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## **Veterans Using Mindfulness Practice To Cope With Trauma & Operational Stress Injuries**

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Veterans Using Mindfulness Practice to Cope with Trauma & Operational Stress Injuries

By

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BSW (University of Detroit Mercy) 2011

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## ABSTRACT

Psychological distress due to military operations is impacting returning veterans mentally and physically. The purpose of exploring literature relating to veterans is to determine if mindfulness-based interventions (MBI) are beneficial in managing the symptoms of post-traumatic stress disorder (PTSD). Data generated by the research question “What are the therapeutic benefits of mindfulness-based interventions, if any, in managing the symptoms of PTSD among veterans?” were explored to determine the effectiveness of using mindfulness-based coping skills to manage symptoms such as hyperarousal, intrusive recollections, and avoidance. The studies that were analyzed reported on veterans who have served in the U.S. Armed Forces and have used mindfulness-based interventions to manage symptoms relating to PTSD. Data collected during the content analysis pertained to the general demographic of subjects in the studies, including the number of veterans and completers, selected MBI, and results of MBI. A total of 24 scholarly articles were analyzed for the study. This content analysis demonstrated that mindfulness-based interventions are an effective evidence-based treatment for veterans to cope with trauma and operational stress injuries.

*Keywords:* veterans, mindfulness, PTSD, MBI, military

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## **DEDICATION**

I would like to dedicate this work to all my loved ones that have been there providing encouraging thoughts and prayers during this journey and to all my fellow military sisters & brothers, past and present, THANK YOU FOR SERVING!

## ACKNOWLEDGEMENTS

I would like to acknowledge my fiancé who has supported and encouraged me unconditionally during this journey since we've met. I love you!

I would also like to acknowledge my committee, who has pushed me along the way during many hurdles so that I could finally make it across the finish line.

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“Nothing is impossible. The word itself says ‘I’m Possible’”. ~ Audrey Hepburn

## TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....	1
Statement of the Problem .....	2
Purpose of the Study .....	3
Research Question .....	4
Conceptual Framework .....	4
Assumptions, Limitations, and Scope.....	7
Rationale and Significance .....	8
Definition of Terms .....	9
Conclusion .....	11
CHAPTER 2: LITERATURE REVIEW.....	12
Review of Relevant Research.....	12
A Historical Perspective of PTSD.....	13
Single Event Versus Ongoing Trauma .....	15
The Traumatized Brain.....	16
Neurobiology and Tribunal Brain Model .....	17
Activation and Hyperarousal of Threat Response .....	18
DSM-5 Criteria for PTSD .....	20
Mindfulness-Based Practices .....	22

Safety and Stabilization.....	22
Therapeutic Alliance .....	23
Felt Versus Real Safety .....	24
Stabilization and Self-Regulation .....	26
Relaxation through Mindfulness-Based Practice and Holistic Strategies .....	27
Mindfulness-Based Interventions for PTSD .....	29
Cognitive Behavior Group Therapy.....	30
Mantram Repetitive Program.....	31
Mindfulness-Based Cognitive Therapy.....	31
Mindfulness-Based Exposure Therapy .....	32
Mindfulness-Based Meditations.....	33
Mindfulness-Based Resiliency Training .....	34
Mindfulness-Based Stress Reduction.....	35
Yoga .....	35
Mindfulness-Based Interventions as an Alternative Treatment .....	37
Mindfulness-Based Interventions and Positive Changes to Quality of Life ....	39
Conceptual Framework .....	41
Conclusion.....	42
CHAPTER 3: METHODOLOGY.....	43
Research Design.....	43

Assumptions and Rationale for Design .....	44
Literary Content Analysis .....	45
Unit of Analysis .....	46
Data Collection Procedures .....	47
Conclusion.....	48
<b>CHAPTER 4: RESULTS .....</b>	<b>50</b>
Analysis Method .....	50
Presentation of Results .....	51
Emergent Themes .....	52
General Median Demographic and Analytic of MBIs .....	53
Veterans’ Median Demographic and Themes of MBIs .....	57
Effectiveness of MBIs Among Veterans .....	57
Recurring Themes of MBIs .....	58
Reduction in Arousal and Hyperarousal Symptoms .....	59
Improvement in General Anxiety.....	60
Greater Sense of Calm .....	61
Improvement of Depression.....	63
Acceptance of Present Moment .....	64
Improvement of Chronic Physical Pain .....	65
Improved Spiritual Well-Being.....	66

Summary .....	66
CHAPTER 5: CONCLUSION .....	70
Interpretation of Findings.....	71
Implications .....	73
Recommendations for Action.....	74
Recommendations for Further Study .....	75
Conclusion.....	77
REFERENCES .....	80
APPENDIX .....	94
Scholarly Articles .....	94

## LIST OF TABLES

1. MBIs and Subcategories of Mindfulness-Based Practice .....	52
2. General Median Demographic & Analytics of MBIs .....	54
3. Veterans' Median Demographic and Themes of MBIs .....	57
4. Effectiveness of MBIs Among Veterans .....	58

## Chapter One

### Introduction

Whether in garrison or combat, many veterans of the Armed Forces have endured emotionally and/or psychologically traumatic experiences that were service related (Litz, 2014). A significant percentage of veterans suffer from post-traumatic stress disorder (PTSD) and other mental health concerns upon returning home from military deployment (Hines, Sundin, Rona, Wessely, & Fear, 2014). The current veteran population is estimated at 21.6 million as of 2014 (Eibner et al., 2016). According to the Medical Expenditure Panel Survey, approximately 25% of all veterans who accessed care at the Veterans Affairs (VA) had a mental health condition, amongst those veterans 3.3% were diagnosed with PTSD (Eibner et 2016).

Mindfulness-based practice is a therapy that veterans could use as a trauma-focused treatment (Boyd, Lanius, & McKinnon, 2018). Mindfulness-based practice is thought to target several central features of PTSD, including avoidance, hyperarousal, and emotional numbing (Boyd et al., 2018). According to Vujanovic et al. (2011), mindfulness-based practice is beneficial by enhancing emotional regulation and decreasing anxiety. The regular practice of mindfulness-based interventions (MBIs) could lead to substantial present-centered awareness and nonjudgmental acceptance, which may reduce experimental avoidance, lessen arousal, and assist emotional regulation (Vujanovic et al., 2011). Kline et al. (2016) reported there are positive results regarding mindfulness-based treatment for psychiatric behaviors that include reduction in the risk of suicide, depression, substance abuse, and PTSD among veterans.

Treatment interventions such as mindfulness-based stress reduction (MBSR), permit individuals to attend to the present moment in a nonjudgmental, accepting manner, by reducing symptoms relating to anxiety (Polusny et al., 2015). Kabat-Zinn created MBSR in 1979 to

provide a medical intervention for individuals suffering from chronic conditions and were unresponsive to traditional treatment (Stephenson, Simpson, Martinez, & Kearney, 2017). MBSR is an eight-week course based upon Vipasana and Zen meditation as a mind-body or integrative medicine (Lehrhaupt & Meibert, 2017). Veterans utilizing mindfulness-based interventions are motivated to accept their thoughts, feelings, and experiences relating to their trauma without avoidance, which is a significant characteristic in the persistence of PTSD (Polusny et al., 2015). Untreated PTSD can cause additional health concerns and patients have high rates of comorbidity with mental and physical disabilities (Polusny et al., 2015).

Consequently, as with any trauma-related occurrence, some military veterans may have difficulty readjusting to civilian life once they return home. Studies have been conducted regarding veterans suffering from PTSD (Chen et al., 2019). Other studies examined therapeutic alliance across trauma-focused and nontrauma-focused psychotherapies among veterans with PTSD (Walser et al., 2015). In chapter one the researcher addresses the problem, purpose of the study, research question, and conceptual framework pertaining to veterans in the U.S. regarding learning mindfulness-based practice to cope with PTSD.

### **Statement of the Problem**

There are veterans who were psychologically impacted due to their participation in military combat operations (Elnitsky, Fisher, & Blevins, 2017). This psychological distress resulted in the symptoms of PTSD among combat veterans (Reisman, 2016). Veterans who suffer from PTSD may have trouble transitioning back to civilian life due to experiences related to their combat deployment (Elnitsky, Fisher, & Blevins, 2017). Veterans may be unable to manage daily activities such as decision making, sleeping, and eating because of symptoms related to PTSD. Findings report veterans who use mindfulness-based interventions to manage

their symptoms of PTSD may experience increased psychological well-being, and decreased stress and anxiety (Staples, Hamilton, & Uddo, 2013). The focus of the study is analyzing the use of mindfulness-based interventions among veterans to manage symptoms of PTSD in their daily living activities.

There are limited mindfulness-based studies relating to veterans suffering with symptoms of PTSD. The study explores mindfulness-based therapy and coping skills for veterans in managing symptoms of PTSD as documented in scholarly journals. The content analysis explored studies of veterans who received services from the VA hospitals, community clinics and agencies, and private practitioners. The problem studied here is the effective benefits of mindfulness-based interventions among veterans who are coping with symptoms of PTSD.

### **Purpose of the Study**

The purpose of this study was to investigate veterans' medical outcomes using mindfulness-based practice to cope with symptoms of post-traumatic stress disorder (PTSD). Vujanovic et al. (2016) reported that certain coping skills along with specific mindfulness-based interventions, such as Mindfulness-based stress reduction (MBSR), could increase positive outcomes in a veteran's treatment. Using empirical and/or phenomenology theories, MBIs could be used as alternative therapy modalities while using mindfulness practice. Analysis of the use of mindfulness-based interventions during this study provided insights into the impacts of these practices during treatment for veterans. Evaluation of the use mindfulness-based practices revealed which therapeutic interventions are most beneficial to veterans during rehabilitative processes.

Each mindfulness-based intervention has distinct characteristics to assist veterans in managing their mental health care. Exploring mindfulness-based interventions as a treatment

method among veterans suffering from symptoms of PTSD, the researcher documented relevant studies through a content analysis. The studies explored documented veteran's treatment relating to mindfulness-based interventions in managing symptoms of PTSD. Mindfulness is the awareness of paying attention on purpose to the present moment and being nonjudgmental (Sipe & Eisendrath, 2012). Cole et al. (2015) stated mindfulness-based training includes two important elements: deliberate regulation of attention to/and awareness of the present moment and unbiased acceptance of the continuous flow of thoughts and/or emotions experienced. According to Polusny et al. (2015), using mindfulness-based interventions encourages acceptance of thoughts, feelings, and experiences without avoidance, which is a key factor in the development and persistence of PTSD.

### **Research Question**

Understanding the therapeutic benefits of mindfulness-based practice offers insight to those providing services with an appropriate quality of care, mentally and physically, for the veteran population. Exploring various studies pertaining to MBIs among veterans to determine their benefits in managing PTSD will assist researchers in understanding similar stressors at home and within the community. The following question guided identification of research that was then analyzed to determine the effectiveness of using mindfulness-based coping skills to manage symptoms of PTSD among U.S. veterans.

What are the therapeutic benefits of mindfulness-based interventions, if any, in managing the symptoms of PTSD among veterans?

### **Conceptual Framework**

When beginning research, the researcher needs to identify where the discipline of the study will proceed through theories to understand, analyze, and to design the conceptual

framework for the analysis. According to Creswell (2014), the researcher should begin by reviewing philosophical ideas that would assist in preparing the research proposal. There are four philosophical worldviews (post-positivist, constructivist, transformative, pragmatic) that provided a foundation to the research approach for the study.

Transformative worldview is a theory that was developed by individuals who felt a post-positivist viewpoint imposed structural laws relating to power and social justice, discrimination, and oppression (Creswell, 2014). Researchers believed constructivism theory did not advocate enough for individuals with action agendas to help those with marginalized concerns (Creswell, 2014). Transformative theory suggests research should intertwine politics and a political change agenda to challenge social oppression at the various levels at which it occurs (Creswell, 2014).

Constructivism's approach is for individuals to engage with the world they are interpreting and construct a holistic understanding of the experience of others (Doucet, Letourneau, & Stoppard, 2010). Individuals develop personal meaning of their experiences, which Creswell (2014) stated is directed towards a specific object or thing in their life. Veterans who have suffered from a traumatic experience, such as serving during war time, being separated from their families, and sexual abuse while serving are all reasons why an individual could develop symptoms related to PTSD. As the researcher, the objective was to rely on the individuals' views of the condition being researched (Creswell, 2014). The goal while conducting constructivist research is to interpret the individual's meaning-making of the world (Yilmaz, 2013).

Mindfulness-based cognitive therapy (MBCT) is typically composed of eight-week group sessions that focus on both mindfulness and cognitive interventions (Vujanovic et al., 2011). During this time, veterans can reflect on their day-to-day activities during individual sessions.

Current empirically supported treatments that the Veterans Health Administration (VHA) utilizes with veterans are cognitive processing therapy (CPT) and prolonged exposure therapy (PET), with most areas of treatment modalities being effective in treating PTSD (Vujanovic et al., 2011). Clinicians at the VA provide specific MBIs in addition to CPT and PET, such as MBCT that are shown useful in treating veterans suffering from symptoms of PTSD (Vujanovic et al., 2011). One study found that veterans who engaged in body scan and mindful breathing treatment may have different responses to symptoms of PTSD which include attention regulation, body awareness, emotional regulation, rumination, and cognitive and emotional nonreactivity (Colgan, Wahbeh, Pleet, Besler, & Christopher, 2017).

Using a content analysis allowed the researcher to organize and elicit meaning from the data and draw realistic conclusions from the qualitative and quantitative studies (Bengtsson, 2016). There are four steps when conducting a qualitative content analysis which include planning, data collection, data analysis, and creating a report to present the results (Bengtsson, 2016). The purpose of the content analysis is to emphasize the credibility of the studies to determine if mindfulness-based interventions are beneficial in managing PTSD among veterans. Analyzing the study's findings and coding recurring themes provided insight on whether the results of the research were found to be beneficial among veterans suffering from PTSD. The researcher should be vigilant maintaining an awareness of her own pre-understanding to avoid skewing analysis and/or results (Erlingsson & Brysiewicz, 2017).

The basis of qualitative content analysis from a positivistic stance was shaped by discussions of its ontological and epistemological origins (Graneheimab, Lindgrena, & Lundmana, 2017). According to Bengtsson (2016), the aim of the research determines the structure of the study and sets the boundaries to avoid having the investigation too broad. Setting

boundaries assists the researcher in conducting a reasonable study that can use content analysis approaches by minimizing the difficulties that occur when the purpose of a study is too broad (Bengtsson, 2016). The researcher used a content analysis methodology to explore studies conducted among veterans to determine if mindfulness-based interventions are beneficial in managing the symptoms of PTSD.

### **Assumptions, Limitations, and Scope**

It is presumed that the studies reviewed have been completed in a candid and scholarly manner. Articles for the content analysis were selected based on keywords (veterans, PTSD, mindfulness, MBI, military) that provided studies with veterans that served in the Armed Forces regarding their use of mindfulness-based practices to cope with symptoms of PTSD. One assumption is that veterans who were subjects in the studies presented here were engaged in mindfulness-based treatment that could alleviate PTSD symptoms (Vujanovic et al., 2011). Mindfulness-based interventions hold potential as a nontrauma-focused approach to reduce PTSD symptoms (Schure, Simpson, Martinez, Sayre, & Kearney, 2018). MBIs may help to reduce symptoms of PTSD among veterans through an awareness of the present moment by improving one's ability to distinguish between past and present (Müller-Engelmann, Wunsch, Volk, & Steil, 2017).

The researcher reviewed studies associated with veterans who have engaged in mindfulness-based techniques to cope with symptoms of PTSD. Mindfulness-based research has not demonstrated it is inclusive of all veterans regarding gender and ethnicities. The majority of studies identified focused on veterans that were Caucasian males with a median age of 46. Mindfulness-based studies need to be more diverse when selecting subjects to provide insight

across genders, ages, ethnicities, and war cohorts to offer more inclusive findings about treatments for veterans coping with symptoms of PTSD.

Studies that are more inclusive of veteran's backgrounds (e.g. gender, age, ethnicity, war cohort) will be able to inform the best treatment plans for their successful integration back into the community. Inadequate exploration hinders researchers on how to create appropriate programs to assist clinicians with veterans to acquire coping mechanisms to manage symptoms of PTSD. The researcher strived to approach the study in an unbiased manner to ensure accurate findings pertaining to the research question.

### **Rationale and Significance**

Veterans who suffer from PTSD are likely to experience mental and physical symptoms that include depression, hyperarousal, irritability, disruption of sleep patterns, discord in interpersonal relationships, avoidance, and elevated risk of medical disorders (Colgan et al., 2017). Using mindfulness-based practice is a treatment method that veterans may use as therapy to cope with symptoms of PTSD. According Colgan et al. (2017), mindfulness-based practice provides deliberate allocation of attention to the present moment. Veterans who practice mindfulness-based methods in the home and community may notice improvement in dealing with their symptoms of PTSD.

Individuals who use mindfulness-based approaches may notice improvement in body awareness and emotions that are related to PTSD symptoms and emotional overmodulation (Boyd et al., 2018). One study reported veterans who engaged in an MBSR group showed a clinically significant change in PTSD symptoms, mental health-related quality of life, and mindfulness skills (Khusid & Vythilingam, 2016). Veterans who learn to use mindfulness-based practice may have a better quality of life pertaining to relationships at home and in the

community (Schure et al., 2018). Veterans who engaged in an MBSR program reported discovering increased openness and became kinder toward themselves, which enhanced their relationships (Schure et al., 2018). Improved relationships among veterans is a beneficial outcome which may allow them to build a stronger support system with their family, friends, and mental health therapist to continue being successful in managing their symptoms of PTSD (Kline et al., 2016).

### **Definition of Terms**

**Trauma** is described in the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-5), as a direct personal experience that involves actual or threatened death, serious injury, or sexual violence (American Psychiatric Association, 2013). DSM-5 requires that the individual must have witnessed the trauma in person (Pai, Suris, & North, 2017). According to Pai et al. (2017), the prerequisite of an independent response would eliminate individuals who did not endure fear, helplessness, or horror during a traumatic event, yet met the remaining diagnostic criteria for PTSD, especially military personnel.

**Post-traumatic Stress Disorder (PTSD)** is defined as a psychiatric disorder in which an individual has experienced or witnessed a traumatic event involving natural disaster, serious accident, terrorist act, war/combat, rape, or other violent personal attacks (American Psychiatric Association, 2013). The latest revisions in the DSM-5 have been expanded to include noticeable negative cognitions and mood states, such as impulsiveness and self-destructive behaviors (Wolf et al., 2015). PTSD has a subtype for adults diagnosed with this disorder as Dissociative Subtype, for individuals that meet the full criteria of PTSD and exhibit depersonalization or derealization (Wolf et al., 2015).

**Veteran** is defined as a person who served during active duty in the Armed Forces military, naval, or air service, and was discharged under conditions other than dishonorable (Szymendera, 2016). The total population of veterans in the U.S. in 2014 was 21.6 million with a 17.5 percent decline projected by 2024 (Eibner et al., 2016). Over half of the veterans who need mental health services do not receive treatment through VA hospitals and clinics or local community health providers (National Academies of Sciences, Engineering, and Medicine, Committee to Evaluate the Department of Veterans Affairs Mental Health Services, Health and Medicine Division, & Board on Health Care Services, 2018).

**Mindfulness** is defined as the ability to sustain open awareness of current experiences, comprising internal mental states and impacting parts of the individual external domains, without judgment and with acceptance (Briere & Scott, 2012). Mindfulness assists the individual to be in the present moment and understand oneself nonjudgmentally (Briere & Scott, 2012).

**Mindfulness-based interventions** is defined as a group of interventions that provides treatment for symptoms of PTSD (Müller-Engelmann et al., 2017). Mindfulness-based interventions (MBIs) hold probability as a nontrauma-focused approach to reduce symptoms of PTSD (Schure et al., 2018). Mindfulness-based interventions have an individual module that targets a specific clinical condition which includes symptoms related to PTSD, depression, insomnia, and substance use (Khusid & Vythilingam, 2016).

**Meditation** is defined as becoming present by observing the here and now by being present in the situation (Risom, 2010). According to Risom (2010), during meditation the individual learn to be conscious without commenting on any aspect of their lives and what is surrounding them. Finally, through meditation the individual learns trust and safety by accepting present feelings (Risom, 2010).

## Conclusion

Studies researching mindfulness-based interventions show potential as an effective evidence-based treatment for mental health among veterans who suffer from symptoms of PTSD. According to Steinberg and Eisner (2015), MBIs have been found beneficial for stress reduction in individuals diagnosed with PTSD. Mindfulness-based meditation and other MBIs can be useful for combat-related mental health concerns as a supportive treatment for veterans (Steinberg & Eisner, 2015). Bormann et al. (2008) assessed the feasibility, effect sizes, and satisfaction of mantra repetition with 29 veterans ranging from ages 40 to 76 using mantra meditation. Findings showed that a spiritual program is feasible for veterans suffering from PTSD to improve symptoms, but additional exploration is needed (Steinberg & Eisner, 2015).

Although empirical studies related to veterans are currently limited, there is research that supports mindfulness-based treatment as an evidence-based alternative behavior intervention. Reviewing symptoms of PTSD provides a means to an end to determine how mindfulness-based practice can assist veterans cope with day-to-day activities. Research will continue to expand the development of the topics presented in chapter two to enrich the exploration of mindfulness-based interventions and coping skills effective for veterans. Chapter three provides a summary of the methodology that was used to organize and analyze primary research about MBIs. The data and its analysis is presented in chapter four. Chapter five concludes with the interpretation of the findings from the study's research question. Implications that were found from the study will be addressed by providing recommendations for action pertaining to veterans, their families, clinicians, and researchers for future studies regarding mindfulness-based interventions for individuals suffering with PTSD.

## **Chapter Two**

### **Literature Review**

The literature review explores mindfulness-based interventions (MBIs) to understand the benefits and limitations of their use by veterans to cope with symptoms of post-traumatic stress disorder (PTSD). The first section of chapter two will explore literature relating to MBIs by analyzing relevant research pertaining to symptoms of PTSD that are related to the problem statement and purpose of the study. The literature review will provide a perspective relevant to veterans' experiences pertaining to mental and physical symptoms of trauma and stress disorders.

The second section of chapter two will present the conceptual framework by exploring research relevant to mindfulness-based therapies and interventions used during treatment. The mindfulness-based interventions section will provide a description of the various therapies and its usefulness of assisting veterans in managing symptoms of PTSD. Chapter two will conclude asserting the rationale of the study by addressing the need to provide adequate research for veterans to improve mental health care and quality of life within the community.

### **Review of Relevant Research**

Trauma in the military is found in literature among many cultures and it is theorized that soldiers in the past experienced stresses of war the same as present-day veterans (Reisman, 2016). Trauma and stress related disorders are defined as psychological distress followed after exposure to a traumatic or stressful event (American Psychiatric Association, 2013). Symptoms related to trauma and stress include hyperarousal, intrusive recollections, and avoidance (American Psychiatric Association, 2013).

There are many veterans who have been exposed to a traumatic or stressful event that exhibit a phenotype in which, rather than anxiety- or fear-based reactions, they display anhedonic and dysphoric behaviors such as externalizing anger and aggression, or dissociative symptoms (American Psychiatric Association, 2013). Traumatic stress reactions vary widely with people who engage in behaviors such as consuming alcohol or having angry outbursts to manage the intensity of the distressing aspects of the traumatic experience (Center for Substance Abuse Treatment, 2014). Veterans may attempt to gain control over their experiences by being aggressive or subconsciously reenacting aspects of the trauma (Center for Substance Abuse Treatment, 2014). Concepts about PTSD along with a historical perspective will provide an insight to understanding trauma among veterans. Conditions associated with PTSD will provide an illustration on how veterans' mental health diagnosis is defined relating to the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-5).

### **A Historical Perspective of PTSD**

People who were considered normal but had experienced symptoms from a traumatic event (e.g., disaster or combat) were diagnosed with PTSD. Clinicians assumed that individuals' responses to trauma would quickly resolve. The first and second editions of the DSM diagnosed traumatic reactions as Gross Stress Reaction that was categorized as "situational disturbances of adult life" (Corvalan & Klein, 2011). Research responding to exogenous, overwhelming traumatic events such as those experienced by Vietnam War veterans, holocaust survivors, and victims of sexual trauma led to the introduction of PTSD into the third edition of the DSM in 1980, by establishing links between trauma of war and post-military civilian life (Corvalan & Klein, 2011).

An important change in DSM-5 is that PTSD is no longer listed as an Anxiety Disorder (Reisman, 2016). Moods that accompany PTSD may involve angry or reckless behavior instead of anxiety (Reisman, 2016). Symptoms of moods associated to PTSD may include hyperarousal, intrusive recollections, and avoidance (Corvalan & Klein, 2011). Hyperarousal is defined as the body's way of remaining prepared and is one of the primary criteria to be diagnosed with PTSD (Center for Substance Abuse Treatment, 2014). Symptoms of hyperarousal include sleep disturbances, muscle tension, and a lower threshold for startle responses that can continue years after trauma has occurred (Center for Substance Abuse Treatment, 2014).

Intrusive recollections are defined as experiencing, without warning or desire, thoughts and memories associated with the trauma (Center for Substance Abuse Treatment, 2014). Intrusive thoughts and memories can present emotional and behavioral reactions where the individual experiences the symptom as if the trauma was recurring at that moment (Center for Substance Abuse Treatment, 2014). Individuals experiencing intrusive recollections, for example may have a distressing dream by replaying the event related to the major threats involved in the traumatic event (American Psychiatric Association, 2013).

Avoidance is defined as evading distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s) (American Psychiatric Association, 2013). When people are unable to endure strong effects associated with traumatic memories, they avoid making meaning of their trauma-related cognitive and emotional experiences (Center for Substance Abuse Treatment, 2014). Examples of a person evading people, conversations, and activities are symptoms of avoidance. Diagnosing an individual with PTSD after a traumatic event must include identifying acute symptoms that must last for at minimum of one month,

but less than three months, whereas chronic symptoms must last more than three months and cause substantial difficulty with day-to-day functioning (Reisman, 2016).

The National Center for PTSD was created in 1989 as a response to a congressional mandate funded by the Veterans Affairs (VA) to provide an infrastructure, implementing multidisciplinary initiatives relating to etiology, pathophysiology, diagnosis, and treatment for PTSD (Institute of Medicine, 2012). Evidence-based care for veterans suffering with PTSD is provided in various programs based on locations, such as Operational Stress Control and Readiness (OSCAR) and RESPECT-Mil that appropriately assist veterans in need of services (Institute of Medicine, 2012). Programs for veterans who are receiving intensive specialized care can be found at the Deployment Health Clinical Center which uses cognitive-based therapy (CBT) and iRest yoga nidra meditation techniques, developed explicitly for combat veterans (Institute of Medicine, 2012).

### **Single Event Versus Ongoing Trauma**

There are two forms of traumatic events that are distinguished as single and ongoing trauma. Single event trauma is defined as a single episode which includes abuse, assault, natural disaster, or terrorist attack (Ford, Grasso, Elhai, & Courtois, 2015). During the first days and weeks after a single event trauma, the stress reactions play themselves out and seem to decline by fading away within the individual (Ford et al., 2015). This scenario is most common among adults who have experienced a single traumatic event, with nearly 75% of individuals not developing a traumatic stress disorder (Ford et al., 2015). Additional exposure, particularly interpersonal trauma, causes stress reactions to become amplified resulting in symptoms of either an early form of PTSD or other psychiatric and/or psychosocial problems (Ford et al., 2015).

Continuous or ongoing traumatic stress offers one possible way of describing the psychological impact of living conditions in which there is a realistic threat of present and future danger (Stevens, Eagle, Kaminer, & Higson-Smith, 2013). Ongoing trauma is defined as complex or repetitive traumatic events which include ongoing abuse, domestic violence, war, and community violence (Ford et al., 2015). Violence related to ongoing conflict was commonly associated with fear, anxiety, and sleep disturbances, whereas more personal forms of violence were associated with impulsivity-related symptoms such as suicidal ideation/attempts, aggression and alcohol or substance abuse (Center for Substance Abuse Treatment, 2014). PTSD often co-occurs with depression, anxiety, and substance abuse, all of which have been linked to suicidal behaviors (Armenta et al., 2018).

Ongoing PTSD have been associated with increased disability, decreased productivity, and decreased fitness, which limit a veteran's ability to continue to serve in the military or function in other occupational settings (Armenta et al., 2018). PTSD is strongly associated with generalized physical and cognitive health symptoms (Reisman, 2016). The VA is creating initiatives to improve integrative mental and physical health care service to help minimize the stigma connected with PTSD (Reisman, 2016). Understanding the mechanisms related to the persistence of PTSD symptoms is critical to the life and well-being of veterans (Armenta et al., 2018).

### **The Traumatized Brain**

Research suggests the first stage of ongoing events produced by early trauma maltreatment involves the disturbance of chemicals that function as neurotransmitters (e.g., norepinephrine, dopamine), which causes escalation of the stress response among combat veterans (Center for Substance Abuse Treatment, 2014). The veteran's biological changes in the

brain neurotransmitters are due to initiation of trauma resulting in hyperarousal as a means of self-protection (Center for Substance Abuse Treatment, 2014). The following section of literature will review the neurobiological effects of PTSD among veterans.

### **Neurobiology and Tribunal Brain Model**

Early neurobiological models of PTSD emphasize a loss of top-down inhibition over limbic regions (e.g., amygdala), resulting in emotional reactivity contributing to the symptoms of PTSD, which include hyperarousal and exaggerated startle response (Boyd et al., 2018).

Alterations to veterans' neurobiology can include changes in their limbic system functioning, with inconstant cortisol levels, and neurotransmitter-related to dysregulation of arousal (Center for Substance Abuse Treatment, 2014). Abnormal functioning of the veteran's hippocampus is suggested to result in a reduced capacity to extinguish fear responses (Boyd et al., 2018).

Veterans that have been exposed to trauma may experience changes to their biology and response to stress (Center for Substance Abuse Treatment, 2014). The neurobiological systems that regulate stress responses include certain endocrine and neurotransmitter pathways as well as a network of brain regions known to regulate fear behavior at both conscious and unconscious levels (Sherin & Nemeroff, 2011).

Efforts to identify neurobiological markers for PTSD originally presumed that abnormalities were acquired from exposure as a consequence of traumatic experience (Sherin & Nemeroff, 2011). Certain abnormalities in veterans with PTSD suggest pre-existing pathology was latent until triggered by a traumatic experience, at which time is then discovered by a clinician during diagnosis (Sherin & Nemeroff, 2011). Adverse brain development can result from raised levels of cortisol and catecholamines by contributing to maturational decline in brain regions, such as the prefrontal cortex (Center for Substance Abuse Treatment, 2014). In

addition, an impaired hippocampus, which is critical for context conditioning, may enable learned fear in contexts unrelated to a previous traumatic exposure and weaken one's capacity to differentiate between safe and unsafe stimuli (Sherin & Nemeroff, 2011).

### **Activation and Hyperarousal of Threat Response**

Psychological trauma can derive from observing a situation viewed as life-threatening or as a potential serious bodily injury to oneself or others (Sherin & Nemeroff, 2011).

Psychological trauma brought about by the experience of a profound threat leads to a longer-term syndrome that has been defined as PTSD in clinical literature (Sherin & Nemeroff, 2011). PTSD symptoms among veterans result from decreased prefrontal cortex activation and insufficient inhibition of the amygdala (Khusid & Vythilingam, 2016). Exaggerated amygdalar responses seen in veterans with PTSD cause them to have a limited capacity for discerning threat due to hippocampal and amygdalar dysfunction, which may endorse paranoia, hypervigilance, behavioral activation, exaggerated stress responses, and additional associations of fear (Sherin & Nemeroff, 2011).

Indicators of hyperarousal must be present as persistent symptoms that were not existing prior to the veteran's trauma and include at least two of the following: difficulty falling or staying asleep, irritability or outbursts of anger, difficulty concentrating, hypervigilance (Corvalan & Klein, 2011). Hyperarousal can affect a veteran's ability to assess and appropriately respond to certain situations, such as loud noises or sudden movements (Center for Substance Abuse Treatment, 2014). Veterans' inability to respond appropriately to hyperarousal can produce overreactions to situations perceived as dangerous when in actuality the environment is safe (Center for Substance Abuse Treatment, 2014).

Emerging work has noted improved neurobiological changes following a training of mindfulness-based practice among individuals with PTSD (Boyd et al., 2018). Hypoactivation of the medial prefrontal cortex, ventromedial prefrontal cortex, subcallosal cortex and orbitofrontal cortex is associated with hyperreactivity of limbic regions (e.g., amygdala, anterior insula) to emotional stimuli (Boyd et al., 2018). Evidence suggests that mindfulness-based interventions (MBIs) may be effective in increasing activity in prefrontal regions (e.g., medial prefrontal cortex) by reducing activity in limbic regions (e.g., amygdala) which would improve intrusion and hyperarousal symptoms among veterans (Boyd et al., 2018). Neuroimaging findings established that mindfulness-based meditation activated the prefrontal cortex and reduced bilateral amygdala activity among veterans (Khusid & Vythilingam, 2016). Mindfulness-based meditation improved emotional regulation and impulse control among veterans by inhibiting negative emotions in the prefrontal cortex which are generated by the amygdala (Khusid & Vythilingam, 2016).

Mindfulness-based practice may have a beneficial effect among veterans suffering from symptoms of PTSD related to hyperarousal over time (Vujanovic et al., 2011). One study reported veterans who responded to the mindful attention awareness scale (MAAS) indicated more adaptive sleep functioning after engaging in mindfulness-based treatment (Vujanovic et al., 2011). It is thought that mindfulness-based practice may provide improved sensitization to bodily cues such as breathing and heart rates, which would provide veterans with the necessary awareness to self-regulate in a more adaptive manner (Vujanovic et al., 2011). Further knowledge of physiological and neurological processes using mindfulness-based practice would assist in creating new and effective therapies to treat PTSD among veterans.

### **DSM-5 Criteria for PTSD**

The following description from the DSM-5 provides a criterion that must be met for individuals ages six and older to be diagnosed with PTSD (American Psychiatric Association, 2013). In Criterion A, the person was exposed to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence (American Psychiatric Association, 2013). Criterion A has four conditions which include: direct exposure, witnessing the trauma, learning that a relative or close friend was exposed to a trauma, or indirect exposure to aversive details of the trauma, usually during professional duties (American Psychiatric Association, 2013). Individuals who survived the attack on the Twin Towers in New York during the event of 9/11 and first responders who assisted people during the evacuation in New York on 9/11 would be examples of Criterion A. In Criterion B, the traumatic event is persistently re-experienced by the individual and must meet one of five conditions: unwanted upsetting memories, nightmares; flashbacks, emotional distress after exposure to traumatic reminders, or physical reactivity after exposure to traumatic reminders (American Psychiatric Association, 2013). Individuals may have flashbacks due to hearing a sound (e.g., firecrackers, car backfire) or recurring nightmares of the trauma that may cause a trigger resulting in emotional distress.

In Criterion C, an individual has the avoidance of trauma-related stimuli after the trauma and meets one of these two conditions: trauma-related thoughts or feelings, or trauma-related reminders (American Psychiatric Association, 2013). Individuals may avoid going to large events (e.g., county fair, movie theater) to avoid reliving the thoughts/reminders that are associated with the trauma (e.g., kidnapping, shooting). In Criterion D, the individual experiences negative thoughts or feelings that began or worsened after the trauma and meets two of seven conditions: inability to recall key features of the trauma, overly negative thoughts

and assumptions about oneself or the world, exaggerated blame of self or others for causing the trauma; negative affect, decreased interest in activities, feeling isolated, or difficulty experiencing positive affect (American Psychiatric Association, 2013). Individuals who experienced sexual assault may blame themselves for the trauma and limit interactions (e.g., participating in activities with family and/or friends) to avoid having the situation recur.

In Criterion E, the individual experienced trauma-related arousal and reactivity that began or worsened after the trauma and meets two of six conditions: irritability or aggression, risky or destructive behavior; hypervigilance, heightened startle reaction, difficulty concentrating, or difficulty sleeping (American Psychiatric Association, 2013). Individuals may display ongoing symptoms of anger towards their support system and may be unable to focus on daily work and home tasks. In Criterion F, the symptoms last for more than one month with the individual (American Psychiatric Association, 2013). Symptoms of PTSD as mentioned earlier include intrusion, avoidance, negative cognitions/mood, and arousal (Reisman, 2016). In Criterion G, the symptoms create distress or functional impairment with the individual (American Psychiatric Association, 2013). For example, the individual may be unable to complete work functions satisfactorily due to symptoms of PTSD, which could cause unemployment. In Criterion H, symptoms are not due to medication, substance use, or other illness with the individual. There are two specifications related to PTSD: dissociative and delayed (American Psychiatric Association, 2013). Individuals marked by emotional numbing of feelings pertaining to a defense mechanism that may occur from derealization and/or depersonalization, are identified as a dissociative subtype, relating to a traumatic event in the person past experiences (Corvalan & Klein, 2011). The second subtype, delayed symptoms, begin after six months of the traumatic stressor (Corvalan & Klein, 2011).

## **Mindfulness-Based Practices**

Mindfulness-Based Stress Reduction (MBSR) is one of the most frequently used interventions in mindfulness practice (Boyd et al., 2018). Mindfulness-based cognitive therapy (MBCT) is another treatment that combines cognitive behavioral therapy (CBT) and MBSR to prevent relapse of major depressive disorder (Boyd et al., 2018). Individuals become better at observing and assessing their own behaviors as they mature through life and relating to their personal desires that need to be addressed.

According to Gallegos et al. (2017), MBSR is a manualized treatment usually conducted in a group format consisting of awareness of breath meditations, hatha yoga, walking meditations, and meditative scans. Individuals who participate in MBSR learn interventions pertaining to cognitive restructuring, mindfulness training, trigger identification, and grounding (Gallegos et al., 2017). The following sections explore literature on how veterans can engage with facilitators to build a therapeutic alliance to feel safe and use various mindfulness-based interventions as a resolution to stabilize symptoms of PTSD.

### **Safety and Stabilization**

Veterans may use mindfulness-based interventions to assist with managing symptoms of PTSD and learn coping skills to feel safe and stable in their daily activities. Veterans who are emotionally attached to their trauma may find it reassuring to discuss the benefits of mindfulness-based practice. Discussing their current coping strategies to feel safe will assist the veteran to learn new skills to manage and stabilize their symptoms of PTSD (Zerubavel & Messman-Moore, 2015).

A common stabilization skill learned in mindfulness-based interventions is grounding (Zerubavel & Messman-Moore, 2015). Literature on trauma has recommended the use of

grounding techniques which focus the veteran's attention on sensory input, an image or object as a stabilization tool when engaging in mindfulness-based practice (Zerubavel & Messman-Moore, 2015). The following section will review literature pertaining to veterans feeling safe while engaging with facilitators to learn coping skills using mindfulness-based practice to stabilize and manage their symptoms of PTSD.

### **Therapeutic Alliance**

The therapeutic relationship between the veteran and the therapist plays a pivotal role in the process of healing from symptoms of PTSD, especially individuals who suffer with guilt and are at risk of self-harm (Hendin, 2014). Therapeutic alliance is described as the joint relationship between a therapist and a patient that develops when using therapeutic tasks and making agreements towards treatment goals (Chen et al., 2019). Veterans participating in individual and/or group sessions must build a level of trust before sharing intimate accounts with a clinician. Research shows that a therapeutic alliance has a significant part in strengthening treatment outcomes among individuals with various disorders, including PTSD (Cronin, Brand, & Mattanah, 2014).

Therapeutic alliance is regularly theorized as entailing three key elements: affective bond, consensus on goals, and engagement between the therapist and client (Cronin et al., 2014). Clinicians noted the importance of genuineness, flexibility, and having the ability to candidly listen to establish rapport with the client during treatment (Cronin et al., 2014). Early reports of therapeutic alliance strength among veterans are predictors for strength of the alliance at the end of treatment that indicates the alliance is relatively steady over time (Cronin et al., 2014). Therapeutic alliance is particularly important working with veterans suffering from PTSD, which relies on establishing trust in a therapeutic manner (Chen et al., 2019).

According to Hendin (2014) through healing, there is a need of forgiveness pertains to the behavior that triggered the veterans' guilt and the retaliatory way it is conveyed. Sharing experiences with a trusted therapist, veterans can receive "permission" from the therapist to forgive themselves, resolve concerns that developed, and to proceed with their lives. The idea that human behavior can be accepted without mention of unconscious methods will result having the brain function mainly by unresponsive processes taking place in the mind (Hendin, 2014). According to Lester et al. (2010), African Americans may be less likely to engage in or complete structured treatments such as cognitive processing therapy (CPT) as compared to Caucasians, due to cultural aspects, certain characteristic types of interventions, overall opinions regarding mental health treatment, or involvement with clinicians (Castro et al., 2015).

Regardless of veterans' trauma-based mistrust, many researchers have found a positive relationship between alliance and effective treatment (Cronin et al., 2014). While survivors of abuse and trauma may have difficulty establishing and sustaining healthy relationships, researchers have found that these individuals are proficient at developing strong therapeutic alliances (Cronin et al., 2014). According to Chen et al. (2019), it is important for individuals to understand the connection between trauma-focused interventions and patient-reported alliance for successful treatment completion and outcomes relating to PTSD.

### **Felt Versus Real Safety**

Veterans who have experienced trauma may experience triggers resulting in feeling unsafe in their environment. Experiences that may cause veterans to feel unsafe could include being physically attacked or involved in a vehicle ambush that may lead to various symptoms of such as hyperarousal, anxiety, aggression, and depression. Veterans' perceptions of safety

after such experiences may cause them to feel unsafe in certain situations. Trauma can lead veterans to see themselves as incompetent by seeing others and the world as unsafe and unpredictable (Center for Substance Abuse Treatment, 2014). Veterans may engage in behaviors such as avoidance, self-medicating, or being aggressive to manage the feelings of incompetence and intensity of emotions relating to the traumatic experience (Center for Substance Abuse Treatment, 2014).

Veterans are affected by trauma in different ways and feeling safe or being in a safe environment is interpreted differently for each person. Facilitators should allow the veteran to interpret what safety means to them based on their experiences (Center for Substance Abuse Treatment, 2014). Facilitators during mindfulness-based interventions could assist veterans in learning how to feel safe during treatment and in the community to minimize triggers related to their traumatic experiences. In addition, facilitators could assist veterans to create a safety card that they can keep on them and use in the event of a crisis (Center for Substance Abuse Treatment, 2014).

Veterans who engaged in a prolonged exposure (PE) treatment were able to revisit the trauma in a safe, clinical environment (Reisman, 2016). PE therapy has been shown to be 60% effective treating PTSD among veterans when educating them on how to manage fear-and-anxiety inducing circumstances (Reisman, 2016). The individual may experience involuntary physical reactions such as a sped-up heart rate, rapid breathing, and sweating (Cook, 2016). These reactions linked to the brain as traumatic events can make connections with people, places, or things associated with the experience result in a trigger for the individual (Cook, 2016). Triggers can range from mild uneasiness to a full panic attack as the individual may experience feeling anxious due to a traumatic memory (Cook, 2016).

## **Stabilization and Self-Regulation**

According to Vujanovic et al. (2011), individuals who practice mindfulness-based interventions may foster a greater sensitization to physical indications, which will provide increased awareness to self-regulate in an adaptive method. Individuals who practice mindfulness-based meditation will enhance emotional regulation, which reduces negative emotions, avoidance, and reactivity through the amygdala inhibitors (Khusid & Vythilingam, 2016). Prior to individuals beginning extended treatment, symptoms relating to PTSD may need to be stabilized so they can successfully engage in mindfulness-based programs (Vujanovic et al., 2011). Practicing mindfulness-based interventions to assist with self-regulation may decrease ongoing negative thoughts in the individual by accepting the emotion and remaining focused on the present moment.

King et al. (2016) conducted a pilot study regarding mindfulness-based exposure therapy (MBET) among combat veterans with PTSD to measure effectiveness of treatment by scanning the brain that responds to social-emotional processing. Veterans completed the 16-week MBI that consisted of MBET and present-centered group therapy (PCGT). Both sessions met for two hours each week and participants were assigned daily homework with MBET focusing on four nontrauma intervention modules: PTSD psycho-education and relaxation, mindfulness of body and breath in vivo exposure, mindfulness of emotion and in vivo exposure, and self-compassion training. PCGT is known for its significant effectiveness for improvement in PTSD symptoms for military veterans and include therapeutic factors of group therapy and therapist support (King et al., 2016).

Findings for MBET showed a significant reduction in the total of Clinician Administered PTSD Scale (CAPS) for pre- and post-fMRI with an average decrease of 16-points, whereas,

PCGT had a smaller overall CAPS average decrease of seven points. Veterans attended more MBET group therapy sessions in comparison to PCGT (average 13.5 vs. 8.5 sessions).

Preliminary findings demonstrated that mindfulness-based practices for PTSD may provide changes in neural processing of social-emotional risk that help with self-regulation which are associated with symptom reductions of hyperarousal and intrusive thoughts among veterans (King et al., 2016).

### **Relaxation through Mindfulness-Based Practice and Holistic Strategies**

Kim, Schneider, Kravitz, Mermier, and Burge (2013) investigated mind-body practices for PTSD and examined the effects of various relaxation techniques with the intent of using the mind to impact physical functioning and improve overall health. Five randomized controlled trials (RCTs) indicated common mindfulness-based elements relating to relaxation, meditation, and deep breathing. Short-term meditation-relaxation interventions may reduce PTSD symptoms in individuals practicing the technique (Kim et al., 2013). The researchers did find, based on the individual mental and physical health conditions, that mind-body practices can have adverse side effects. Evidence showed increased levels of anxiety when practicing relaxation interventions pertaining to intrusive thoughts, fear of losing control, muscle cramps, and disturbing sensory experiences that resulted in noncompliance or termination of treatment (Kim et al., 2013).

Organized mindfulness-based styles such as MBSR appear to suggest further consistent results than traditional meditative practices due to standardized procedures and established sequence length (Fogger, Moore, & Pickett, 2016). According to Wahbeh et al. (2014), many individuals use complementary and alternative medicine to assist with PTSD symptoms. Planned and steady mindfulness-based practice boosts improved self-care actions for an

individual by developing understanding and self-compassion. MBSR training enables neurologic deviations accountable for regulation of emotion and associated to improvement in anxiety symptoms in a positive manner (Fogger et al., 2016). Steady mindfulness-based practice reduces amygdala stimulation and encourages substantial efficient connectivity between the amygdala and prefrontal cortex regions, with lower scores pertaining to anxiety as indicated on the Beck Anxiety Inventory (BAI) (Fogger et al., 2016).

Yoga is a mind-body practice that is deemed as a popular, balancing, and alternate medicine treatment that directs attentive movement, controlled breathing, and meditation that supports relaxation (Fogger et al., 2016). According to Boyd et al. (2018), mindfulness-based meditation and yoga are associated to MBSR that are used during group sessions and at-home practice to prevent relapse of PTSD symptoms. Most common modalities of mindfulness-based practice include natural products, deep breathing exercises, meditation, progressive relaxation, yoga, guided imagery, and homeopathic treatment (Wahbeh et al., 2014) Yoga-based interventions are a productive therapy for PTSD that could be used alone or as an aide to psychotherapy and medication (Fogger et al., 2016). Approximately 40% of patients suffering from PTSD who received services through the VA reported using complementary and alternative medicine (e.g., yoga, meditation) to alleviate emotional and mental concerns (Wahbeh et al., 2014).

According to Fogger et al. (2016), physical characteristics of yoga, relating to postures (asanas) and breath regulation (pranayama), are accountable for enhancing mood in the stressed, depressed, or anxious individual by encouraging neurophysiologic deviations or connecting bodily movements with emotional conditions. Yoga-based interventions are believed to reduce autonomic nervous system function (e.g., elevated heart rate, blood

pressure), by letting individuals undergo the feeling of relaxation (Fogger et al., 2016). Individuals who consistently practice yoga along with mindfulness-based breathing have seen proven results that are helpful for PTSD symptoms, by minimizing the stress-induced allostatic load in the body (Fogger et al., 2016). Using yoga postures along with various meditation methods such as mindfulness, mantras, and transcendental meditation assists the individual to become aware of the present moment by connecting the body and mind to focus on the here and now (Wahbeh et al., 2014).

Mental health providers can establish a safe environment for the individual by identifying important features that coincide with PTSD and aid the course of recovery. The goal of MBSR therapy is for the individual to live with the experience and improve their quality of life, instead of being immobilized in day-to-day activities. Shifting negative emotions assists the individual to evolve toward strengths, goals, and possibilities for a healthy recovery (Fogger et al., 2016). Veterans using mindful, intentional shifting of emotions by being in the present moment achieve attentional control which may lead to reductions in response to trauma-related stimuli (Boyd et al., 2018). Emotional flexibility and the capability to create distance from one's current mindset are crucial skills to assist with recovery from trauma-related disorders to experience positive emotions and increase compassion for oneself (Boyd et al., 2018).

### **Mindfulness-Based Interventions for PTSD**

There are various mindfulness-based interventions to assist individuals in managing symptoms of PTSD. Veterans who use mindfulness-based interventions may benefit from the effects to enhance emotion regulation in managing symptoms of PTSD. The following section of literature provides a brief overview of the various MBIs that veterans may use in managing

symptoms such as hyperarousal, intrusive recollections, avoidance, and anxiety to cope with PTSD in an effective manner during their daily activities.

### **Cognitive Behavior Group Therapy**

Cognitive Behavioral Group Therapy (CBGT) is a psychotherapy that is considered one of the strongest evidence-based therapies to reduce symptoms of PTSD in veterans and may be more effective than other nondrug treatment (Reisman, 2016). Currently there are limited studies involving veterans using CBGT with mindfulness-based interventions to treat General Anxiety Disorder (GAD) for sufferers with comorbid PTSD (Milanak, Gros, Magruder, Brawman-Mintzer, & Frueh, 2013). Individuals who are being treated using a CBGT approach benefit from the clinician identifying dysfunctional perceptions as a leading contributor to psychopathology (Avdagic et al., 2014). One study found individuals that participated in a CBGT intervention centered on cognitive biases, physiological arousal, and avoidance behavior had lower levels of depression and fewer anxiety symptoms after completion of the treatment (Avdagic et al., 2014).

Guided imagery is another mindfulness-based technique that is used in CBGT. Individuals who practice guided imagery allow another person to lead them through mindful experiences, by accessing physical, emotional, and spiritual dimensions that effect physiological change and altering their response (Wahbeh et al., 2014). Guided imagery can be altered to explicitly address symptoms of PTSD that an individual is facing (Wahbeh et al., 2014). The study measured healing touch combined with guided imagery and was scored based on a level of evidence with grades ranging from A (strong scientific evidence) to F (strong negative scientific evidence), in addition to L (lack of evidence) (Wahbeh et al., 2014). Individuals verified significant improvement with PTSD symptoms compared to treatment as

usual (TAU) with a letter grade B (good scientific evidence) (Wahbeh et al., 2014). Guided imagery along with yoga breath work scored an L (low lack of evidence) due to requirements that did not specify that individuals need to be diagnosed with PTSD. According to Gallegos et al. (2017), guided imagery, along with other complementary therapies, was found to assist with positive outcomes on PTSD symptoms, although this was limited by the lack of well-designed trials.

### **Mantram Repetition Program**

Mantram repetition program (MRP) is an intervention that encourages the integration of the veteran's beliefs, in addition to mindfulness-based practice (Buttner et al., 2015). Veterans who engage in MRP attend sessions for eight-weeks with a facilitator who has completed an apprenticeship or the two-day mantram facilitator training. Findings indicated there was no difference in veterans' assessments based on facilitators' training (Buttner et al., 2015).

Findings reported veterans who engage in MRP have significant improvement in psychological distress including PTSD, depression, and insomnia, in addition to their spiritual well-being related to their daily tasks (Buttner et al., 2015). Repetition of a selected mantram enabled veterans to slow down by focusing their attention on the daily task. The practice of slowing down highlights the importance of pause time in daily activities such as eating, driving, and communication (Buttner et al., 2015). Findings reported MRP training and implementation within the VHA is acceptable and feasible to assist veterans' management of symptoms of PTSD (Buttner et al., 2015).

### **Mindfulness-Based Cognitive Therapy**

Mindfulness-based cognitive therapy (MBCT) is a cognitive learning therapy that is aimed to prevent symptoms of depressive episodes (Vujanovic et al., 2011). The MBI is a

useful alternative treatment for individuals struggling with PTSD and depression (Vujanovic et al., 2011). MBCT is thought to target symptoms of PTSD such as avoidance, hyperarousal, and negative emotions (Boyd et al., 2018). Veterans who engage in MBCT are encouraged to strive for nonjudgmental observation of negative thoughts and emotions instead of their cognitive appraisal prompting reflective negative thoughts and typical emotional reactivity (Khusid & Vythilingam, 2016). Based on the MBSR intervention, MBCT modality is used during individual and group practice to help clients focus on the present moment instead of negative thoughts (Vujanovic et al., 2011). Individuals who use MBCT are trained to concentrate on everyday events and permit thoughts to ensue in that moment without attempting to suppress them (Boyd et al., 2018).

Veterans who engaged in MBCT along with antidepressants were found to have fewer symptoms of depression, psychiatric comorbidity, and lower rates of antidepressant medication use (Khusid & Vythilingam, 2016). One study reported engaging in mindfulness-based meditation was found beneficial in addressing PTSD neural pathology among veterans (Khusid & Vythilingam, 2016). Practicing mindfulness-based approaches (e.g., meditation, yoga) may help transform the veteran's negative thoughts by accepting the past and being present in the here and now. Findings reported adjunctive MBCT is beneficial for veterans who suffer from symptoms of PTSD and/or depression.

### **Mindfulness-Based Exposure Therapy**

Mindfulness-based exposure therapy (MBET) is a mindfulness-based training developed at the VA in Ann Arbor that incorporates MBCT, PTSD psychoeducation, in vivo exposure from prolonged exposure therapy (e.g., to reduce fear of triggers), and self-compassion exercises (King et al., 2016). Individuals who engage in MBET training attend for

16-weeks and meet for two-hour group sessions. The modules for MBET consist of four areas of practice: PTSD psychoeducation and relaxation, mindfulness of body and breath exercises and in vivo exposure, mindfulness of emotion and in vivo exposure, and self-compassion training (King et al., 2016). Veterans are instructed to complete formal and informal mindfulness homework daily, in addition to in vivo exposure, but with no trauma exposure or processing (King et al., 2016).

Veterans who engage in MBET may increase emotional regulation skills that could improve engagement in daily activities (King et al., 2016). Improving emotional regulation may assist veterans to manage situations when they feel aroused by learning how to use their mindfulness-based skills to know when they are safe. Findings for veterans who engaged in a MBET training showed a significant reduction in the total of Clinician Administered PTSD Scale (CAPS) for pre- and post-fMRI with an average decrease of 16-points (King et al., 2016). Preliminary findings show evidence that MBET for veterans who suffer from PTSD may lead to changes in neural processing of social–emotional threat related to symptom reduction (King et al., 2016).

### **Mindfulness-Based Meditations**

Mindfulness-based meditation therapies, such as compassion meditation (CM) and transcendental meditation (TM), derive from MBSR. Compassion meditation (CM) is a reflective practice that encourages the skill to extend and endure compassion toward self and others (Lang et al., 2017). Data suggest that compassion meditation (CM) has a positive impact on veterans' emotional and social functioning, typically areas of difficulty for individuals suffering with PTSD (Lang et al., 2017). Both positive emotion and social functioning are important areas of recovery among veterans suffering with PTSD (Lang et al., 2017).

Transcendental meditation (TM) is a form of mantra meditation that is classified as “automatic self-transcending” (Rosenthal, Grosswald, Ross, & Rosenthal, 2011). TM intervention is a 12-week program that has veterans engage in home meditation twice a day that lasts for 20 minutes during each session (Rosenthal et al., 2011). Veterans who engage in regular TM practice may experience feeling calmer, less stressed, and less anxious in daily activities (Rosenthal et al., 2011). Regular practice of TM leads to long-term changes in sympathetic drive among veterans, as demonstrated by decreased blood pressure, metabolism, and stress reactivity (Rosenthal et al., 2011). Preliminary findings suggest that TM may improve symptoms of PTSD and quality of life in combat veterans (Rosenthal et al., 2011).

### **Mindfulness-Based Resiliency Training**

Mindfulness-based resiliency training (MBRT) was designed to improve resilience among law enforcement officers to cope with acute and chronic stressors related to their occupation (Christopher et al., 2018). The framework of MBRT derives from mindfulness-based stress reduction (MBSR) therapy (Zalta et al., 2018). The MBI program is conducted for eight-weeks and meets for two-hour sessions with an extended six-hour session during week seven (Christopher et al., 2018). Individuals learn didactic exercises that include body scan, sitting and walking meditations, mindful movement (e.g., yoga), and group discussion (Christopher et al., 2018).

Veterans engaged in an intensive outpatient study that used an adapted three-week format to accommodate the VA program to learn mindfulness, non-judgmental attention on the present moment experience as a way to cope with cognitive objectivity, decrease reactivity, and increase affect tolerance (Zalta et al., 2018). In addition, the veterans received two sessions of mindful self-compassion to help individuals who experienced moral injury (Zalta et al., 2018). Veterans

were introduced to mindfulness-based smartphone apps (e.g., Mindfulness Coach, Headspace) to use outside of classroom, and were instructed to practice at home for approximately 15 minutes using formal and informal mindfulness-based meditation. The purpose of using MBRT is to learn non-judgmental attention on the present moment experience as a way for veterans to acquire cognitive objectivity, decrease reactivity, and increase affect tolerance (Zalta et al., 2018). Preliminary findings suggest MBRT may lead to short-term improvement in aspects of psychological health and risk, aggression, and stress reactivity (Christopher et al., 2018).

### **Mindfulness-Based Stress Reduction**

Mindfulness-based stress reduction (MBSR) is an intervention that can be used to enhance a veteran's primary care of service in managing symptoms of PTSD (Pigeon, Allen, Possemato, Bergen-Cico, & Treatman, 2015). The intervention is structured for eight weeks and focuses on mindfulness-based meditation with the intention of providing a decentered and nonjudgmental outlook towards cognitions, emotions, and physical sensations (Vujanovic et al., 2011). MBSR incorporates quiet sitting meditation, body scanning, and moving meditation (e.g., yoga) to teach veterans how to foster and apply mindfulness-based skills in their daily activities (Pigeon et al., 2015). Mindfulness is both a state of awareness and a way of being, which is cultivated through structured meditation practice to promote psychological and physical health (Pigeon et al., 2015). MBSR practice is theorized to facilitate change pertaining to the veterans' psychological and physical symptoms.

### **Yoga**

Yoga is defined as a profound meditation training that can be practiced in a mindful manner that helps develop strength, balance, and flexibility of the mind, as it is physically developing the body (Kabat-Zinn, 2017). Yoga provides a rich complexity in its stillness and

has the potential for healing, as with any other meditative practice by allowing the individual to have self-awareness of the mind and body (Kabat-Zinn, 2017). Post-yoga improvement in gamma-aminobutyric acid levels contributes to decreasing veterans' PTSD hyperarousal systems such as disturbed sleep and anger (Fogger et al., 2016). Kabat-Zinn (2017) stated individuals at the Stress Reduction Clinic have found yoga to be a very useful and powerful form of mindfulness practice.

There are various yoga styles such as Kripalu, Sudarshan Kriya, Vinyasa, with Hatha being a close part of MBSR practice since the introduction of the therapy intervention (Kabat-Zinn, 2017). Hatha yoga has over 84,000 primary postures with at least ten variations for each posture that allows for infinite number of ways to combine poses when engaging in the mindful awareness practice (Kabat-Zinn, 2017). Kripalu yoga combines physical postures, breathing, and meditation with emphasis on moving meditation. Veterans who practice this MBI engage in discussion themes such as balancing the sleep-wake system, increasing flexibility and strength, reducing stress, developing a responsive relationship (self, others, environment), and developing mindful awareness throughout the practice (Reinhardt et al., 2018). Home practice is asked of veterans who engage in this intervention for 15-minutes per day using a provided audio recording to instruct them through the yoga intervention (Reinhardt et al., 2017).

Sudarshan Kriya yoga is a group oriented, manual-based, controlled breathing meditation intervention that focuses on several types of breathing exercises with periods of discussion and stretching (Seppälä et al., 2014). Breathing exercises include four sequential, form- and rhythm-specific components combined with normal breathing while sitting with eyes closed (Seppälä et al., 2014). Breathing-based interventions may be beneficial for veterans to

assist with symptoms of PTSD such as hyperarousal, autonomic dysfunction, negative affect, and emotion regulation (Seppälä et al., 2014). Individuals who engage in yoga therapy are more open to begin traditional therapies for PTSD, possibly due to the increased openness or perception of reduction in the stigma of seeking treatment (Kabat-Zinn, 2017).

### **Mindfulness-Based Interventions as an Alternative Treatment**

Mindfulness-based interventions have progressively been applied in managing mental health conditions. According to Gallegos et al. (2017), meditation and yoga are promising alternative interventions for PTSD among adults. One study compared the effectiveness of mindfulness-based meditation as being beneficial by minimizing concerns regarding psychological stress related to depression, substance use, sleep disturbances, and pain (Khusid & Vythilingam, 2016). With increased practice of mindfulness-based meditation, the individual recognizes the association of repetitive negative thoughts by becoming accepting of past experiences and being in the present moment (Vujanovic et al., 2011). Mindfulness-based meditation fosters self-compassion, encouraging positive effects in reactivity to stress and relapse of depression (Khusid & Vythilingam, 2016).

Previous empirical studies that surveyed the relationship between the quantity of home practice and successive outcomes, discovered partial positive data relating to mindfulness home practice (Crane et al., 2014). Exploring the correlation of mindfulness-based interventions and home practice could assist in determining if symptoms involving PTSD are minimized in day-to-day living. Veterans in treatment identified an indirect correlation to meditation practice, relating to MBIs partially mediated the reduction of PTSD symptoms (Crane et al., 2014). According to Sipe and Eisendrath (2012), home practice is important for treatment engagement by using guided recordings in increments of a minimum 45 minutes to focus on mental awareness.

Gallegos, Cross, and Pigeon (2015) stated there was improvement in PTSD symptoms when veterans used MBSR in the VA clinics. When using these mindfulness-based practices (e.g., meditation, mantras) while participating in MBSR, studies have shown veterans were continuously reducing symptoms relating to PTSD and that they sustained rehabilitative success after a six-month follow-up assessment (Gallegos et al., 2015). Veterans reported experiencing a greater level of satisfaction when addressing problems and resisted reminders of their trauma (Gallegos et al., 2015).

When using MBIs to treat symptoms of PTSD, recent research conducted by Wahbeh, et al. (2014) identified positive evidence in alleviating the disorder (Colgan et al., 2017). Several randomized control trials (RCT) found favorable outcomes using MBIs among veterans, though there are arguments that an untainted quantitative method provides limited understanding of the means and results of mindfulness-based training (Colgan et al., 2017). Concerns regarding MBIs pertain to being multidimensional within a single intervention, such as walking meditation, mindful breathing, and body scan meditation (Colgan et al., 2017).

There have been claims that individuals practicing MBIs are being treated unethically due to misrepresentation regarding possible religious intentions with MBIs (Van Gordon, Shonin, & Griffiths, 2016). Another concern pertains to instructors being uneducated about the veteran culture and needing coaching to better understand the population and effectively assist veterans with mental and physical health challenges (Colgan et al., 2017). Based on a systematic review of MBIs for individuals suffering from PTSD, there is evidence that mindfulness-based treatment may be effective, but additional methodologically MBI studies are needed for it to become an evidence-based alternative treatment (Schmidtman, Hurley, & Taber, 2017).

Individuals who use mindfulness-based interventions as an alternative treatment need to consider the presenting symptoms to determine if the approach would be beneficial and causes no additional harm. Boyd et al. (2018) stated that although trauma-informed mindfulness-based interventions could be integral in treatment for PTSD, individuals who experience symptoms of depersonalization and derealization, can become triggered and experience additional stress. Veterans who participated in a MBCT group for PTSD attained substantial reductions relating to numbing and self-blame cognition symptoms (Boyd et al., 2018).

Qualitative research that addresses the barriers of using mindfulness-based interventions with veterans indicated classroom interruptions (e.g., arriving late to the group) triggered PTSD symptoms (Martinez et al., 2015). According to Martinez et al. (2015), noises that echo into the classroom, such as a book being dropped or a loud participant, may be a distraction within the group or individual sessions. Another barrier during mindfulness-based interventions is veterans sitting on the ground and having difficulty getting up after meditation. Veterans using mindfulness-based interventions to foster compassion for oneself, experience increased self-acceptance to manage symptoms pertaining to PTSD (Boyd et al., 2018). Closing the gaps in the literature pertaining to mindfulness-based interventions practiced at home and community, the study focuses on veterans who practice MBIs in managing symptoms of PTSD relating to their time served in the Armed Forces.

### **Mindfulness-Based Interventions and Positive Changes to Quality of Life**

Mindfulness-based interventions may be useful in treatment for PTSD, by teaching veterans to focus on the present moment instead of dwelling on past or future events that are out of their control. MBSR has been shown useful in managing mental and physical symptoms of PTSD such as intrusive ideation, worry, anxiety, emotional distress, increased sense of

control, chronic pain, and depression. Veterans who engaged in MBSR appeared to establish improvements in quality of life after treatment. Improvements in quality of life made during treatment appeared to be maintained after follow-up for veterans who received MBSR therapy. Findings suggest that MBSR may provide veterans with mental tools for encouraging self-management of PTSD symptoms and quality of life (Polusny et al., 2015).

According to Crane et al. (2014), MBCT is a treatment composed of home practice using mindfulness meditations which is a vital element of the intervention. Using MBCT assists the individual to become aware of mental habits and to learn relapse prevention skills needed when coping with symptoms related to trauma (Crane et al., 2014). Patients are encouraged to spend 45 minutes per day utilizing mindfulness activities by using guided meditation recordings to increase mindful awareness involving mental events (Sipe & Eisendrath, 2012). Additional mindfulness activities to improve positive change and support the individual include taking a relaxing bath, going for a walk, or listening to calming music (Sipe & Eisendrath, 2012). These at-home mindfulness-based interventions assist the veteran to learn new coping skills to deal with daily stressors and triggers that are caused by symptoms related to PTSD.

The VHA began implementing mindfulness-based cognitive therapy for preventing suicide behavior (MBCT-S) to measure outcomes involving suicide-related events, to assist with self-harm behaviors, and reduce hospitalizations/emergency visits (Kline et al., 2016). Assessors would use five assessments between baseline and 12 months post-baseline to possibly improve the quality of life for veterans and their families (Kline et al., 2016). According to Sipe and Eisendrath (2012), veterans in a MBCT study who were observed for

relapse in a 15-month follow-up had lower residual symptoms for depression and higher quality of life ratings with 75 percent being able to discontinue antidepressant medications.

### **Conceptual Framework**

Transformative theory challenges the present circumstances and dominant powers regarding social concerns pertaining to empowerment, inequality, oppression, suppression, and alienation that need to be addressed to assist with reform that will change the individual's life (Doucet et al., 2010). Creswell (2014), suggests transformative research offers a voice for individuals by evolving a plan of change to advance their lives. Mertens (2007) argued that researchers using a transformative theory make an explicit connection between the process and outcomes to further a social justice agenda. Doing so, researchers need to be aware of societal values and privileges to determine the reality for social transformation and increased social justice (Romm, 2015). The researcher used a theoretical focus within a transformative worldview to provide a better understanding of veterans' discourse relating to mindfulness-based interventions in managing symptoms of PTSD.

Veterans using mindfulness-based practice could decrease symptoms of PTSD in a mindful cognitive manner that could reduce ruminative tendencies, anxious arousal, judgmental outlook, and avoidance behaviors (Boyd et al., 2018). The purpose of this study was to investigate veterans' medical outcomes using mindfulness-based practice to cope with symptoms of post-traumatic stress disorder (PTSD). Exploring pertinent information conducted via a content analysis method, the researcher provides new insights by presenting a synthesis of research on veterans who use mindfulness-based interventions to cope with PTSD symptoms.

## Conclusion

Chapter two explored relevant literature pertaining to symptoms of PTSD and mindfulness-based practice among veterans. Literature described symptoms related to PTSD which include hyperarousal, intrusive thoughts, and avoidance. Findings show that veterans who experienced ongoing trauma are more likely to develop symptoms with hyperarousal being the primary criteria to be diagnosed with PTSD. Mindfulness-based interventions may be effective in reducing activity in the limbic region which may improve symptoms of hyperarousal and intrusive thoughts. Further research is needed to learn the effectiveness of mindfulness-based practice related to the physiological and neurological processes of veterans who are diagnosed with PTSD.

Current studies investigating mindfulness-based practice to determine the usefulness of the interventions are proving these approaches have effective outcomes when individuals consistently practice autonomously from independent and group sessions. Although there are limited empirical studies, current research supports mindfulness-based interventions, such as MBSR, as an evidence-based alternative intervention to cope with trauma relating to hyperarousal, avoidance, anxiety, and negative mood regulation. Exploring literature related to symptoms of PTSD and mindfulness-based interventions provided an overview of therapeutic resources to assist veterans in managing daily activities and improving their quality of life. Chapter three will provide a description of the methodology that was used to explore relevant studies for the content analysis pertaining to veterans using mindfulness-based interventions to determine if the practice is beneficial in managing the symptoms of PTSD.

## **Chapter Three**

### **Methodology**

The purpose of this study was to investigate veterans' medical outcomes using mindfulness-based practice to cope with symptoms of post-traumatic stress disorder (PTSD). Specifically, this study explored the benefits of MBIs among veterans who are diagnosed with PTSD to create themes of effectiveness related to such symptoms of hyperarousal, intrusive thoughts, and avoidance. Findings have noted changes in veterans' neurobiology following the practice of mindfulness-based interventions related to symptoms of PTSD (Boyd et al., 2018). By exploring studies related to veterans' use of MBIs, the researcher found themes related to mindfulness-based practice that could assist veterans in managing their symptoms with PTSD to improve their daily life activities in the home and community. Through the use of a transformative theory and content analysis methodology this study explored 24 research studies to determine effective benefits among veterans who utilized mindfulness-based interventions in managing their symptoms of PTSD.

### **Research Design**

This study was designed to explore relevant research on mindfulness-based interventions relating to symptoms of PTSD with veterans in a qualitative content analysis method. The researcher retrieved scholarly studies by using the online sources to search for relevant articles from the University of New England's online library. The goal was to narrow topics that related to key words pertaining to military, veterans, mindfulness, MBSR, and PTSD. The selected studies were explored to determine if mindfulness-based interventions were beneficial among veterans in managing symptoms of PTSD and to improve the individual's overall quality of care.

The researcher used a qualitative content analysis to explore the studies to learn if veterans received therapeutic benefits, if any, using mindfulness-based reduction interventions in managing symptoms of PTSD. The content analysis methodology should minimize any ethical dilemmas as there are no active participants in this exploratory study. This study will assist future researchers by providing additional scholarly literature to the field of education regarding veterans who use mindfulness-based interventions for their service-connected symptoms of PTSD.

### **Assumptions and Rationale for Design**

Individuals who use mindfulness-based approaches may notice improvement in body awareness and emotions that are related to PTSD symptoms and emotional overmodulation (Boyd et al., 2018). Both positive emotion and social functioning are important areas of recovery among veterans suffering with PTSD (Lang et al., 2017). Treatment interventions such as mindfulness-based stress reduction (MBSR), permits veterans to attend to the present moment in a nonjudgmental, accepting manner, by reducing symptoms relating to anxiety (Polusny et al., 2015). Mindfulness-based practice is beneficial by enhancing emotion regulation and decreasing anxiety (Schure et al., 2018).

The rationale for exploring literature pertaining to mindfulness-based therapy was to learn the benefits of using MBIs among veterans who suffer with symptoms of PTSD. Mindfulness-based practice is beneficial by improving emotional regulation and decreasing anxiety among veterans with PTSD (Vujanovic et al., 2011). MBIs has improved emotional regulation and impulse control by inhibiting negative emotions in the amygdala (Khusid & Vythilingam, 2016). MBIs may improve body sensitization such as breathing and heart rates, which is necessary to self-regulate forthcoming negative emotions (Vujanovic et al., 2011).

Additional studies on MBIs are needed to continue providing evidence-based research and updated resources for veterans to assist in managing their symptoms of PTSD.

### **Literary Content Analysis**

Qualitative content analysis is a method to analyze text in a systematic coding and categorizing approach when exploring textual data to observe trends, patterns, and frequency regarding the relationship to the problem statement (Vaismoradi, Turunen, & Bondas, 2013). Content analysis is a suitable method to provide reporting of common topics mentioned in qualitative data (Vaismoradi et al., 2013). Elo et al. (2014) describe content analysis as one of several qualitative methods presented for analyzing data and interpreting its meaning. Successful content analysis research identifies concepts and describes the research phenomenon by creating categories and reporting how the results were created in a clear manner for the reader (Elo et al., 2014). Qualitative literary content analysis can be inductive or deductive.

Inductive and deductive content analysis involves both a preparation phase that includes collecting suitable data, understanding the data, and choosing a unit of analysis (Elo et al., 2014). In inductive analysis, the researcher organizes the data, which includes open coding, creating categories, and abstraction (Elo et al., 2014). Researchers conducting an inductive content analysis use this method when there are no previous studies found dealing with the phenomenon and coded categories are derivative from the text data (Vaismoradi et al., 2013). In deductive analysis, the researcher creates a matrix in which all data is reviewed for content and coded for correspondence to the identified categories (Elo et al., 2014). The deductive method is a useful analysis when testing previous theories in a different situation or comparing data categories at various periods (Vaismoradi et al., 2013).

While in the preparation phase, data were collected gathering studies that involve a combination of various methods, including documented observations and interviews. With a deductive content analysis, it is important to have data that is as unstructured as possible (Elo et al., 2014). The researcher can choose between manifest (developing categories) and latent content (developing themes) before moving forward to the next stage of the data analysis (Vaismoradi et al., 2013). The next phase consists of the sampling strategy. In qualitative research, the sampling method is based on the methodology and topic, not by the need for generalization of the findings (Elo et al., 2014). The sample must be appropriate for the conducted research and comprise studies that best represent the research topic (Elo et al., 2014).

Successful collection of data should be evaluated in relation to the targeted research questions and aim of study (Elo et al., 2014). Selection of suitable unit analysis assists with the credibility of content analysis. Credibility, dependability, confirmability, and transferability are common procedures to attain thoroughness in qualitative studies (Vaismoradi et al., 2013). Finding new insights within the study help determine the quality of research found by having a better understanding of the actual phenomena pertaining to the study (Vaismoradi et al., 2013). It is important to describe the meaning unit in its entirety to provide trustworthiness of the content analysis (Elo et al., 2014).

### **Unit of Analysis**

The studies explored in this research were conducted with veterans who have served in the U.S. Armed Forces to determine themes when mindfulness-based interventions are used in managing symptoms relating to PTSD. The studies for the unit of analysis were selected using the University of New England's online library and keywords that include veterans, mindfulness, PTSD, MBI, and military. The research study explored articles relating to mindfulness-based

interventions and symptoms of PTSD in veterans. To broaden the search for applicable studies, scholarly articles were selected spanning ten years from 2009 to 2019.

The scholarly articles selected included all the main keywords to be explored to determine if veterans benefit from MBIs in managing symptoms of PTSD. Articles selected for the research study using the keywords mentioned earlier focused on including veterans who have served in combat within the U.S. Armed Forces. The selected scholarly articles, listed in the appendix, were analyzed to determine if mindfulness-based interventions are beneficial among veterans in managing symptoms of PTSD to improve their overall quality of life.

### **Data Collection Procedures**

The objective of qualitative content analysis was to methodically organize a large amount of data from scholarly studies to summarize the data and answer the research question. The researcher explored data through behavioral and transformational theory to determine if using mindfulness-based interventions is beneficial by transforming veterans' psychological responses to cope with symptoms of PTSD. Operant theory argues behavior is the result of past learning experiences through classical and operant conditioning (Ryan, Lynch, Vansteenkiste, & Deci, 2011).

The researcher used an open coding process to identify concepts to determine whether mindfulness-based interventions are beneficial in assisting veterans in managing symptoms of PTSD. Using open coding, the researcher assigned meaning to each labeled unit with a code to ensure there was an understood relation to the context (Bengtsson, 2016). Explanations are deductively coded in a manifest analysis to obtain a higher reliability list and to identify if behavioral and transformative changes have occurred for veterans (Bengtsson, 2016). The researcher identified the meaning units and checked content to ensure it is covered in relation to

the research question. The original text was reread in comparison to the final list of meaning units to separate unmarked text from the coding. The next process of the data analysis consisted of grouping the codes into categories that are related to one another to identify what is obvious in the data regarding the research question (Erlingsson & Brysiewicz, 2017).

The coded research was explored in an unbiased manner to ensure objectivity of the data upon completion of the categories. The researcher categorized recurring themes of benefits pertaining to mindfulness-based interventions based on keywords found in the study's reported findings. The recurring themes were explored to describe the effectiveness of the benefits found among the studies. Seven themes were found among the mindfulness-based studies that reported the effectiveness of improving symptoms related to PTSD among veterans. The researcher analyzed the total sum of recurring general demographics pertaining to the veteran's ethnicity, gender, and age in the studies. Additional coding was used to tally the amount of recurring mindfulness-based interventions and to explore if the recurring mindfulness-based interventions were found to have significant benefits among veterans in managing symptoms of PTSD.

### **Conclusion**

The purpose of this study was to investigate veterans' medical outcomes using mindfulness-based practice to cope with symptoms of post-traumatic stress disorder (PTSD). The methodology chosen for the research topic is a qualitative content analysis using open coding through a manifest analysis. The researcher coded, categorized, and identified the relationship of mindfulness-based interventions and management of PTSD symptoms among veterans in an unbiased manner. Using a content analysis removed ethical dilemmas as the unit of analysis is relevant to mindfulness-based studies, which do not provide personal information from the veterans other than age, gender, and diagnoses, and no unit is identified individually. The

research explored from the content analysis study provided additional resources relating to veterans suffering from PTSD for all genders, ages, ethnicities, and war cohorts within the U.S. Armed Forces.

## **Chapter Four**

### **Results**

The purpose of this study was to investigate veterans' medical outcomes using mindfulness-based practice to cope with symptoms of post-traumatic stress disorder (PTSD). The scholarly articles were reviewed to determine if mindfulness-based interventions (MBIs) provided therapeutic benefits for veterans to relieve symptoms of PTSD. The conceptual framework provided an analysis of relevant mindfulness-based therapies and interventions that are used to treat veterans suffering with PTSD.

Chapter four summarizes the findings of this study. There were 24 studies explored pertaining to veterans who used mindfulness-based interventions to address their diagnosed PTSD. These studies were analyzed to address the research question. Results were coded in a deductive analysis to determine themes and categorize the relevance of mindfulness-based interventions among veterans suffering with PTSD with supporting evidence in an unbiased manner.

### **Analysis Method**

All scholarly articles were compiled from University of New England's library services catalogues (e.g., Science Direct, JAMA network). The researcher searched for current literature ranging from 2009 to 2019 relating to the research question and the purpose of the study. The studies were coded to determine themes of mindfulness-based interventions and therapeutic benefits that may alleviate symptoms of PTSD. The scholarly articles were explored for quality to determine if the studies provided reliable data pertaining to the research question "What are the therapeutic benefits of mindfulness-based interventions, if any, in managing the symptoms of PTSD among veterans?" Data was extracted from the studies and extracted to generate themes

about the various mindfulness-based practices used by veterans while managing symptoms of PTSD. The data was then analyzed to determine if veterans received therapeutic benefits from the mindfulness-based interventions.

The studies were explored listing the scholarly articles by presenting a general demographic of the veterans and a brief analysis of the mindfulness-based interventions. The researcher presents a data set that includes a total median of all veterans' age, ethnicity, and gender from the 24 scholarly articles and the themes of MBIs to provide an overview of the findings from the studies. In addition, a dependent variable listed themed MBIs (e.g., meditation, yoga) while comparing overall effectiveness relating to veterans managing symptoms of PTSD. Themes among mindfulness-based interventions were categorized based on five recurring MBIs with subcategories identified from the primary categories.

### **Presentation of Results**

The results of the study are presented by the findings that emerged when using the research question "What are the therapeutic benefits of mindfulness-based interventions, if any, in managing the symptoms of PTSD among veterans?" Five interventions (mindfulness-based exposure therapy, MBET; mantram repetition program, MRP; cognitive behavioral group therapy, CBGT; mindfulness-based stress reduction, MBSR/meditation; yoga) were identified as themes of mindfulness-based practice among veterans suffering from PTSD with two main categories (MBSR/meditation, yoga) that presented 14 subcategories of MBIs. MBET and CBGT represented the least used mindfulness-based interventions among the studies compared to MBSR/meditation, which was the most commonly used intervention among veterans with PTSD.

TABLE 1

## MBIs and Subcategories of Mindfulness-Based Practice

MBIS	CBGT	MBET	MBSR/ Meditation	MRP	Yoga
<b>Subcategories of Mindfulness-Based Practice</b>	<ul style="list-style-type: none"> <li>• Mindfulness skills (observing, describing, acting with awareness, nonjudgmental acceptance)</li> </ul>	<ul style="list-style-type: none"> <li>• Mindfulness of body</li> <li>• Mindful breathing</li> <li>• Compassion training/meditation</li> </ul>	<ul style="list-style-type: none"> <li>• Body scan</li> <li>• Mindful breathing</li> <li>• Slowed breathing</li> <li>• Sitting quietly (active control)</li> <li>• Primary care-brief mindfulness-based practice</li> <li>• Compassion meditation</li> <li>• Transcendental meditation</li> </ul>	<ul style="list-style-type: none"> <li>• Meditation</li> <li>• Mindfulness skills</li> <li>• Religion/Spirituality</li> </ul>	<ul style="list-style-type: none"> <li>• Krishnamacharya</li> <li>• Vinyasa-style (non-trauma)</li> <li>• Sudarshan Kriya</li> <li>• Kripalu</li> <li>• iRest</li> </ul>

### Emergent Themes

The coding process led the researcher to identify seven themes of therapeutic benefits found in the scholarly journals pertaining to mindfulness-based interventions. The emergent themes are therapeutic benefits that were found to recur most commonly in the mindfulness-based treatment among veterans in managing symptoms of PTSD. Most themes were found among the practice of MBSR/meditation and yoga. Themes pertaining to areas of therapeutic benefits among MBSR/meditation and yoga include:

- Reduction in arousal and hyperarousal symptoms
- Improvement of general anxiety
- Greater sense of calm
- Improvement of depression
- Acceptance of the present moment
- Improvement of chronic physical pain
- Improved spiritual well-being

Veterans who practice mindfulness-based interventions regularly are able to notice mental and physical benefits that are beneficial in managing symptoms of PTSD (Boyd et al., 2018). Reduction of depression, reduction in arousal and hyperarousal, reduction of general anxiety, and a greater sense of calm were the most common benefits found in mindfulness-based interventions among veterans with symptoms of PTSD. Acceptance of the present moment, reduction of chronic physical pain, and improved spiritual well-being were the least recurring themes of MBIs for veterans managing symptoms of PTSD. These themes will be revisited later in the chapter.

The tables presented below represent the findings from the studies to determine if there were therapeutic benefits using MBIs in managing symptoms of PTSD among veterans. The general demographics of the veterans and results of each scholarly article is provided in Table 2. The overall median representation of all veterans' ethnicity, gender, and age from the studies and recurring themes found among the MBIs are listed in Table 3. Lastly, the effectiveness of the recurring MBIs was evaluated to determine if the practice provided significant therapeutic benefits in managing symptoms of PTSD among veterans. Findings are provided in Table 4.

### **General Median Demographic & Analytic of MBIs**

Table 2 provides demographics of the veterans who were presented in the 24 scholarly articles along with the selected MBI that was chosen for each study. The total number of veterans who participated in each study and completed the study is also included to provide a better understanding of how many started from each study compared to how many completed the study. The studies follow-up method presents the various self-reported and clinician administered tools that were typically provided during the baseline and during the veteran's final session. Each MBI was analyzed with a brief summary to determine if that particular study

provided therapeutic benefits among veterans to manage symptoms of PTSD. Areas within Table 2 that are marked as X indicate information was not disclosed in the study.

TABLE 2

## General Median Demographic &amp; Analytics of MBIs

Scholarly Articles author and date	Total number of veterans	Age	Ethnicity	Gender	MBI practice	Length of program	Total number of veterans completing therapy	Follow-up	Results of MBI
<i>Barr et al., 2019</i>	577	35	Caucasian	Male	MBSR	7 months	485	NA	Path analysis established substantial direct effects for mindfulness and combat experiences and indirect effects for combat experiences on PTSD and depressive symptoms through the mindfulness pathway.
<i>Bormann et al., 2013</i>	71	56	Caucasian	Male	MRP	6 weeks	65	None	Findings show mantram repetition is a useful skill that could be used to manage PTSD symptoms among veterans in various day-to-day life situations.
<i>Bravo et al., 2019</i>	212	45.6	Caucasian	Male	MBSR	X	163	None	MBI, particularly online, for wounded veterans could be very helpful in reducing mental health symptoms and improving quality of life.
<i>Buttner et al., 2015</i>	273	57.36	Caucasian	Male	MRP	8 weeks	273	GSI, FACIT12-Sp, MAAS	Veterans reported improvements in all outcomes and experienced high levels of satisfaction with the MR.
<i>Colgan et al., 2015</i>	102	52	Caucasian	Male	MBSR	6 weeks	102	BDI-II, PCL-C, FFMQ	Findings propose mindfulness interventions could assist veterans with PTSD to support the skills needed to improve clinical results.
<i>Colgan et al., 2017</i>	102	52	Caucasian	Male	Meditation (BS, MB, SB, SQ)	6 weeks	102	Qualitative interview	BS (70%) MB (69%) reported improvement with six core themes across all RCT groups indicating improvement in PTSD symptoms.

<i>Cushing et al., 2018</i>	23	43	Caucasian	Evenly distributed	Vinyasa-style yoga	6 weeks	18	PCL-M, PHQ-8, BAI, PSQI, MAAS	Trauma-sensitive yoga could help alleviate negative mental health symptoms among veterans with PTSD.
<i>Goldberg et al., 2019</i>	1230	65	Caucasian	Male	CIH	X	217	None	Most veterans reported using mindfulness practice for stress reduction (72.8%) and symptoms of depression and anxiety (51.2%).
<i>King et al., 2016</i>	38	32	Caucasian	Male	MBET	16 weeks	23	fMRI	Evidence demonstrated that group therapy for PTSD may provide changes in neural processing of social-emotional risk that are associated with symptom reductions among veterans.
<i>Lang et al., 2017</i>	36	43.9	Caucasian	Male	CM	8-10 sessions	31	SCS-R, SCS-SF, Qualitative interviews	Qualitative data suggest veterans experienced a greater sense of calm because of the CM intervention.
<i>Martinez et al., 2015</i>	68	54	Caucasian	Female	MBSR	8 weeks	14	Semi-structured interviews	No significant benefit relating to MBI and decrease in PTSD symptoms was reported but veterans stated they would recommend MBSR to someone else.
<i>Nidich et al., 2018</i>	203	47	Caucasian	Male	TM	12 weeks	166	CAPS, PHQ-9, PCL-M	Mindful PTSD interventions can be effective among veterans without using an exposure component.
<i>Pigeon et al., 2015</i>	78	46.4	Caucasian	Male	PC-bMP	4 weeks	62	CSQ-8, EiTQ	Mindfulness skills were helpful in several domains of their lives and reasonably satisfied with the program overall
<i>Polusny et al., 2015</i>	116	58.5	Caucasian	Male	MBSR	9 weeks	98	PCL, CAPS, PHQ-9, WHOQOL-BREF, FFMQ	More than 50% of MBSR veterans reported treatment was clinically meaningful during post-treatment follow-up.
<i>Reber et al., 2013</i>	60	44.6	Caucasian	Male	CBGT	81.9 days	50	KIMS, EQR, PCL-M	Additional exploration is required to further understand the effect of nonjudgmental acceptance on emotion regulation and dysregulation relating to symptoms of PTSD.
<i>Reinhardt et al., 2018</i>	26	44.12	Caucasian	Male	Kripalu Yoga	10 weeks	10	CAPS,	Outcomes did not support primary

								PCL-M, PCL-C, IES-R	theory that associated to controls, veterans engaging in yoga would experience substantial PTSD symptom reductions. An explanation of the outcomes is that yoga may be beneficial for veterans who are very interested to practice it.
<i>Rosenthal et al., 2011</i>	7	30	X	Male	TM	12 weeks	5	CAPS, QLES, PCL-M, CGI-S	Substantial improvement in symptoms of PTSD, anxiety, depression, and insomnia, as well as dealings of quality of life, such as employment, family problems, and stress reactivity
<i>Schure et al., 2018</i>	15	X	X	Male	MBSR	8 weeks	15	None	Many veterans described that mindfulness practices helped them accept situations in the present, including stress and chronic physical pain, and provided them with beneficial ways of coping with present difficulty.
<i>Seppälä et al., 2014</i>	25	28.09	Caucasian	Male	Sudarshan Kriya yoga	7 days	20	PCL-M, MASQ, Startle, Respiration	Sudarshan Kriya yoga exhibit potential as a feasible alternative intervention for managing PTSD among veterans.
<i>Staples et al., 2013</i>	15	62.2	African American	Male	Krishnamacharya Yoga	6 weeks	12	PSQI, STAXI-2, OQ-45.2	Evidence showed that a yoga intervention may improve hyperarousal symptoms of PTSD.
<i>Wahbeh et al., 2011</i>	45	55.9	X	Male	MBSR	X	15	None	Mindfulness-based interventions using the non-judging aspect of mindfulness training may improve symptoms among populations with PTSD.
<i>Wahbeh et al., 2016</i>	114	52.62	Caucasian	Male	Meditation	6 weeks	102	EEG, ECG, blood pressure, respiration	Mindfulness theory and structured meditations may be helpful for PTSD symptoms but not as much as other active controls.
<i>Wheeler et al., 2018</i>	63	51.3	African American	Male	iRest/acupuncture	12 weeks	28	MYMOP-2, BDI-II, PSS-10, PDQ	The findings offer initial support for the extension of iRest and acupuncture into VA hospitals to improve mental health among military veterans.

<i>Zalta et al., 2018</i>	191	41.4	Caucasian	Male	MBRT	15 days	176	PCL-5, PHQ-9, PTCI	Findings propose IOP could lead to expeditious treatment response and aid to warrant that veterans obtain a suitable amount of treatment for PTSD symptoms.
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### Veterans' Median Demographic and Themes of MBIs

Veterans' median demographic of ethnicity, gender, and age were calculated to determine the overall representation of participants in all the scholarly articles reviewed for the study research question. Caucasian males with a median age of 46 were the majority of veterans who participated in the 24 mindfulness-based intervention studies. There were five recurring MBIs that were found during the analysis that are listed in Table 3 with MBSR/meditation being the most common practice among veterans. CBGT and MBET were the least common MBIs used for veterans among the study's analysis. Four of the studies were not included in the five recurring MBI themes due to veterans not actively participating in a mindfulness-based intervention, but rather described how mindfulness experiences have assisted them in managing symptoms of PTSD or expressed interest in engaging in future MBI at their local Veterans Affairs (VA) hospitals, community clinics, or online.

TABLE 3

Veterans' Median Demographic and Themes of MBIs

Majority of Veterans	CBGT	MBET	MBSR/Meditation	MRP	Yoga
Caucasian Male age 46	1	1	13	2	3

### Effectiveness of MBIs Among Veterans

Effectiveness of MBIs was provided in the overall findings of the studies conducted to determine if mindfulness-based interventions presented therapeutic benefits in managing

symptoms of PTSD among veterans. The majority of the 20 studies that included active mindfulness-based interventions presented positive results, suggesting that MBIs were found beneficial in managing symptoms of PTSD among veterans. Three studies regarding MBSR and one study regarding yoga did not show significant improvement in PTSD symptoms among veterans who engaged in the prescribed mindfulness-based intervention.

TABLE 4

Effectiveness of MBIs Among Veterans

<b>MBI</b>	<b>MBI Did Provide Significant Benefits in Managing the Symptoms of PTSD Among Veterans</b>	<b>MBI Did Not Provide Significant Benefits in Managing the Symptoms of PTSD Among Veterans</b>
CBGT		X
MBET	X	
MBSR/Meditation	X	
MRP	X	
Yoga	X	

### **Recurring Themes of MBIs**

The next section will examine the seven recurring themes within the studies that were found to have a therapeutic benefit for veterans who used mindfulness-based interventions in managing symptoms of PTSD. Veterans who use MBIs may experience improved skills engaging in active coping tactics when dealing with stressors, triggers, or adverse conditions. The seven beneficial areas of mental and physical health themes using MBIs include: reduction in arousal and hyperarousal symptoms, improvement of general anxiety, greater sense of calm, improvement of depression, acceptance of the present moment, improvement of chronic physical pain, and improved spiritual well-being.

Veterans who practice MBIs regularly may be able to reduce symptoms that limit their ability to engage in daily activities. Improved sense of calm and acceptance of the present

moment may allow veterans to enjoy activities they once avoided to minimize experiencing symptoms that were related to previous events in the past. Analysis of the recurring themes of use of MBIs led to an overall summary of the findings including some direct quotes from the studies' veteran participants to provide insight on how the mindfulness-based interventions benefited them while managing their symptoms of PTSD.

### **Reduction in Arousal and Hyperarousal Symptoms**

Three studies reported veterans experienced a reduction in arousal symptoms with results in one particular study reporting a significant decrease in hyperarousal symptoms. Staples et al. (2013) conducted a Krishnamacharya yoga program among veterans for six-weeks twice a week for one hour each session. The structure of the session included three minutes of self-awareness (mind, body, breath), 40 minutes of postures with breath awareness, and five to 10 minutes of full body relaxation with a focus on extending the exhale and guided visualization. The study results showed a significant decrease in PTSD arousal among the veterans with an effect score on the Pittsburgh Sleep Quality Index (PSQI) of medium for daytime dysfunction. The results of the study suggest that the Krishnamacharya yoga program may be an effective alternative therapy for reducing hyperarousal symptoms of PTSD among veterans (Staples et al., 2013).

Seppälä et al. (2014) conducted a randomized controlled longitudinal study to determine if breathing-based meditation decreases PTSD symptoms among military veterans. The veterans met for three hours per day during a week-long Sudarshan Kriya yoga intervention. The study reported veterans had fewer symptoms of hyperarousal during post-intervention at one month and at one-year assessments. Findings report Sudarshan Kriya yoga exhibited the strongest outcome among veterans on hyperarousal and reexperiencing symptoms, and constant improvements in rates of hyperarousal, generalized anxiety, and arousal symptoms (Seppälä et

al., 2014). Sudarshan Kriya yoga exhibits potential as a feasible alternative intervention for managing PTSD among veterans.

### **Improvement of General Anxiety**

Five studies reported mindfulness-based interventions improved general anxiety among veterans who suffer from PTSD. Rosenthal et al. (2011) conducted a pilot study to determine the effects of transcendental meditation (TM) among post-9/11 veterans with PTSD. Veterans practiced TM for 12 weeks with each session ranging from 60 to 90 minutes. During the final observation in week 12, veterans reported feeling “more alive,” “happier,” “more focused,” “deeply rested,” “having a big weight lifted from my shoulders,” “having clarity,” and “having more peace in my life” (Rosenthal et al., 2011). Findings from the study show veterans who practiced TM encountered substantial improvement with fewer symptoms of PTSD, anxiety, depression, and insomnia, and improved quality of life.

Cushing, Braun, Alden, and Katz (2018) conducted a study to test the impact of yoga among post-9/11 veterans with PTSD. Veterans engaged in a weekly, 60-minute Warriors at Ease (WAE) Vinyasa-style yoga intervention for six-weeks that focused on breath work, physical postures, and meditation. Veterans who were measured at baseline and post-intervention for the Beck anxiety inventory (BAI) score showed a clinically significant reduction from 20.3 (moderate anxiety) to 11.2 (mild anxiety). The study findings show veterans with concurrent treatment who had low baseline scores exhibited significant improvement relating to their PTSD symptoms, depression, and anxiety. Results show trauma-sensitive yoga could help alleviate negative mental health symptoms among veterans with PTSD.

## **Greater Sense of Calm**

Three studies reported that veterans exhibited a greater sense of calm post-mindfulness-based interventions. Lang et al. (2017) conducted a nonrandomized study to evaluate compassion meditation among veterans with PTSD symptoms. Veterans engaged in eight to 10 classes for 90-120 minutes each session in groups of six to eight per class. Several veterans reported it was three to four weeks before they felt comfortable engaging within the group. During qualitative interviews, several veterans described an increased sense of peace and resilience. One of Lang et al.'s participants stated "I react a little different to certain things...I'm a lot calmer and I try to think about it first. I try to think about how I'm feeling and why" (p. 7). A second participant described "The meditation training had a very high calming effect...I used the breathing to keep me from getting agitated or if I was feeling anxious or stressed in class" (p. 7).

Qualitative data suggest veterans experienced a greater sense of calm because of the mindfulness-based intervention.

Bormann, Hurst, and Kelly (2013) conducted a study to investigate the response to a mantram repetition program (MRP) among veterans with PTSD. The MRP met for 90 minutes, once a week for six-weeks. Veterans who participated three months post-intervention conducted telephone interviews with a research nurse trained in critical incident research technique (CIRT) to analyze use and outcomes of the mantram practice. Results exhibited 268 triggers from the veterans with an average of 4.27 per individual ranging from one to 15 events. There were 11 commonly unique categories and 47 categories that included social interactions, driving, sleep disturbances, reminiscence, and VA group discussions. Veterans reported how the MRP helped them to relax and calm down in various situations. One of Bormann et al.'s participants stated "The mantram was just totally new to me and it works, you know . . . if you just calm down, say

your mantram and try to relax, try to deep breathe, it does calm me down” (p. 8). A second participant reported:

When I am sitting at the doctor’s office at the VA, I use [the mantram] and some people will come up, you know, some of the Vets will come up and start, you know, talking to me about their problems and sometimes I’m not interested in what they are talking about, but I learned to calm down and just sit there and listen. They really don’t know that I’m, you know, chanting something. (p. 10)

A third participant described their experience using mindfulness-based practice to assist with having a greater sense of calm in their day to day activities.

I was laid off from my job and I really liked that job and for about a week, you know, I was . . . I live downtown in a residential hotel, and for about a week, I wasn’t doing anything. I didn’t apply for unemployment or anything. I was just sitting in my room and oh my god, oh my god, and then I thought I should use my mantram, so I did and it really calmed me down. It calmed me down and it made me go searching for a job and when I did go searching for a job, I remembered [agency name] was putting up a winter shelter. So I went over there and applied for that and got that job. So I guess using my mantram kept me rather levelheaded, down-to-earth and, you know, able to, you know, get through that ordeal. (2013, p. 11)

The qualitative results from the three-month post-intervention support the quantitative results from the original study that MRP reduces veterans' self-reported and clinician-assessed symptoms of PTSD. Findings show mantram repetition is a useful skill that could be used to manage PTSD symptoms among veterans in various day-to-day life situations.

## **Improvement of Depression**

Symptoms of depression as a comorbid disorder among PTSD was mentioned in half of the scholarly articles. Many of the studies found that veterans showed improvement by having fewer symptoms of depression. Zalta et al. (2018) conducted a study to evaluate patterns of PTSD and depression symptom change for veterans diagnosed with PTSD to determine whether patterns of treatment outcome differed by sex and cohort type. Veterans engaged in mindfulness-based resiliency training (MBRT), based on MBSR, during 13 sessions ranging from 75 to 90 minutes including a mini retreat during week two without didactics. Findings show veterans had significant and large reductions in the PTSD checklist (PCL-5), patient health questionnaire (PHQ-9), and post-traumatic cognition inventory (PTCI) scores compared with pre- and post-treatment. Findings indicate that an intensive outpatient program could lead to an expeditious treatment response and aid, which warrant the recommendations that veterans obtain a suitable amount of treatment including MBSR for PTSD symptoms.

Polusny et al. (2015) conducted a randomized clinical trial to compare MBSR with PCGT for treatment of PTSD. Veterans were randomly assigned to one of two MBI groups: MBSR and PCGT for a duration of nine weeks. The primary outcome was measured using PCL to assess PTSD symptom severity over time with secondary outcomes measured using the Clinician Administered PTSD Scale (CAPS) at baseline, week nine, and week 17. Additional secondary outcomes were measured using PHQ-9 to assess comorbid depression symptoms. All veterans in secondary outcomes showed remarkable improvement in interview-rated PTSD severity among CAPS from baseline to follow-up at two months. The findings report veterans who engaged in MBSR showed improvement on the five-facet mindfulness questionnaire (FFMQ) with greater reductions in PTSD symptom severity, depressive symptoms, and improved quality of life at

post-treatment. The study concluded mindfulness-based stress reduction is well tolerated by trauma survivors and veterans with PTSD.

### **Acceptance of the Present Moment**

Four studies discussed the findings of acceptance of the present moment. One study described WAE yoga intervention provides a trauma-sensitive protocol by creating a welcoming space to access the present moment and a sense of well-being (Cushing et al., 2018). Bravo, Witkiewitz, Kelley, and Redman (2019) conducted research with veterans wounded in battle to determine willingness to engage in mindfulness-based interventions to cope with emotional and physical discomfort. A majority of veterans who replied to the mindfulness-based treatment questions implied they would be willing to engage in all three types of treatment: general (64.4%), VA (54.0%), and online (59.5%) (Bravo et al., 2019). Most veterans had no prior mindfulness meditation experience and the majority responded that they would be interested in receiving mindfulness-based training that concentrated on improving awareness of the present moment and changing one's relationship with emotional and physical discomfort (Bravo et al., 2019). MBI, particularly online, for wounded veterans could be very helpful in reducing mental health symptoms and improving quality of life.

### **Improvement of Chronic Physical Pain**

Pain and discomfort are physical indicators about which veterans express concern and may attempt to minimize by ignoring the symptoms. Six studies addressed the pain and discomfort with certain practices that provided findings reporting improvement of chronic physical pain among veterans. Schure et al. (2018) conducted a study to understand how training in mindfulness-based affects veterans with PTSD. Veterans engaged in an eight-week MBSR program that consisted of mindfulness-based meditation practice and group discussions.

Semistructured interviews were conducted with veterans by phone or in person and ranged from 60 to 90 minutes using open-ended questions to elicit descriptions of their experience in MBSR.

One of Schure et al.'s participants stated:

I'm able to see it [pain] in a different light that pushing through and dragging on is not always the right answer, and you have to spend a little time thinking about your pain to be able to actually manage it. Which was the opposite of the way my brain was working on it. So yeah, being able to look at pain differently. (2018, p. 3)

Veterans described that using mindfulness-based practices assisted them in accepting situations and conditions in the present, including chronic physical pain, by providing beneficial ways to cope with current adversity. Veterans acceptance of adversity allowed the practice to be a holistic mindfulness experience by providing a stimulate introspection and was perceived to improve their PTSD symptoms. The study findings suggest that MBSR practices assist veterans with changing their relationship with adversity by accepting rather than ignoring the reactions of anger or distress.

Wheeler, Glass, Arnkoff, Sullivan, and Hull (2018) conducted a study to examine the effectiveness of iRest yoga along with acupuncture to improve psychological health. Veterans engaged in drop-in iRest and drop-in acupuncture sessions that were offered for twelve weeks. The study's findings suggest that veterans who engaged in iRest in addition to acupuncture attained remarkable psychological benefits as measured by decreased psychological symptom severity, symptoms of depression, perception of stress, and emotional interference with life activities due to pain. The findings offer initial support for the extension of iRest and acupuncture into VA hospitals to improve mental health among military veterans.

### **Improved Spiritual Well-Being**

One study reported mantram repetition program (MRP) has been found effective in reducing PTSD symptom severity while improving spiritual well-being (Buttner et al., 2015). Mindfulness-based interventions that focus on spirituality may be feasible for veterans suffering from PTSD to improve symptoms. Veterans engaged in MRP weekly for 90 minutes for eight sessions with weekly assigned experiential homework exercises. Veterans who engaged in holistic practices reported using prayer (73%), focused breathing (60%), meditation (56%) and imagery/visualization (53%) as the most frequent practices (Buttner et al., 2015). Veterans who engaged in MRP reported improvements in spiritual well-being, reduced anxiety, depression, and somatization, and experienced high levels of satisfaction with the MRP, indicating that the 8-week program is feasible and valuable (Buttner et al., 2015).

### **Summary**

In this chapter, the findings from the content analysis demonstrated the therapeutic benefits of mindfulness-based interventions in managing the symptoms of PTSD among veterans. Understanding the therapeutic benefits of mindfulness-based practice could offer insight for services in providing proper quality of care both mentally and physically for the veteran population suffering with PTSD. The study showed that mindfulness-based interventions could reduce PTSD symptoms, while some interventions could cause potential harm by creating new stressors among the veterans.

General median demographics of the study's veterans' age, ethnicity, and gender were listed in Table 2. Listing these three general demographics provided a clearer picture of most veterans who engaged in the studies to better understand the results of mindfulness-based practice pertaining to symptoms of PTSD. In addition to listing the veterans' general

demographics, the number of active veterans and those who completed the study were mentioned to provide a reference to the population size and to learn if smaller or larger samples are needed for similar future studies relating to the chosen mindfulness-based intervention. The selected mindfulness-based practice along with the length and time of intervention was mentioned with most MBIs using the therapies' usual coursework, unless studies were abbreviated to provide a condensed version of the practice or incorporated skills to afford non-trauma to the veterans.

Most veterans who were participants in the mindfulness-based studies were Caucasian males, with two studies presenting the majority as African American. One study focused on female veterans' viewpoint on enrollment and participation in MBSR intervention groups. The data retrieved from the scholarly articles with the veteran sample sizes engaging in MBI ranged from five to 273. Four of the scholarly articles were studies that conducted self-reports to learn if mindfulness-based practice was beneficial in day-to-day activities or to examine if veterans would be interested in engaging in mindfulness-based interventions in the future to manage symptoms of PTSD.

The total representation of engagement from the studies represented 3,690 U.S. Armed Forces veterans who suffer from symptoms of PTSD. Veterans' general demographics of ethnicity, gender, and age were categorized in Table 2, then calculated to determine the total sum of those represented the majority in the presented studies. Table 3 shows that most veterans from the studies were Caucasian males with a median age of 46.

The recurring mindfulness-based interventions were MBSR/meditation, yoga, and MRP. The main categories of MBIs are MBSR/meditation and yoga that presented 14 subcategories: mindfulness skills (observing, describing, acting with awareness, nonjudgmental acceptance), body scan, mindful breathing, slowed breathing, sitting quietly (active control), primary care-

brief mindfulness-based practice, compassion meditation, transcendental meditation, religion/spirituality, Krishnamacharya yoga, Vinyasa-style (non-trauma) yoga, Sudarshan Kriya yoga, Kripalu yoga, and iRest. Most veterans from the studies reported that mindfulness-based practice was helpful with managing day-to-day stressors at home and within the community, whereas some reported that it did not alleviate stressful situations or it presented additional “trauma.” One veteran reported that while practicing body scan, the numbing in the feet was actual pain from a suppressed trauma. Physical and emotional pain from suppressed trauma caused some veterans to develop additional symptoms and/or triggers related to PTSD. Data from the studies about veterans who engaged in yoga interventions had a recurring theme pertaining to attendance. Male veterans who did not complete yoga interventions felt the practice was for women or they did not notice improvement from their symptoms of PTSD. Overall, veterans described that mindfulness-based practices helped them accept situations pertaining to stress and chronic pain that provided them with beneficial skills to cope with day-to-day difficulty.

Measuring the benefits of mindfulness-based interventions to manage symptoms of PTSD among veterans was explored by considering the researcher’s assessments administered among the veterans during post-treatment. The five MBIs listed in Table 3 were used as categories to determine if that mindfulness-based intervention provided significant improvement overall among veterans with PTSD. The MBI results listed in Table 2 were used to determine if the researcher had found significant improvement by responding yes or no for each scholarly article with a collective total of the five MBIs listed in Table 4. One of the articles was excluded from Table 4 calculations because the study focus was on utilization of effectiveness of MBIs and not based on veteran’s engagement in a previous or current intervention at the time of the study.

Implementation of MBIs overall led to significant improvement treating veterans with PTSD symptoms. Five studies reported that significant changes in PTSD symptoms were not found, and additional studies to determine the MBI effectiveness among veterans were needed.

## Chapter Five

### Conclusion

The purpose of exploring the literature relating to veterans' experiences with treatment of mental and physical health was to determine if mindfulness-based interventions (MBIs) are beneficial in managing symptoms of post-traumatic stress disorder (PTSD). Some of the practices, such as mindfulness-based stress reduction (MBSR), assisted veterans with developing their coping skills, while others provided veterans a stronger understanding of how to appropriately manage difficulty throughout the day. Numerous research studies pertaining to mindfulness-based interventions were available; however, there were limited studies relating specifically to veterans suffering with symptoms of PTSD, resulting in selection of 24 scholarly articles for the content analysis to minimize repetition of similar studies. The content analysis focused on veterans who received mindfulness-based interventions from Veteran Affairs (VA) hospitals, community clinics and agencies, and private practitioners to establish if the care received by veterans were beneficial in managing their symptoms of PTSD.

The qualitative content analysis was organized by general demographic of veterans, selected MBIs, and addressed whether the study found benefits in mindfulness-based practice in managing PTSD symptoms. Recurring themes of mindfulness-based interventions were presented in chapter four, with MBSR/meditation and yoga interventions presenting as the common therapy among veterans with PTSD. Subcategories that emerged from the content analysis showed that mindfulness skills (observing, describing, acting with awareness, nonjudgmental acceptance), body scan, body scan, mindful breathing, slowed breathing, sitting quietly (active control), meditation, and religion/spirituality were the most common treatments. Examination of the findings from the content analysis addresses the research question examining

the benefits of mindfulness-based interventions, if any, in managing the symptoms of PTSD among veterans. In addition, explanation of the content analysis results, its usefulness to military veterans, and recommendations for action and further studies will conclude the investigation of veterans using mindfulness-based practice to cope with trauma and operational stress injuries.

### **Interpretation of Findings**

This study explored research about the usefulness of mindfulness-based interventions among veterans with PTSD symptoms to determine the value of this treatment as opposed to traditional therapy services. The research question for this study was developed to guide exploration and examine the effectiveness of MBIs in managing PTSD symptoms to improve veterans' day-to-day living activities at home and in the community. The research question "What are the therapeutic benefits of mindfulness-based interventions, if any, in managing the symptoms of PTSD among veterans?" was addressed using a content analysis of scholarly articles to investigate veteran's engagement and satisfaction with various mindfulness-based interventions.

The scholarly articles in the study represent five mindfulness-based interventions that veterans utilized either individually on their own, with a facilitator, or among others in group sessions from VA hospitals and community clinics/agencies. The study's findings reported veteran engagement with MBIs totaled 1,626 individuals with a total of 1,408 veterans who completed the assigned interventions. Four of the scholarly articles were excluded from Table 4 due to the veterans not engaging in MBIs but who reported on its potential usefulness if they participated in a mindfulness-based intervention in the future. Sixteen of the 20 scholarly journals that had veterans engage in cognitive behavioral group therapy (CBGT), mindfulness-based exposure therapy (MBET), mindfulness-based stress reduction (MBSR)/meditation,

mantram repetition program (MRP), or yoga practices reported therapeutic benefits of mindfulness-based interventions in managing symptoms of PTSD among veterans. The two mindfulness-based interventions that were utilized most frequently among veterans were MBSR/meditation and yoga. The therapeutic benefits that were found from mindfulness-based interventions in managing the symptoms of PTSD among veterans include: reduction in arousal and hyperarousal symptoms, improvement of general anxiety, greater sense of calm, improvement of depression, acceptance of the present moment, improvement of chronic physical pain, and improved spiritual well-being.

There were findings that described areas in which MBIs were not beneficial in improving veterans' symptoms of PTSD. Veterans who did not attend sessions regularly had less improvement in effectively managing symptoms during triggering situations. There were physical and psychological challenges for veterans who participated in body scans due to bringing awareness to regions of the body where pain was suppressed, and staying focused during slowed breathing, which caused some to feel anxious. Some veterans reported group sessions scheduled past 90 minutes were too long and not effective with their schedules outside of group time. Some veterans who attended group sessions found it difficult to relate to the facilitator and peers. One study stated that it took veterans three to four weeks before they felt comfortable in the group (Lang et al., 2017).

The content analysis found that group therapy may provide changes in veterans' neural processing of social-emotional risks. Veterans who participate in MBSR sessions may find that body scan and mindfulness breathing could reduce their symptoms of PTSD. In addition, sitting quietly for 20 minutes as members of a control group still benefited participants by having "time out" to reflect on their day and be alone to digest their thoughts with no interruptions.

Interventions such as Warriors at Ease (WAE) Vinyasa-style yoga offers trauma-sensitive practice for veterans to improve PTSD symptoms relating to anxiety and hyperarousal. Veterans who practice mindfulness-based interventions can divert attention from triggering situations, reduce psychological distress, and improve their overall mental and physical quality of life.

### **Implications**

Compared with traditional therapy, mindfulness-based intervention is an alternative treatment that could assist many veterans who suffer from physical and psychological symptoms of PTSD. Studies show that veterans who engaged in MBIs, particularly outside of the VA reported significant improvement of PTSD symptoms, which may be a result of not being in a “therapeutic” environment. Some self-reports were scored higher post-intervention, with researchers reporting that the outcomes may be the result of veterans wanting to conform to the norm that receiving treatment is supposed to garner viable results of improvement. Overall, the content analysis demonstrated that mindfulness-based interventions, particularly MBSR/meditation and yoga practices, were found to provide therapeutic benefits in managing symptoms of PTSD among veterans.

Earlier in the study it was mentioned that transformative theory challenges the present circumstances and dominant powers regarding social concerns that are needed to address and assist with reform in approaches to change an individual’s life. Social concerns that need to be addressed are effective alternative and complementary therapy to assist with change in veterans’ mental and physical well-being. The studies examined here showed that mindfulness-based interventions are offered within the VA but may not be a service readily available at all VA hospitals and community clinics, or accessible because of distance from a veteran’s home. Veterans who completed assessments were asked if they knew MBIs were offered at their local

VA. Many responded no, as they were not informed by their case managers, therapists, or because of a lack of onsite or online information. Veterans who are informed of mindfulness-based interventions most likely are willing to participate and inform others of the programs to assist with treatment of PTSD.

### **Recommendations for Action**

Mindfulness-based interventions provide beneficial skills for veterans in managing PTSD. Service providers within the VA need to inform veterans of these services on whether they are received onsite or need to be referred to an organization that can provide the service in an individual or group capacity. Veterans need to be properly informed of the purpose of mindfulness-based interventions to ensure higher attendance and completion rates. Providing trauma-sensitive interventions that are modified to assist the veterans' practice helps them mentally and physically during individual/group sessions including home practice.

Most veterans who completed self-reports addressing satisfaction with MBI services indicated yes, they were satisfied, and that they would inform others. Veterans who have benefited from MBI services should network with other veterans and their local community groups to report the benefits received from their practice. Veterans who inform their local veteran organizations could create mindfulness-based groups that could be offered at no charge depending on the organization.

Programs such as HomeFront Strong offer military veterans and their families mindfulness-based trainings that meet weekly for eight sessions. Another resource is Give an Hour which provides free mental health services to current members of the Armed Forces, veterans, and their families in person or by phone. In one study, veterans reported feeling disconnected from facilitators who provided mindfulness-based interventions but had no

connection with military culture. One veteran from Martinez et al. (2015) study stated a facilitator “could not respond to a lot of their comments,” and wished they would “know a little bit more about the folks that they actually have sitting in front of them.” Star Behavioral Health offers free military competency trainings to the community that is beneficial to clinicians/facilitators who do not work directly with the VA but provide services to veterans.

### **Recommendations for Further Study**

Studies on mindfulness-based interventions pertaining to treatment of PTSD are available, although as mentioned, there are limited studies that focus specifically on veterans. There is an expected increase in veterans returning home by 2020 that may have physical and psychological health concerns relating to combat (Stern, 2017). Findings from the studies had suggestions regarding limitations that may facilitate future studies among the veteran population suffering from symptoms of PTSD.

Sample sizes in most studies were reported to be too small, although the largest sample population for the content analysis was 273 veterans and was noted as modest. Researchers from the scholarly journals were unsure what would be a sufficient sample size to determine if results are accurate relating to the researcher’s theory. Ensuring that a large enough sample of veterans complete the study will hopefully produce adequate results to determine if mindfulness-based interventions are helpful in managing symptoms of PTSD.

Diversity within the samples in most studies was another limitation that was addressed. The content analysis found that most veterans were Caucasian males with a median age of 46. Some studies mentioned there were not enough females in the study and that female studies are needed to effectively measure the difference between men’s and women’s symptoms of PTSD. Other studies reported that ethnicity was not appropriately represented to determine if

socioeconomics played a factor in the findings. One study found that veterans with more education and who are older had higher scores regarding PTSD assessments and exhibited improvement compared to veterans who were younger and with less education.

Studies need more representation of females and various ethnic groups who represent the Armed Forces and not a particular city, county, or state region. All but one of the scholarly articles were represented by male veterans as the majority in the studies. Less than half of the studies reported the lack of women or diversity of ethnicities as a limitation to their findings regarding treatment of PTSD symptoms among veterans. One study reported a women-only study on MBSR practice would provide clarification on sources of discomfort that hinders growth and clinical improvement of PTSD among female veterans. Two studies provided representation of African American as the majority of veterans with most minorities (e.g., Hispanic, Asian, Pacific Islander) being represented by less than half compared to Caucasian veterans. One study stated research should be across genders, ethnicities, and PTSD severity to measure the impact of group cohesion among veterans practicing yoga.

Measures to assess the veterans were considered a limitation. Although the assessments reported being used as a valid tool, most results were self-reported. Studies reported that most veterans improved from baseline to post-treatment but were unsure if the results were accurate. Most assessments used in the studies were Beck depression inventory (BDI), Clinician Administered PTSD Scale (CAPS), five-facet mindfulness questionnaire (FFMQ), mindful attention and awareness scale (MAAS), PTSD checklist (PCL), and patient health questionnaire (PHQ). Some researchers reported that a location outside of the VA affected the scores, resulting in potentially higher improvement scores. Researchers need to utilize an assessment that

appropriately measures improvement to PTSD symptoms and to analyze self-reports as supplementary findings to potentially circumvent false results.

Additional recommendations for future studies would be to create control groups if the researcher wants to investigate if the active group made significant improvement in managing PTSD. In addition, accounting for the control group that could potentially become “active” may result in benefits outside of the original questioned theory. Providing enough practice time during the weekly sessions to learn the mindfulness-based intervention is important. Allowing veterans to ask questions during class, and assigning homework, may ensure that what the veterans learned is being utilized outside of the classroom. In addition, conducting research with more post-9/11 veterans to identify patterns of similar reactions of PTSD symptoms among different war cohorts would be beneficial, as most studies were from Vietnam veterans.

Future studies should provide additional follow-up with veterans who drop out to capture their reasons for early discharge from enrollment. Researchers should ensure that there are no classroom conflicts and that the same location is available for the entire duration of the intervention. Researchers should also provide a clear purpose for the veterans as to the mindfulness-based intervention being used to ensure appropriate enrollment and to minimize dropout rates. Studies could eliminate bias in blind studies by having researchers assigned to one task when collecting data from the veterans and they should provide long-term follow-up to measure the benefits of mindfulness-based practice as compared to short-term and potentially fleeting results. Finally, facilitators should make sure they have experience in the assigned mindfulness-based intervention so as to teach the veteran in an effective manner.

## Conclusion

Goldberg et al. (2019) stated a meta-analysis examining the effectiveness of mindfulness-based interventions for veterans would be useful to more accurately quantify the effect of treatments in the veteran population. The purpose of this content analysis was not only to explore literature relating to veterans to determine if mindfulness-based practices are helpful among veterans but also to learn if the interventions assist them in managing their symptoms of PTSD. Mindfulness-based interventions proved to be an effective practice among individuals who steadily practiced coping skill methods outside of group therapies.

This content analysis demonstrated that veterans seeking mental health treatment to cope with symptoms of PTSD could benefit from mindfulness-based interventions as an alternative to traditional treatment methods. Mindfulness-based interventions have progressively been applied in managing mental health conditions pertaining to symptoms of PTSD. The goal of mindfulness-based interventions (MBIs) is for the individual to integrate the experience and to improve their quality of life.

Demographics of the studies were limited, with most veterans being Caucasian males with a median age of 46. Researchers reported that to ensure appropriate results on the effectiveness of mindfulness-based interventions among veterans with symptoms of PTSD more diversity is needed. Women-only MBSR groups were suggested from one study. In addition, mindfulness-based intervention studies on minorities to understand if socioeconomic plays a part in managing symptoms of PTSD among veterans could determine if there is a difference among ethnic groups in the military.

Findings demonstrated that MBSR/meditation and yoga appeared to result in greater improvement in managing symptoms of PTSD. Veterans who actively participated, attended

sessions regularly, and practiced at home exhibited a reduction in symptoms such as arousal and hyperarousal, general anxiety, depression, chronic physical pain, mood disturbance, and emotional interference. Although some veterans mentioned physical and psychological challenges, most completed the sessions, particularly those practicing MBSR, and modified the practice to ensure it would work for them. In addition, it was reported that facilitators who did not exhibit military competence made the veterans feel uncomfortable. Ensuring that facilitators are properly trained in their mindfulness-based intervention and know their population are keys to quality instruction in a successful program. Although empirical studies are currently limited, the content analysis demonstrated that mindfulness-based interventions are an effective evidence-based alternative treatment for veterans to cope with trauma and operational stress injuries.

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## Appendix

**Scholarly Articles**

- Scholarly Article 1.* Barr, N., Keeling, M. & Castro, C. (2019). Associations between mindfulness, PTSD, and depression in combat deployed post-9/11 military veterans. *Mindfulness*, 1-12. <https://doi-org.une.idm.oclc.org/10.1007/s12671-019-01212-9>
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