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MINDFUL AWARENESS IN BODY-ORIENTED THERAPY FOR FEMALE VETERANS WITH POST-TRAUMATIC STRESS DISORDER TAKING PRESCRIPTION ANALGESICS FOR CHRONIC PAIN: A FEASIBILITY STUDY

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Abstract

Context—Preliminary studies of body therapy for women in trauma recovery suggest positive results but are not specific to women with post-traumatic stress disorder (PTSD) and chronic pain.

Objective and Participants—To examine the feasibility and acceptability of body-oriented therapy for female veterans with PTSD and chronic pain taking prescription analgesics.

Design and Setting—A 2-group, randomized, repeated-measures design was employed. Female veterans (N=14) were recruited from a Veterans Affairs (VA) healthcare system in the Northwest United States (VA Puget Sound Health Care System, Seattle, Washington). Participants were assigned to either treatment as usual (TAU) or treatment as usual *and* 8 weekly individual body-oriented therapy sessions (mindful awareness in body-oriented therapy group).

Measures—Written questionnaires and interviews were used assess intervention acceptability; reliable and valid measures were administered at 3 time points to evaluate measurement acceptability and performance; and within-treatment process measures and a participant post-intervention questionnaire assessed treatment fidelity.

Intervention—A body-oriented therapy protocol, “Mindful Awareness in Body-oriented Therapy” (MABT) was used. This is a mind-body approach that incorporates massage, mindfulness, and the emotional processing of psychotherapy.

Results—Over 10 weeks of recruitment, 31 women expressed interest in study participation. The primary reason for exclusion was the lack of prescription analgesic use for chronic pain. Study participants adhered to study procedures, and 100% attended at least 7 of 8 sessions; all completed in-person post-treatment assessment. Written questionnaires about intervention experience suggest increased tools for pain relief/relaxation, increased body/mind connection, and increased trust/safety. Ten of 14 responded to mailed 3-month follow-up. The response-to-process measures indicated the feasibility of implementing the manualized protocol and point to the need for longer sessions and a longer intervention period with this population.

There is substantial evidence that individuals with post-traumatic stress disorder (PTSD), from both clinical and general population samples, have higher rates of co-morbid psychiatric conditions and poor physical health—as well as the development of physical health conditions—compared to individuals without PTSD.^{1,2} PTSD is an anxiety disorder characterized by the intrusive re-experiencing of trauma, avoidance and numbing, and hyperarousal.³ People with PTSD tend to over-interpret both internal and external threat cues and often have “anxiety sensitivity” or “fear of anxiety.”⁴ Often chronically overwhelmed, individuals with PTSD suffer from the ability to effectively identify and control their emotions, sensations, or physical states, which can lead to difficulty in self-care and, by extension, ability to care for others.⁵ In a nationally representative sample, the prevalence of lifetime PTSD among women was found to be 12.3%, and the development of PTSD was primarily associated with physical assault and rape.⁶ Women have a 2-fold chance of developing PTSD compared to men,^{2,7,8} likely due to the greater exposure to violent crimes associated with severe distress.^{2,10,11}

Clinical experts emphasize the importance of dissociation reduction and affect regulation in trauma recovery.^{11–13} Sexual trauma often is accompanied by discontinuity between self and body as a dissociative coping mechanism for the pain of the abuse,^{12,14–16} which may explain the high rate of somatic complaints and medical service use,¹⁷ sexual problems,¹⁸ and emotional dysregulation¹⁸ often apparent in individuals with histories of severe trauma. Body therapy approaches to trauma treatment focus on accessing and accepting sensory and emotional awareness in the body, an important foundation for self-awareness and self-regulation in the treatment of PTSD^{15,17,19,20} that is helpful in the treatment of physical pain in individuals with a history of trauma.^{20,21} The incorporation of approaches focused on body awareness in trauma treatment is rare, and research in this area is needed.¹⁷

FEMALE VETERANS, POST-TRAUMATIC STRESS DISORDER, AND BODY THERAPY

One in 5 female veterans who seek Veterans Affairs (VA) services screens positive for PTSD, and many have a lifetime history of sexual trauma.²² This population has significantly more somatic distress, medical conditions, co-morbid psychiatric problems, and substance abuse compared to female veterans without PTSD.²² Somatic distress is reflected in low physical functioning, bodily pain, and somatization. A nationwide survey of female veterans found PTSD to be positively associated with at least 1 medical condition, often involving physical pain; chronic low back pain and arthritis were among the most common.²³ Prescription analgesics, including opioids, often are prescribed to veterans seeking relief from chronic pain²⁴; however, they rarely provide adequate physical or psychological pain relief for chronic pain patients.²⁵ A recent review of health research for female veterans pointed to the lack of experimental studies with this population, specifically, treatment approaches for women with PTSD related to sexual trauma.²⁶

In recent years, the VA has introduced massage intervention studies and related research.^{27–29} There have been no studies designed for female veterans or to address mental health or trauma recovery. However, a massage therapy service was offered from 2001 to 2005 to patients at a women’s clinic at a Washington VA center. A quality-assurance survey sent to the 272 patients who used the women’s clinic massage service indicated that, among the 87 respondents (31% of total sample), 74% reported that massage reduced pain, 52% reported that massage resulted in taking less medication, 41% reported decreased visits to other healthcare providers, and 84% reported that massage resulted in improved mood. Very few respondents (4%) indicated that massage contributed to their pain or to negative mood (K. M. Johnson, MD, unpublished data, October 2006). PTSD prevalence among survey

respondents is not known; however, it can be assumed that a large percentage of respondents had PTSD, given its prevalence (~20%) among female patients at the VA.²²

Although there have been no studies of body therapy interventions specific to female veterans, previous studies of body-oriented therapy show promising preliminary results for women with sexual trauma. Results from previous studies include the reduction of psychological and physical symptoms of distress,³⁰⁻³¹ hence the interest in examining the feasibility of offering a body-oriented therapy intervention to female veterans with PTSD and chronic pain. We evaluated an intervention approach aimed at addressing inner-body—or somato-emotional—experience. The explanatory model of the intervention is that acceptance (vs avoidance) of somato-emotional sensation facilitates health by reducing trauma-induced dissociative processes (ie, avoidance of somato-emotional experience). Previous study findings point to the relationship between PTSD and somatic symptoms/discomfort²² and suggest that reduction of dissociation is a key factor in trauma recovery.³² The emphasis on accessing and accepting somato-emotional experience may make body-oriented therapy particularly well suited to women with PTSD and chronic pain.

Although the findings from previous studies suggest that the body-oriented psychotherapy intervention may be appropriate and beneficial to this population, inclusion criteria did not require diagnoses of PTSD or chronic pain. Because previous studies of health among female veterans with PTSD indicate low functional status and multiple co-morbid health conditions,²² the sample was expected to demonstrate significantly more psychological and physical distress compared to the previous study samples. Hence, a primary emphasis of this study was to examine the feasibility of successfully implementing this intervention with a more distressed population.

Another emphasis of this proposed study was the recruitment and randomization process. Past experience suggests great interest in massage therapy among women with trauma histories. This is evident in the demand for a massage therapy service at a women's clinic, where massage therapy was available several hours per week to patients with a physician's referral (K. M. Johnson, MD, unpublished data, October 2006). Similarly, previous studies by Price of body-oriented therapy have generated substantial interest among prospective participants; recruitment has been quick and retention, excellent.^{30,31} However, these previous studies did not include randomization to "usual care" without offering adjunctive treatment and did not occur within a healthcare context that would rely on clinician acceptability to approve study involvement.

This study is therefore aimed at assessing the feasibility and acceptability of body-oriented therapy for female veterans with PTSD and chronic pain who use prescription analgesics. The specific aims were to examine (1) recruitment and follow-up feasibility, (2) intervention acceptability and participant satisfaction, (3) outcome measure acceptability and performance, and (4) the fidelity with which the intervention is implemented relative to the manualized protocol. The goal of this study is to gather preliminary data and clinical experience with this sample to facilitate future design and implementation of a larger randomized controlled trial aimed at examining the efficacy of body-oriented therapy for this population.

METHODS

Design

A pilot study using a 2-group repeated-measures design examined the feasibility of body-oriented therapy intervention "mindful awareness in body-oriented therapy" (MABT) for female veterans with PTSD and chronic pain who used prescription analgesics. The study

protocol was reviewed and approved by the institutional review board for protection of human subjects in research at the University of Washington and followed the ethical standards set forth in the Helsinki Declaration of 1975. Participants were randomized to receive either the 8-week intervention (MABT group) or treatment as usual (TAU). The MABT group received treatment as usual plus the MABT intervention. Measures were administered at 3 time points. The principal investigator (PI) planned and directed the analysis and provided the study intervention. Interpretation of results involved all authors. Two trained research assistants administered all measures and interviews, managed the data, and performed all data analyses.

Subjects and Procedures

Recruitment and Selection—The study population was selected to include female veterans receiving primary healthcare in a northwestern veterans' health services women's clinic. Inclusion criteria included PTSD and chronic pain diagnosis, as well as use of prescription analgesics. The women's clinic is the source of primary care and pain prescription management for the majority of female veterans at this facility. Also, massage services had been successfully offered within the women's clinic for a number of years. The women's clinic provided an efficient way to verify participant diagnoses and a supportive environment from which to do a preliminary study.

Efforts were made to reach all women who came into the women's clinic to seek primary care services within a 2.5-month recruitment period. Recruitment posters were placed in the waiting room and the bathroom and on the reception counter. Additionally, women's clinic staff physicians and nurse practitioners were given recruitment flyers to distribute to eligible patients during exams. Recruitment posters also were placed in the mental health clinic waiting area and restroom near where the majority of female veterans with PTSD seek mental health services. The PI met with women's clinic providers and staff members, women's trauma unit providers in psychology, and pain clinic providers to introduce the study and answer any questions.

Prospective participants were screened during the initial phone contact using a standardized screening interview. Study inclusion required that participants be female veterans receiving primary care at the women's clinic, have PTSD and chronic pain diagnoses, use prescription analgesics not otherwise available over the counter, agree to have study staff members communicate with women's clinic providers to verify diagnoses and prescription pain medication, and agree to not seek (non-study) bodywork treatment during study involvement. Study exclusion criteria involved a change in psychotropic medication during the past 8 weeks, active dependence on alcohol or drugs, a current abusive domestic/interpersonal relationship, hospitalization for suicidality within the past 3 months, diagnosis of psychosis, and/or more than 3 months pregnant.

Background Characteristics—There were 14 study participants. The median age was 47 years (range 28–56). The majority of participants were Caucasian; one participant was of mixed race. The trauma histories for this sample were extensive; the majority had endured extensive childhood abuse. In addition, with one exception, all had endured the trauma of military sexual and/or physical assault. Eight of the women also experienced sexual and/or physical assault as civilians. All of the participants had completed high school, none was gainfully employed, and, with one exception, all had experienced at least minimal exposure to massage therapy (Table 1).

Data Collection—Measures were administered at 3 time points: baseline, post-intervention or 10 weeks from baseline (for the control group), and at 6-week follow-up

after the post-intervention appointment. Research assistants administered the baseline questionnaire. After verification from the women's clinic provider that a participant met inclusion criteria, the participant was randomly assigned to either the MABT group or the control group and informed of the assignment via a phone call made by one of the research assistants. A random number generator in Microsoft Excel (Microsoft Corp, Redmond, Washington) was used to order evenly distributed control and experimental groups.

The MABT intervention was delivered as eight 1-hour sessions within a 10-week period. At 1 week after completion of the intervention, the research assistant contacted the participant to schedule an assessment appointment. Six weeks after the post-intervention appointment, follow-up measures were sent by mail to participants with a pre-paid return envelope. Participants were paid \$25 for completion of the post-intervention assessment and \$25 for the follow-up assessment.

Interventionist: Education and Fidelity—The research therapist was licensed to practice massage in the state of Washington, had a graduate degree in psychology, and had extensive experience working with women with trauma histories and chronic pain. To examine compliance with the intervention protocol, all intervention sessions were audio taped, and the research clinician filled out process evaluation forms immediately after each session. A post-intervention questionnaire to assess the participants' perspective on the quality of key intervention elements was administered to the MABT group by the research assistants.

Mindful Awareness in Body-oriented Therapy Intervention—Body-oriented therapy is focused on facilitating sensory and emotional awareness using a combination of hands-on and verbal therapy. The goal is to promote mind-body awareness and integration. 33 MABT was developed by the PI over the course of 17 years in clinical practice to address the need for mind-body integration and reduction of bodily dissociation not available through traditional massage therapy or conventional psychotherapy. An extension of "focusing" in experiential psychotherapy,³⁴ this approach involves learning to access and attend to somatoemotional awareness. The MABT intervention has 3 distinct stages. Stage 1 includes sessions 1 and 2 and focuses on massage with body literacy. It involves massage to reduce tension and increase awareness of physical stress cues in combination with body literacy to develop a person's ability to identify and articulate sensory experience. Stage 2 includes sessions 3 and 4 and focuses on body awareness exercises to teach access to inner-body sensory/emotional experience and self-care skills to increase effective response to stressors. Stage 3 includes sessions 5–8 and focuses on mindful body awareness practice to facilitate presence and acceptance of and connection with (vs dissociation from) inner-body experience. The intervention is designed to be responsive to individual comfort and safety needs, and thus there is flexibility in the protocol to attend to emotional or physical discomfort, should it arise. Each session begins with the participant seated, with a 10-minute semi-structured intake to assess physical and emotional well-being. The next 40 minutes of each session are focused on the primary elements of each stage of the intervention as outlined above. The last 10 minutes of each session, during which the participant is seated, include a review of session experience and development of a take-home body awareness exercise for the interim week. The intervention key elements are detailed in a previous publication.³⁰

Treatment as Usual—All participants continued to receive usual care at the VA. This included primary general medical care and could include individual or group therapy for mental health conditions, substance use disorder treatment, or chronic pain management.

MEASUREMENT

To assess intervention acceptability, written questionnaires and interviews were used to gather sample demographics, reasons for seeking study participation, participants' perceptions of their experience, and feedback on the intervention procedures. Validated self-report outcome measures were used at the 3 measurement points to gain insight into measurement acceptability and performance. To examine implementation of the intervention relative to the manualized protocol, process measures that addressed therapist and participant assessment of the administration and quality of the protocol elements were used.

Written Questionnaires and Interview

The initial questionnaire gathered demographic information (ie, age, education, occupation, income) as well as psychological history (psychotherapy history, trauma history), and medical information (perception of pain, function, and medication use). Questions focused on the participants' reasons for seeking study participation. Goals for future healing and past body therapy experience were also included.

The post-treatment questionnaire gathered medical information (eg, participant perception of pain, function, and medication use). This questionnaire was administered 10 weeks after the initial appointment. Additional questions were included for participants in the MABT group to address the experience of body-oriented psychotherapy and the perceived impact of the intervention on trauma recovery.

The brief semi-structured interview was designed to gather responses to questions aimed at evaluation of the intervention procedures and future program development.

The follow-up questionnaire included the questions on the post-treatment questionnaire as well as questions about the number of massage or body psychotherapy appointments sought during the follow-up period. In addition, the MABT group was asked questions regarding continued use of take-home body awareness exercises learned in the intervention process.

Outcome Measures

Psychological Well-being—The Brief Symptoms Inventory (BSI) has 53 items rated on a 5-point scale (0–4). This study reported the “global severity index,” to indicate the overall level of psychological distress. Test-retest reliability of the GSI is .68–.91 with a 2-week interval.³⁵

The PTSD Checklist-Civilian Version (PCL-C) is a 17-item measure that inquires about the 3 symptom clusters of PTSD: re-experiencing symptoms, numbing/avoidance symptoms, and hyper-arousal symptoms.³⁶ The civilian version asks respondents to rate past-month symptoms of PTSD on a 5-point scale from “not at all” to “extremely.” The scale has adequate reliability and validity for female veterans with PTSD diagnoses.³⁷

The Dissociative Experiences Scale (DES) contains 28 items and measures the frequency of dissociative experiences, from 0% (never) to 100% (always), on an 11-point scale. The coefficient alphas for internal consistency ranged from .83 to .93, and the test-retest reliability was .79 with a 6- to 8-week test-retest interval.³⁸

Physical Well-being—The Medical Symptoms Checklist measures the number and frequency of 26 common physical symptoms and discomfort associated with the symptoms.³⁹ The range for number and frequency of symptoms is 0 (never) to 8 (constant) on a 2-point scale. The degree of discomfort of each symptom is rated on an 11-point scale (0 [none] to 10 [extreme]). The scale has been used in other mind-body studies.^{40,41}

Body Connection—The Scale of Body Connection (SBC) has 2 distinct, uncorrelated dimensions measuring body awareness and body association: a 5-point scale; a 12-item measure of body awareness ($\alpha=.85$); and an 8-item measure of bodily dissociation ($\alpha=.79$). Body awareness measures conscious attention to sensory cues indicating bodily state (for example, tension, nervousness, or peacefulness). Bodily dissociation measures separation from body, including emotional disconnection (for example, difficulty attending to emotion). The scale has demonstrated construct validity through exploratory and confirmatory factor analysis (C. Price, E. A. Thompson, unpublished data, 2007).

The Body Investment Scale (BIS) is a 24-item, 5-point scale assessing attitudinal relationship to the body. It consists of 4 factors: (1) attitude and feeling ($\alpha=.75$); (2) body care ($\alpha=.86$); (3) body protection ($\alpha=.92$); and (4) comfort in touch ($\alpha=.85$).⁴²

Process Measures (Intervention Group Only)

The Therapist Process Evaluation, a 2-page form, was used by the therapist to self-assess administration and quality of the intervention's key elements immediately after each intervention session.

The Participant Evaluation of Key Intervention Elements (PEKIE), developed for this study to assess program fidelity, is a 10-item questionnaire assessing the administration and quality of key MABT elements by study participants.

The Awareness Record in Body-oriented Therapy was used to record take-home practice compliance among participants, specifically, the frequency and duration of the take-home practice.

ANALYSIS

Multiple methods were used to explore the various facets of treatment feasibility and acceptability. Sample descriptive statistics and qualitative analyses were employed to provide both empirical and experiential perspectives on the study process, particularly appropriate in such a new field of study. The results were triangulated to promote understanding of the findings.

Statistical Analysis

Analysis included evaluation of baseline equivalence of the study groups and descriptive statistics to examine recruitment feasibility, sample characteristics, session attendance, completion of questionnaire items at each time point, adherence to take-home practice, and aspects of treatment fidelity.

Qualitative Analysis

Content analysis, along with analytic tools from discourse analysis, was used to describe the qualitative responses of the experimental group. This involved examination of participant experience of the intervention as expressed on post-intervention questionnaires and participant evaluation of the intervention administration and procedures as expressed in response to post-intervention interview. There were 2 primary steps involved in the qualitative analysis. The initial step involved categorizing types of general response to the questions aimed at intervention experience or intervention feedback. The second step involved attention to the use of specific words and meaning in the narrative response. To verify interpretation of meaning, word use and phrasing in response to other questions on the questionnaire were examined. Two research assistants conducted the analysis, and they

consulted on their findings at each stage of the analysis to support or refute individual interpretation.

RESULTS

Recruitment and Follow-up Feasibility

Enrollment—During a 2.5-month enrollment period, 31 women expressed interest in study participation, and 16 met eligibility criteria. The primary reasons for exclusion were no prescription analgesic use and lack of documented PTSD diagnosis (Table 2). No one declined due to randomization. It appeared from incoming calls by interested participants and from reports by enrolled participants that inclusion criteria for the study were quickly passed by word-of-mouth between female veterans who were together in various VA-sponsored therapy groups (for trauma recovery, addiction recovery, and crafts). Inquiry phone calls for study enrollment waned after 6 weeks, likely due to the perceived lack of eligibility among women in these therapy groups. Of 16 women eligible for study participation, 1 chose not to enroll due to the potential time commitment, and another cancelled her initial intervention session due to scheduled surgery and subsequent unreachability.

Reasons for Participation—Participants were asked to list up to 3 reasons for study participation. Pain was the most frequently listed reason; other frequently listed reasons included exploring a new therapeutic strategy, finding an alternative to medication, and addressing PTSD symptoms.

Sample Characteristics—There was baseline equivalence between groups on demographic and sample characteristics. The psychological and physical symptom profile at baseline indicated high levels of distress, as expected. All participants scored above the 92nd percentile on the general severity index (GSI) for psychological distress compared to non-patient females. PTSD scores ranged from 42 to 79 (median, 62.5) with only 1 scoring below the validated cutoff of 44. Dissociation mean score was 25.6; 12 of the 14 participants had scores indicating moderate to high frequency of dissociative experiences. As an indication of physical symptom distress, the scores ranged from 7 to 26 symptoms reported out of a possible 26, with a mean of 16. The frequency of symptoms occurred, on average, 4–6 times a week for each symptom for all participants. The most frequently endorsed symptoms were aching muscles (100%), fatigue (90%), and headache, numbness, diarrhea, and constipation (80%). Thirteen of the 14 participants reported that physical health limited their ability to do daily work or physical activities.

Satisfaction and Acceptability

Intervention Completion—All MABT group participants attended at least 7 of the 8 intervention sessions. The 10-week intervention period did not give much leeway for cancelled and missed appointments; these results suggest satisfaction with the intervention. Process evaluation indicates that the interventionist made multiple schedule changes to accommodate missed appointments, indicating that clinician flexibility and availability also accounted for the high completion rate.

Intervention Experience

Overall Experience—Participants' written responses to open-ended questions about the experience of receiving the body-oriented therapy fell into 3 primary categories: learning tools for pain relief/relaxation, increased body-mind connection, and increased trust/safety. Examples of pain relief/relaxation responses included, "I became aware of what I'm feeling, where I'm holding tension, and to mentally loosen that area to reduce pain," and, from

another participant, “[I learned] where I was carrying tension and how to release that tension in a way that did not rely on medications.” Examples of increased body-mind connection included the response of one participant who wrote, “[The most important experience] was learning that physical and emotional pain are mostly fixed together; to heal physically your emotional pain begins to heal.” Another wrote, “I learned to look at the reasons my body has for responding the way it does. I can keep in touch better, move in-tune with what’s going on inside.” Statements of increased self-trust and increased trust of another—specifically, the research therapist—included, “I like being touched. It was wonderful. I like finding [this] out about myself. The pain had been the *big thing* for so long, I feared it. It had all the power. I now have ways to get around it and through it, and live with it.” Another participant wrote, “[I] learned to trust another, and [the therapist] helped me to visit physical and emotional parts [of myself] and [to] feel pretty safe [doing so].”

Perceived Influence on Trauma Recovery—Four of the 7 participants indicated that the MABT intervention had positively influenced trauma recovery and their psychotherapeutic process, 1 participant was unsure, and 2 responded that the intervention had not had an influence on abuse recovery or in psychotherapy. There was a common theme evident among the 4 participants who perceived a positive influence on trauma recovery: the experience of working through intense trauma-related material during the body-oriented therapy sessions. Each of these 4 participants indicated that the experience of encountering and working through traumatic material in the sessions was therapeutically useful; in particular, they were better able to tolerate and recover from their response to the encountered traumatic material. For example, one participant wrote, “I have never recovered from an episode of dissociation so fast—normally, I would stay upset and sleep poorly for 3–4 weeks or more. This time I was okay in a day [not disoriented] and fine [sleeping better again] in a week.” There was also a common theme that emerged among 5 of the participants, including the participant who was unsure about the role of the intervention in abuse recovery; this was the importance of increased emotional awareness for future healing and recovery. As one participant wrote, “I am feeling things the pain has been masking. It [the pain] took up all my energy. I have a lot of things to talk [about] to my therapist now—that I had not thought of before.”

Challenge of and Readiness for Body-oriented Psychotherapy—Written responses to additional questions about past bodywork experience also were examined. These included the challenge associated with receiving the intervention and “readiness” for body-oriented therapy. All participants responded to these questions. The intervention approach was new to everyone in the group; and with one exception, all participants indicated that body-oriented therapy experience was challenging. Although they noted different challenges, the underlying theme had to do with trust: trust of the research therapist and of themselves. The experience of increased trust often translated to increased sense of control. A statement by one participant provides insight to the challenge that she and others faced. She wrote, “I am not used to being touched. I was not used to *really* relaxing completely, I was not used to feeling in control—but learned.” Correspondingly, every participant indicated that she felt “ready” for the intervention. Readiness was defined as “appropriate and therapeutic for you at this time.”

Participant Evaluation and Feedback—Responses to a brief, structured post-intervention interview that was designed for the experimental group to provide evaluation and feedback of the intervention were analyzed. The interview responses were positive; 6 of the 7 participants explicitly expressed an appreciation of the overall experience. For example, one participant said, “Whole program was great the way it was, all of it! It was a great learning experience. I found it beneficial and I will be using it in the future.”

The participants indicated that there were 3 primary elements of the intervention that were important to maintain body-oriented therapy were to be offered at the VA: massage, inner-body awareness/mindfulness, and dialogue with the therapist. The overall explanation for the importance of the intervention elements was that, together, they facilitated pain reduction, self-care, and self-knowledge/understanding. Specifically, massage facilitated tension reduction: “Massage wonderful for getting calmed down.” Body awareness/mindfulness facilitated self-understanding of “where my stress is coming from,” and an ability to actively address the pain: “when could focus [inside] the pain would begin to change. The pain got less and less distressful as I went on—then, I could work on it at home and it would get better.” Dialogue facilitated cognitive integration: “talking it out at the end of session—summarizing, clarifying.”

These explanations emphasized the interaction between the intervention components and the integrative function of touch with emotional and physical awareness. For example, one participant described the relationship between massage and mindful inner awareness this way: “Temporary [pain] relief from massage and the long-term help of inner body awareness are both important. They work hand-in-hand. With chronic pain, you *do* get tension; the mental awareness helps but you need the massage break the tension.” Likewise, the importance of dialogue in body therapy was expressed in the following example: “Letting her [the therapist] know what kind of pain I was in (from PTSD and physical pain) ... lessened the pain and showed me how to help myself understand what was going on in my body. [I] learned be not so focused on it [pain]—that it was okay to bring out emotional and physical responses.” The positive role of active participation in the therapy—and the educational emphasis—was also mentioned as important to the intervention. For example, one participant wrote, “I had to be willing to participate—it wouldn’t have been as helpful to me if I just had to show up and have provider do something to me.”

The therapist and the physical environment were also frequently mentioned in the intervention assessment. Every participant remarked positively on the therapeutic qualities of the therapist. Likewise, the participants appreciated that the intervention room was in a quiet area, that no music was used during the session, and that the room was decorated to create a pleasant ambiance. The importance of feeling safe and comfortable with the bodywork therapist and in the physical space was evident.

The participants were asked whether there were aspects of the therapy, or how the therapy was delivered, that they would change. No suggestions for changes were made. There were, however, suggestions for how to improve recruitment, intervention delivery, and physical environment/comfort. The number of participants who made each suggestion is indicated in parentheses in the following list: offer program to women who don’t take prescription analgesics (1); more information on what to wear prior to first session (1); more information on what to expect in the intervention (1); keep door to room open at beginning of the first session to increase sense of safety (1); provide a referral list of body therapists at the end of the intervention (1); offer intervention sessions in a larger room (2); have pillows available for under head and knees (2); facilitate access to table with a step stool (1).

Measurement

Completion of Questionnaires at Each Time Point—All participants attended 2 scheduled appointments to complete questionnaires to gather pre- and post-study data. The participants in both groups completed all questionnaires at these 2 time points. The measures appeared to be acceptable to the participants and to perform adequately. The follow-up data were collected via mailings to the participants’ homes; all control group participants completed the follow-up questionnaires; however, only 3 of the 7 experimental group participants completed the follow-up questionnaires. The lack of response to mailed follow-

up questionnaires raises concerns about the feasibility of using mailed vs in-person questionnaire administration.

Treatment Fidelity Relative to the Manualized Protocol

Intervention Key Elements—All participants in the experimental group completed the PEKIE, used to assess the administration and administration quality of key intervention elements. The participant responses indicate that all key elements of the MABT intervention were administered and administered well.

Interventionist Process Evaluation—The interventionist evaluated adherence to the key intervention elements at the completion of each session. With one exception, the interventionist was able to administer the protocol as designed. The area in which it was not possible to adhere to the original protocol was the length of time needed at the beginning of each session to complete the seated intake. The manualized protocol designated 10 minutes for the seated intake. The interventionist found that with this population, it was necessary to allow 20–30 minutes due to the need for more time to listen to the participants' responses to intake questions; this was necessary to promote comfort and safety for the participant and trust between the interventionist and participant.

Adherence to Take-home Practice—Each participant was given a log in which to record the frequency and duration of take-home practice. Of the 7 women in the intervention, 3 used the log to record their use of the take-home practice. The logs of these 3 individuals indicate that they engaged in the take-home practice at minimum once, and often twice, a day, for anywhere from 5 to 40 minutes over the course of the 8-week intervention. The other 4 participants explained to the interventionist that they weren't interested in keeping a log during the intervention; however, all but 1 provided verbal indication of regular and frequent use of take-home practice, as recorded in process evaluation. These results suggest that the take-home practice was well used by the majority of participants, an indication of participant engagement in intervention experience. These findings point to the importance of process evaluation to record adherence to take-home practice, particularly for participants who opt not to use the practice log.

DISCUSSION

The results indicate the overall feasibility and acceptability of the MABT intervention for female veterans with PTSD and chronic pain using prescription analgesics and receiving VA care. In summary, the findings suggest substantial interest in study enrollment and participation among female veterans, supported by the positive response to randomization and the high number of completed intervention sessions. The participants found that the intervention provided new skills for pain reduction and self-care, facilitation of emotional awareness, trust, and control, and—for many—insight into the role of body-mind awareness and connection in healing and trauma recovery. Notably, the participant responses reflected a sense of self-efficacy and personal empowerment. For future VA program development or research, the participants were in support of maintaining the primary elements of the intervention; their explanations were focused on the role of mind-body integration for healing. Measures appeared to be acceptable to participants and to perform adequately; the qualitative results suggest the importance of including additional measures of self-efficacy and control.

The caveats to feasibility were few but important. The first of these was that recruitment response was insufficient to meet our desired sample size (16 rather than 14 participants). Among women with PTSD and chronic pain, the primary barrier to study eligibility was lack

of prescription analgesic use. To enhance recruitment of this population, it might be necessary to send out a direct mailing to female patients with PTSD and pain. It also is possible that the numbers of women with PTSD who are taking prescription analgesics for pain is small and that more inclusive eligibility criteria could provide a better opportunity to examine body-oriented therapy for female veterans with PTSD and chronic pain. The recruitment data also indicate prescription analgesic use and interest in the study by women without PTSD, suggesting the possibility of examining a body-oriented therapy intervention for groups of female veterans with different health concerns. The second issue involved follow-up feasibility. Whereas 100% of the post-intervention measures administered in person were completed, only 10 of 14 responded to follow-up measures by mail at 6-week follow-up. For reasons that are unclear, the participants who didn't respond were all in the MABT group. It may be that in-person follow-up would enhance participation. Last, process evaluation indicated that session time needed to be extended to allow for longer intake periods to develop rapport and trust between the participant and therapist, a change that would be particularly valuable to this vulnerable population for whom trust and safety are vital.

Clinical Implications

The results suggest a few important clinical implications specific to treatment. First, the positive participant response to this intervention suggests the interest in, and therapeutic importance of, intervention programs that emphasize body connection and body-mind integration in the treatment of PTSD and chronic pain among female veterans. Examining treatment preferences and reported care needs among women veterans is a noted gap in the research literature.²⁶

Second, the majority of MABT group participants commented in-session that the intervention focus on inner-body awareness was a new and different approach that contrasted with the more familiar behavioral interventions that focus on avoidance and distraction for pain reduction. Many found the inner-body focus to be soothing and found that it gave them a sense of control over their pain. Given the expressed importance of pain reduction and interest in medication reduction, it may be that increasing psycho-educational resources focused on alternative strategies for coping with pain would benefit female veterans.

Last, the participants found it challenging to engage in the body-oriented therapy process; it was new and contrasted sharply with their typical coping patterns. Compared to previous study samples that didn't require PTSD or chronic pain diagnoses, this sample needed more time to develop interpersonal trust with the therapist and to develop body literacy and self-acceptance. Their willingness and sense of "readiness" to meet these challenges and to engage in the difficult work of inwardly attending to their physical and emotional pain was remarkable, however. The MABT intervention appeared to stimulate self-curiosity and self-care, suggesting its usefulness as a complement to usual VA mental and physical health services. Interventions that may stimulate motivation to heal are particularly notable in light of the vulnerability of this population, for whom symptoms of depression, lack of self-efficacy, and emotional dysregulation may interact negatively with therapeutic goals and process. It is also possible that receiving nurturing touch—which was perceived to be relaxing and to provide relief from pain—contributed to participant engagement in the intervention.

Study Limitations and Future Research

There are several study limitations to consider. The small sample size limits interpretation of comparative findings and generalization of the study results. With regard to the sampling

approach, the passive recruitment strategy may have limited examination of recruitment feasibility; likewise, the eligibility criteria may overly restrict examination of the intervention for either chronic pain and/or PTSD. Cross-contamination between study groups is possible given that many of the participants attended therapy groups together; this is an issue that ought to be addressed in future study designs. Last, the PI served as the interventionist, a limitation of the study design. Future research is needed to address such limitations through the use of a larger randomized clinical trial involving multiple interventionists and expanded eligibility criteria to allow stratification by diagnosis and analgesic use among female veterans.

The continued use of a multiple indicator measurement model is recommended, as is the inclusion of instruments that more clearly address the effects of the MABT intervention. Due to the high physical and psychological distress of this population, a longer intervention period is recommended and is possibly necessary to document change over time. Future research ought to include examination of medication use and medical services use; it is likely that longer intervention and follow-up periods would facilitate examination of these outcomes. Last, although attention was paid to communication to and response from VA providers and staff members in relationship to this study, all of whom were cooperative and supportive, there was no formal data collection involved. The VA offers an ideal healthcare setting in which to also examine the inclusion of complementary therapies and integrative care.

CONCLUSION

This study was an important first step in the examination of body-oriented therapy for female veterans with PTSD and chronic pain. The results indicate the overall feasibility and acceptability of offering mindful awareness in body-oriented therapy to female VA patients, which is important in justifying a larger clinical trial to test the efficacy of this intervention. A novel approach to trauma treatment, this study suggests areas for future clinical emphasis in the treatment of female veterans with PTSD and chronic pain.

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TABLE 1

Demographics and Baseline Characteristics (N=14)

Age in years, median (range)	47 (28–56)
Racial/ethnic identity	
Caucasian	13
Mixed	1
Yearly income (range)	\$4,000–\$63,000
<\$30,000	5
Between \$31,000 and \$63,000	9
Education	
Completed high school	14
Completed college	2
Massage history	
1–10 sessions	9
<10 sessions	3
Body-oriented psychotherapy	1
Relationship status	
In a committed relationship	5
Childhood abuse history	
Childhood sexual abuse	9
Childhood sexual abuse over multiple years	9
Physically abused by parent(s)	8
Military trauma history	
Sexual assault (without physical assault)	3
Sexual and physical assault	10
Civilian trauma history	
Sexual assault (without physical assault)	3
Physical assault (without sexual assault)	2
Sexual and physical assault	3
Psychotherapy in years, median (range)	4.5 (2–25)

TABLE 2

Barriers to Study Eligibility

Reason for Ineligibility	No.
Not taking prescription pain medication (meets other criteria)	5
No post-traumatic stress disorder (meets other criteria)	4
Transitioning psychotropic medication	2
No chronic pain or pain (has PTSD)	2
Pain medication is an anti-depressant	1
On active duty—not a Veterans Affairs patient	1