



Efficacy of Complementary and Alternative Medicine Therapies for Posttraumatic Stress Disorder

EXECUTIVE SUMMARY

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PREFACE

Health Services Research & Development Service's (HSR&D's) Evidence-based Synthesis Program (ESP) was established to provide timely and accurate syntheses of targeted healthcare topics of particular importance to Veterans Affairs (VA) managers and policymakers, as they work to improve the health and healthcare of Veterans. The ESP disseminates these reports throughout VA.

HSR&D provides funding for four ESP Centers and each Center has an active VA affiliation. The ESP Centers generate evidence syntheses on important clinical practice topics, and these reports help:

- develop clinical policies informed by evidence,
- guide the implementation of effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures, and
- set the direction for future research to address gaps in clinical knowledge.

In 2009, the ESP Coordinating Center was created to expand the capacity of HSR&D Central Office and the four ESP sites by developing and maintaining program processes. In addition, the Center established a Steering Committee comprised of HSR&D field-based investigators, VA Patient Care Services, Office of Quality and Performance, and Veterans Integrated Service Networks (VISN) Clinical Management Officers. The Steering Committee provides program oversight, guides strategic planning, coordinates dissemination activities, and develops collaborations with VA leadership to identify new ESP topics of importance to Veterans and the VA healthcare system.

Comments on this evidence report are welcome and can be sent to Nicole Floyd, ESP Coordinating Center Program Manager, at nicole.floyd@va.gov.

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BACKGROUND

Posttraumatic stress disorder (PTSD) is the emotional disorder most frequently associated with combat and other potentially traumatic experiences that may occur during military service. It is often chronic and may be associated with significant comorbidities and functional impairments. Current first-line PTSD therapies include trauma-focused cognitive behavioral psychotherapies, stress inoculation training, and pharmacotherapies. Complementary and alternative medicine (CAM) interventions include a range of therapies that are not considered standard to the practice of medicine in the U.S. CAM therapies are widely used by mental health consumers, including Veterans, and numerous stakeholders have expressed strong interest in fostering the evidence base for these approaches in PTSD. Thus, this evidence synthesis was requested by VA Research and Development to inform decisions on the need for research in this area. Four key questions (KQs) guided this systematic review:

KQ 1. In adults with PTSD, are mind-body complementary and alternative medicine therapies (e.g., acupuncture, yoga, meditation) more efficacious than control for PTSD symptoms and health-related quality of life?

KQ 2. In adults with PTSD, are manipulative and body-based complementary and alternative medicine therapies (e.g., spinal manipulation, massage) more efficacious than control for PTSD symptoms and health-related quality of life?

KQ 3. In adults with PTSD, are complementary and alternative medicine therapies that are movement-based or involve energy therapies more efficacious than control for PTSD symptoms and health-related quality of life?

KQ 4. For treatments evaluated in KQs 1–3 that lack randomized controlled trials, is there evidence from other study designs that suggests the potential for treatment efficacy?

METHODS

We searched peer-reviewed, English-language publications in MEDLINE® (via PubMed®), Embase®, PsycINFO®, Cumulative Index to Nursing and Allied Health Literature® (CINAHL), and the Cochrane Controlled Trials Registry from database inception through December 22, 2010. Standard search terms, developed in consultation with a master librarian, targeted CAM therapies (e.g., acupuncture, mind-body, meditation), PTSD, and randomized controlled trials (RCTs) in adults. We searched the Published International Literature on Traumatic Stress (PILOTS) database (April 26, 2011), a specialized PTSD database maintained by the National Center for Posttraumatic Stress Disorder, to identify existing systematic reviews and studies of relaxation treatments and identified additional studies from reference lists of included studies and review articles. We included RCTs comparing an eligible CAM treatment to control or standard treatment for adults with PTSD. When RCTs were not identified, we searched for relevant prospective studies. Titles, abstracts, and articles were reviewed in duplicate, and relevant data were abstracted by the authors, all of whom have been trained in the critical analysis of empirical literature. To identify relevant studies in progress, or completed but unpublished studies, we searched ClinicalTrials.gov.

DATA SYNTHESIS

We constructed evidence tables showing study, patient, and intervention characteristics; methodological quality; and outcomes, organized by KQs and CAM approach. We assessed study quality according to the criteria described in the Agency for Healthcare Research and Quality (AHRQ) *Methods Guide for Effectiveness and Comparative Effectiveness Reviews*, adapted for this review, and assigned a summary quality score of Good, Fair, or Poor to individual RCTs.

We analyzed studies to compare their characteristics, methods, and findings and compiled a summary of findings for each KQ based on qualitative and semiquantitative synthesis of the findings. There were not sufficient studies to perform quantitative meta-analyses. However, when the evidence was sufficient to estimate an effect, we computed the standardized mean difference (SMD) using Hedges *g* for continuous outcomes, to facilitate comparisons across studies. For each KQ, we evaluated the strength of evidence as proposed by the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) Working Group, assigning a summary rating of High, Moderate, Low, or Insufficient strength of evidence for each KQ.

PEER REVIEW

A draft version of the report was reviewed by technical experts as well as clinical leadership, and their comments are provided in the appendix.

RESULTS

We screened 1776 titles, rejected 1738, and performed a more detailed review on 38 articles. From these, we retained 7 RCTs (described in 12 articles) and 2 non-RCTs that met our eligibility criteria. Our search of www.clinicaltrials.gov yielded 438 study entries. Of these, 16 were RCTs of an eligible CAM therapy for PTSD (KQs 1–3), and 2 were non-RCTs (KQ 4).

As summarized below by KQ, most studies reviewed appeared to be preliminary investigations and were underpowered, limited by significant design flaws, and often provided inadequate descriptions of the intervention to permit replication. All studies reported short-term effects of the intervention on PTSD symptoms, but few studies reported effects on health-related quality of life, adverse effects, or retention rates. Perhaps the most striking finding overall was the relative dearth of available evidence on CAM applications for PTSD despite clear consumer interest and widespread use of these treatments. The limitations of the current evidence preclude strong conclusions about specific interventions, populations, formats, settings, appropriate treatment length or “dosing,” or other refinements to the development of these approaches.

KQ 1. In adults with PTSD, are mind-body complementary and alternative medicine therapies (e.g., acupuncture, yoga, meditation) more efficacious than control for PTSD symptoms and health-related quality of life?

We identified six published RCTs that met our criteria for KQ 1: two examined meditation, one examined acupuncture, and three examined breathing/relaxation training. Our search of ClinicalTrials.gov identified 16 unpublished or ongoing studies relevant to this question.

Review and synthesis of these study findings suggest that meditation techniques are associated with moderate improvements in PTSD severity and health-related quality of life compared to

usual care only (one fair-quality study) and individual psychotherapy (one poor-quality study). Both studies examined relatively brief, group therapy formats in male Veteran samples and did not conduct followup assessments beyond the active intervention period. For acupuncture (one good-quality study), change in PTSD symptoms and health-related quality of life was similar to that observed for group cognitive behavioral therapy and greater than waitlist control in a predominantly male, non-Veteran sample; treatment gains were retained at the 24-week followup. Relaxation was not associated with significant clinical improvement relative to active comparators, but 95 percent confidence intervals were broad (three poor-quality RCTs).

KQ 2. In adults with PTSD, are manipulative and body-based complementary and alternative medicine therapies (e.g., spinal manipulation, massage) more efficacious than control for PTSD symptoms and health-related quality of life?

We identified one published RCT that met eligibility criteria for KQ 2 and no unpublished or ongoing studies relevant to this question. The evidence from a single, poor-quality RCT of adjunctive, body-oriented therapy in eight women survivors of childhood sexual assault was insufficient to make meaningful conclusions.

KQ 3. In adults with PTSD, are complementary and alternative medicine therapies that are movement-based or involve energy therapies more efficacious than control for PTSD symptoms and health-related quality of life?

We did not identify any published, ongoing, or unpublished/completed RCTs of movement-based or energy therapies for PTSD.

KQ 4. For treatments evaluated in KQs 1–3 that lack randomized controlled trials, is there evidence from other study designs that suggests the potential for treatment efficacy?

Our evidence search identified two nonrandomized, prospective studies of CAM therapies for PTSD. One presented initial pilot findings of a multimodal intervention that included both CAM (hypnotherapy, guided imagery) and imaginal exposure techniques in male combat Veterans with strong sensitivities to olfactory triggers. The second study provided limited, initial information about the feasibility and potential utility of a brief CAM intervention that included instruction in relaxation skills and imagery techniques, including imaginal exposure. In sum, the published, nonrandomized studies identified by our systematic search provided little additional evidence of potential efficacy in PTSD for any of the CAM interventions of interest.

FUTURE RESEARCH

The limitations of the current evidence preclude our ability to draw strong conclusions to inform clinical practice or public policy regarding optimal use of CAM therapies for PTSD, yet the limitations in the available evidence point to numerous opportunities for future research. One of the most pertinent questions regarding CAM therapies for PTSD is, What effects might one expect of a given intervention relative to no intervention? This clinically relevant question is best addressed by a randomized clinical trial with a no-treatment (waitlist) comparator. However, study designs that withhold or delay treatment to those with PTSD may not be institutionally feasible or ethically defensible. Hence, alternative strategies merit consideration.

Another pertinent question is, To what extent might placebo or nonspecific effects account for observed clinical outcomes? This question can be hard to answer for CAM therapies, for which it may be difficult to design a sham procedure that is both truly inert and that appears sufficiently similar to the active intervention to isolate the specific effect of the intervention. The fields of surgical and psychotherapy research have long grappled with similar issues, and recommendations are available to inform these methodological challenges. Ultimately, the choice of which research strategy to employ should be determined by the key questions and by the plausibility and estimates of benefit based on prior research. For most CAM treatments, the basic efficacy question of “Can it work?” for PTSD has not been answered. Thus, randomized, placebo (or sham intervention) controlled trials, the gold standard for evaluating intervention effects, will be the most logical design for the majority of studies planned to evaluate CAM interventions. Small exploratory trials would be a logical next step for the CAM interventions that lack any studies of treatment effect.

Our systematic review identified seven RCTs and two nonrandomized studies of CAM interventions for PTSD. The term CAM encompasses a broad range of treatments—not all of which may hold the same level of promise as applications for PTSD. The absence of a strong signal pointing to any one CAM approach over others argues for investment in a set of adequately powered trials to evaluate the most promising therapies, rather than a single large trial for any one treatment. Given the current state of evidence, a two-pronged approach may be most appropriate at this stage to move the field forward. That is, a series of adequately-powered RCTs may be indicated for select CAM interventions for which there is a clear and strong preliminary signal, either based on good-quality, early empirical evidence (e.g., acupuncture), a sound theoretical rationale for efficacy in the absence of strong pilot findings (e.g., meditation), and/or promising data gleaned from the bench sciences (e.g., compelling animal models). For other CAM modalities for which the science and theory are even less well developed, such as energy therapies, more prudence is indicated, suggesting the utility of exploratory pilot studies as the appropriate next step. In addition, the efficiency and ultimate yield of future efforts may be further optimized by consensus agreement about, and concerted efforts to address, limitations identified in the current literature. Broadly, these limitations concern issues of appropriate design, outcomes, and replication strategies. There is an opportunity for strategic, well-designed studies to address the substantial gaps in evidence identified in this review.

ABBREVIATIONS TABLE

AHRQ	Agency for Healthcare Research and Quality
CAM	complementary and alternative medicine
CINAHL	Cumulative Index to Nursing and Allied Health Literature
GRADE	Grades of Recommendation, Assessment, Development, and Evaluation
KQ	key question
PILOTS	Published International Literature on Traumatic Stress
PTSD	posttraumatic stress disorder
RCT	randomized controlled trial
SMD	standardized mean difference