher participation in life activities among spouses who had service dogs in their homes compared to those on the waitlist. Though not significant, small effect sizes were present among additional measures. **Conclusion:** Results suggest that although previous literature demonstrates service dogs may offer significant improvements for veterans, spouses and children may not experience those same benefits. Clinicians should consider how to prepare veteran spouses and families for integrating service dogs into their home. Future studies should explore family-focused approaches for service dog integration, defining an optimal strategy for the benefit of the entire family.

Polusny, M. A., Erbes, C. R., Thuras, P., Moran, A., Lamberty, G. J., Collins, R. C., Rodman, J. L., & Lim, K. O. (2015). **Mindfulness-based stress reduction for posttraumatic stress disorder among veterans.** *JAMA*, 314(5), 456–465. doi:10.1001/jama.2015.8361 **Importance:** Mindfulness-based interventions may be acceptable to veterans who have poor adherence to existing evidence-based treatments for posttraumatic stress disorder (PTSD). **Objective:** To compare mindfulness-based stress reduction with present-centered group therapy for treatment of PTSD. **Design, setting, and participants:** Randomized clinical trial of 116 veterans with PTSD recruited at the Minneapolis Veterans Affairs Medical Center from March 2012 to December 2013. Outcomes were assessed before, during, and after treatment and at 2-month follow-up. Data collection was completed on April 22, 2014. **Interventions:** Participants were randomly assigned to receive mindfulness-based stress reduction therapy ($n = 58$), consisting of 9 sessions (8 weekly 2.5-hour group sessions and a daylong retreat) focused on teaching patients to attend to the present moment in a nonjudgmental, accepting manner; or present-centered group therapy ($n = 58$), an active-control condition consisting of 9 weekly 1.5-hour group sessions focused on current life problems. **Main outcomes and measures:** The primary outcome, change in PTSD symptom severity over time, was assessed using the PTSD Checklist (range, 17-85; higher scores

indicate greater severity; reduction of 10 or more considered a minimal clinically important difference) at baseline and weeks 3, 6, 9, and 17. Secondary outcomes included PTSD diagnosis and symptom severity assessed by independent evaluators using the Clinician-Administered PTSD Scale along with improvements in depressive symptoms, quality of life, and mindfulness. *Results:* Participants in the mindfulness-based stress reduction group demonstrated greater improvement in self-reported PTSD symptom severity during treatment (change in mean PTSD Checklist scores from 63.6 to 55.7 vs 58.8 to 55.8 with present-centered group therapy; between-group difference, 4.95; 95% CI, 1.92-7.99; $P = .002$) and at 2-month follow-up (change in mean scores from 63.6 to 54.4 vs 58.8 to 56.0, respectively; difference, 6.44; 95% CI, 3.34-9.53, $P < .001$). Although participants in the mindfulness-based stress reduction group were more likely to show clinically significant improvement in self-reported PTSD symptom severity (48.9% vs 28.1% with present-centered group therapy; difference, 20.9%; 95% CI, 2.2%-39.5%; $P = .03$) at 2-month follow-up, they were no more likely to have loss of PTSD diagnosis (53.3% vs 47.3%, respectively; difference, 6.0%; 95% CI, -14.1% to 26.2%; $P = .55$). *Conclusions and relevance:* Among veterans with PTSD, mindfulness-based stress reduction therapy, compared with present-centered group therapy, resulted in a greater decrease in PTSD symptom severity. However, the magnitude of the average improvement suggests a modest effect.

Taylor, S. L., Hoggatt, K. J., & Kligler, B. (2019). **Complementary and integrated health approaches: What do veterans use and want.** *Journal of General Internal Medicine*, 34(7), 1192–1199. doi:10.1007/s11606-019-04862-6 *Objectives:* Non-pharmacological treatment options for common conditions such as chronic pain, anxiety, and depression are being given increased consideration in healthcare, especially given the recent emphasis to address the opioid crisis. One set of non-pharmacological treatment options are evidence-based complementary and integrative health (CIH) approaches, such as yoga, acupuncture, and meditation. The Veterans Health Administration (VHA), the nation's largest healthcare system, has been at the forefront of implementing CIH approaches, given their patients' high prevalence of pain, anxiety, and depression. We aimed to conduct the first national survey of veterans' interest in and use of CIH approaches. *Methods:* Using a large national convenience sample of veterans who regularly use the VHA, we conducted the first national survey of veterans' interest in, frequency of and reasons for use of, and satisfaction with 26 CIH approaches ($n = 3346$, 37% response rate) in July 2017. *Results:* In the past year, 52% used any CIH approach, with 44% using massage therapy, 37% using chiropractic, 34% using mindfulness, 24% using other meditation, and 25% using yoga. For nine CIH approaches, pain and stress reduction/relaxation were the two most frequent reasons veterans gave for using them. Overall, 84% said they were interested in trying/learning more about at least one CIH approach, with about half being interested in six individual CIH approaches (e.g., massage therapy, chiropractic, acupuncture, acupressure, reflexology, and progressive relaxation). Veterans appeared to be much more likely to use each CIH approach outside the VHA vs. within the VHA. *Conclusions:* Veterans report relatively high past-year use of CIH approaches and many more report interest in CIH approaches. To address this gap between patients' level of interest in and use of CIH approaches, primary care providers might

want to discuss evidence-based CIH options to their patients for relevant health conditions, given most CIH approaches are safe.

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