

5-2018

A Systematic Review: Examination of Yoga-Based Interventions to Determine their Benefits and Effectiveness in Treating PTSD in Women

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Recommended Citation

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A Systematic Review: Examination of Yoga-Based Interventions to Determine their Benefits and
Effectiveness in Treating PTSD in Women

by

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MSW Clinical Research Paper

Presented to the Faculty of the School of Social Work & Holistic Health Studies Program St.

Catherine University and the University of St. Thomas Twin Cities, Minnesota

In Partial fulfillment of the Requirements of the Degree of
Master of Social Work & Master of Holistic Health Studies

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Abstract

This systematic review was designed to examine yoga-based interventions to determine their benefits and effectiveness in treating Posttraumatic Stress Disorder in women. The review was set up using peer reviewed articles published after 2007. The databases Scopus, CINAHL, AMED, Health Source, PsychINFO and Pilots were systematically searched using the terms: “post-traumatic stress disorder” or “PTSD” and “yoga-based interventions” or “yoga interventions” or “yoga” or “mind-body therapy”. Out of these searches nine articles satisfied criteria for inclusion and were used in the final review. Three themes emerged from the research synthesis regarding how yoga-based interventions can be beneficial and effective for women in decreasing PTSD symptoms; 1) acceptance and being at peace, 2) empowerment and self-esteem, 3) centeredness and mindfulness. The research suggests the importance of utilizing mind-body therapist such as yoga-based interventions in treatment and healing for a PTSD diagnosis. Moving forward, more research is required with yoga-based intervention and women experiencing PTSD to better understand the therapeutic value of this type of intervention. Exploring the idea of culturally specific yoga-based interventions as well as reviewing these interventions with a broader scope of demographics are also important areas for further study.

Keywords: posttraumatic stress disorder, yoga-based interventions, trauma-sensitive yoga

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Millions of American adults are diagnosed with mental health disorders each year. In 2015, the National Institute of Mental Health (NIH) reported there were 43.4 million adults aged 18 or older who presented with Any Mental Illness (AMI) within the previous year. This is almost 18% of the United States adult population (NIH, 2015). Many Americans know a family member, friend, coworker, acquaintance or themselves that is diagnosed with a mental health disorder. As defined by the American Psychological Association (APA), any mental illness refers to a mental, behavioral or emotional disorder that is diagnosed within the past year, and meets the diagnostic criteria set forth in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (APA, 2013). The impact AMI may have on an individual range from no impairment to significantly disabling impairment, which may lead to interference in daily life, particularly for individuals who have a serious mental illness (SMI) (NIH, 2015). Any mental illness may include: attention-deficit/hyperactivity disorder, disruptive behavior disorders, anxiety, posttraumatic and dissociative disorders, mood and personality disorders, psychotic disorders, and many more. This data on AMI does not include substance use disorders that relate to alcohol or drug-related disorders. As the data suggests there are many disorders Americans are diagnosed with, this study will focus on one particular serious mental health illness, Post-Traumatic Stress Disorder (PTSD) (APA, 2013).

In the U.S., 3.5% of the adult population is affected by PTSD; roughly 7.7 million people (NAMI, 2015). Posttraumatic stress disorder or PTSD is a condition that typically is a result of direct exposure to a traumatic event. The DSM-V includes eight criteria that will be explored later in the research. An individual may experience direct exposure or bear witness to, learn of, or experience repeated or extreme exposure to an actual or threatened death, serious injury, or sexual violence (APA, 2013). PTSD does not have to occur directly after the traumatic event;

months or even years later individuals may be affected by the event. As there is no time limit between experiencing a traumatic event and developing PTSD. There are no demographic boundaries for people who can develop PTSD.

While any gender may be affected by PTSD, women are at a higher risk of developing this disorder (NAMI, 2015). Across the lifespan, females are more likely than males to develop PTSD and are also reported to have PTSD for a longer duration than their male counterparts (APA, 2013). Females are at an increased risk for interpersonal violence, rape, and incest (APA, 2013). Origins of trauma for women may include events such as sexual assault, physical violence, emotional abuse, and/or a deployment in a combat war-zones, if the individual is in the military or has a history in the service. Although, this is not a definite list of traumatic events that women may encounter, it includes many of the most reported and researched forms of trauma. To address traumatic events that afflict physical harm to the body, researchers are exploring ways to expand treatment and therapy to include complementary and alternative medicine (CAM) methods for healing such as massage therapy, acupuncture, or emotional freedom technique also known as tapping.

As an integration of ancient practices with contemporary practices in healing and decreasing PTSD symptoms, it is important to acknowledge who is already practicing yoga and continue to work to broaden the scope of yoga for everyone. Statistics from a 2016 study report that 72% of yoga practitioners in the United States are female and 28% are male (NAMASTA, 2018). This percentage has risen for the male population compared to the 2012 statistics where only 17.8% of males reported practicing yoga. This information will be critical in helping bridge the gap between gender bias and yoga, particularly when it comes to alternative methods for healing and decreasing PTSD symptoms across genders, not exclusively for women.

Increasingly, yoga is integrated into treatment as a method of healing for people who have experienced traumatic events and developed PTSD. Yoga works to balance the mind-body-spirit connection. For a clear understanding of classical yoga, the different components will be addressed. Patanjali is an Indian scholar, the who is revered in the founding of the Yoga Sutras, which is a foundational text for 'classical yoga' (Gaia, n.d.). The Yoga Sutras describe the eight limbs or Ashtanga; the eight limbs are core principles that serve as a guideline or "compass for living a meaningful and purposeful life" (Gaia, n.d.). The first limb, Yamas, are restraints or ethical considerations. The five yamas include ideas such as nonviolence, truthfulness, non-stealing, and loyalty. Niyamas are the second limb which are observances and inform self-discipline and worldview: cleanliness, contentment, willpower and self-discipline, study of self and sacred scriptures, and surrender to the divine.

The third limb is the most commonly known and associated with yoga, Asana; this refers to the physical postures that may be practiced. "Beyond the physical, asana refers to an outlook that life is full of opportunities to learn, even through obstacles: find the teacher in all things" (Gaia, n.d.). Pranayama is the focus on breathing, this fourth limb recognizes the importance of practicing conscious breathing and the ability to control the breath. In the Sanskrit tradition, Prana is the vital life force therefore, Pranayama is considered the "cultivation and mindful use of life force... [pranayama] leads to improved concentrations, health, focus, clarity, creativity, purpose and compassion" (Gaia, n.d.). The final four limbs of Ashtanga speak to the ideas of being in a mindful state and being in a present state of awareness. These limbs are shown in practice by a heightened sense of awareness of internal and external factors, focusing on a candle flame, or specific mantra or statement that is typically repeated throughout the practice. Also signifying the notion of "all things are one" and a mind-body integration that may be felt during

a traditional yoga practice (Gaia, n.d.). Through this description of traditional yoga and the eight limbs, it is presumed that not all research and studies based on yoga include all eight of these aspects. Thus, some studies specify which limbs are included and some research does not. This also applies to the different forms of yoga utilized in the United States.

The U.S. has adopted yoga in various ways, most commonly as a form of physical activity. In a national survey, respondents reported that increased wellness (64%) and improvement in certain health conditions (48%) were the main purposes of their yoga practice (Ross & Thomas, 2010). The practice of yoga in the U.S. typically consists of, but is not limited to, breathing techniques, postures, and meditation. Each of these three elements has been shown to increase a person's well-being and used to decrease stress (Jeter, Slutskhy, Singh, & Khalsa, 2015). For this research study, yoga-based interventions will be referred to interventions that include at least three specific parts of traditional yoga: physical postures, breathing techniques and meditative practices.

Traditional approaches to treating PTSD including, individual psychotherapy, group therapy, medication, may not help or assist in decreasing or eliminating the symptoms of PTSD. Additionally, there are a growing number of studies that have shown complementary and alternative methods of care, specifically yoga, have aided in decreasing symptoms and positively affecting individuals who have a mental health diagnosis of PTSD (van der Kolk, 2014, Emerson & Hopper, 2011). The purpose of this research study is to examine yoga-based interventions to determine their benefits and effectiveness in treating women who have PTSD. The research method chosen for this study is a systematic review of the literature. What follows is a conceptual framework, comprehensive literature review, research methods, findings and a discussion for this study.

Conceptual Framework

The purpose of this research study is to examine yoga-based interventions to determine their benefits and effectiveness in treating PTSD in women. While no single theoretical perspective can address the full scope of issues relevant to this topic, the conceptual frameworks guiding this research study include empowerment theory and holism.

Empowerment Theory

Empowerment theory focuses on “processes by which individuals and collectives can recognize patterns of inequality and injustice and take action to increase their own power” (Hutchison, 2015, p. 46). Yoga may provide the space for a person to slow down, become present and ‘get in touch’ with their physical body, emotions, and feelings by attending to their breathing patterns and using their body in different and more intentional way than the stressors that happen from everyday life. On a personal level, an individual may be affected by yoga through their state of mind, feelings of competence, and/or experience a sense of control which all influence a person’s sense of worth and may have a positive impact on their PTSD diagnosis.

In trauma-sensitive yoga classes, the group of individuals may have similarities regarding past experiences, traumas, or symptoms; thus, also creating a collective where they may develop positive connections with others while practicing yoga. On an interpersonal level, yoga may create that sense of interdependence, support and respect from others in the class. If yoga-based interventions are found to be helpful for individuals with PTSD, this may empower them to 'take back their life' by developing a greater sense of self and an enhanced sense of control over their body and their life. If PTSD symptoms are decreased or eliminated due to yoga-based interventions, people may feel encouraged to continue to make positive adjustments in other areas of their life.

Holism

The holism approach is one that emphasizes the whole rather than individual parts. Yoga-based practices align with the concept of holism in that they allow for an individual to be present in the moment while giving them space to explore their own body and what is happening emotionally and physically. Holism can be viewed as an “ecological concept that the totality of biological phenomena in a living organism or ecological system cannot be reduced, observed, or measured at a level below that of the whole organism or system” (Micozzi, 2015, p. 14). For example, a person or child cannot be viewed as defiant or misbehaving solely on their actions, their history as well as current environment must also be identified and acknowledged as part of their story.

Embracing the mind, body and spirit of a person is integral in how a person is assessed or treated within the holistic mindset. This philosophy “posits that within each one thing is contained all; the microcosm is the macrocosm” (Micozzi, 2015, p.8). Although the holism approach is newly emerging in social work practice, the concept traces back to a Western tradition where it alludes to the fact that everything exists in relationship to a larger cosmic system (Micozzi, 2015). A person’s body may be considered the microcosm and thus reflects the macrocosm or the universe. Such an idea allows for many interpretations of physical health, mental health and healing. If a person is exposed to a traumatic event such as sexual assault and the person attends therapy with a licensed professional and works with the trauma, they may find peace with their mental health; yet, their physical body may still be feeling the effects of the abuse, typically this may result in low back pain or present as different symptoms. This is one example of how the holistic approach to working with trauma and healing may be utilized to assist with all aspects of an individual’s life.

In understanding how an individual is affected by their PTSD and in what ways their symptoms are showing, all systems should be considered such as lifestyle, biological cues, cultural context, community relationships, etcetera. The yoga-based interventions may assist or help in other areas of the person's life besides only impacting and influencing their PTSD symptoms such as inner healing, spirituality, and other internal and external factors. The following section of this study will speak to the literature review.

Literature Review

The literature review regarding PTSD and yoga-based interventions will focus on several areas including, the diagnosis of and criteria for posttraumatic stress disorder, yoga-based interventions, and the psychological, neurological, endocrinal, and immunological effects of yoga-based treatment. Databases available through the University of St. Thomas and St. Catherine University were utilized for this literature review; articles older than 10 years old were excluded from this review.

Posttraumatic Stress Disorder

Roughly 7.7 million American adults per year have Posttraumatic Stress Disorder (PTSD) (Martin, Dick, Scioli-Salter & Mitchell, 2015). In the U.S., the projected lifetime risk for PTSD for an adult at age 75 years old is 8.7% (APA, 2013). These rates are significantly higher than countries in Europe and most Asian, African, and Latin American countries whose rates of lifetime risk for PTSD are between 0.5-1.0%. Given this much lower rate of risk, it is important to understand how PTSD is viewed in various cultures and how it is addressed in other parts of the world.

Individuals diagnosed with PTSD typically have higher levels of social, occupational, and physical disability and are also impacted by economic costs and high levels of medical use

(APA, 2013). Those diagnosed with PTSD may experience impaired functioning in many areas including social, interpersonal, developmental, educational, physical, and occupational aspects of life. PTSD affects the individual who is diagnosed as well as their family members, coworkers, friends, communities, and beyond. Therefore, it is helpful for these people to understand this diagnosis and how it affects those who are diagnosed with PTSD.

A person who is diagnosed with PTSD may experience many different symptoms. Symptoms of PTSD meeting Criteria B in the DSM-V include: 1. recurrent, involuntary and intrusive distressing memories of the traumatic event; 2. recurrent distressing dreams; 3. dissociative reactions including flashbacks; 3. intense or prolonged psychological stress at exposure of triggers or cues, and 4. marked physiological reactions to cues that may symbolize or resemble part of the traumatic event. An individual may have one or more of those intrusive symptoms right after the event occurred or may be with delayed expression. An individual with PTSD also meets criteria for persistent avoidance of stimuli that reminds them of the traumatic event. Criteria C includes efforts to avoid distressing memories, thoughts or feelings as well as external reminder felt by PTSD survivors.

Negative adjustments in cognition and mood are associated with the event and begin or worsen after the event. Criteria D includes the inability to remember important aspects of the traumatic event, exaggerated and/or distorted negative beliefs or expectations, blaming of oneself or others for the cause or consequences of the event, persistent negative emotional state that may include feelings of fear, horror, anger, guilt or shame. A notably diminished interest or involvement in activities, feelings of detachment or estrangement and a continuous inability to experience positive emotions. Criteria E focuses on the changes in arousal and reactivity after the traumatic event. Irritability and angry outbursts may be more common, verbal or physical

aggression, reckless or self-destructive behavior, hypervigilance, exaggerated startle response, concentration problems and sleep disturbances. These alterations that a person may feel after a traumatic event can cause significant distress or impairment in all areas of daily life and important areas of functioning such as occupational issues if an individual struggles with getting out of bed and going to work. Not only do people experiencing PTSD struggle with daily living activities, they also have a higher risk of self-harm tendencies and higher rates of suicidal ideation. All of these criteria for PTSD are significant to review when analyzing how yoga impacts the mind and body connection. The importance of this work is to examine how yoga can help individuals living with PTSD to make greater strides in their healing progress.

Trauma-Sensitive Yoga

Trauma-sensitive yoga (TSY) is a specific type of yoga that has been developed and established by the Trauma Center (Emmerson & Hopper, 2011). There are four main themes that have appeared throughout the development of this yoga program. It is important to note that these themes were developed by clinicians who worked closely with the yoga instructors to create an effective, safe and stable program.

Experiencing the Present Moment

The first theme focuses on “experiencing the present moment”. “Learning to live in the present means shifting the orientation from the trauma to the now, and it can be terrifying for many survivors to ‘let their guard down’ in this manner” (Emmerson & Hopper, 2011, p. 40). For many living with PTSD, their somatic dissociation may be deeply rooted, and they may need assistance linking their body to the here and now. Thus, an TSY instructor would know how to appropriately assist the individual to focus on being in the present moment while zeroing in on specific postures and noticing their body’s responses.

Making Choices

Making choices is the second theme in TSY. “Whether you are a soldier being attacked in battle, a child in an abusive home, or a woman walking alone who is assaulted, your choice about what happened to you did not matter” (Emmerson & Hopper, 2011, p. 44). Not having a choice has been a common principle for people who have experienced traumas. “Something happened that can make us seriously doubt, with good cause, that we have any control at all over what happens to us in this world” (Emmerson & Hopper, 2011, p. 44). TSY offers individuals a program that is structured, supportive and provides a safe space for people to make choices about how their body feels in certain positions. Instructors are attuned to this and allow the space and time, using instructions such as “if there is ever any pain or discomfort in your yoga practice, you can always stop what you are doing” this implies “you are not stuck in this painful experience just because I introduced this neck roll to you. If you do not like the experience for any reason, you have control – you can stop” (Emmerson & Hopper, 2011, p. 45).

Taking Effective Action

The third theme in TSY is taking effective action. “Long after the traumatic event has passed, many survivors repeatedly find themselves in frozen states in which they are unable to engage their bodies and minds to confront threatening or stressful situations” (Emmerson & Hopper, 2011, p. 50). This is described in small steps for individuals at the Trauma Center, such as the clients are invited to tell the yoga instructor if the room is too hot or too cold and either ask the instructor if they can assist with the temperature or the client can open or close a window themselves (Emmerson & Hopper, 2011). What may seem like minor details to someone not experiencing PTSD, taking effective action like this may produce the fight, flight or freeze responses in a trauma survivor. The theme of “taking effective action entails *actively doing*

things that make us feel better, safer, more comfortable, or in control” (Emmerson & Hopper, 2011, p. 52).

Creating Rhythms

The final theme of TSY focuses on creating rhythms. The clinicians and yoga instructors were informed by many clients that they felt they were not in sync with others or themselves; this may also take form as dissociation or a sense of disconnect with their bodies. “Yoga is one way that we can experience being in sync with other people, through breath, movement and shared experience” (Emmerson & Hopper, 2011, p. 52). Not only does creating rhythm include having connection with others but it also focuses on a client’s internal biology. An individual experiencing PTSD may not recognize the tension they hold unwillingly in their body, which creates confusion for the body’s physiology and emotions. This also influences a person’s biorhythms including sleeping and eating patterns. This connection will be more clearly discussed further into this research.

Trauma-Informed Yoga

A somewhat similar intervention to trauma-sensitive yoga is Trauma-informed yoga (TIY). This approach specifically refers to yoga teachers or instructors who have knowledge of trauma, symptoms of trauma and know how to create and provide a safe and supportive environment for individuals who have experienced trauma (Cook-Cottone et al., 2017). These teachers are aware during each class that any individual attending their class may have trauma in this past. Trauma-informed yoga instructors may also refer yoga students to outside support such as counselors or doctors. A TIY teacher is trained to have knowledge of “(a) trauma and PTSD, (b) the key points of yoga delivery relevant to trauma, and (c) scope of practice issues related to the treatment of trauma and the provision of yoga” (Cook-Cottone et al., 2017, p. 2). While

understanding the importance of these specific types of yoga programs, this paper will expand on more general yoga-based interventions and how it fits into the current literature and research.

Yoga-based interventions

As described previously, yoga unifies the mind-body connection using eight limbs that focus on the physical, mental, and emotional aspects of life. Research about yoga does not always include all eight limbs or parts of traditional yoga. This paper will focus on yoga-based interventions using the criteria of movement (Asanas), breathing techniques (Pranayama), and meditation (Dhyana) for analyzation purposes. The U.S. has adapted traditional yoga to be physically active without including the focused breathing and meditation; yet, Ross and Thomas (2010) have shown that when comparing yoga that uses all three components to regular exercise, yoga may be as effective or better than physical activity without meditation and mindful practices when looking at health-related outcomes.

Psychological Effects

There are many different paths from a psychological perspective when analyzing yoga. Many recent studies have focused on anxiety, depression, posttraumatic stress disorder and chronic stress. Used by Amaranath, Nagendra, and Deshpande, (2016), the Integrated Yoga Module is

meant to develop better mastery over the modifications of the mind through introspective awareness to calm down the mind may have increased their level of confidence to make a resolve to change their lifestyle and approach to their life to overcome their guilt, shame, and the related complexes (p. 41).

This describes how a person can psychologically benefit from yoga when they are practicing awareness and calmness that may affect their heightened or negative emotions. Yoga practices

may be labeled with other terms to define what the practice entails. There is a program called Mindfulness Based Stress Reduction (MBSR) that was created by Jon Kabat-Zinn that brings together mindfulness meditation and yoga (Mindful, 2016). This program can be taught by varying professionals such as physicians, nurses, yoga instructors, social workers, etcetera. MBSR focuses on the concept of uniting the mind and body and creating an environment that fosters a greater sense of awareness in physical, mental, emotional and spiritual realms. In the next study discussed, the practice intervention brings together the physical practice of yoga positions and mindful meditation during the sessions.

Data suggests that “yoga meditation practice may selectively recruit dissociable frontal executive-dependent strategies in response to emotionally salient information as a function of cognitive demands and not during emotional processing *per se*” (Froeliger, Garland, Modlin, & McClernon, 2012, p. 7). This study alludes to the notion that “meditators amygdala activation to negative emotional distractors was uncoupled with task-related changes in affect, unlike non-meditators whose decreases in positive affect were correlated with increased amygdala activation” (Froeliger et al., 2012, p. 7). In clearer terms, participants in this yoga meditation practice showed that mindfulness increases attention toward emotion without attempts to restructure or recreate that experience. “Such attention to emotional information without cognitive control may reflect the attitude of acceptance and nonjudgment that is held to be an essential component of yoga and mindfulness” (Froeliger et al., 2012, p. 8).

Another study found women participants, who had complex trauma histories, “experienced an improved connection with and sense of ownership and control over their bodies, emotions and thought” when practicing yoga (Rhodes, 2015, p. 249). Menezes et al. (2015) determined their data suggests yoga may help emotion regulation skills “through such

mechanisms as reappraisal, attention regulation, self-monitoring, self-awareness, and autonomic regulation” (Menezes et al., 2015, p.97). These studies show there is a significant influence that yoga has on a person’s brain in varying positive ways. If people are able to heal themselves through movement, breathing techniques and meditation, as it is shown through this research, it should be implemented in various settings throughout the community in which everyone can access.

Neurological Effects

Understanding how yoga can impact a person's neurological aspect is essential in yoga's influence on a person's health. The autonomic nervous system (ANS) is made up of the sympathetic and parasympathetic branches; these vital branches are what mediates a person's stress response. The sympathetic branches are affected by stress and the parasympathetic correspond with relaxation. When an individual faces chronic stress the sympathetic parts are overstimulated and may result in depression and a weakened immune system (Blossom, 2004).

The limbic system is important to mention here because it is a functional unit in the brain that is responsible for emotional regulation. The limbic system is the "storehouse of our emotional memory, influencing our immediate perceptions and therefore coloring our expectation of our current experience(s)" (Blossom, 2004, p. 24). Because the limbic system is in connection with the conscious and unconscious (cerebrum and brain stem and cerebellum) centers of the brain, a person's emotions affect the internal biology and motor-sensory functioning (Blossom, 2004). This means the limbic system is vital to how a person sees and encounters the world, perceives experiences and processes thoughts.

One major issue with this system relates to time. The limbic system does not record or keep track of time; therefore, if a person is traumatized or seriously injured, the body does not

know when to "turn off" the chronic stress or reoccurring thoughts of the trauma, thus leaving the physical body and mind in a perpetual state of dis-ease. Understanding how the limbic system works holds significant for implications for integrating holistic health practices, including yoga-based practices into treatment for those with PTSD. Understanding these subtle neurological effects can aid people in many areas of their life. Whether they have a mental health diagnosis or a physical ailment or disease, practicing yoga may help them in healing around their consciousness and/or unconsciousness and understanding how their emotions play a role in the physical body.

Endocrine System Effects

The endocrine system is made up of varying glands that produce and secrete hormones that help create and maintain homeostasis in the body. These hormones are important in regulating systems such as the body's development and growth, metabolism, and overall proper functioning. Glands that are part of the endocrine system include the hypothalamus, pituitary gland, pineal gland, thyroid, parathyroid, thymus, adrenals, pancreas and lastly the sexual glands such as ovaries and testes. Because the endocrine system is a more recent focus of research, there are fewer studies focusing on effects of yoga and the endocrine system specifically. Researchers have found that people who experience trauma continued to secrete large amounts of stress hormones after the traumatic event (van der Kolk, 2014). Yet another researcher found that levels of the stress hormone cortisol are low in PTSD. Her discoveries only started to make sense when her research clarified that cortisol puts an end to the stress response by sending an all-safe signal, and that, in PTSD, the body's stress hormones do, in fact, not return to baseline after the threat has passed (van der Kolk, 2014, p. 30).

The concept of the individual not returning to their baseline after a traumatic event is how the body fails a person in this situation. If the stress hormone system does not or cannot work properly, the person is at a higher risk for symptomatic behaviors. “the continued secretion of stress hormones is expressed as agitation and panic and, in long term, wreaks havoc on their health” (van der Kolk, 2014, p. 30). For future research, it will be critical to continue to understand how the collection of glands in this system produces, and how the body reacts and responds, to those hormones.

Immunological Effects

The immune system can become compromised when the sympathetic system is chronically stressed (Blossom, 2004). Mental health can be a predictor for physical health outcomes and thus the importance of "maintaining a good mental health and positive personality is of prime concern in patients with chronic disease" (Yadav et al., 2012, p. 2). Therefore, it is critical to maintain a strong baseline of one's mental health.

Many studies have found that yoga is beneficial for those suffering from anxiety, depression and stress management (Gangadha & Varambally, 2015, Premanand & Mallya, 2017, Rhodes, Spinazzola, & van der Kolk, 2016, and Manincor et al., 2016). Although these studies have all shown some improvement in research subjects, there is disagreement amongst researchers. Much of the current research alludes to the limitations of brief or short-term studies, subject self-report, lack of funding, lack of uniformity of yoga treatments (in-class or at-home based practice), and subjectivity of measurements of happiness, anxiety, or depression. Research studies emphasize different things including, people with chronic or persistent physical illnesses, in-school settings, or age ranges. Many of these studies are not generalizable due to the specificity of each study.

Methods

Research Design

The purpose of this systematic literature review was to determine the benefits and effectiveness of yoga-based interventions for treating women who have PTSD. A systematic literature review entails choosing a particular research question, reviewing the current literature that relates to the topic then identifying, collecting and critically analyzing the relevant and quality data that is inclusive of the review protocol and aligns within the search strategy (Khan, Kunz, Kleijnen, & Antes, 2003). By focusing on a specific topic, reviewing current research, narrowing the search terms for the online databases, and after dissecting the studies and their results, this systematic review will tell a story about the present data that answers the research question.

Types of Studies

This systematic review will refer to PTSD in clinical terms based on criteria from the Diagnostic and Statistical Manual edition 5. Yoga-based interventions were reviewed with a therapeutic-potential lens thus looking for the meditation and breathwork qualities along with the physical postures that make up a yoga practice. Other yoga-based interventions may assist in a person to develop a higher self-esteem and take action to increase their own power. This may also include speaking one's truth about their traumatic experience and telling their story. Yoga may empower them to find support and take initiative to participate in healthy self-serving ways of coping and dealing with their past. Yoga-based interventions may raise consciousness around their authentic self and raises self-affirmation. These interventions may also use empowerment in terms of building support and community around yoga and the positive relationships.

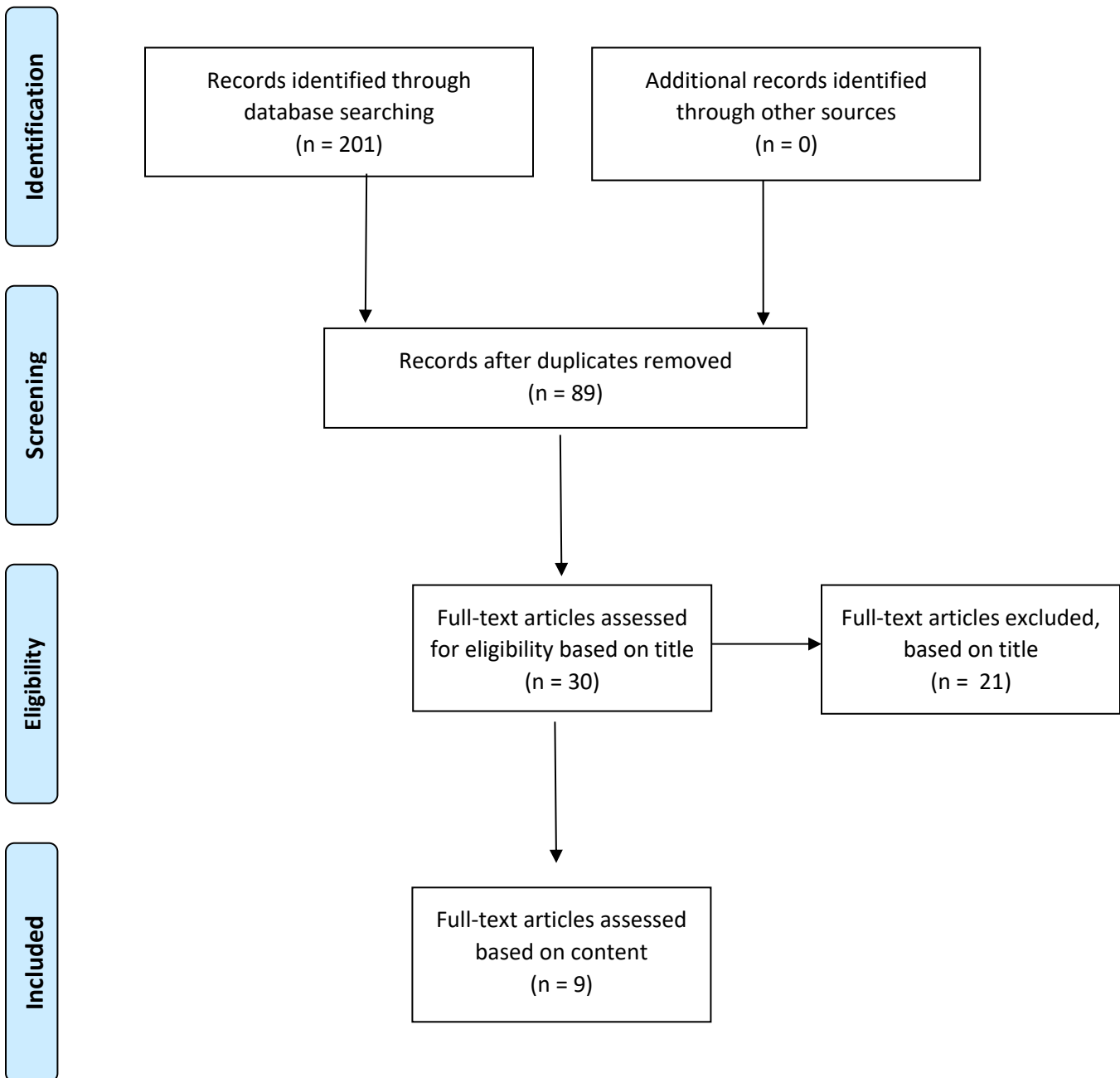
Search Strategy

The databases that were used in this study are Scopus, CINHALL, AMED (Allied and Complementary Medicine Database), Health Source, PsychINFO, and Pilots. Due to the researchers limited previous knowledge of the current literature, both a sensitivity and specificity searches were used. Search terms used will be: "post-traumatic stress disorder" or "PTSD" AND "yoga-based interventions" or "yoga interventions" or "yoga" or "mind-body therapy".

Criteria

The inclusion criteria consists of empirically based, peer reviewed, qualitative, and quantitative studies. Case-studies, focus groups, and in-depth interviews were taken into consideration. Experiences of practitioners were not taken into consideration because the focus of the study is on the effects and benefits of participants. Experiences of practitioners were not taken into consideration because the focus of the study is on the effects and benefits of participants. The studies were used if they were able to report an effectible difference on the relationship of PTSD and yoga-based interventions or provided sufficient information that could be comparable to statistics. As previously mentioned, the articles reviewed will all be published after 2007 to meet the 10-year inclusion criteria. Articles singularly focused on movement-based interventions or that do not include meditative practices or breathing techniques will be excluded.

Figure 1. Flowchart demonstrating article selection



Findings

The purpose of this systematic review was to examine yoga-based interventions to determine their benefits and effectiveness in treating PTSD symptoms in women. Findings suggest yoga-based interventions can be viewed as beneficial for PTSD in women. This is supported by the following articles that are reviewed and will be described further along in the findings and discussion sections.

Demographic/Descriptions of Data

Using the databases of Scopus, CINHALL, AMED, Health Source, PsychINFO, and Pilots and working within the specific inclusion and exclusion criteria stated previously, 9 peer-reviewed articles met criteria and were analyzed. Four of those studies were Randomized Control Trials (RCT), two of the four identified as pilot studies. Three of the studies reviewed were secondary data analyses of previous RCT, and two studies were long-term follow-up studies.

There were many different types of yoga-based interventions utilized in data (n=9). These intervention styles included: a form consistent with Kundalini Yoga (KY), three out of the nine studies or 33 percent focused on KY, 22 percent or two of the nine studies were in conjunction with the Kripalu-form of hatha yoga, and 33 percent or three out of the nine studies used Trauma Sensitive Yoga (TSY) as the intervention, and one study did not identify a specific type of yoga due to the long-term follow-up method of the study.

The statistics for the length of intervention was varying. Three studies (33 percent) practiced yoga for 75-minutes 1x per week for 12 weeks, two studies (22 percent) followed the intervention of 8-weeks 1x per week for 90-minutes plus at home practice. One study stated they utilized the 8-week intervention, another study was unspecified, and the last two studies (22 percent) applied the 10-weekly intervention sessions.

The preferred sample demographics and criteria was focused on women over the age of 18. Four studies (44 percent) specified the participants were women only, 33 percent of the studies included a few male participants (less than 20), and two studies stated their participants were women who were both veterans and civilians.

Analysis

Throughout the analysis of the literature, it was discovered that many of the findings of the studies overlapped in what they found. Three qualitative themes have been identified and one quantitative theme appeared that focus on positive effects that the participants undertook or felt during and after the yoga-based interventions.

Quantitative Findings

The quantitative theme emerged from the two pilot RCT and one long-term follow-up study that all showed a correlation between the yoga-based interventions and the self-reporting scores for the PTSD checklist, and depression and anxiety measurement scores (Jindani et al., 2015, Rhodes et al., 2016, Mitchel et al., 2014). This theme is supported by decreased changes over time from baseline scores, to mid-treatment or postintervention scores, to 1-month follow-up scores. Although most of these scores have proven to be non-clinically significant, this evidence suggests that there is still a decrease in PTSD symptoms and depression and anxiety scores that have been self-reported by the participants.

Qualitative Findings

Three qualitative themes that have emerged from the data review includes 1. Acceptance and being at peace, 2. empowerment and self-esteem, and 3. centeredness or mindfulness. Five out of the six qualitative based studies presented these themes in varying terms and explanations (Rhodes, 2015, Dick et al., 2014, Jindani & Khalsa, 2015, West & Liang, 2017, Jindani &

Khalsa, 2015). Examples will be provided per each theme to offer a glimpse into the participants understanding and feelings toward themselves and yoga-based interventions and how that impacts their mental health and assists with their healing journey.

Acceptance and Being at Peace. Acceptance and being at peace is prevalent throughout the data regarding participants' view of themselves and their trauma. From reviewing how their participants talked about themselves, their bodies, and their lives as they were in the past and now, Liang and Spinazzola (2017) perceived acceptance as relating to "being at peace with life as it was and currently is, rather than a sense of resignation or giving up" (p. 186). Learning to cultivate and foster a sense of inner peace and inner calm is what several participants in the study by Jindani and Khalsa (2015) discussed.

The qualitative descriptive study researched by Jindani and Khalsa (2015) describes the participants experiences through a new awareness lens and states that participants' perceptions of prior traumas may change throughout the yoga intervention and post-intervention. Participants shared they learned new ways to relate to their previous trauma including "self-compassion, attending to health needs, and learning to not blame themselves for negative life circumstances. For some, traumatic life experiences were viewed as opportunities for growth and development of purpose. Reports of forgiveness of others were noted" (Jindani & Khalsa, 2015, p. 405). This example shows in depth how the theme of acceptance and being at peace can have beneficial effects on a person's mood, PTSD symptoms and their ability to vocalize a profound positive change.

Empowerment and Self-Esteem. The second noted theme focuses on empowerment and self-esteem. Participants had shared their "empowering realization that they have ownership and control over their bodies as well as a greater ability to acknowledge, tolerate, and confront

emotions that previously felt overwhelming, such as anger, shame or vulnerability” (West, Liang, & Spinazzola, 2017, p. 188). Yoga-based interventions have allowed for individuals to not only become more self-aware but also provides a way for them to reclaim their personal power and authority for themselves and with whatever they are experiencing or reexperiencing from their traumas. More participants shared their feelings of increased self-esteem and self-confidence and learning how to rely on themselves. “Trusting in themselves was a change that made participants feel greater happiness and confidence” (Jindani & Khalsa, 2015, p. 403).

Rhodes (2015) identified through her analysis of participants interviews that “by ‘focusing on your body in yoga and doing new things with your body’ there was an opportunity to experience new, present-oriented, positive embodied experiences. These new embodied experiences contrasted starkly with their prior sense of self” (p. 250). Many participants shared their new-found ability to “sit with emotions and act with awareness, behaviors that had been challenging to achieve in the past. The ability to respond nonreactively by first becoming aware of thoughts and feelings was a new experience” (Jindani & Khalsa, 2015, p. 405).

Centeredness and mindfulness. Centeredness and mindfulness is the third prevalent theme throughout the literature that was analyzed. Participants who engaged in one of the TSY intervention groups reported, “Yoga made space for ... quietness ... an ability to restructure and refocus ... just letting my mind rest, I’m able to feel renewed and replenished,” “ I am thinking about things other than the trauma and how my life has been impacted in a negative way” (West, Liang, & Spinazzola, 2017, p. 187). This idea of centeredness also takes meaning as feelings of integration and wholeness that arose for participants.

Yoga-based interventions interviewees shared that “as they were learning to become more attuned to the experiences, sensations, and feelings of the body, they were feeling greater

tranquility and peace” (Jindani & Khalsa, 2015, p. 404). An interviewee of Rhodes (2015) exclaimed,

I think yoga’s helped allowing there to be a space between when something happens and my reaction. Because for a long time I didn’t have that space to sort of make what I call a rational judgment, it was just based on sort of an emotional [reaction], or a habit. It’s allowed me to pause and have that moment to say, okay well I don’t have to react this way, or this person didn’t mean it this way, and have that little bit of time to think about [my] reaction (p. 252).

Throughout yoga-based interventions, the participants have noted their change in being in the present moment and being able to reconnect and listen to their body. These newly learned techniques may assist an individual during a PTSD reexperiencing or after they are triggered but allowing them to use breathing and focusing on their bodily sensations can be effective in helping eliminate PTSD symptoms.

Discussion

This systematic review was developed to explore a body of research available on the topic of yoga-based interventions and their benefits and effectiveness for treating PTSD in women. The goal of this research was to determine if the different yoga-based interventions positively impact the participants who experience PTSD. The review utilized inclusion and exclusion criteria, as well as both sensitivity and specificity searches to find the most current and reliable research at this time. The articles in this review provided majority of qualitative data and limited quantitative data suggesting that yoga-based interventions can be beneficial and effective for women with PTSD. Themes of acceptance/being at peace, empowerment and self-esteem, and centeredness and mindfulness emerged through the review of the literature. These

findings propose that yoga-based interventions can be used as a therapeutic intervention with women experiencing a Posttraumatic Stress Diagnosis.

The theme of acceptance and being at peace is one aspect of healing from trauma. As yoga works to bring balance to the mind body connection, individuals may connect that feeling with feeling peaceful. Acceptance may also be a first step in ‘being okay’ with one’s past or traumatic event. Acceptance also includes the participants acceptance of themselves or their body. For example, someone who has been sexually assaulted may not feel comfortable with or in their body, thus a yoga-based intervention could provide the safe space where the person could relax and reconnect with their physicality. This can pose a major concern when working with clients because if a client is a stranger to themselves the healing process cannot begin. This intervention is significant because it may jumpstart the mind body connection and allow for healing growth for clients.

Empowerment and self-esteem is an important factor in working with clients specifically those who experience PTSD. As mentioned in the conceptual framework, the empowerment theory ties into this work because a yoga-based intervention may help an individual process and recognize negative patterns in their life and take action to increase their own ability and power. Clients need to feel in control and this type of intervention provides the space for a person to develop and enhance a greater sense of self as well as a greater sense of control over their life. This is critical for every client to feel this way about themselves and their lives, particularly because of the impact that trauma has on a person including the biology and psychology of PTSD symptoms.

The last theme centeredness and mindfulness is noteworthy for individuals who experience PTSD because practicing mindfulness can decrease rumination of thoughts that may

be related to the person trauma and provides a way to practice non-attachment and become less reactive to their environments, people, or their PTSD symptoms. All of these themes are aligned with the information that was studied in the literature review.

Cook-Cottone et al. (2017) discuss different symptoms related to trauma exposure and elements of Trauma-Sensitive Yoga and Trauma-Informed Yoga that show correlation with these research themes. Symptoms of hyperarousal and dissociation may be counteracted by the “embodied practice” which refers to the physicality and interceptive awareness of the participants. The element of engagement in the present moment (yoga and mindfulness practices) related to the second set of symptoms of PTSD: avoidance and re-experiencing. The symptom of alterations in cognitions for an individual with PTSD can be minimized by the intentional, empowered thinking during a yoga-based intervention. The fourth symptom discussed is the relational disconnection, which the presence and responsiveness of the yoga teacher counters this disconnect and provides relational attunement for the client.

This study suggests that yoga-based interventions can be effective during intervention or treatments and the follow-up research also points to decrease in symptoms, depression, and anxiety. Although some research has not found clinically significant changes, the decline is still present from participants baselines before the interventions. This healing comes through the specific themes discussed and healing may be pushed further when individuals are able to reconnect with their physical body, their emotions and feelings as well as their faith or spirituality. The yoga-based interventions encourage an individual to slow down, learn to be present, reconnect with their emotions and bodily sensations. Participants new-found awareness is a start and thus can assist participants who are also seeing a psychotherapist and or a mental health professional who is assisting them in talk therapy. As it will be mentioned in the

limitations section, there are many areas of this research that is unclear and needs future research to address to better understand how yoga-based interventions can work for everyone.

Limitations

There are numerous limitations that apply to this research, which many will be addressed, and it is certain they will not all be covered in this section. One of the most restricting limitation relates to the topic of yoga-based interventions for a PTSD diagnosis. As this topic continues to emerge in the research world, there are more new studies coming out; yet, as found with this research, it can be hard to find data that specifically shows clinically significant data points, particularly when most of the research is qualitative. The subjectivity of this research is also important and can also be hindering when looking for statistically significant evidence-based data.

As most of the research found for this systematic review was qualitative, it must be mentioned that the data is purely subjective to the participants personal experiences with the yoga-based interventions. This is a critical piece to analyze due to the fact that all participants had varying types of traumas; one specific type of trauma was not analyzed for this research. Participants reported all types of traumas, and some studies that were analyzed did not mention which types of trauma the participants experienced.

Not only is the data collected based upon their feelings, the standardized questionnaires were not all the same. Different studies used different questionnaires and scales to assess the participants PTSD levels, depression and anxiety levels, along with scales that rated their baselines and their decreased symptoms or improved mood. This may be important in developing and continuing consistency in some of the quantitative data.

Another aspect of this research that needs to be critically reviewed is the idea of culturally specific yoga-based interventions. This perspective will provide another view of the research that may be an important factor in an individual looking for and participating in interventions for PTSD. This also speaks to the limiting demographics of the participants. This study was focused on women aged 18 and over solely yet there are many more demographics left out of this research, which may also impact the effectiveness of the yoga-based interventions.

Finally, this field is ever-changing and with the more neuroscience research continues to grow, there will be more in-depth findings that will continue to shape and change interventions for PTSD as well as complementary and alternative medicine approaches to treatments and interventions. The neuroscience research will have huge implications for this type of mind body work in the coming decades.

Future Research and Implications

There appears to be gaps in the current literature on culturally specific yoga-based interventions as well as studies that include more people of color. Majority of the research reviewed for this study participants were majority white women. This raises many questions including where these interventions are available, where can women get access to this type of service, do women with PTSD have interest in yoga interventions, and more importantly their voice is not heard. Or is it that overall women with PTSD who experience more symptoms do not have mental health services or are more reluctant to participate in an intervention that is yoga based? There are many gaps in the current research that will continue to be uncovered in the near future. And, currently the research that has been done shows a positive effect for decreasing PTSD symptoms which provides hope for the future research.

As yoga-based interventions have been shown to be beneficial and effective for people who experience PTSD, this information is critical for social workers to know and understand the nuances of yoga-based interventions. Stated earlier, 3.5% of the adult population in the U.S., roughly 7.7 million people are affected by PTSD (NAMI, 2015). This number is not decreasing, and more people are needing services. Depending on where the individual is at with their overall health and symptoms, they may or may not be diagnosed. These yoga-based interventions may provide help in decreasing symptoms for those already diagnosed and these interventions may also have a positive impact on people who are not yet diagnosed with PTSD but have symptoms. This could have huge implications for everyone who has experienced trauma in their lives.

Social work holds itself accountable for being inclusive when using models such as the biopsychosocial framework although, mind body practices and therapies do not leave out the spiritual aspect. This is an important factor in a client's healing whether they are religious, spiritual or have their own self-care practice, being connected to something bigger than oneself is wanted. Yoga-based interventions provide this; social workers should be able to share this information with their clients if they determine it may be beneficial in reducing the client's symptoms and assist with the healing process. This is also a practice intervention that may be utilized with individuals of all ages; physical postures can be modified for someone who is chair bound or for small children. This has major clinical implications, if social workers can bring mind body therapies such as this into their daily practice they may see positive changes in their clients faster than just using psychotherapy.

As there are many positive inferences with yoga-based interventions on PTSD in women, it is also important to note, this is not an intervention a practitioner can rush into using with a client. The client must be in a space where they feel they are ready and willing to try it. The

practitioner and client should have many conversations about what yoga-based interventions are and what a session looks like, there should be no surprises for the client. The practitioner should read and inform themselves about the different yoga-based interventions available for their clients before sharing the potential intervention.

Conclusion

With the alarming rates of Americans developing PTSD in their lifetime, therapeutic interventions must be critically reviewed to ensure their effectiveness with the diagnosis. This paper provides the information that is needed when interventions are in question. Looking through the conceptual frameworks of the empowerment theory and holism, yoga-based interventions would seemingly fit well with these concepts. It is important to understand the traditional practices of yoga and the eight limbs, that show how an ancient practice that has been rooted in uniting the mind and body, can be beneficial and effective for a person's mental health as well as physical health.

The current literature on PTSD, trauma sensitive yoga and yoga-based interventions is becoming more prevalent in today's research world. As stated previously, people living with PTSD may experience debilitating symptoms that affect their daily life. Yoga-based interventions have been shown to decrease those symptoms and increase positive aspects of their lives such as reconnecting to one's body, rebuilding that physical and mental connection that they may have lost during their traumatic event or events. The Trauma Sensitive Yoga program acknowledges the four key components to this beneficial treatment. Experiencing the present moment, making choices, taking effective action and creating rhythms are imperative experiences for people suffering from PTSD.

The psychoneuroendocrinology aspects of trauma is crucial to know and understand when working with clients who have PTSD. Recognizing what happens to a person's biological self after experiencing trauma is just as important due to the body's response to the traumatic event. Research suggests that practicing mindfulness, being in the present moment, having a greater sense of awareness are all important psychological aspects after a person has had a horrific experience. Improving concepts such as emotion regulation and distress tolerance are also components that can be positively impacted by practicing yoga-based interventions.

Acknowledging the neurological aspect of how trauma impacts a person holds high importance when reviewing interventions for PTSD. The autonomic nervous system utilizes two branches the sympathetic and parasympathetic systems. The sympathetic branch is triggered by stress whereas the parasympathetic response to relaxation. With trauma, the sympathetic branch takes over and the limbic system has a hard time controlling the stress. The limbic system becomes stuck in a consistent state of dis-ease and the body cannot re-regulate itself. This also influences the endocrine system and immunology systems. The endocrine system deals with the hormones, which also influences regulation of the body to create homeostasis. A traumatic event may create a person's body to produce more stress hormones than needed and continue to do so after the threat or traumatic event is over thus leaving the body in a heightened awareness which leads to PTSD symptoms such as agitation and panic. When the body is in this consistent state of dysregulation, the immune system cannot maintain prime health and secondary diseases come into play for people who have PTSD. As this paper's goal was to determine if yoga-based interventions were beneficial and effective for people experiencing PTSD, the systematic review design will be recapped.

As current literature was reiterated above, the research was specifically focused on women who were diagnosed with PTSD with the studies being less than 10 years old, using key search terms including “posttraumatic stress disorder”, “PTSD”, and “yoga-based interventions”, or “yoga” or “mind body therapies”. Articles were excluded if they did not include a meditative practice or breathing techniques within the intervention being assessed. Three main types of interventions were found in this analysis of nine articles: Kundalini yoga, Kripalu yoga, and Trauma Sensitive Yoga. Typically, the interventions consisted of weekly or bi-weekly yoga sessions for 60-or 90-minutes for 8 or 10 weeks. The two quantitative studies found a connection between the yoga-based interventions and the self-reporting scores for the PTSD checklist, and depression and anxiety measurement scores (Jindani et al., 2015, Rhodes et al., 2016, Mitchel et al., 2014). As mentioned earlier, most of these scores have proven to be non-clinically significant, yet, the studies still suggest that the overall decrease reported by participants may be beneficial and effective for their PTSD.

The qualitative findings suggest four prominent themes of acceptance and being at peace, empowerment and self-esteem, and centeredness and mindfulness. These themes can be linked to the literature review research that suggests the healing is very subjective and personal per the stories and anecdotes that have been shared throughout this paper. These themes also connect with the four components of the TSY program of experiencing the present moment, making choices, taking effective action and creating rhythms. Yoga-based interventions allow an individual to make the yoga experience their own by allowing themselves to ‘feel’ and be at one with themselves in that exact moment; they only have to focus on what is in the present, not their past or their future. As the body stores the trauma, the yoga interventions provide a release of that stored negative energy that the body becomes used to. These interventions may be the next

best step in evidence-based practice for healing PTSD, or at a minimum decreasing or eliminating some symptoms for those who suffer with the diagnosis. The hope is that this piece of research will further the knowledge base of these topics and help create the space for yoga-based interventions to become mainstream for people particularly women who experience PTSD.

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APPENDIX A: Table for Included Studies

Title	Author	Type of Study	Sample	Intervention	Findings	Discussion
A Journey to Embodied Healing: Yoga as a Treatment for Post-Traumatic Stress Disorder	Farah Jindani, Guru Fatha Singh Khalsa	Randomized Control Trial, qualitative semi structured interviews	50 participants, 40 were available for interview after intervention, women (n=31), male (n=9), aged 18 and over	8-week Kundalini Yoga PTSD program, program consisted of strength-based elements for resilience and self-efficacy with focus of reintegration and development of coping strategies	KY practice impacted participants feelings of energy, renewal, self-esteem, spiritual strength, centeredness, peace and connection with spirit, self/wonder.	Participants identified yoga as a “spiritual or embodied practice supportive of healing for PTSD”, findings suggest that yogic treatment interventions offer an embodied mind-body-spiritual practice where people with PTSD can “positively grow from their experiences and develop positive self-awareness, self-regulation, identity, and resilience”
A Pilot Study of a Randomized Controlled Trial of Yoga as an Intervention for PTSD Symptoms in Women	Karen S. Mitchell, Alexandra M. Dick, Dawn M. DiMartino, Brian N. Smith, Barbara Niles, Karestan C.	Pilot study, Randomized Control Trial	38 participants- all women, veterans and civilians aged 18-65 years old and positive on the Primary Care PTSD screen, yoga	Consistent with Kripalu- form of hatha yoga, 12 weekly sessions or 12 twice weekly sessions over 6 weeks, 75-minute sessions	Both groups experienced clinically significant decreases in PCL scores from baseline to postintervention and baseline to 1 month follow up	Significant decreases in PTSD symptoms including reexperiencing, hyperarousal symptoms, anxiety symptoms, preliminary evidence suggests women with full or subthreshold PTSD can tolerate

	Koenen, Amy Street		group (n=20), control group (n=18)			trauma-sensitive yoga, and subjective reports indicate positive reactions
A Yoga Intervention for Posttraumatic Stress: A Preliminary Randomized Control Trial	Farah Jindani, Nigel Turner, Sat Bir S. Khalsa	Pilot Randomized Control Trial	80 participants aged 18-64 years old, 9 males and 71 females, yoga group (n=29), control group (n=21), only considered if outside treatment did not include contemplative component (CBT or exposure therapies)	KY style intervention, 8- week treatment protocol, 90- minute classes, 15-minute daily home practice assigned, 20- minute YouTube video was created and given to participants for home practice	PTSD checklist scores, Insomnia severity index scores were lower at follow up for yoga group, positive and negative affect schedule were improved for yoga group, perceived stress scale for yoga group was decreased by half, resilience scale increased for yoga group and stayed the same for waitlist group	Yoga group had significantly greater improvements in scores of PTSD, insomnia, perceived stress, positive and negative affect, resilience, stress and anxiety in comparison to waitlist group. Findings suggest that when individuals feel calmer, they may experience greater awareness of their thoughts and emotions; may prepare a person for insight-based therapies that require emotional awareness (CBT or psychotherapy)
A Yoga Intervention Program for Patients	Farah A. Jindani, Phd and G.F.S. Khalsa, BA	Randomized Control Trial,	40 participants aged 18-63, 31 females	Consistent with Kundalini Yoga (KY),	40 interviews conducted, 12 major codes, 3 themes of self-	Learned strategies to slow down, attune to mind and body, become aware of

<p>Suffering from Symptoms of Posttraumatic Stress Disorder: A Qualitative Study</p>		<p>Semi-structured audio recorded phone interviews</p>	<p>and 9 male, intervention group (n=59), wait-list control (n=21)</p>	<p>weekly 90-minute group practice session over 8-week program, 15-minute home practice assigned</p>	<p>observed changes, new awareness and yoga program,</p>	<p>thought patterns and regulate emotions, results included skills of self-mastery and internal locus of control, peer support, community engagement, heightened well-being</p>
<p>Claiming peaceful embodiment through yoga in the aftermath of trauma</p>	<p>Alison M Rhodes</p>	<p>Long-term follow-up study of a Randomized Control Trial using the hermeneutic phenomenological methods, semi structured interviews</p>	<p>49 of the 60 original participants completed the follow-up interviews, women aged 18-58</p>	<p>Three yoga groups (n=31), three control groups (n=29), 10 weeks of Trauma Sensitive Yoga classes 1 hour per week</p>	<p>Used hermeneutics phenomenological analysis for the interviews, 74.4% of participants reported continued yoga practice but less than 1 x per week, 20.5% reported practicing yoga at least 1x per week, participants experienced an improved connection with and sense of ownership and control over their bodies, emotions and thoughts.</p>	<p>Essential themes pulled from participant interviews: three themes related to claiming peaceful embodiment, four themes highlighted new capacities enabled by the peaceful embodiment, and several others that allude to factors that facilitate or impede participants engagement with yoga and their experiences of healing through yoga.</p>

<p>Examining Mechanisms of Change in a Yoga Intervention for Women: The Influence of Mindfulness, Psychological Flexibility, and Emotion Regulation on PTSD Symptoms</p>	<p>Alexandra M. Dick, Barbara L. Niles, Amy E. Street, Dawn M. DiMartino, Karen S. Mitchell</p>	<p>Secondary Analysis of a Randomized Control Trial</p>	<p>38 participants, all women, aged 18-65 years old, Veteran (n=9) and civilian women (n=29),</p>	<p>Yoga group attended 12 75-minute sessions weekly for 12 weeks or twice weekly for six weeks, Yoga classes utilized components of Trauma Sensitive Yoga, each yoga class had a theme related to Dialectical Behavior Therapy skills</p>	<p>Participation in the yoga group was related to a decrease in expressive suppression (emotion regulation) compared to that of the control group, increases in psychological flexibility was associated with depression scores at follow-up for yoga group but not control group</p>	<p>Changes in the psychological flexibility may be related to changes in PTSD symptoms, preliminary evidence suggests that yoga may reduce expressive suppression</p>
<p>Impact of a Yoga Intervention on Physical Activity, Self-Efficacy, and Motivation in Women with PTSD Symptoms</p>	<p>Emily C. Martin PhD, Alexandra M. Dick MA, Erica R. Scioli-Salter PhD, and Karen S. Mitchell PhD</p>	<p>Secondary Data Analysis of a Randomized Control Trial</p>	<p>41 women attended the baseline assessment session, 3 women did not have at least subthreshold PTSD, remaining 38 participants were deemed</p>	<p>Kripalu oriented yoga style, incorporated elements of trauma-sensitive yoga, 75-minute yoga classes weekly for 12 weeks or twice weekly for 6 weeks, DBT components were</p>	<p>Leisure-time physical activity scores and self-efficacy scores for exercise decreased non-significantly over time for both yoga group and control group, amotivation decreased significantly for</p>	<p>The hypothesis was that yoga group participants would increase their leisure-time physical activity during the intervention - a trend was seen but findings did not reach significance. The second hypothesis was partially supported: that changes would</p>

			eligible, yoga group (n=20), assessment-only control group (n=18), ages 20-65 years old	incorporated into the yoga classes	both groups combined, neither group had significant changes on any other subscales measured	occur in self-efficacy and motivational regulation for exercise, although subscales did not change significantly, the yoga group did evidence a significant decrease in external regulation; thus, may have shifted from exercising for external reasons to internally motivated reasons
Trauma Sensitive Yoga as a Complementary Treatment for Posttraumatic Stress Disorder: A Qualitative Descriptive Analysis	Jennifer West, Belle Liang, Joseph Spinazzola	Secondary qualitative study of Randomized Control Trial followed by interviews: aimed to address the gaps in previous research by interviewing adult following their participation in study	All 31 women who completed the intervention agreed to be interviewed, ages 18-58 years old with chronic, treatment nonresponsive PTSD	Original study: 10 weekly sessions or waitlist control group, Trauma Sensitive Yoga (form of hatha yoga) model was used Current study: focuses only on the qualitative component (interviews after the TSY) of the original study, TSY is considered supplemental	Five major themes were identified from participants perceptions of TSY, acronym G.R.A.C.E. was created based on themes: Grace and compassion, relation, acceptance, centeredness, empowerment.	Findings demonstrated that TSY's emphasis on mindful movement and interceptive awareness helps to regulate affective arousal, increases ability to experience emotions safely in the present moment, and promotes a sense of safety and comfort within one's body. The data illustrates ways which TSY may assist in both

				treatment, participants were also required to be involved in psychotherapy for a minimum of 6 months prior to study.		symptom reduction as well as personal growth.
Yoga for Adult Women with Chronic PTSD: A Long-Term Follow-Up Study	Alison Rhodes, PhD, Joseph Spinazzola, PhD, Bessel van der Kolk, MD	Long-Term Follow-Up study	60 women participants of the original study, 49 women completed the long-term follow-up interview	Original study: yoga RCT with three yoga groups (n=31) and three control groups (n=29), Current study participants: 26 women from yoga group, 16 assigned to health seminar, 7 assigned to control group, participants were contacted to complete the same measures used in the original study and an additional self-report on frequency of yoga practice since OS	Majority (n=39) of participants continued or began to practice yoga, 23 of 26 assigned to YG continue to practice yoga, bivariate analysis and regression analysis indicated that a greater frequency of yoga practice after the study was significantly associated with loss of PTSD diagnosis and with decreases in depression symptom severity	Findings from this study suggest that more frequent yoga practice over extended periods may augment and sustain decreases in symptoms of both PTSD and depression. Findings are “particularly promising” given that the study population reported persistent mental health problems related to traumatic stressors despite having been in trauma-focused psychotherapy for at least 3 years.

