

R E S E A R C H

Developing Compassionate Self-care Skills in Persons Living with HIV: a Pilot Study to Examine Mindful Awareness in Body-oriented Therapy Feasibility and Acceptability

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Background: Self-care skills for persons living with HIV (PLWH) are needed to better cope with the common symptoms and emotional challenges of living with this chronic illness.

Purpose: The purpose of this study was to examine the feasibility and acceptability of Mindful Awareness in Body-oriented Therapy (MABT) for individuals receiving medical management for HIV at an outpatient program.

Setting: A nonprofit outpatient day program that provided medical management to low-income individuals with HIV.

Research Design: A one group pre-post study design, nine participants were recruited to receive eight weekly MABT sessions of 1.25 hours each.

Intervention: MABT is designed to facilitate emotion regulation through teaching somatically-based self-care skills to respond to daily stressors.

Main Outcome Measures: To assess participant characteristics and study feasibility, a battery of health questionnaires and one week of wrist actigraphy was administered pre- and postintervention. A satisfaction survey and written questionnaire was administered postintervention to assess MABT acceptability.

Results: The results demonstrated recruitment and retention feasibility. The sample had psychological and physical health symptoms that are characteristic of PLWH. MABT acceptability was high, and participants perceived that they learned new mind-body self-care skills that improved HIV symptoms and their ability to manage symptoms.

Conclusion: The positive findings support a larger future study to examine MABT efficacy to improve coping with HIV symptoms among PLWH.

KEY WORDS: HIV; mind-body studies; massage; feasibility studies

INTRODUCTION

As HIV infection has transitioned from being an imminently terminal condition to a manageable

chronic condition, patients now require long-term coping and self-care skills. Persons living with HIV (PLWH) commonly experience negative cognitive, coping, and emotional processes that negatively impact self-care, symptom management and subsequent disease, quality of life, and symptom outcomes.⁽¹⁻³⁾ Dysfunctional coping approaches include increasing drug use, fatalistic thoughts about their future, suicidal tendencies, and selective or nondisclosure of HIV status.⁽⁴⁾ Negative cognitive experiences, such as depression or self-blame for contracting HIV^(5,6) and avoidant and/or intrusive thoughts related to HIV, appear to compromise coping abilities and are associated with psychological distress.⁽⁷⁻⁹⁾

Persons with HIV commonly experience an overwhelming severity of symptoms from both the disease and HIV medications.⁽¹⁰⁾ Major depression is the psychiatric disorder most associated with HIV infection⁽¹¹⁾ and, along with substance use disorders, is highly predictive of suicidal ideation in PLWH.⁽¹²⁾ Sleep disturbance is another very common symptom, experienced by as many as 73% of persons with HIV.⁽¹³⁾ Negative cognitive-emotional factors may exacerbate or interfere with management of the broad and severe array of HIV symptoms, including depression, fatigue, sleep disturbance, muscle aches, and pain, among other psychological and physical symptoms.^(10,13,14,15) The degree to which symptoms affect PLWH varies;⁽¹⁶⁾ this raises questions about potential contributors to symptom experience, including psychosocial factors. A longitudinal study of a diverse sample of PLWH found that poor emotion regulation strategies and lack of social support predicted an increase in HIV-related physical symptoms across time, indicating the importance of learning strategies for positive emotional coping and self-care.⁽¹⁷⁾

Because certain cognitive and emotional factors are amenable to change, such factors known to be beneficial or detrimental to HIV coping and symptom outcomes may be ideal targets for nonpharmaceutical treatments, particularly those involving a mind-body approach. Mind-body approaches are designed to promote integration of cognitive, emotional, and physical awareness.⁽¹⁸⁾ In somatic and experiential psychology

theory, psychophysical awareness is linked to symptom reduction and to conscious internal processes of self-acceptance and emotion regulation.^(19,20) The few studies that have investigated mind-body interventions for HIV show positive results. In three recent randomized control trials, Tai Chi⁽⁹⁾ and mindfulness meditation⁽²¹⁾ showed immune dysfunction attenuation compared to controls; a mindfulness-based stress reduction study showed reduced antiretroviral therapy (ART) symptoms and distress.⁽²²⁾ A Cochrane review of massage studies for HIV found that interventions that combined massage and mind-body approaches, such as stress reduction or meditation, were superior to massage alone for improved quality of life.⁽²³⁾

This study is the first to examine the mind-body intervention Mindful Awareness in Body-oriented Therapy (MABT) for persons living with HIV. MABT involves both massage and mindful body awareness practice (see Methods section for details). Developed by the first author, MABT is designed to develop the capacity to mindfully attend to inner-body experience as a self-regulatory mechanism to better cope with the psychological and physical stressors of daily life and chronic illness. Distinct from other mindfulness-based approaches, MABT incorporates a hands-on (manual) approach, and individual (vs. group) delivery, and focusses on learning interoception and integrating mindful body awareness strategies for self-care. Interoception involves the processing of sensory input from inside the body^(24,25) and MABT teaches interoceptive skills to facilitate embodied sense of self. Multiple prior studies of MABT with individuals in recovery from sexual trauma^(26,27) and from substance use disorders⁽²⁸⁾ have shown positive results, including improved psychological and physical symptoms, body connection, and emotion regulation. These results suggest MABT applicability to PLWH who similarly tend to live with chronic levels of physical and psychological distress, stigma, and shame.^(4,5) The study aims were to describe: 1) MABT recruitment and retention feasibility; 2) MABT acceptability as an adjunct to HIV medical management; and 3) health (depression, HIV symptoms, life events stress, awareness and regulation, and HIV management self-efficacy) of study participants at pre- and postintervention.

METHODS

Research Design

A one-group, pre-post design was employed to examine the feasibility and acceptability of implementing the MABT intervention with PLWH. Eight individual 1.5 hour sessions of the MABT intervention, delivered by one of two interventionists over ten weeks, were offered to all participants. A battery of self-report questionnaires and one week of actigraphy

were administered pre- and postintervention. The study procedures and consent forms were in accord with the Helsinki Declaration of 1975, and were reviewed and approved by the Institutional Review Board of the University of Washington.

Sample Recruitment and Selection

Ten individuals that attended an outpatient day program for medical management for low-income individuals with HIV in a large northwestern city of the United States were recruited to participate in this study. The outpatient facility serves only patients on Medicaid; 70% use addictive substances and have comorbid psychological disorders, and 30% meet the broad criteria of “homelessness,” meaning that they do not have a permanent address. Licensed social workers (MSWs), integral staff members of the outpatient day program, identified patients to be recruited. These patients were contacted by phone by the study research coordinator and given an overview of the study using an IRB-approved recruitment script. Interested individuals were scheduled for an initial appointment with the research coordinator for eligibility screening. Inclusion criteria: HIV infected, willing to sign permission for collection of medical data from their charts, willing to sign release to contact the social work staff in the case of concern regarding their safety or well-being, able to read and write in English, available for study intervention on days when MABT sessions were offered, and willing to forgo nonstudy body therapy and mindfulness meditation during the intervention period. Exclusion criteria: diagnosed with psychosis, having cognitive impairment as indicated by chart diagnosis or observable cognitive difficulties, report being in a current abusive domestic/interpersonal relationship.

Sample Characteristics

Of the ten patients contacted for recruitment, nine (four female and five male) were interested in study participation. The nine prospective participants screened eligible and were enrolled in the study. Participants (mean age, 48) were very low income, Caucasian (~ 50%) and, with one exception, high school graduates. All participants had experienced physical or sexual assault as either a child or an adult, and one screened positive for post-traumatic stress disorder (see Table 2).

The mean number of years with HIV diagnosis was 17 years and the majority currently took antiretrovirals. Viral load was < 40 IU/L or undetectable for five participants, low (between 100–350 IU/L) for three participants, and 2700 IU/L for the participant not taking antiretrovirals. Mean hemoglobin level was 12.4 ± 2.4 mg/dL (range 9.2–15.4 mg/dL), and mean CD4+ count was 413.5 ± 249.2 cells per mm³ (range 58–728). All participants indicated experiencing a

moderate level of HIV stigma (scores ranged from 77–107 out of a possible score range of 40 to 160, with a mean of 89 (SD = 8).

The majority indicated regular use of illicit drugs; four used marijuana and two used stimulants such as crack or methamphetamine. One participant was on methadone maintenance for opioid dependence. Self-reported comorbid health conditions were hepatitis C ($n = 1$), hepatitis B ($n = 2$), and depression ($n = 4$).

Most participants had prior experience with massage. Specifically, participants indicated having received over 50 massages ($n = 2$), between 11–20 massages ($n = 2$), under ten massages ($n = 3$), and no previous massage therapy ($n = 2$). No participants had prior body-oriented therapy experience.

Study Procedures

The research coordinator met with enrolled participants to administer baseline questionnaires. To examine sleep patterns, participants received a wrist actigraph (to measure activity) to wear and a sleep diary to complete for the subsequent week. A written and verbal explanation of how to take care of the wrist actigraph was provided and the procedure for completing the sleep diary was reviewed. Participants' initial MABT session was scheduled for the week when the sleep diary and actigraphs were returned.

All participants received the manual-based MABT protocol. Eight weekly 1.25 hour sessions were offered. In order to accommodate schedule interruptions, participants had ten weeks in which to receive eight MABT sessions. MABT was delivered individually with participants clothed.

The participants completed the post-test questionnaires at approximately ten weeks after the baseline assessment. After the post-test assessment, they were again given an actigraph to wear for one week and a sleep diary to complete. Immune function data were collected from medical charts. The participants received a \$30 gift card for completion of the pretest and post-test questionnaires, and a \$20 gift card for the return of pre- and post-test actigraphs.

Mindful Awareness in Body-oriented Therapy (MABT) Procedures

There are three primary components of MABT: 1) massage with body literacy; 2) interoceptive training; and 3) mindful body awareness practice. Massage therapy facilitates sensory awareness and bodily association;⁽²⁶⁾ body literacy involves identification and articulation of sensory experience. Interoception is thought to facilitate positive coping⁽²⁹⁾ and the development of awareness that is integral to sense of self.^(30,31) Mindfulness skills of present-moment awareness, observation, and acceptance that are taught in MABT are thought to facilitate compassionate presence toward self and others.⁽³²⁾ Mindfulness

research has demonstrated reduced stress, reduced psychological symptoms, and improved coping for disease symptom management.⁽³³⁾ The MABT intervention was 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.

Key elements of the intervention (listed in Table 1) are:

1. Check-in. Seated participants were asked questions about their emotional and physical well-being to guide the therapeutic focus of the session. Particular attention was given to body awareness in relationship to experiences associated with living with HIV.

TABLE 1. MABT Key Elements (duration in minutes)

Stage 1 (Sessions 1-2)	Stage 2 (sessions 3-4)	Stage 3 (sessions 5-8)
Check-in (15)	Check-in (15)	Check-in (15)
Massage/body literacy (45)	Massage/body literacy (15)	Massage/ body literacy (15)
	Interoceptive Training (30)	Mindful Body Awareness Practice (30)
Session Review (15)	Session Review (15)	Session Review (15)
Homework	Homework	Homework

TABLE 2. Demographic and Baseline Characteristics (N = 9)

Category	Number (%)
Age, mean (range)	48 (39-53)
Racial Identity	
Caucasian	5 (56)
African American/Black	1 (11)
Mixed Race	3 (33)
Education	
High School	7 (78)
College	2 (22)
Employed	
No	9 (100)
Relationship Status	
In a committed relationship	2 (22)
Trauma History	
Childhood Abuse – sexual/physical	4 (44)
Adult Sexual/Physical Assault	7 (77)
Antiretroviral Use	
Yes	8 (89)
Years with HIV (range)	16 (7-23)

2. **Massage with body literacy.** Massage, using a standardized protocol,⁽³⁴⁾ was delivered over clothes on a massage table. To facilitate body literacy, therapists asked questions such as, “What are you noticing in your body right now?” and, “How would you describe how it feels in this area?”
3. **Interoceptive training.** Four body awareness exercises were delivered on the table. Participants were taught to facilitate movement of breath through the body, use mental intention to release physical tension, deepen awareness of symptomatic areas of the body, and develop present-moment awareness in the body.
4. **Mindful Body Awareness Practice.** Delivered on the table, it involved: a) interoceptive awareness of a specific area within the body; b) sustained mindful present-moment awareness in the body; and c) intermittent attention to specific aspects of sensory awareness, a process guided by the therapist. Attention to inner experience involves accessing multiple sensory modes of processing (visual, kinesthetic, auditory, and emotional). Meaning is derived through the integration of sensory awareness into cognitive process.⁽³⁵⁾ Thus, this process is designed to facilitate embodied self-awareness (vs. dissociation and avoidance).
5. **Session review.** Delivered seated. The therapist facilitated a review of the session highlights to promote participant integration of the session elements.
6. **Homework.** A take-home body awareness practice was developed collaboratively between the participant and the therapist, based on the participant’s session experience.

Interventionists: Clinical Experience Requirements and Fidelity

Two research therapists associated with this project were licensed to practice massage in the state of Washington. They both had a minimum of five years in practice, experience combining verbal and somatic approaches, and clinical experience addressing mental health concerns. The research therapists were trained to the MABT protocol and were provided with ongoing supervision by the principal investigator and first author. To examine compliance with the protocol, all MABT sessions were recorded, and therapists completed process evaluation forms immediately postsession to record whether they completed each element of the protocol, the level of engagement in the interoceptive and mindfulness training, and any protocol deviation.

Measures

Sample demographics and health characteristics

Measures to describe participant demographics and certain health characteristics were administered at baseline only. These included a demographic and

health history form to describe socioeconomic status, racial/ethnic identity, trauma history, and health history, the substance use assessment and alcohol use,⁽³⁶⁾ and the Modified Post-traumatic Stress Disorder Scale (MPSS).⁽³⁷⁾ The MPSS ($\alpha = .91$) is based on the DSM-IV diagnostic criteria⁽³⁸⁾ and includes a cutoff for diagnostic screening. Current medications and immune status data (viral load, hemoglobin, CD4 count) were retrieved from medical charts.

MABT acceptability

At postintervention, two questionnaires were administered to the participants to describe MABT satisfaction and experience of the intervention. Postintervention measures were administered ten weeks after baseline. The first was the Satisfaction Survey, a revised version of the Project Match participant satisfaction questionnaire.⁽³⁹⁾ The survey included four Likert-type questions (each scored individually) with a scale range of 1 (“extremely dissatisfied”) to 8 (“extremely satisfied”) specific to satisfaction with the MABT intervention experience, including overall satisfaction, satisfaction with therapist and number of sessions, and the extent to which the MABT intervention met therapeutic goals. An additional set of survey questions specific to the perceived helpfulness of MABT components (check-in, massage, body awareness exercises, mindful practice, session review, and homework) was included with a scale of 1 (“extremely unhelpful”) to 5 (“extremely helpful”). Also, a written questionnaire was administered asking participants to describe their MABT experience. The questionnaire asked about readiness to receive MABT, most important MABT experience, if and in what ways MABT was challenging, what was learned, and if MABT had an influence on ability to manage symptoms and challenges of living with HIV.

We also examined treatment engagement and conducted process evaluations as indications of MABT acceptability. Engagement included session attendance and completion of homework. Process evaluation of MABT delivery was collected from the MABT therapists, and involved therapist completion of a process evaluation form immediately after each session to assess administration of MABT key elements. Process evaluation was used to determine the ability to deliver the intervention as designed, to record any deviations from the protocol to meet participant needs, and to assess the ability of the participant to engage in the protocol components.

Health status

To describe health pre- and postintervention, reliable and validated self-report questionnaires (detailed below) specific to mental and physical health symptoms, life events stress, awareness and regulation, and HIV management self-efficacy were administered. Many of the self-report measures were the same as those used in a recent international

cross-sectional study to examine the relationship of symptoms, symptom management, and self-compassion among PLWH.^(40,41) Also included were measures used in prior MABT intervention studies.^(26,28) To assess sleep disturbance, an objective measure of activity patterns was administered for one week pre- and postintervention.

Assessment of psychological and physical symptoms

The *Center for Epidemiology Studies Depression Scale* (CES-D)⁽⁴²⁾ was used to assess depression. The alpha reliability estimate was 0.90 in a sample of 727 AIDS patients.⁽⁴³⁾ Higher scores indicate more symptoms of depression. Scores between 16 to 26 are considered indicative of mild depression, and scores of 27 or more indicative of major depression.^(44,45)

The *Revised Sign & Symptom Check List* (SSC-HIVrev) ($\alpha = .97$)⁽⁴⁶⁾ includes 64 items, and assesses the number and frequency of physical and psychological symptoms common in HIV.

Assessment of life events stress

A modification of the *List of Threatening Experiences Questionnaire* (LTE-Q)⁽⁴⁷⁾ was used to assess stressful life events. Eight items relevant to populations living with HIV disease were added to the LTE-Q to create the 20-item Stressful Life Events Questionnaire which measures the incidence of stressful life events in the past month.⁽⁴⁸⁻⁵⁰⁾

Awareness and regulation: MABT process variables

The *Scale of Body Connection* (SBC),⁽⁵¹⁾ a 20-item five-point Likert scale, was used to assess two distinct dimensions of body connection: body awareness ($\alpha = .83$) (conscious attention to sensory cues indicating bodily state for example tension, nervousness, peacefulness), and bodily dissociation ($\alpha = .78$) (separation from body, including emotional disconnection (eg, difficulty attending to emotion)).

The *Difficulties in Emotional Regulation Scale* (DERS),⁽⁵²⁾ a 36-item self-report measure ($\alpha = .93$) was used to assess difficulties in the modulation of emotional arousal; the degree of awareness, understanding, and acceptance of emotions; and the ability to act in desired ways regardless of the emotional state.

The *Self-Compassion Scale*,⁽⁵³⁾ a 26-item Likert scale ($\alpha = .92$), was adapted and used to assess ability to respond to difficult situations with self-compassion.

Assessment of HIV symptom management self-efficacy

The *HIV Treatment Self-Efficacy Scale* (HIV-ASES)⁽⁵⁴⁾ assesses patient confidence to carry out health-related behaviors (asking questions of physician, keeping appointments, adhering to medication) ($\alpha = .92$). This measure, which includes two

subscales (Persistence and Integration), has been found to be associated with adherence to ART.

The *HIV Symptom Management Self-Efficacy Scale* was used to assess HIV symptom management self-efficacy. This is a modified ten-item scale based on the abbreviated *Chronic Disease Self-Efficacy Scale*.⁽⁵⁵⁾ This scale measured four different dimensions including symptom control, role function, emotional functioning, and communicating with physicians. All items are rated on a ten-point scale indicating how confident one is in doing different HIV symptom management tasks. Internal consistency of the ten-item scale was recently tested in a sample of 89 HIV-positive participants and yielded a reliability coefficient of 0.92.⁽⁵⁶⁾

Assessment of Sleep Disturbance

Participants completed daily sleep diaries and wore a wrist actigraph for one week at pre- and postintervention. The sleep diary was adapted from a commonly used clinical form.⁽⁵⁷⁾ Diary outcomes included sleep onset latency (amount of time between going to bed and falling asleep), wake after sleep onset, total sleep time, and sleep efficiency (the percentage of time in bed spent asleep). Objective sleep disturbance was measured with Actiwatch 2 actigraphs (Mini-mitter Company, Inc., Bend, OR), worn on the nondominant wrist. The Actiwatch 2 is an accelerometer (device that measures movement). Actigraphy has been shown to be a sensitive measure of insomnia in behavioral treatment for persons with HIV.⁽⁵⁸⁾

Analysis

Descriptive statistics were used to describe recruitment and retention, sample characteristics, treatment fidelity, and self-report questionnaire responses. Graphs were used to plot pre- and postintervention scores to examine individual change across time.

Content analysis, with analytic tools focused on word use and phrasing from discourse analysis, was used to describe the qualitative responses on the written questionnaires. There were two primary steps involved in the qualitative analysis. The initial step involved categorizing types of general response to the questions. Two research team members individually coded the written questionnaires for overall themes across participant responses identified in response to each question or set of participant responses. Using a team-based approach,⁽⁵⁹⁾ the researchers verified the coded themes, following the strategy of Lincoln and Guba.⁽⁶⁰⁾ 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.

To analyze sleep disturbance using wrist actigraphy, the Actiware version 5.57 (Mini-mitter

Company, Inc., Bend, OR) was used. Bedtime and rise-time were entered in the software by a sleep researcher with extensive experience with actigraphy (DT), based on participant's sleep diary entries and visual inspection of the graphed activity. Each epoch was scored as sleep or wake using the automatic algorithm in the software. The sleep outcomes from actigraphy included total wake time (time in bed spent awake), total sleep time, and sleep efficiency (total sleep time/time in bed \times 100).

RESULTS

MABT Feasibility: Recruitment, Retention and Loss to Follow-up

The recruitment and enrollment process for all participants was completed in two weeks; all participants completed the pretest battery of self-report questionnaires and, with one exception, the sleep diary and actigraphy. One participant withdrew from the study after two MABT sessions due to an unexpected move to another state. For the remaining eight participants, there was no loss to follow-up; all completed the post-test questionnaires. There were fewer who completed sleep measures at post-test. However, of the seven participants with completed baseline actigraph data at post-test, one participant was missing the sleep diary and two were missing actigraphy data (both removed the actigraphs for extended periods resulting in insufficient data for analysis).

Pre-intervention Health Status

Psychological and physical symptoms

High overall participant psychological and physical distress was demonstrated at baseline. With one exception, all participants scored above the diagnostic screening cutoff of 16 on the CES-D for depression; the exception scored just below this screening cutoff point. Six of the nine participants had scores (range 16–26) suggesting mild depression, and two had scores above 26, suggesting major depression. For overall HIV symptoms, all participants, except one, indicated multiple (10–24) symptoms. The most common were muscle aches and anxiety (selected by 75%), and depression and weight gain in stomach area (66%).

Life events stress

Stress due to life events appeared to be moderate at baseline, with a median score of two events out of a possible 20. Four events were noted by more than two participants at baseline; these were the death of a close friend or relative ($n = 3$), a serious problem with a close friend, neighbor or relative ($n = 4$), abuse of alcohol or drugs ($n = 3$), or having something valuable lost or stolen ($n = 3$).

MABT process variables of body connection, emotional regulation, and self-compassion

Participants reported an overall moderate level of body awareness (mean of 2 on a 0–5 point scale range), whereas they reported very little bodily dissociation. Difficulties in emotion regulation baseline scores varied considerably ranging from 41–104 (mean = 74) out of a total possible range of 36–180. Two participants scored in the lower quartile reflecting higher emotion regulation, four in the midrange, and two in the upper range indicating low emotion regulation. In contrast, self-compassion at baseline was similar across participants, with scores ranging from 34–43 and reflecting a midrange response (mean = 37; range 12–60).

HIV symptom management self-efficacy

HIV adherence self-efficacy was reported at 80%–100% for eight out of nine participants (mean = 107 out of 120 possible). The exception was one participant who reported only moderate self-efficacy adherence with a score of 58. Chronic disease self-efficacy at baseline was more varied across participants with a range of 59–91 (mean = 79) out a possible 100.

Sleep disturbance

Sleep diary and actigraphy data were available from eight participants at baseline (one participant lost the Actiwatch). The sleep outcomes showed mild sleep disturbance on the sleep diaries, and moderate to severe sleep disturbance on actigraphy. Pretest sleep outcomes are reported in greater detail in a separate article.⁽⁶¹⁾ Sleep onset latency and sleep efficiency were slightly outside the range considered to represent “good” sleep (over 30 minutes and less than 85%–90%, respectively),^(62,63) but wake after sleep onset (WASO) and total sleep time were in the ranges considered normal. Actigraphy sleep outcomes showed significant sleep disturbance, with sleep efficiency well below the 85%–90% “normal” threshold, total sleep time almost 2 hours less than the ideal amount of 8 hours, and total wake time of over 2 hours per night.^(62,64) Sleep outcomes also showed evidence of unstable sleep-wake patterns (ie, bedtimes and rise times that vary from day to day), which is known to contribute to insomnia.⁽⁶⁵⁾

MABT Acceptability

MABT retention, attendance, and homework practice

The participants completed all intervention sessions within the ten-week intervention period (with the exception of the participant that dropped out midintervention). Integral to MABT is body awareness homework, and participants were asked to keep a weekly log of the number of times and duration of homework practice. In situations in which the log was not brought to the session, the therapist would

fill one out with the participant that day. Based on the logs for the eight participants who completed the intervention, we had data for 78% of the weekly sessions. The logs showed consistent use (daily or almost daily) of body awareness homework for the majority of participants, with an average of body awareness practice for 3–5 minutes/day. There was great variation in types of homework practice; for some it involved short but frequent body awareness moments spread throughout the day, and for others the practice was a longer one-time event.

MABT satisfaction

All participants indicated high overall satisfaction with MABT experience (mean = 7.6) and with MABT therapist (mean = 7.8). The participants perceived all MABT elements to be “extremely helpful” (highest possible endorsement), with the exception of one participant that endorsed “neutral” for check-in and homework components. All indicated satisfaction with the number of sessions received. In response to a question about whether they would want to receive MABT if available in the future, all indicated that they would.

MABT experience: perceived benefit

Three themes emerged from responses to the written post-test questionnaire. First, the most important MABT experience was the relief of emotional and physical pain or discomfort through the use of new mind-body techniques. One participant wrote that these techniques help to “experience a space or state of mind completely away from the [usual] behaviors one can have (eg, rapid thoughts, lack of concentration, negativity)...” Another wrote, “[I] leave [the] shame from past ... [MABT has] allowed me to start dancing again, feel more loose, sleep better. Dancing is from happiness – lifts the burden – [the trauma] separated me from it ... [now I] have joy again.” A third person wrote that MABT helps “... know myself better, about my feelings, how I respond to other people’s treatment of me and how to ‘stay on top.’”

Secondly, seven out of eight participants indicated that they’d learned something new from MABT; one was not sure. The common theme among their responses was that they learned self-care skills based on a new awareness of self. One participant wrote, “Compassionate attention to pain rather than fighting it is so much more successful for managing pain... [I’m] trying to do less stressful physical activities.” From another, “This has helped me relax and if I’m having a hard day I can breathe deeply and detach from negative situations easier, acknowledge the feelings, and move on vs. having them affect me so bad.”

A third theme emerged in response to the question about whether or not MABT had an influence on living with HIV. With one exception, all participants perceived that MABT had a positive effect, either by helping with symptom management or helping them

to face challenges of living with HIV. One participant wrote, “When I feel the pressure to get things done throughout the day I take deeper breaths and relax. It helps me think more clearly which helps me deal with the pressure [of living with HIV].” Another wrote, “Compassionate attention has helped me in dealing with all parts of my life including the symptoms of HIV – the night sweats and the physical pains I attend to compassionately rather than fight the pain with anger and Ibuprofen.” Participants noted a wide variety of HIV symptom improvements including reduced pain, ability to manage pain, sleep, stress management, and an ability to engage in self-care. One participant discussed the importance of addressing depression and body image for individuals with HIV.

MABT readiness and challenge

All participants indicated that body-oriented therapy was appropriate and therapeutic for them at this point in their illness. Five participants described the body therapy intervention as challenging, two said it was not, and one was unsure. The challenging aspects of MABT were: newness of the process, uncomfortable memories, and the commitment required to attend regularly scheduled sessions.

Protocol Fidelity and Safety

While the interventionists were able to administer the protocol as designed, they noted that participants’ ability to maintain sustained attention to their bodies was limited. In clinical terms this means that when participants were guided to bring attention to their inner body, they were only able to do so for brief moments. The protocol is designed to meet participants at their ability and comfort levels, thus the session time included more attention to interoceptive training and less sustained time in mindful body awareness practice than we’ve seen in studies with other populations.

The process evaluation forms were also used to identify possible adverse events specific to delivery of the intervention. Assessment of negative or adverse events occurred at session check-in, through therapist observation or direct report by the participant to a research team member, and in post-test written questionnaire. There were no unexpected effects of the intervention, and no reported adverse events.

Post-intervention Health Status

Individual change from pre- to post-treatment was examined using means and graphs (Tables 3 & 4). This small pilot sample was underpowered to detect significant effects and none were statistically significant by Wilcoxon signed-ranks testing. There were, however, a few notable pre–post changes. These included, first, a reduction in number of participants that scored above the screening threshold for severe depression. At pretest, eight study participants that

TABLE 3. Pre- and Post-Self-Report Health Outcomes

<i>Construct</i>	<i>Pre Mean (SD) N=9</i>	<i>Post Mean (SD) N=8</i>
Depression	22 (6)	20 (10)
HIV Symptoms	20 (12)	26 (12)
Life Events Stress	2.9 (2.6)	1.9 (1.6)
Body Awareness	2.1 (1.0)	2.5 (.45)
Bodily Dissociation	.95 (.41)	1.6 (.43)
Emotion Regulation	74 (19)	76 (22)
Self-Compassion	38 (5.3)	23 (5.4)
Adherence Self-efficacy	107 (20)	95 (25)
Chronic Disease Self-efficacy	79 (13)	60 (14)

TABLE 4. Sleep Outcomes

<i>Sleep Disturbance: Sleep Diary</i>	<i>Pre Mean (SD) N=8</i>	<i>Post Mean (SD) N=7</i>
Sleep Onset Latency (min)	34 (40)	12 (5.8)
Sleep Efficiency (%)	85 (8.1)	87 (11)
WASO (min)	21 (35)	9 (18)
Total Sleep Time (hours)	7.9 (1.3)	8.0 (1.5)
<i>Sleep Disturbance: Actigraphy</i>	<i>Pre Mean (SD) N=8</i>	<i>Pre Mean (SD) N=6</i>
Total Sleep Time (hours)	6.1 (1.6)	6.3 (1.7)
Total Wake Time (hours)	2.4 (1.0)	2.2 (1.6)
Sleep Efficiency (%)	72 (13)	75 (16)

completed the intervention scored above the screening cutoff for severe depression, compared to five at postintervention, suggesting a clinically meaningful reduction in depression symptoms for 40% of the participants. Second, all individual participants, except one, improved across all sleep outcomes. With the exception of diary-reported sleep efficiency which showed a 50% improvement, the mean values of most sleep outcomes (Sleep Onset Latency, WASO, Total Wake Time, and Total Sleep Time) showed small improvements from pre- to post-treatment (see Table 4). Third, there were changes in the unexpected direction, such as an overall mean reduction in self-compassion and increase in bodily dissociation.

DISCUSSION

The results demonstrate feasibility to recruit and retain PLWH for a MABT intervention and high MABT acceptability among this population. There

was substantial interest in study enrollment and participation, a positive recruitment/enrollment response, and a high number of completed MABT sessions. The intervention provided new self-care skills to cope with emotional and physical distress; these were perceived to be important for management of HIV-related symptoms. Notably, the qualitative findings indicate that participants perceived MABT to facilitate self-compassion and symptom management self-efficacy.

This study population fit the characteristic profile of high psychological and physical distress,⁽⁴⁰⁾ poor sleep,^(66,67) moderate-high HIV adherence self-efficacy,⁽⁴¹⁾ and moderate self-compassion⁽⁴¹⁾ common among PLWH. The results of this pilot study suggest that MABT decreases depression and improves quality of sleep. Such outcomes suggest that it may be particularly useful to continue to study the effects of MABT on persons suffering from symptoms related to chronic HIV infection. Triangulation of contrasting qualitative and quantitative findings facilitates interpretation of study outcomes. The worsened pre-to-post response on the self-compassion and bodily dissociation questionnaires is likely the result of improved participant familiarity with these concepts and a concomitant self-reappraisal based on experiencing the perceived challenges and gains in self-compassion and body connection. When a measure for a construct such as self-compassion and body connection involves skills and new language learned during an intervention, the participant's understanding of the questionnaire items may change during the learning process. This has been observed and described in development of a mindfulness measure for mindfulness meditation.⁽⁶⁸⁾

The participants were familiar with massage, and this could have positively influenced recruitment and overall implementation feasibility and acceptability of this intervention. On the other hand, participants were unfamiliar with body-oriented therapy, particularly as it relates to attending to and processing of sensory experience, including emotion. Process evaluations from the research therapists highlight the additional time needed to teach interoceptive and mindful body awareness tools. The participants' report of learning beneficial skills, their satisfaction with all aspects of the MABT intervention, and their willingness to engage in body awareness homework indicates that the challenges of MABT did not detract from MABT engagement, satisfaction, or perceived benefit. Process evaluation accounts do suggest, however, that more intervention sessions to practice and learn MABT skills may be appropriate for this population.

Study Limitations

There are several study limitations to consider. The small sample size, socio-economic status of the participants, and one-group design limit interpretation and generalization of the study results. With regard

to the sampling approach, the recruitment of patients identified by the social workers (vs. self-referral) may have biased the feasibility results. However, all patients at the facility were similar to the study participants in that they were long-term HIV-infected, and suffered from related physical and psychological symptoms.

Clinical Implications

The results suggest a few important clinical implications specific to treatment. First, the positive response to this intervention suggests the interest in, and therapeutic importance of, mind-body interventions that emphasize body connection and self-care for HIV symptom management. Second, the qualitative findings point to the importance of self-compassion and self-acceptance to facilitate better coping and self-care in this population; these are critical aspects for improving quality of life, and for addressing the challenges—depression in particular—of living with HIV as a long-term chronic illness. Last, learning MABT skills was not easy for many of the participants, as these skills were unfamiliar and the participants struggled with the concentrated inner focus of mindful body awareness. Thus their willingness to engage and practice MABT skills was remarkable and speaks to the motivation for personal growth and better coping skills. It is possible that receiving nurturing touch and personal attention contributed to participant engagement in the intervention.

CONCLUSION

This pilot project was an important first study to examine the feasibility and acceptability of body-oriented therapy for PLWH. Future research is needed to address the study limitations and test MABT efficacy to improve coping with HIV symptoms among PLWH through the use of a larger sample, more diverse sample (perhaps based on a study with multiple sites), and a randomized clinical trial. MABT research to examine improved self-compassion and coping among PLWH in palliative care is also an important area for future research.

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CONFLICT OF INTEREST NOTIFICATION

The authors declare there are no conflicts of interest.

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