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Critically Appraised Topic: Evidence for Mindfulness Therapies for Veterans with PTSD

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Focused Question

Does complementary therapy (specifically mindfulness therapies involving meditation or mantrum use in interventions) improve PTSD symptom management in connection to rest, health management and social participation for veterans (defined as people who are former members of the armed forces on activity duty) with a PTSD diagnosis compared to clinical therapy in urban settings?

Overarching purpose statement

The purpose of this critically appraised topic (CAT) is to explore the effectiveness of mindfulness therapies to assist veterans who have post-traumatic stress disorder (PTSD) with symptom management. Assisting veterans to purposely engage in rest, health management and social participation are areas of occupation that will increase overall quality of life, as these occupations are negatively impacted by PTSD symptoms (American Occupational Therapy Association (AOTA), 2010; Barr, Davis, Diguiseppi, Keeling & Castro, 2019; Beck et al., 2017; Bormann et al., 2018; Cole et al., 2015; Cuellar, 2008; Cushing, Braun, Alden, Katz & Alden, 2018; Marchand, Yabko, Herrmann, Curtis, & Lackner, 2019; Mehling et al., 2018; Nagy, Pickett & Hunsanger, 2020; Rice, Liu & Schroeder, 2018; Schuman, 2016; Schure, Simpson, Martinez, Sayre, & Kearney, 2018; Wynn, 2015).

Clinical Scenario

According to Veterans Affairs (2018), the number of veterans with PTSD varies by service era. Among veterans within the age range of 18-45 years old who have served in the Operations Iraqi Freedom war (OIF), Enduring Freedom wars (OEF) and Gulf wars, 11-20% are diagnosed with PTSD in a given year, with military sexual trauma (MST) being the highest (Veterans Affairs, 2018). The prevalence of PTSD among Gulf War veterans was 10.1% furthermore, OEF and OIF veterans who were deployed is 15.7% and 10.9% of non-deployed veterans; of those deployed 10.5% were female and 12.3% male with deployed men being 1.39 times more likely to screen positive for PTSD using the PTSD Checklist Civilian Version (PCL-C) (Dursa, Reinhard, Barth & Schneiderman, 2014).

Posttraumatic stress disorder or PTSD "is a mental health problem that some people develop after experiencing or witnessing a life-threatening event, like combat, a natural disaster, a car accident, or sexual assault" (Veterans Affairs, 2018, "PTSD Basics," para. 1). PTSD can be attributed to "factors including what you do in the war, the politics around the war, where the war is fought and the type of enemy you face" (Veterans Affairs, 2018, para. 2). Symptoms also include Military Sexual Trauma (MST), which is defined as any sexual harassment or sexual assault that occurs while in the military, "which can happen to either men or women during peacetime, training or war" (Veterans Affairs, 2018, para. 3). Comorbidities in veterans with PTSD are often drinking/drug use, feelings of shame/hopelessness, unable to sustain employment, relationship instability, and physical symptoms (Veterans Affairs, 2018, "Related Problems," pt. 1-7). According to Veterans Affairs (2018) there have been four types of PTSD identified; "Reliving the event (re-experiencing symptoms), avoiding situations that are

reminders of the event, feeling numb, and feeling keyed up (hyper-arousal)" (Veterans Affairs, 2018, "PTSD Basics," para. 6).

PTSD is a mental health condition that is triggered by a terrifying event, either experiencing it or witnessing it (Mayo Clinic Staff n.d.). Symptoms of PTSD include flashbacks, nightmares, severe anxiety and intrusive memories (Mayo Clinic Staff n.d.). Most people have some trouble adjusting after a terrifying event, however if the symptoms get worse or last months to years and interfere with daily functioning that points towards PTSD (Mayo Clinic Staff n.d.). The American Psychiatric Association revised the PTSD diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders, edition 5 (DSM-5) to be included in the Trauma and Stressor Related Disorder category. The DSM-5 lists eight criteria for a diagnosis of PTSD (American Psychiatric Association, 2013). Criterion A is stressor: a person is exposed to death, threat of death, actual or threatened serious injury or actual or threatened sexual violence (American Psychiatric Association, 2013). Criterion B is intrusive symptoms: traumatic event is persistently re-experienced through either unwanted upsetting memories or nightmare or flashback or emotional distress or reactivity after exposure to traumatic reminders (American Psychiatric Association, 2013). Criterion C is avoidance: a person avoids trauma-related stimuli after the event (American Psychiatric Association, 2013). Criterion D is negative alterations in cognition and mood: negative thoughts or feelings that begin or worsen after trauma (American Psychiatric Association, 2013). Criterion E is alterations in arousal and reactivity: trauma-related arousal and reactivity that began or worsened after trauma in irritability or aggression, alterations in arousal and reactivity (American Psychiatric Association, 2013). Trauma-related arousal and reactivity that began or worsened after trauma in irritability or aggression, risky or destructive behavior, hypervigilance, difficulty concentrating and sleeping, and heightened startle reaction (American Psychiatric Association, 2013). Criterion F is duration: symptoms last for more than 1 month (American Psychiatric Association, 2013). Criterion G is functional significance: symptoms create distress or functional impairment (American Psychiatric Association, 2013). Criterion H is exclusion: symptoms are not due to mediation, substance use or other illness (American Psychiatric Association, 2013). For those with PTSD, the symptoms impact all areas of life and interfere with their ability to perform valuable and meaningful occupations.

Occupational therapy practitioners can help veterans with PTSD improve their quality of participation in occupations such as rest, health management, and social participation. They conduct comprehensive evaluations to identify personal causation and barriers related to occupational performance. They can provide sessions related to the impact of trauma, phases of recovery, and health & wellness strategies for individuals with PTSD (Champagne, 2015). Complementary therapies provide an excellent augmentation to typical practices within the clinical setting providing mechanisms to increase performance from PTSD symptoms (Wynn, 2015). Complementary therapy is defined as techniques used in some combination with conventional medicine (Schuman, 2016, p. 83-84). An occupational therapy practitioner might work with an individual with PTSD in a wide variety of settings including hospitals, rehabilitation centers, day programs, home care, independent living, and military-based settings such as Veterans Administration (VA) hospitals.

Our synthesis led us to believe that occupational therapy practitioners can use complementary therapies such as mindfulness therapies to help improve and/or manage symptoms of veterans with PTSD. The wide range of symptoms that veterans with PTSD

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

experience calls for occupational therapy interventions, specifically complementary therapies, to aid in symptom management.

Theory

The Model of Human Occupation (MOHO) was used to guide our research. The MOHO (Kielhorner, 2008) is an occupational therapy intervention model that promotes a practitioner's consideration for how an individual's occupations are chosen, performed, and the influence of the environment (Forsyth et al. 2019). Using the framework of the MOHO helps explain concepts related to veterans, their current environment, and occupations. The MOHO emphasizes veterans' motivation (Kielhofner, 2008) to engage in occupations and learn new skills to help manage their symptoms of PTSD. Complementary alternative medicine allows for the participant to choose his or her therapy based on his or her interest and motivations, making therapy more meaningful and more engaging. This choice is encouraged in the MOHO through volition (Kielhofner, 2008). Volition refers to the "process by which people are motivated toward and choose what activities they do" (Forsyth et al. 2019, p. 603).

Summary of Key Findings

Summary points

Mindfulness interventions are becoming more common and more frequently used in clinical settings with veterans. A reason for this increase is due to the holistic approach of mindfulness therapies. It is a relatively inexpensive intervention and merely requires time and repetition for clients to acquire the skills to understand and use mindfulness in challenging situations to remain calm or return to being centered. There is good evidence to support that mindfulness therapies help with PTSD symptom management specifically with sleep, health management and social participation. Being able to have the option of additional forms of therapy including complementary and alternative medicine (CAM) is beneficial as it gives control and allows for the client's volition to be expressed.

Total number of articles reviewed	16
Types of articles reviewed	Five level I articles Four level III articles Two level IV articles Three level NA articles Two research papers

(Lieberman & Scheer, 2002)

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

Search process

We began with our topic of veterans with PTSD and symptom management using complementary therapies. We did a broad database search to find articles and gain an understanding of where the evidence was and what the various types of complementary therapies were. We identified several types of complementary therapies that help veterans cope with PTSD symptoms including animal assisted therapies, mantram therapies, virtual models and high energy activity-based therapies. A common theme identified mantram or mindfulness therapy as an area of increasing focus as seen by a high prevalence of articles in all searches with the limitation of articles from the past 5 years, i.e. 2015. In general, we found that participants in the studies were majoritively of white ethnicity and male (Beck, et al., 2017; Bormann et al. 2018; Nagy et al., 2020; Marchand et al., 2019). In conducting our research, we noticed that the word veteran was uncapitalized and discovered that according to the American Legion the word 'veteran' or 'veterans' are not capitalized. It is only capitalized in reference to a proper noun such as the Department of Veterans Affairs (VA) or Veterans Day (The American Legion, 2017).

The search engines used and search terms (Boolean phrases) include:

- PsycInfo
- Medline
- Cinahl Complete- (Veterans, PTSD, Mindfulness) (Veterans AND symptom management AND complementary therapies)
- PubMed- (Veterans with PTSD, mindfulness, Ineffective) (Veterans AND PTSD AND Symptom management OR Complementary therapies OR mindfulness)
- Clinical Key- (complementary theories)

Database Inclusion Criteria:

- Age range 18-45 years old
    - Year 2012+
    - Full articles
    - Written in English

Database Exclusion Criteria:

- Co-occurring disorders (ex. TBI)

Researchers' Inclusion Criteria:

- Military Veterans
- DSM-IV Criteria for PTSD
- Minimum of one traumatic military experience
- Mindfulness intervention used
- Minimum 18 years old
- Fluent in English
- Age range (18-45 years old)
- Locations with VA resources (i.e. urban areas)

Researchers' Exclusion Criteria:

- Received other psychotherapy or complementary therapies within the past six months

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

- Mini International Neuropsychiatric Interview was used to exclude individuals with suicidal ideation, dementia, schizophrenia spectrum disorders, or untreated bipolar disorders
- If they scored > 25 on the Montreal Cognitive Assessment

Common Measures and Assessments Used

The most common assessment given in the articles is the Clinician Administered PTSD Scale (CAPS), which is widely considered to be the gold standard in PTSD assessments (Weathers et al., 2013). CAPS is a structured interview providing a categorical diagnosis and as a measure of PTSD symptom severity (Beck et al 2017; Bormann, Oman, Walter & Johnson, 2014; Bormann et al., 2018; Weathers et al., 2013).

Other assessments that were used in the articles include:

- PTSD Checklist (PCL) or the military version (PCL-M) (Barr et al. 2019; Bormann et al. 2014; Cole et al., 2015; Cushing et al., 2018; Nagy et al., 2020; Rice et al., 2018)
    - 17-item self-administered instrument
- Mindfulness Attention Awareness Scale (MAAS) (Barr et al. 2019; Bormann et al. 2014)
    - 15-item self-report measure
- Patient Health Questionnaire-9 (Barr et al. 2019; Bormann et al., 2018; Cushing et al., 2018)
    - Measure depression
- World Health Organization Quality of Life brief form (Bormann et al., 2018; Mehling et al. 2018)
    - Quality of life measurement
- Pittsburgh Sleep Quality Index and Addendum for PTSD (Beck et al, 2017; Cushing et al., 2018)
    -self-report questionnaire to assess sleep quality

Summary of Rigor of Current Evidence

All articles reviewed are published in journals. We reviewed each of the peer reviewed articles that were included and concluded that they contributed to the pool of evidence by building on existing literature. We reached saturation when we noticed that multiple articles were authored by or cited Jill Bormann, Ph.D., RN, FAAN, as she is the current leading expert in veterans and mantram repetition.

Match to Context

Our research was based on serving an urban setting, as such our articles were mostly conducted out of VA hospitals and health care systems as well as other larger urban hospitals (Beck et al., 2017; Bormann et al., 2018; Rice et al., 2018) These were conducted primarily in group settings for intervention (Aho, Pickett & Hamill, 2014; Barr et al. 2019; Beck et al., 2017; Bormann, 2018; Bormann, Oman, Walter & Johnson, 2014; Bormann et al. 2018; Cole et al., 2015; Cueller, 2008; Cushing et al., 2018; Marchand et al., 2019; Mehling et al. 2018; Nagy et al., 2020; Rice et al., 2018; Schuman, 2016; Schure et al., 2018; Short, Mazmanian, Oinonen & Mushquash, 2016).

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

Results

From our search we have concluded the following information. There were four main types of mindfulness interventions: mindfulness-based cognitive therapy (MBCT) (Cuellar, 2008; Marchand et al., 2019), mantram repetition programs (MRP) (Beck at al., 2017; Bormann, 2018; Bormann et al., 2018), mindfulness-based stress reduction (MBSR) (Cole et al., 2015; Cushing et al., 2018; Rice et al., 2018; Schure et al., 2018) and dispositional mindfulness (Nagy et al., 2020).

According to Creswell and Khoury (2019), Mindfulness-Based Cognitive Therapy (MBCT) is a program in intense mindfulness training to assist people with stress, anxiety, depression, and pain. While MBCT has been frequently used with non-military populations it is gaining interest from military members and veterans (Marchand et al., 2019). A challenge that Marchand et al. (2019) faced was a high attrition rate. Other studies also experienced a high attrition rate and is referenced under weaknesses, this is something that is important, as this study by Marchand et al. (2019) was conducted at an urban VA hospital. Marchand et al. (2019) concluded that modifications to consider that could improve attendance included: offering orientation groups, peer support, intensive follow-up and engagement before discharge for hospitalized patients, and follow-up phone calls after each MBCT session, as well as targeting specific populations and or problems based on gender, era of service, and or diagnoses. Another approach they concluded could be development of screening methods to identify veterans at risk of attrition (Marchand et al., 2019).

A subtype of MBCT is Mindfulness Meditation (MfM). The basic tenets of practice is MfM is self-respect, self-knowledge and self-care using techniques grounded in mind-body interactions (National Center for Complementary and Alternative Medicine, 2007). The development of an MfM course combines both Western and Eastern health practices intentionally including personal growth and spiritual components, which are essential in holistic health care (Cuellar, 2008). According to Cuellar, the three main parts of mindfulness meditation for veterans are: MfM is a mind-body interventions practiced independently after the mastery of techniques though formal class-room instruction, MfM impacts coping patterns which affect neuroendocrine and immunological mediators that may improve health outcomes, and occupational health nurses may incorporate and encourage the use of MfM as a sustainable intervention when practiced on a routine basis to promote well-being and improve health outcomes (Cuellar, 2008). MfM is taught in one to two sessions per week for 8 to 10 weeks, with sessions including exercises and topics examining mindfulness, yoga posturing and mindfulness during stressful situations and social interactions (Cuellar, 2008). To emphasize, social interactions are an important occupation for all people but especially veterans who are deployed in groups and create bonds with fellow service members throughout the events of deployment to come home to less support. Being able to use MfM to help with the psychosocial aspects of PTSD and social interactions allows veterans to return to a valued occupation. MfM can prevent occupational illness and injury, manage chronic illnesses, and promote wellbeing (Cuellar, 2008). Cuellar (2008) concluded that those who use MfM feel a sense of empowerment and the ability to actively participate in their own well-being and healing.

Mantram therapy is based on the premise that silently repeating a mantra enables users to train attention, initiate relaxation, and become aware of the present moment (Bormann et al., 2018). It includes the skills of slowing down and one-point attention to reduce stress and increase

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

emotional self-regulation (Bormann et al., 2018). Mantram repetition and present-centered therapy have been used interchangeably, Bormann et al. (2018) differentiated between the two. Mantram repetition is about education on choosing a mantram, slowing down thoughts, one-pointed attention for emotional self-regulation and relaxation, while present-centered therapy is about supportive, present-focused, nondirective psychotherapy (Bormann et al., 2018). Mantram repetition involves instructions, in-session, and out-session experiential (in vivo) homework; present-centered therapy discusses current problems and utilizes problem-solving techniques (Bormann et al., 2018). Mantram repetition involves applying skills (in vivo) for emotional self-regulation and symptom management, discussing, storytelling and weekly assignments, and discussing obstacles to practice and development of sustainable practicing (Bormann et al., 2018). Present-centered therapy records daily stressors in a diary to use during sessions, sets goals for current treatment in each session, and sets goals for future treatment only during the last session (Bormann et al., 2018). Beck et al. (2017) concluded that MRP were statistically significant with a moderate effect size, the Clinician Administered PTSD Scale (CAPS) moved from "severe" to "moderate/ threshold" in PTSD symptom severity. However, after the intervention there were still 60% of participants that were still above the cutoff for clinical insomnia (Beck et al., 2017).

Several authors used mindfulness-based stress reduction (MBSR) (Cole et al., 2015; Cushing et al., 2018; Rice at al., 2018; Schure et al., 2018). According to Cushing et al. (2018) the aim of MBSR is "to teach participants to attend to the present moment in a nonjudgmental way… including mindful meditation, gentle yoga, and slow breathing" (p. e224). Rice et al. (2018) found MBSR improved the ability to orient attention but states it is not a standardized clinical intervention program. More research is warranted to determine the effectiveness of MBSR with OEF/OIF/OND veterans (Cushing et al., 2018). MBSR assists veterans in managing PTSD symptoms by using calm, centering techniques to reduce stress and increase body awareness (Rice et al., 2018). This provides individuals with skills to help them participate in daily occupations such as stressful or overwhelming social situations.

Dispositional Mindfulness is the keen awareness and attention to thought and feeling in the present moment (Nagy et al., 2020). Nagy et al. (2020) found that dispositional mindfulness is associated with lower frequency of PTSD related sleep disturbance, and better quality of sleep (p. 4-5). They also found that the specific domains of dispositional mindfulness: awareness, acceptance, attention, and present focus, remained statistically significant when emotional regulation difficulties, such as **t**hose with PTSD, are included as factors (Nagy et al., 2020, p. 5).

Strengths and Weaknesses

We were unable to find research that definitively concluded mindfulness therapy was ineffective in assisting veterans with PTSD in symptom management. There was one article by Cole et al. (2015) that appeared to begin with the intent to prove that mindfulness was an ineffective form of therapy but was ultimately unable to refute that hypothesis. We found articles from other populations, women who had experienced childhood trauma and women who had experienced domestic violence, who had PTSD and those articles resulted that mindfulness therapies were also useful for them (Pitt et al., 2020; West, Liang & Spinazzola, 2017).

A weakness to the articles we found were that most were measuring short term impact (maximum of three months), more research is needed to identify the long-term (1+ years) of

mindfulness therapy, the longest trials researched were 12 weeks (Mehling et al., 2018; Schuman, 2016). Another weakness that was noted in articles was the attrition rate of participants (Cushing et al., 2018; Marchand et al., 2019; Rice et al., 2018; Schuman, 2016.) Over an eight-week session of MBCT, only 16% of veterans attended all eight sessions and 3% attended only one session (Marchand et al., 2019). There was a decrease from 88 participants in session one to 49 participants in session eight (Marchand et al., 2019).

All mindfulness therapies were carried out in a group setting, further research is needed to identify the implications of using mindfulness therapies one-on-one to reduce PTSD symptoms in veterans diagnosed with PTSD. (Aho et al., 2014; Barr et al., 2019; Beck et al., 2017; Bormann, 2018; Bormann et al., 2014; Bormann et al., 2018; Cole et al., 2015; Cueller, 2008; Cushing et al., 2018; Mehling et al. 2018; Nagy et al., 2020; Rice et al., 2018; Schuman, 2016; Schure et al., 2018; Short et al., 2016.)

Intent for occupational therapy practitioners & stakeholders

Overall, there is high strength of evidence to support mindfulness therapies to manage symptoms (improving areas of occupations including rest, health management, and social participation) among veterans with PTSD. The MOHO is a useful framework for OT practitioners to support client-centered and occupation-based practice (Forsyth et al. 2019). Mindfulness is related to better executive functioning, self-regulation, and emotional well-being (Anicha, Ode, Moeller, & Robinson, 2012; Short et al., 2016). Occupational therapists can utilize mindfulness complementary therapies to assist veterans diagnosed with PTSD to manage symptoms and perform ADLs/IADLS effectively (Beck et al., 2017; Bormann et al., 2018; Cole et al., 2015; Cuellar, 2008; Cushing et al., 2018; Marchand et al., 2019; Nagy et al., 2020; Rice et al., 2018; Schure et al., 2018). Using mind-body interventions is a holistic way to promote health and allows veterans to feel a sense of empowerment while participating in their own well-being by managing their symptoms of PTSD.

The Clinical Bottom Line

Focus Question Answer

From the evidence that we collected, we have concluded that mindfulness therapies improve PTSD symptom management in connection to rest, health management and social participation for veterans with a PTSD diagnosis compared to clinical therapy in urban settings. By participating in mindfulness-based therapies veterans are able to manage psychosocial symptoms that previously limited or inhibited meaningful interactions in social participation. These types of complementary therapies give veterans tools to help manage PTSD symptoms such as sleep, stress, and depression so they can become more engaged in preferred occupations such as rest, health management and social participation.

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

Standalone Snapshot

Post-traumatic stress disorder (PTSD) is a mental health condition that is triggered by events from an individuals' past (Mayo Clinic Staff, n.d.). 11-20% of veterans ages 18-45 years old who have served in the OIF, OEF and Gulf wars are diagnosed with PTSD in a given year (Veterans Affairs, 2018, para. 2). This includes men and women within the four main types of PTSD attributed to "factors including; what you do in the war, the politics around the war, where the war is fought and the type of enemy you face" (Veterans Affairs, 2018, para. 2). Many of these veteran's experience symptoms related to PTSD such as: nightmares, severe anxiety, and intrusive memories (Nagy et al., 2020). In the DSM-5, eight criteria for a PTSD diagnosis include: stressor, intrusive symptoms, avoidance, negative alterations in cognition and mood, alterations in arousal and reactivity, duration, functional significance, and exclusion (American Psychiatric Association, 2013).

From the research we infer that, for those with PTSD, their symptoms influence all areas of life and interfere with their ability to perform valuable and meaningful occupations. Based on the current state of evidence, we have concluded that complementary mindfulness-based interventions improve PTSD symptom management in connection to rest, health management and social participation for veterans diagnosed with PTSD in an urban setting. The articles reviewed provide evidence for mindfulness-based group intervention and provide veterans with skills to manage stress.

Usefulness in practice

Based on the research, occupational therapy practitioners can use the Model of Human Occupation (MOHO) to guide intervention in complementary therapies such as mindfulness therapies to help improve and/or manage symptoms of veterans with PTSD. The MOHO provides a unique framework in understanding motives, patterns of performance, and skills (Forsyth et al. 2019) in veterans. Mindfulness therapies are mind-body interventions practiced individually upon mastering the techniques through formal group programs that last anywhere from 8-12 weeks (Aho et al., 2014; Barr et al. 2019; Beck et al., 2017; Bormann, 2018; Bormann et al. 2014; Bormann et al., 2018; Cole et al., 2015; Cueller, 2008; Cushing et al., 2018; Mehling et al. 2018; Nagy et al. 2020; Rice et al., 2018; Schuman, 2016; Schure et al., 2018; Short et al., 2016). Clients make the choice to engage in mindfulness therapies, which engages a clients' volition (Forsyth et al. 2019). When practiced on a regular basis, it can help promote well-being and improve health outcomes (Aho et al., 2014; Barr et al. 2019; Beck et al., 2017; Bormann, 2018; Bormann et al. 2014; Bormann et al., 2018; Cole et al., 2015; Cueller, 2008; Cushing et al., 2018; Mehling et al. 2018; Nagy et al. 2020; Rice et al., 2018; Schuman, 2016; Schure et al., 2018; Short et al., 2016).

Further Research

The findings of this CAT should be interpreted considering the present limitations. The limited diversity represented in the sample populations, high attrition rates, and short-term studies do not allow for generalizations, or long-term viability to be inferred. Future research should be done involving females and minority veterans, and consider the impact of comorbidities for a more complete population to be represented. White males were the majority in studies, having a more diverse population will better reflect the diversity in armed forces

(Beck et al., 2017; Marchand et. a., 2019; Nagy et al., 2020). Additionally, conducting longitudinal studies to understand the impact of mindfulness therapies on veterans with PTSD long term, five to ten years. Exploring the viability long term will have implications for the usefulness of mindfulness therapies.

Blom, H. E., Juracich, J. A., & Merriman, S. R., 2020

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