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Yoga as an Adjunctive Treatment for PTSD in Latina Women: A Review of the Evidence and Recommendations for Implementation

Abstract

Latinos are the largest and fastest growing ethnic minority in the United States and are at risk for more prevalent and more severe Posttraumatic Stress Disorder (PTSD) than the majority population. While interest in yoga as a treatment for mental disorders has increased in recent years, little research exists on its use as a therapy for PTSD. This paper reviews the evidence supporting the use of yoga as a treatment for PTSD with Latina women, especially related to the underlying neurobiological mechanisms, and outlines recommendations for its implementation with this population. Limitations, barriers, and directions for future research are discussed.

Degree Type

Thesis

Degree Name

Master of Science in Clinical Psychology (MSCP)

Committee Chair

Lucrecia V. Suárez, LCSW

Keywords

yoga, trauma, PTSD, Latino

Subject Categories

Psychiatry and Psychology

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YOGA AS AN ADJUNCTIVE TREATMENT FOR PTSD IN LATINA WOMEN: A REVIEW
OF THE EVIDENCE AND RECOMMENDATIONS FOR IMPLEMENTATION

A THESIS

SUBMITTED TO THE FACULTY

OF

SCHOOL OF PROFESSIONAL PSYCHOLOGY

PACIFIC UNIVERSITY

HILLSBORO, OREGON

BY

MARGARET KIRLIN

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY

JULY 23, 2010

APPROVED
Lucrecia V. Suárez, LCSW

Abstract

Latinos are the largest and fastest growing ethnic minority in the United States and are at risk for more prevalent and more severe Posttraumatic Stress Disorder (PTSD) than the majority population. While interest in yoga as a treatment for mental disorders has increased in recent years, little research exists on its use as a therapy for PTSD. This paper reviews the evidence supporting the use of yoga as a treatment for PTSD with Latina women, especially related to the underlying neurobiological mechanisms, and outlines recommendations for its implementation with this population. Limitations, barriers, and directions for future research are discussed.

Keywords: yoga, trauma, PTSD, Latino

Acknowledgements

To my thesis advisor, Lucrecia Suárez, for sharing her deep well of wisdom and providing such thoughtful guidance in this endeavor, I offer my sincerest thanks. To my parents and sisters, whose love and unwavering support have allowed me to be where I am today, my gratitude is beyond words.

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Introduction

Latinos are the largest and fastest-growing ethnic minority group in the United States, comprising approximately 15% of the population (U.S. Census Bureau, 2008). Latinos are a diverse group and individuals vary in regards to country of origin, acculturation level, immigration status, socioeconomic status, and level of English language fluency. For the purpose of this paper, the term “Latino” refers to people of any race who trace their origin or ancestry to Mexico, Cuba, Puerto Rico, Spanish speaking Central or South America, or other Spanish cultures (U.S. Census Bureau, 2007). “Latina” refers specifically to female members of this group. While Latinos demonstrate lower rates of mental disorders than the general population, they are also more likely to face barriers to mental health treatment such as lack of health insurance, inadequate availability of bilingual and bicultural mental health providers, and the cultural stigma of seeking mental health treatment (Kandula, Kersey, & Lurie, 2004).

Despite lower overall rates of mood, anxiety, and other mental disorders (Kessler et al., 2005), Latinos have higher rates of Posttraumatic Stress Disorder (PTSD; Galea et al., 2004) and report more severe PTSD symptoms than non-Latino Caucasians (Marshall, Schell, and Miles, 2009; Pole, Best, Metzler, & Marmar, 2005). These differences in PTSD rates cannot be attributed to differences in exposure to trauma (Pole, Gone, & Kulkarni, 2008). Furthermore, evidence suggests that Latinos are more likely to report somatic or physical symptoms than non-Latino Caucasians (Canino, Escobar, Canino, & Rubio-Stipec, 1992). Pole, Best, Metzler, and Marmar (2005) found that Latino police officers were at higher risk for developing PTSD symptoms following trauma exposure than their non-Latino counterparts, especially physiological hyperarousal and numbing. These data suggest that providing culturally appropriate PTSD treatment for Latinos is a pressing need in the mental health field.

Specifically, this treatment should address the physiological component as well as the emotional and cognitive patterns that characterize the disorder.

Because Latinos have higher rates of PTSD than the general population (Galea et al, 2004) and among the lowest rates of utilization of mental health services such as outpatient psychotherapy (Simoni & Perez, 1995), finding accessible and appropriate treatment options for this population is essential. Research indicates that group therapy may be as effective as and can be a cost-effective alternative to individual therapy (McRoberts, Burlingame, & Hoag, 1998) and it has been shown that group therapy is effective in treating ethnic minorities, especially when clinicians are knowledgeable about the role of race and ethnicity (White, 1994). This evidence strongly supports the development of an effective treatment for trauma in Latina women that addresses the somatic and physiological component of distress.

Yoga is rooted in an ancient Indian cultural and spiritual practice that was developed as a means towards the end of achieving self-awareness (Pilkington, Kirkwood, Rampes, & Richardson, 2005). Hatha yoga is the system of yoga that is most commonly practiced in the west and includes postures (asanas), breathing exercises (pranayama), and meditation (dhyana; Pilkington et al, 2005). Yoga can be considered one of a number of disciplines of mindful exercise including Qi Gong and Tai Chi. Mindful exercise has experienced a growth in popularity in the West in the last two decades and is generally defined to include exercise that involve self-monitoring of effort, breathing, and nonjudgemental awareness (LaForge, 2005). In addition to enjoying growing popularity in the West, it has recently been studied more closely as a complementary alternative medicine (CAM) for both physical and mental health conditions (Michalsen et al., 2005; Pilkington et al., 2005; Khalsa, 2004).

The goal of the current research is twofold. First, this study will review the existing literature for evidence supporting or contraindicating the use of yoga as an adjunctive therapy for treating Posttraumatic Stress Disorder in Latina women. Second, this study is designed from a service-level approach to further the knowledge of mental health providers of how to effectively address trauma in Latino clients. Treatment recommendations for implementing yoga with Latina trauma survivors will be included to support this goal. The primary hypothesis for this research is that the literature will support the use of yoga as an adjunctive therapy for treating trauma in Latina women. That is, it may provide additional benefits beyond talk therapy alone when treating Latina trauma survivors. Although it is expected that little research will be found that directly references the use of yoga as an adjunctive treatment for trauma in Latinas, the intention of this study is to aggregate evidence that will provide support for the potential benefits of that yoga will have for Latina trauma survivors.

Method

Aims and Objectives

The aim of this study was to evaluate the evidence in existing literature for or against the effectiveness of yoga as an adjunctive treatment for trauma survivors, specifically with Latina women. The guiding research questions were, “What is known about yoga? What is known about trauma, especially as it relates to Latinos? What research has been done regarding yoga as a treatment for trauma survivors? What research has been done regarding yoga as a treatment for Latina women trauma survivors?”

Summary of the search strategy

An initial search for clinical research was carried out on PsycINFO (OVID). As relevant articles were reviewed, any further related research referenced in the article was obtained from PsycINFO or Medline. In addition, based on the researcher’s personal knowledge that Dr. Bessel van der Kolk’s is currently conducting research on trauma and yoga, a search for publications reporting his findings was conducted of the Trauma Center at Justice Resource Institute website.

Search terms

The following terms for yoga, Latinos, trauma, and somatization were used in the search of PsycINFO: exp Yoga, exp Yoga AND (exp Trauma OR exp Emotional Trauma), exp Yoga AND exp Posttraumatic Stress Disorder, exp Hispanics AND exp Posttraumatic Stress Disorder, exp Hispanics AND exp Yoga, and exp Hispanics AND exp Somatization.

Selection Criteria

Systematic reviews of the literature, controlled and uncontrolled clinical trials, qualitative studies, and theoretical articles were considered for inclusion in this review. Restrictions were placed to include only English-language articles and those in peer-reviewed journals. Dissertation abstracts were not included, although in retrospect it may have been useful to do so due to the limited amount of research on yoga as a treatment for trauma. The limitations of including only English language, peer-reviewed journal articles restricted this study to a certain body of academic knowledge at the exclusion of international research. This research method did not tap into yoga practitioners' or mental health providers' body of accumulated unpublished mental knowledge and experience of how yoga may be effective in treating trauma. The search as defined above returned some English language articles from Indian journals, but these were the only international journal articles included. While it was not possible to include a broader body of knowledge in the present study, it is important to note that other information on this topic may exist that is not included here.

Results

The keyword search returned a large body of knowledge regarding yoga but only one study specifically examining yoga as a trauma treatment, which did not specify participants' race or ethnicity. The keyword search returned 350 results for Yoga, 59 results for Hispanics and Posttraumatic Stress Disorder, nine results for Hispanics and Somatization, three results for Yoga and Trauma/Emotional Trauma, one result for Yoga and Posttraumatic Stress Disorder, and zero results for Hispanics and Yoga. Because no research has been published thus far about yoga, trauma, and Latinos, the information for this study was gleaned in small pieces from a variety of different studies. For example, some studies discussed how yoga functions in the body while other studies explored how Posttraumatic Stress Disorder manifests in Latino populations.

Three main themes emerged from the literature that will be discussed in greater detail in the following section. First, yoga has been shown to be effective in treating a wide array of physical and mental health concerns. Second, research consistently shows that PTSD is more severe and manifests uniquely in Latina women as compared to the dominant culture. Third, trauma has consistent neurobiological effects that may provide an explanation as to how yoga works on the brain to ameliorate the effects of trauma. Taken together, these results suggest that yoga is an effective adjunctive treatment for PTSD in Latina women, although no studies published thus far have empirically tested this assumption.

Discussion

Trauma and PTSD

Posttraumatic stress disorder is one of the few mental disorders that includes its etiology in the criteria. According to the *Diagnostic and Statistical Manual of Mental Disorders-IV-TR* (*DSM-IV-TR*; American Psychiatric Association, 2000), in order to meet criteria for this diagnosis an individual must have experienced a traumatic event that involved a real threat of harm (criteria A₁) and a response of fear, helplessness, or horror in the face of this event (criteria A₂). Furthermore, an individual must meet a specified number of criteria in three symptom clusters: reexperiencing of the event, avoidance of associated stimuli and numbing of responsiveness, and increased arousal. Specific physical symptoms include physiological distress upon exposure to trauma-associated stimuli, difficulty falling or staying asleep, hypervigilance, and an exaggerated startle response.

PTSD may occur in response to a variety of traumas such as war, natural disasters, accidents, and abuse. Rasmussen, Rosenfeld, Reeves, and Keller (2007) found that for a sample of undocumented immigrants, interpersonal violence was associated with higher rates of PTSD than other types of trauma. This study examined concordance rates between criteria A₁ and A₂ among undocumented immigrants arriving in the United States. They found the highest concordance rates between the experience of a traumatic event (A₁) and feelings of fear, helplessness, and horror (A₂) in individuals who had experienced violence by authorities, domestic violence by their partner, and sexual abuse or rape. These results suggest that interpersonal violence is more likely to lead to a diagnosis of Posttraumatic Stress Disorder than other types of trauma, such as accidents and natural disasters. The authors propose that these

events share the characteristics of violation of safety within the home, the pervasiveness of the aggressors in the victims' lives, and stigma associated with these events. They propose a dose-response effect of trauma in which cumulative traumatic events such as domestic violence or violence by authorities increases the likelihood of developing PTSD (Rasmussen, Rosenfeld, Reeves, & Keller, 2007).

It should be noted that trauma exists on a continuum that is broader in scope than the diagnostic category outlined in the *DSM-IV-TR* (American Psychiatric Association, 2000). Briere and Spinazzola (2005) outline a continuum model for understanding and assessing responses to complex trauma. This continuum may range from a single event occurring in an adult individual with adequate development, a normal nervous system, and no comorbid mental disorders to multiple, early onset, stigmatizing, interpersonal, invasive events in individuals who are more susceptible to the effects of stress. This continuum conceptualization is relevant to the present study because, as the authors state, the complexity of a response to trauma may be affected by inadequate social support, low socioeconomic status, and the stigmatization that occurs with certain traumatic events (Briere & Spinazzola, 2005). These compounding factors certainly apply to Latinas, who are more likely than non-Hispanic whites to be poor (U.S. Census Bureau, 2007) and have higher levels of social isolation and cultural factors that complicate their reactions to trauma or stress (Kelly, 2010). Furthermore, somatoform distress is a significant element of the phenomenology of complex responses to trauma (Briere & Spinazzola, 2005), especially in cultures where physical symptoms may be an idiom of posttraumatic distress if psychological dysfunction is less culturally acceptable (Marsella et al., 1996). Yoga may address somatoform distress in individuals with a history of complex trauma in a way that talk therapy

alone cannot do. This is especially relevant to Latinos, especially women, who are more likely to express distress at a physical level (Canino, Escobar, Canino, & Rubio-Stipec, 1992).

Trauma and Latinas

How then, does somatoform distress manifest for Latina women? As discussed above, interpersonal violence has been linked to PTSD (Rasmussen, Rosenfeld, Reeves, & Keller, 2007). While rates of intimate partner violence are about the same for Latinos as for non-Latino Caucasians, Lown and Vega (2001) found that Latina women who had been victims of intimate partner violence in the last twelve months were at greater risk for developing a variety of health problems and somatic symptoms than those who had not been victims. Specifically, their participants reported higher levels pain, sexual, and reproductive symptoms. These data suggest that trauma, especially interpersonal violence, can lead to both the distinctive hyperarousal symptoms associated with PTSD and additional physical health problems.

Van der Kolk, Roth, Pelcovitz, Sunday, and Spinazzola (2005), using data collected for the DSM-IV field trial, found that childhood abuse is the most frequent cause of traumatization in women and is associated with more severe symptoms and a poorer prognosis than other types of trauma, whether or not these women meet criteria for PTSD. These authors suggest that the PTSD diagnosis does not capture the full range of posttraumatic symptoms and state, “focusing on PTSD symptoms and, at best, relegating other posttraumatic sequelae to comorbidities may interfere with a comprehensive and effective treatment approach” (van der Kolk et al, 2005, p. 396). While van der Kolk and colleagues (2005) argue that PTSD does not capture the full range of posttraumatic sequelae such as loss of a sense of safety and trust, frequent revictimization, and loss of a coherent sense of self, it is currently the most widely used and understood construct

available in the mental health field for guiding trauma treatment. We may assume that effective trauma treatment for Latina women with PTSD will address all of the relevant symptoms discussed above and include a body-oriented component to address the somatic and physiological manifestation of posttraumatic distress in this population.

Intimate partner violence rates are higher among Latinos and Blacks than among Whites, and the recurrence rate among Latinos the highest of all ethnic groups at 58% (Cactano et al., 2005). Kelly (2010) found that Latina shelter-seeking victims of domestic violence experience significant psychological effects that are more severe those experienced by White or Black women. Furthermore, in this population symptom severity was more strongly related to negative outcomes than meeting a certain diagnosis such as PTSD or major depressive disorder (MDD). The author asserts that for immigrant women who face stressors and challenges different from those in the mainstream population, interpersonal violence may lead to especially damaging effects on quality of life and overall level of functioning (Kelly, 2010). This highlights the point that trauma may affect Latinas in complex ways above and beyond the scope of PTSD. Given this understanding of how PTSD manifests in Latinas, the next step is to understand how and why the proposed yoga treatment may address these issues.

Trauma Treatment and Yoga

Yoga has been studied as a potential treatment for a vast array of physical health problems such as diabetes, chronic lower back pain, irritable bowel syndrome, cardiovascular conditions, breathing problems, and epilepsy with generally promising results (Khalsa, 2004). In more recent years yoga has been studied as a potential treatment for mental disorders such as anxiety and depression. Pilkington and colleagues (2005) conducted a comprehensive review of

published randomized controlled trials of yoga as a treatment for depression and found that all studies demonstrated positive results in decreasing depressive symptoms. However, they note that the lack of standardization of poses and breathing exercises used across studies make it difficult to determine exactly which component of the yoga treatment had an effect. Kirkwood and colleagues (2005) conducted a review of the evidence for the effectiveness of yoga as a treatment of anxiety disorders. All studies reviewed showed positive results; however, they found a general lack of methodological rigor including a lack of randomization and failure to account for participant attrition. In general, these studies indicate that yoga shows promise as a treatment for mental disorders; however, research is in its beginning stages and much more study in this area is needed to definitively conclude its effectiveness. Although the research on yoga with depression and anxiety suggests that it may also be a promising treatment for trauma survivors, “trauma is qualitatively different from stress and results in lasting biological changes” (van der Kolk & Saporta, 1991, p. 199), so carefully controlled research is needed to determine if adding yoga to trauma treatment has beneficial effects beyond psychotherapy alone.

Thus far, very little research has been published scientifically testing the effects of yoga on PTSD symptomatology. In 2006, van der Kolk published the results of two small pilot studies with eight participants in each. In one study yoga participants showed significant decreases in total symptoms, reexperiencing, and avoidance in a paired samples t-test over an eight-session hatha yoga treatment (van der Kolk, 2006). In a second pilot study, participants were assigned to eight sessions of group therapy based on Dialectical Behavior Therapy (DBT) or to a hatha yoga group. Only the yoga group showed significant decreases in frequency of intrusions and severity of hyperarousal from pre to posttest as compared to DBT (van der Kolk, 2006). These results indicate promising preliminary support for the use of yoga as a treatment for PTSD; however, the

ethnicity of participants was not reported so it is unknown if these results may be applied to Latinas.

Researchers have proposed a variety of mechanisms by which yoga may benefit participants. Researchers (Wiltermuth & Heath, 2009) have found that acting in synchrony produced greater group cooperation on a variety of tasks. Yoga may function in a similar way because the postures and breathing exercises are generally conducted in unison, suggesting that the act of moving and breathing as a group could be the mechanism for healing. Other authors have suggested that the increased ability to self-soothe (Waelde, Thompson, & Gallagher-Thompson, 2004) and increased perception of self-efficacy (Kissen & Kissen-Kohn, 2009) resulting from yoga may be responsible for its beneficial effects. Daubenmier (2005) found that yoga practitioners showed greater body awareness and body responsiveness as compared to participants who participated in only aerobic exercise. In regards to trauma, this suggests that yoga may help practitioners become more aware of their own bodily sensations respond appropriately, reducing the numbing and hyperreactivity that characterize PTSD. At the physiological level, yoga has been shown to reduce heart rate (Telles et al., 2004) and increase levels of the inhibitory neurotransmitter γ -aminobutyric acid (GABA; Streeter et al, 2007), supporting its use in addressing the physiological hyperarousal that is characteristic of PTSD in Latina women. Of the empirical studies cited, one (Daubenmier, 2005) included about 6% Latino participants, although results were not analyzed regarding race or ethnicity. Eighteen out of nineteen participants in Streeter and colleagues' (2007) study were White and the ethnicity of the other participant was not reported, and Telles and colleagues (2004) did not report the race or ethnicity of their participants. Because researchers are either not including Latino participants or

do not report if outcomes vary according to race or ethnicity, it is difficult to say whether we may generalize the results of these studies to Latina women.

Neurobiology of Trauma and Yoga

The strongest argument that may be made for the potential effectiveness of yoga as a trauma treatment relies on neuroscience and cardiovascular research to illuminate the connection between a body-centered practice and a mental disorder. In order to understand how yoga may work to treat PTSD, it is necessary first to understand how trauma affects an individual's psychophysiology. Although a full explanation of the neurobiology of trauma is beyond the scope of this paper, there are a few key pieces of information that will be discussed in order to understand the mechanisms underlying yoga's effects on the body and brain. Van der Kolk and Saporta (1991) summarize the well-documented symptomatology of PTSD, stating, "traumatized people are prone to have intrusive memories of elements of the trauma, to have a poor tolerance for arousal, to respond to stress in an all-or-nothing way, and to feel emotionally numb" (p. 201). A key psychophysiological abnormality seen in traumatized individuals is the exaggerated response to specific reminders of the trauma and to intense but neutral stimuli such as loud sounds (van der Kolk, 1994). The author suggests that these individuals have difficulty evaluating sensory stimuli and responding with appropriate levels of arousal. Ultimately, the failure to integrate trauma and tendency to live in the past is demonstrated at a physiological level by a misinterpretation of stimuli as threats (van der Kolk, 1994). A loss of affective regulatory ability causes traumatized individuals to move directly from stimulus to response without using affective states as signals about what is happening in the present (van der Kolk & Saporta, 1991).

The chronic activation of the stress response seen in individuals with PTSD leads to the release of endogenous hormones: norepinephrine, epinephrine, cortisol, vasopressin, oxytocin, and endogenous opioids (van der Kolk, 1994). The brain system responsible for regulating the hormones involved in the stress response is the hypothalamic-pituitary-adrenal (HPA) axis (van der Kolk, 1994). These hormones are useful in helping people deal with stress in the short term. However, repeated activation of the stress response system creates a negative feedback loop that permanently changes how an individual deals with stress in daily life and responds to future acute stress (Yehuda, Giller, Southwick, Lowy, & Mason, 1991).

Certain characteristic abnormal neuroendocrine responses are consistently seen in PTSD upon exposure to trauma-related stimuli or intense neutral stimuli. The main neuroendocrine systems involved in the stress response are catecholamines, corticosteroids, and endogenous opioids. Studies of Vietnam veterans with PTSD (Kosten, Mason, Giller, Ostroff, & Harkness, 1987) have shown elevated levels of epinephrine and norepinephrine as compared to veterans with other mental disorders such as depression, indicating increased sympathetic nervous system (SNS) activation in PTSD. Studies have shown that individuals with PTSD have low levels of urinary cortisol (Yehuda, Southwick, Mason, & Giller, 1990, as cited in van der Kolk, 1994) and increased numbers of glucocorticoid receptors (Yehuda, Lowy, & Southwick, 1991), further indicating a dysfunction of the cortisol response and the HPA axis in traumatized individuals. Two studies show evidence of stress-induced analgesia (SIA) in subjects with PTSD, indicating that SIA may become a conditioned response to stress or trauma-associated stimuli (van der Kolk, Greenberg, Orr, & Pitman, 1989; Pitman, van der Kolk, Orr, & Greenberg, 1990). Interestingly, the analgesic effect was equivalent to an 8 mg dose of morphine. The authors of

these studies suggest that the numbing effects of the endogenous opioids could be responsible for the blunted emotional response or numbing upon exposure to traumatic stimuli.

Given the basic knowledge of how trauma affects the physiobiology of an individual, how, then, does yoga act on the same system to ameliorate the stress response? Innes, Bourguignon, and Taylor (2005) conducted a comprehensive literature review of studies published between 1970 and 2004 of the effects of yoga on cardiovascular disease. While they were not researching trauma specifically, the information gathered in this study indicates that yoga has significant effects on markers of sympathetic and parasympathetic activation. Eighty-five percent of the studies reviewed offered evidence that yoga reduces sympathetic activation and promotes a shift in the autonomic nervous system away from sympathetic dominance and towards parasympathetic activation (Innes, Bourguignon, & Taylor, 2005). As discussed above, trauma has been associated with overactivation of the sympathetic nervous system (SNS). Some of the changes found in yoga practitioners included reduced respiratory rate, heart rate, cortisol concentrations, and catecholamine levels. Eleven of the 13 studies examining sympathoadrenal activation showed positive results for yoga, including reductions in catecholamine levels. Other findings showed reduced diastolic blood pressure and faster cardiovascular recovery in response to stress (Innes, Bourguignon, & Taylor, 2005). They conclude that, “collectively, this research suggests that that even the short-term practice of yoga may produce marked reductions in sympathoadrenal activation, enhance cardiovagal tone, and promote sympathovagal balance” (Innes, Bourguignon, & Taylor, 2005, p. 511). It stands to reason that the research of Innes and colleagues (2005) may illuminate the ways in which yoga acts on the systems that are usually dysregulated in traumatized individuals.

Implementation of Yoga With Traumatized Individuals

With a basic understanding, at the physiological level, of how yoga may function to affect the body and brain in traumatized individuals, the next question is how to implement this intervention at a service level. Emerson, Sharma, Chaudry, and Turner (2009) outlined several guidelines for trauma sensitive yoga in the *International Journal of Yoga Therapy*. These guidelines form the basis of The Trauma Center's training for trauma-sensitive yoga and relate to the physical space, content, and process of a yoga session for this population. They suggest that windows to the outside are covered, the light is soft but not dark, noise is minimized, and that there are no mirrors or that if mirrors are present the practitioners do not face them. These characteristics of the physical space are intended to promote feelings of safety and reduce feelings of vulnerability. In regards to creating a safe emotional space, they suggest that instructors do not use touching to assist poses, as this is a clinical issue and may feel invasive or violating to trauma survivors. Verbal instructions should be used to guide practitioners in adjusting poses to their own ability and comfort level. The authors suggest that gentle physical assists may eventually be used as a way to help people tolerate safe, gentle touch from another. However, this is not necessary and will not be appropriate for all traumatized yoga practitioners.

As yoga classes usually involve a considerable amount of talking by the instructor, Emerson and colleagues (2009) recommend the use of what they call "Invitatory Language." This way of communicating yoga instructions to trauma survivors uses invitations such as "if you like" and "when you are ready" instead of direct commands. The authors suggest that because trauma involves a lack of choice in which events occur that an individual did not want, trauma sensitive yoga should emphasize the practitioner's ability to choose if or to what level he or she will engage in a posture or practice. In addition to using the language of invitation, these

guidelines suggest that teachers support traumatized individuals in deciding what feels best for their bodies (Emerson et al, 2009). This is designed to promote an awareness of bodily experience and choice about that experience. Instructors at The Trauma Center are asked to repeatedly reinforce participants' power to choose. For example, if a pose is painful or uncomfortable participants are invited to come out of it and rest. These authors propose that trauma survivors often have an antagonistic relationship with their bodies and this practice will allow them to develop a "friendly" relationship with themselves.

The Trauma Center's yoga program focuses on the "how" rather than the "what" of yoga (Emerson et al, 2009). The authors emphasize that trauma sensitive yoga teachers should not try to control the experience of traumatized individuals; for example, making statements like, "this is difficult for trauma survivors" or "this should feel good." Difficult postures should be introduced gradually and students should always be encouraged to stop if they feel any pain. They aim to teach participants to identify what is happening in their bodies in the present moment and be in control of their own experience. They suggest that the therapeutic aspect of trauma sensitive yoga occurs when participants are willing and able to take control of their experience and make a choice not to be in pain (Emerson et al, 2009).

Yoga, Trauma Group Therapy, and Latinas

In order to meet the needs of Latina trauma survivors, local service providers are proposing that trauma sensitive yoga be used in conjunction with trauma group therapy accessible in Spanish. The curriculum for group trauma treatment being considered is *Saber es Poder* (Knowledge is Power) a manualized Spanish language and cultural translation (Wallis & Amaro, 2006) of the Trauma Recovery and Empowerment Model (TREM; Harris, 1998).

TREM is a widely used and empirically supported trauma treatment model for female survivors of physical and sexual abuse that addresses affect dysregulation, numbness and dissociation, relationship difficulties, depression, difficulty in accurate perception of self and others, and substance abuse, among others, in trauma survivors. The techniques used include cognitive restructuring, skills training, psychoeducation, peer support, and contained exposure to facilitate recovery and reduce posttraumatic symptomology (Fallot & Harris, 2002). The *Saber Es Poder* manual is published in Spanish, adapting the TREM model for use with Latina Spanish-speaking women. The intention of this combination is to foster a feeling of community and support that is present in both therapy groups and trauma sensitive yoga classes. It is hypothesized that these two modalities will mutually support each other in creating a sense of physical and emotional safety necessary for healing from trauma.

In addition to the feeling of support and community, yoga is expected to complement group psychotherapy due to the unique way in which traumatic experience affects nonverbal areas of the brain. Van der Kolk (2002) explains that treating PTSD should aim to help traumatized overcome the subcortical “imprints” of trauma, or the intense sensory and affective reexperiencing of trauma triggered by events in the present. These imprints occur because the subcortical or primitive areas of the brain (limbic system and brain stem) store and process memories differently than the higher-level processing that occurs in the frontal cortex (van der Kolk, 2002). Talk therapy relies on the higher-level verbally based areas of the brain; however, for traumatized individuals recounting or recalling traumatic experiences may render these parts of the brain inactive or inaccessible (van der Kolk, 2002). Therefore, it is proposed that yoga, through breathing and mindful body movement, may function to calm the hyperarousal and reexperiencing that are characteristic of PTSD. The intention of combining yoga and talk

therapy is to access both the subcortical and higher level areas of the brain to allow participants to eventually integrate their traumatic experiences into a coherent whole.

Challenges and Limitations

While yoga shows much promise as a complementary treatment to group therapy for women with PTSD, there are certain barriers and limitations that may be especially important to consider when implementing yoga with Latinas. A focus-group study (Atkinson & Permuth-Levine, 2009) showed that perceived barriers to yoga practice included the time commitment required, childcare demands, and cost associated with yoga practice. Participants in this study also mentioned a belief that yoga is too religious or that people who practice yoga are too “earthy” (Atkinson & Permuth-Levine 2009). This study did not specify participants’ race or ethnicity, although it may be assumed that all were English speaking because the study was conducted in the U.S. and the researchers did not indicate otherwise. Pilkington and colleagues (2005) discuss the safety issues associated with beginning a yoga practice, especially with older practitioners or those not used to physical exercise. Atkinson and Permuth-Levine (2009) also mention participants’ perception that yoga may cause or exacerbate existing health problems, such as joint pain, and the belief that it is too difficult for people with physical injuries or limitations. These barriers and preconceptions may be especially salient for women who are not part of the mainstream White culture that has embraced yoga in the United States.

When implementing yoga as an intervention strategy with Latina women mental health professionals should be aware of both practical and cultural barriers that may impede participation. In the United States yoga is generally associated with certain demographics such as females, highly educated, urban lifestyle, and post-WWII birth. (Saper, Eisenberg, Davis,

Culpepper, & Phillips, 2004). In addition to the aforementioned recommendations for creating a safe space in which traumatized individuals may practice yoga, it may be necessary to anticipate and respond to barriers that are present for Latina women. Addressing the cultural barriers may be done by providing yoga instruction in Spanish, orienting participants to the structure of a yoga practice, and listening to any concerns that participants may have regarding the practice. Specifically, instructors or therapists should outline the difference between trauma-sensitive yoga as part of treatment and a regular yoga class, as participants may not necessarily know the difference between the two. Addressing the practical barriers includes making sure that yoga classes or groups are affordable and providing an option for childcare, as this step may allow many women to participate who may not otherwise be able to.

While the preliminary evidence suggests that yoga may be an effective treatment modality for traumatized individuals, there are limitations to the existing body of knowledge. Specifically, it is unknown whether yoga has beneficial unique effects as compared to either aerobic exercise or other mindfulness practices such as meditation or Tai Chi. Salmon, Rush, Jablonski, and Sephton (2008) highlight the difference between aerobic exercise, which activates the sympathetic nervous system and yoga, which activates the relaxation response. Watts (2000) hypothesizes that yoga has valuable effects but that it does not offer any unique value. He argues that it is unclear whether any benefits offered by yoga are due to nonspecific factors such as expectancy of positive outcomes. He proposes that other procedures such as Transcendental Meditation (TM) may offer the same benefits as yoga but are much simpler procedures and do not require the same background and training. Certainly, it is possible that the benefits attributed to yoga may be due to other factors such as a sense of community or an expectation that it will be helpful. Furthermore, it is possible that only one aspect of yoga may be effecting change for

practitioners. For example, it could be the simple act of attending to breathing that activates that parasympathetic nervous system. If this is the case, then breathing exercises alone could provide the same benefits in a simpler way.

Formal research of yoga as a treatment for PTSD is in its nascent stage and ultimately the questions posed above will only be answered through more vigorous research. First, a controlled clinical trial comparing group therapy alone to group therapy plus yoga will answer the question as to whether yoga offers any additional benefits as a trauma treatment that cannot be provided by talk therapy. Furthermore, a comparison of yoga to other types of mindful movement disciplines will shed some light on the question of whether or not yoga offers any unique benefits. Finally, a study of the process of yoga with trauma survivors will allow for a more careful analysis of which elements of the yoga practice are mediating positive effects. Perhaps research will show that yoga as a holistic practice effects change. However, if only one or two elements of the entire practice are shown to be beneficial the question remains as to whether they should be distilled from the practice and applied in isolation versus applied as part of a whole.

Conclusions

In general, the initial evidence points to a potentially beneficial effect of yoga interventions on PTSD. However, clinical studies in this area are limited and none specifically address the use of yoga with Latina women living with PTSD. Yoga appears to act on the same neurobiological systems that are associated with PTSD symptoms, providing evidence as to how it may function therapeutically. Recommendations for implementating yoga with traumatized individuals have been described, as well as potential barriers to the practice of yoga. Further investigation of yoga as an adjunctive treatment for PTSD for all populations, including Latinas, is clearly warranted.

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