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The Relationship Between Frequency of Yoga and Meditation on PTSD Symptoms in Individuals Who Have Experienced Intimate Partner Violence

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CERTIFICATE OF APPROVAL

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has been approved by the
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Abstract

Intimate partner violence (IPV) has become a growing phenomenon in the United States, affecting nearly 13% of the population. The adverse mental health outcomes from people who experience IPV are prevalent and more than half have a diagnosis of posttraumatic stress disorder (PTSD). Therefore, therapeutic techniques for PTSD appear to be feasible for IPV survivors and their mental health issues. Complementary and alternative medicine has become a widely accepted approach for PTSD. Being two complementary and alternative medicine techniques, yoga and meditation are effective forms of therapy in many diagnoses, including PTSD. This study utilized a not-for-profit organization called the Purple Dot Yoga Project that helps individuals who suffer from IPV with yoga and meditation techniques. The researcher utilized their resources and collected survey information on 52 individuals who had experienced some form of IPV in their lifetime. The two hypotheses that were tested were whether higher use of yoga predicted lower PTSD scores on a PTSD Checklist in individuals who survived IPV and whether higher use of meditation predicted lower PTSD scores on a PTSD Checklist in individuals who survived IPV. Results from this study found that greater use of yoga and meditation were better predictors of lower PTSD scores in individuals who experienced IPV.

THE RELATIONSHIP BETWEEN FREQUENCY OF YOGA AND MEDITATION ON PTSD SYMPTOMS IN INDIVIDUALS WHO HAVE EXPERIENCED INTIMATE PARTNER VIOLENCE

DEDICATION

This research is dedicated to those who currently experience, have experienced, or will suffer from intimate partner violence. May you find hope, healing, and wholeness afterward.

ACKNOWLEDGEMENTS

Thank you to Kate Berlin, CEO of Purple Dot Yoga Project, for helping with this dissertation and allowing the research to take place.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

CHAPTER I

Intimate partner violence (IPV) is an emergent phenomenon in the United States that has the potential to create substantial harm to those it affects. Nearly 13% of the U.S. population has the probability of being subjected to this vehemence during their lifetime. The 2011 National Intimate Partner and Sexual Violence Survey (Breiding, Basile, Smith, Black, & Mahendra, 2015) found that 10 million men and women suffered from physical violence by an intimate partner. Furthermore, 1 in 5 women (nearly 29 million) and 1 in 7 men (approximately 16 million) experience severe physical violence by an intimate partner during their lifetime (Breiding et al., 2015). Each year, the number of IPV victims appears to be rising at alarming rates within the United States. Therefore, it is essential that continued research on this area be conducted to determine the future effects IPV will have on individuals' mental, emotional, and physical health as well as what preventive measures can be taken to provide these individuals with supportive care.

> The Center for Disease Control and Prevention (CDC) describes IPV as a:
>
> serious, preventable public health problem that affects millions of Americans . . . Intimate partner violence includes physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner) . . . This type of violence can occur among heterosexual or same-sex couples and does not require sexual intimacy. (Breiding et al., 2015, p. 2)

The definition includes a variety of aggressive and violent tactics that do not require any form of sexual contact to have taken place for it to be deemed IPV. Therefore, it is essential to recognize that emotional and psychological coercion or abuse by an intimate partner with whom the individual did not have sex is still considered a form of IPV. All forms of these violent acts can create adverse mental, emotional, physical, and psychological health outcomes for both men and women (Breiding et al., 2015).

Research on IPV is still in its infancy but does examine gender differences between the detrimental outcomes of IPV. Consequently, research using the U.S. national sample has concluded that gender comparisons of IPV include important findings that suggest women are more likely to be victims of kidnapping, physical assault, rape, sexual assault, and stalking by an intimate partner (Iverson et al., 2012).. Conversely, men are more apt to experience mugging or physical assault by someone other than an intimate partner or parent Despite the gender differences for IPV, exposure to IPV was still strongly correlated with adverse mental health outcomes, regardless of gender. In other words, both men and women who have experienced some form of IPV, regardless of what that IPV was, were at risk for experiencing significant lifelong emotional, mental, and physical health consequences (Iverson et al., 2012).

The research is unequivocal in its findings that IPV is strongly correlated with negative mental health consequences. Correspondingly, research provides strong evidence that the higher the frequency and the more severe the violence, the higher the risk of severe pathology and unhealthy behaviors (Breiding et al., 2015). Because IPV is a form of interpersonal trauma, the damaging psychological affects victims experience from IPV are similar to those of individuals

who have experienced other forms of trauma or even complex trauma (Breiding et al., 2015). Respectively, IPV is strongly associated with an elevated risk for many mental health disorders, including posttraumatic stress disorder (PTSD) and a history of suicide attempts (Iverson et al., 2012; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Similarly, two forms of interpersonal violence, rape and witnessing interparental violence, have been found to be most associated with adverse unfavorable mental health outcomes (Iverson et al., 2012). As such, it is no surprise that rape is strongly correlated with negative psychological consequences, due to the force, violence, and severity that goes along with it. Likewise, Golding (1999) found that women who experienced IPV were three to five times more likely to endure mental health problems such as depression, PTSD, substance abuse, and suicidality than non-victims. Thus, victims of IPV are more inclined to suffer from severe mental health disorders, such as PTSD, when compared to those who have not experienced IPV. Therefore, understanding the diagnosis of PTSD and its clinical implications helps in understanding the devastating effects that IPV has on its survivors.

PTSD is a condition in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013)* described as being developed from exposure to traumatic events. Some of the symptomologies include reliving, avoiding, negative affect, and hypervigilance. These symptoms must be experienced for longer than one month, the *DSM-5* criteria for PTSD include:

A. Exposure to actual or threatened death, serious injury, or sexual violence, in one or more of the following ways: directly experiencing the traumatic event(s); witnessing, in person,

the traumatic event(s) as they occurred to others; or learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death to a friend or family member, the event(s) must have been violent or accidental; experiencing repeated or extreme exposure to aversive details of the traumatic event(s; e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). This does not apply to exposure through electronic media, television, movies, or pictures unless this exposure is work-related. (p. 278)

B. The presence of one or more of the following intrusion symptoms associated when the traumatic event(s) beginning with the traumatic event(s) occurred: recurrent, involuntary, and intrusive distressing memories of the traumatic event; recurrent distressing dreams in which the content and effects of the dream are related to the traumatic event(s); dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic events(s) are recurring. (Such reactions may occur on a continuum with the most extreme expression being a complete loss of awareness of present surroundings): intense or prolonged psychological distress at exposure to internal and external cues that symbolize or resemble an aspect of the traumatic event(s); marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s). (p. 278)

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or more of the following; avoidance of, or efforts to avoid, distressing memories, thoughts or feelings about or closely associated

with the traumatic event(s); avoidance of, or effort to avoid, external reminders (e.g., people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts or feelings about, or that are closely associated with, the traumatic event(s). (p. 279)

D. Negative alterations in cognition and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two or more of the following: inability to remember an critical aspect of the traumatic event(s; typically due to dissociative amnesia and not due to other factors such as head injury, alcohol, or drugs); persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous" or "My whole nervous system is permanently ruined"); persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame him/herself or others; persistent negative emotional state (e.g., fear, horror, anger, guilt, shame); markedly diminished interest or participation in significant activities; feelings of detachment or estrangement from others; persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, loving feelings). (p. 279)

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two or more of the following: irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or

objects; reckless or self-destructive behavior; hypervigilance; exaggerated startle response; problems with concentration; sleep disturbance (e.g., difficulty falling or staying asleep, restless sleep). (p. 280)

F. The duration of the disturbance (Criteria B, C, D, and E) is more than one month. The disturbance causes clinically significant distress or impairment in social, occupational, or other critical areas of functioning. Exclude the diagnosis if the symptoms are due to the direct physiological effects of a substance (e.g., medication, drugs, alcohol) or another medical condition (e.g., traumatic brain injury) (p. 280)

PTSD is the clinical diagnosis for individuals who have experienced life-threatening traumatic situations, such as IPV. Research shows the prevalence of PTSD among battered women varies from 31%-84.4% (Golding, 1999; Jones, Hughes, & Unterstaller, 2001). Similarly, another study concluded that women IPV survivors are three times more likely to have a diagnosis of PTSD compared to those who have not experienced IPV (Fedovskiy, Higgins, & Paranjape, 2008). Furthermore, the long-term effects of trauma can lead to lifelong mental health problems that immobilize the individual. Additionally, 50% of the women in the United States report experiencing a traumatic event (Kessler et al., 1995). As such, the most prevalent psychiatric diagnosis is PTSD with 10.4% of women and 5% of men being diagnosed throughout their lifetime (Kessler et al., 1995; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Therefore, finding proactive measures to combat the effects of trauma are crucial in psychological wholeness for victims of IPV.

Problem Background

Research suggests the destructive effects of IPV appear to be more prominent when compounded by frequency and severity of the trauma. The complexity of symptomology of PTSD is dependent upon the severity of violence as well as the length of time the violence or abuse took place. Consequently, greater severity and frequency of physical violence have been shown to be correlated with greater symptom severity and a PTSD diagnosis (Houskamp & Foy, 1991; Kemp, Rawlings, & Green, 1991; Woods, 2000). Black et al. (2011) conducted a nationwide study on IPV and found that 80% of women who experience rape, stalking, or physical violence are more likely to have significant psychological effects, including PTSD, than any other form of IPV. Likewise, the use of a weapon and sexual IPV have been shown to predict a higher likelihood of PTSD symptom severity and frequency (Dutton et al., 2006; Hattendorf, Ottens, & Lomax, 1999). On the contrary, some studies have found that psychological abuse was stronger predictor of PTSD than physical abuse in women (Dutton, Goodman, & Bennett, 2001; Street & Arias, 2001). Psychological abuse includes gaslighting, manipulation, and other coercive tactics that paralyze the individual and make him or her question his or her sanity. While one would assume physical abuse to be a more significant predictor of PTSD, it is possible that psychological abuse has a more adverse outcome due to the unpredictable nature of the abuser through psychological torture. This form of IPV is likely a strong predictor of PTSD due to the brain-washing effects that psychologically damages the victim's frame of mind. Also, psychological abuse usually occurs for more extended periods,

potentially creating a higher frequency of abuse that is correlated with adverse mental health outcomes including PTSD (Dutton, Goodman, & Bennett, 2001; Street & Arias, 2001).

Similarly, research is consistent in finding that multiple IPV experiences (complex trauma) extending from childhood and adulthood, particularly in women who have IPV histories of childhood sexual abuse, are correlated with PTSD (Astin, Ogland-Hand, Coleman, & Foy, 1995; Messman-Moore, Long, & Siegfried, 2000; Schaaf & McCanne, 1998). While PTSD may not be the only symptom that follows trauma or IPV, it appears to be an essential aspect and common factor when being exposed to violence (Schnurr & Green, 2004). Despite the evidence of the detrimental effects and severity of IPV and data showing that 14% of the U.S. population is affected, research regarding treatment interventions for IPV is still in their infancy (Schnurr & Green, 2004). Different therapeutic approaches have been developed to combat traumatic responses in victims of abuse (Martin, 1997). Research shows that building rapport and the therapeutic alliance are vital factors when starting to work with trauma survivors. Similarly, research has found that mindfulness has been proposed as a common factor in psychotherapy and foundational component into building the therapeutic alliance (Martin, 1997). Mindfulness-based therapies, such as yoga and meditation, have become therapeutic approaches under the umbrella of CAM (Wynn, 2015).

CAM is becoming a widely accepted modality for individuals with a broad range of mental health disorders (Wynn, 2015). It encompasses an extensive number of treatments including yoga and meditation. Studies that incorporate yoga or meditation as a treatment modality are utilizing a CAM. While the research is still limited, particularly in the realm of

PTSD, some research on CAM has been conducted on combat trauma survivors in the Veteran Affairs (VA) (Wynn, 2015).

For example, in one study of specialized VA treatment programs for PTSD, 39% of the 599 veteran participants reported CAM use in the previous year (Libby, Pilver, & Desai, 2012). Similarly, CAM is being offered in 89% of VA facilities, and meditation is reported as the most commonly used CAM modality (VA Health Care, 2011). The use of CAM in the VA setting has been shown to be effective in the treatment of PTSD, mainly in minimizing adverse effects such as avoidance, flashbacks, and triggers (Bormann, Thorp, Wetherell, Golshan, & Lang, 2013; Kearney, McDermott, Malte, Martinez, & Simpson, 2012). Therefore, research in CAM modalities for other forms of interpersonal violence and trauma would be beneficial in determining the effectiveness of these treatment approaches for IPV or other forms of interpersonal trauma that often result in PTSD symptomology. While the effects of alternative approaches of treatment for interpersonal violence are limited in the research, it can be postulated that CAM could be appropriate based on the research in VAs for other forms of PTSD.

CAM approaches have become more widely accepted forms of therapy and intervention in mental health settings for a variety of clinical diagnoses and behavior problems (Libby, Pilver, & Desai, 2012). The most widely used CAM approach for interventions in therapy is meditation (Libby, Pilver, & Desai, 2012). As such, meditation has become incorporated into empirically supported therapy known as mindfulness-based stress reduction (MBSR), created by Jon Kabat-Zinn at the University of Massachusetts Medical Center, in Worcester, MA in 1979 (Kabat-Zinn,

1982). A form of meditation, mindfulness is focusing on the present moment in a nonjudgmental way (Kabat-Zinn, 1990; Siegel, 2007). Mindfulness and meditation have been shown to promote emotional regulation, behavioral flexibility, and overall wellbeing (Brown & Ryan, 2003). Therefore, mindfulness can become a core process in therapy, as it can target a variety of mental health problems such as anxiety, depression, and other mood disorders (Brown & Ryan, 2003; Kabat-Zinn, 1990; Siegel, 2007).

Meditation, a mind, body, and spirit therapy, is defined as, "A family of self-regulation practices that focus on training attention and awareness in order to bring mental processes under greater voluntary control and thereby foster general mental wellbeing and development and/or specific capacities such as calm, clarity, and concentration" (Walsh & Shapiro, 2006, p. 228). Meditation practices stem from Tibetan and Zen Buddhist practices that enhance mindfulness, also known as Vipassana. Vipassana is insight or clear awareness by attending to bodily sensations, emotions, thoughts, and surrounding environments without attachment or judgment (Iyengar, 1966). Therefore, greater awareness by an individual in the present moment without judgment could aid the individual in reducing anxiety and depressive symptoms. In other words, meditation is in the now whereas anxiety is living in the future and depression is living in the past. Thus, meditation actively focuses the mind in the only place that is occurring, the present. Other forms of therapy, such as interpersonal process approach, utilizes in-the-moment processing, or mindfulness, as a core factor in therapy (Teyber & Teyber, 2013). Therefore, the effectiveness of mindfulness aiding in therapeutic change and growth for clients with anxiety and depression is apparent because of the immediate effect that processing the present moment has

on reducing clients' fears of the future or the past. In-the-moment content helps clients be present with their negative affect and gives them space to process it before they react behaviorally (Teyber & Teyber, 2013).

Research supports the notion that meditation can aid in reducing anxiety and depression. As such, meditation has been found to be negatively correlated with anxiety and positively correlated with positive affect, positive emotion, joviality, attentiveness, and vitality (Keune & Forintos, 2010). Similarly, meditation-relaxation was found to reduce state and trait anxiety as well as somatic and depressive symptoms in an elderly sample (DeBerry, 1982). Mindfulness meditation has been found to be an effective intervention in clinical settings for eating disorders, weight loss, stress reduction, anxiety, interpersonal difficulties, depression, PTSD, obsessive-compulsive disorder, and suicidality (Chiesa & Serretti, 2011; Hofmann, Sawyer, Witt, & Oh, 2010; Hoge et al., 2013).

Another alternative approach to therapy utilized in CAM is yoga. Yoga is described as a moving meditation, with the goal to bring the mind, body, and spirit into balance and alignment (Iyengar, 1966). Yoga is a 5,000-year-old East Indian practice that cultivates the "eight limbs of yoga" and brings the body and mind into balance. The eight limbs are described as Yama or the "Golden Rule," known as doing to others what we would do to ourselves, Niyama or self-discipline and spiritual practice, Asana also known as the physical practice, Pranayama also known as "life force" and breath work, Pratyahara or withdrawing from our senses, Dharana or concentration on a single point, Dhyana or meditation, and finally Samadhi also known as enlightenment (Iyengar, 1966, p. 44). For the yogi to achieve Samadhi, he or she must fulfill

each limb before moving toward the next. Yoga translates from Sanskrit “to yoke,” and encompasses the joining of the mind and body toward Sattva or Samadhi, known as enlightenment or peace (Dey, Barrett, & Yuan, 2003; Iyengar, 1966). Similar to meditation, yoga has been shown to increase mental health and reduce stress (Kulkarni & Bera, 2009). Ultimately, yoga incorporates mindfulness and meditation to bring the mind, body, and spirit into balance with the individuals’ highest good (Dey, Barrett, & Yuan, 2003; Iyengar, 1966; Kulkarni & Bera, 2009).

Alternatively, the contemporary practice of yoga has evolved to be more physically-oriented (Austin & Laeng, 2003). Asanas, or physical postures, is still considered to be a moving meditation because the mind is focused on whatever is occurring in the present moment for the individual’s body, mind, and breathe. In general, contemporary yoga involves synchronizing the breath with the physical postures and then ending with savasana or “corpse pose,” the relaxation posture of meditation. Different postures are used for various purposes, such as to ground, soothe, revitalize, invigorate, or stimulate energies (Austin & Laeng, 2003).

Pranayama signifies the “life force energy” also known as the breath (Iyengar, 1966). Breath techniques are used in yoga to stimulate the body and mind and ultimately bring the mind toward balance and stillness. There are a variety of breath techniques utilized in contemporary yoga classes, some for invigorating, known as Ujjayi, and others for calming such as Khastrika (Gerbarg & Brown, 2007). Ultimately, the breath techniques bring the mind toward clarity and calmness and enhance a state of further tranquility (Iyengar, 1966). Overall, the goal of yoga is to bring the mind and body toward present moment awareness through the breath. Given that the

breath is a present moment occurrence, it enables the individual to focus mindfully and meditatively on his or her body moving with their breath (Gergbarg & Brown, 2007; Iyengar, 1966).

Given that yoga is a form of mindfulness meditation, it is no surprise then that the research supports the use of yoga in improving mental health outcomes. Research has found conclusive results that the use of yoga has the ability to reduce symptoms of somatization, anxiety, and depression (Doria, de Vuono, Sanlorenzo, Irtelli, & Mencacci, 2015; Javnbakht, Hejazi Kenar, & Ghasemi, 2009; Kozasa et al., 2008; Shapiro et al., 2007; Yoshihara, Hiramoto, Oka, Kubo, & Subo, 2014). Correspondingly, yoga has been found to reduce perceived stress from a variety of related medical stressors such as cancer and pregnancy (Beddeo, Yang, Kennedy, Weiss, & Lee, 2009; Lin, Hu, Chang, Lin, & Tsauo, 2011; Raghavendra et al., 2009). The benefits of yoga have been found to include the improvement of emotional regulation and self-efficacy (Franzblau, Smith, Echevarria, & Van Cantfort, 2006; Gootjes, Franken, & Van Strien, 2011). More specifically, Descilo et al. (2010) found that Pranayama (yogic breath work) reduced depression, anxiety, and PTSD in survivors of a natural disaster. Similarly, Schuver and Lewis (2016) found that women who completed a mindfulness-based yoga intervention showed a reduction in depressive scores over 3 months and reported a significant decrease in ruminations when compared to a walking group. Therefore, utilizing yoga as a form of treatment for PTSD has not only been shown to be practical but also effective because yoga involves social support, physical activity, and meditation/mindfulness practice, all of which who have been shown to improve PTSD symptoms (Wynn, 2015). Finally, the use of yoga and meditation with

individuals who suffer from PTSD has been shown to be an effective and therapeutic approach and likely can aid in the reduction of long-term negative health consequences.

Purpose of the Study

The purpose of the study was to determine if the more frequent use of yoga and meditation would predict lower-level scores on a PTSD symptom scale for individuals who had experienced IPV. Overall, the purpose was assessing whether yoga and meditation may have usefulness in therapeutic interventions for IPV.

Research Questions, Hypotheses, and/or Problem Statements

RQ 1: Does greater minutes of yoga relate to lower scores on the PTSD Checklist for people who have experienced IPV?

H_0 1: Greater minutes spent doing yoga is positively predicted with lower scores on the PTSD Checklist for individuals who have experienced IPV.

RQ 2: Does greater days of doing yoga relate to lower scores on the PTSD Checklist for people who have experienced IPV?

H_0 2: Greater days spent doing yoga is positively predicted with lower scores on the PTSD Checklist for individuals who have experienced IPV.

RQ3: Does greater years maintaining yoga practice relate to lower scores on the PTSD Checklist for people who have experienced IPV?

H_0 3: Greater years maintain yoga practice predicted lower scores on the PTSD checklist for individuals who have experienced IPV.

RQ4: Does greater minutes of meditation relate to lower scores on the PTSD checklist for people who have experienced IPV?

H_0 4: Greater minutes of meditation is predicted with lower scores on the PTSD Checklist for individuals who have experienced IPV.

RQ5: Does greater days of meditation relate to lower scores on the PTSD Checklist for people who have experienced IPV?

H_0 5: Greater days of meditation is predicted with lower scores on the PTSD Checklist for individuals who have experienced IPV.

RQ6: Does greater years of maintained meditation practice predict lower scores on the PTSD Checklist for people who have experienced IPV?

H_0 6: Greater years of maintained meditation practice predicted lower scores on the PTSD Checklist for people who have experienced IPV.

Definitions

The following are definitions of terms used within this clinical research project:

- *Complementary and alternative medicine (CAM)* therapeutic treatment modalities that are not part of standard care (i.e., therapy, psychotropic medication).
- *Intimate partner violence (IPV)* as a:

> serious, preventable public health problem that affects millions of Americans. . . . Intimate partner violence includes physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing

> sexual partner) . . . This type of violence can occur among heterosexual or same-sex couples and does not require sexual intimacy. (Breiding et al., 2015, p. 2)

- *Meditation* is defined as "A family of self-regulation practices that focus on training attention and awareness in order to bring mental processes under greater voluntary control and thereby foster general mental wellbeing and development and/or specific capacities such as calm, clarity, and concentration" (Walsh & Shapiro, 2006, p. 228);
- *Mindfulness,* a form of meditation, is focusing on the present moment in a nonjudgmental way (Kabat-Zinn, 1990; Siegel, 2007).
- *Posttraumatic stress disorder (PTSD)* is a psychiatric disorder defined in the *Diagnostic Statistical Manual of Mental Disorders–Fifth Edition (DSM-5)* as being an anxiety disorder characterized by avoidance and physiological arousal symptoms after witnessing or experiencing a life-threatening event (American Psychiatric Association, 2013).
- *Trauma-sensitive yoga* is a body-oriented, structured practice that helps to foster one's internal sense of safety, personal agency, and choice that cultivates the capacity for self-awareness and self-regulation (Emerson & Hopper, 2011).
- *Yoga* translated means union, unite, or yoke and is a layered discipline including breath control, meditation, and body postures (Iyengar, 1966).

Significance of the Study

This study was unique in that it investigated whether yoga and meditation could predict lower scores on a PTSD Checklist for individuals who have experienced intimate partner violence. The potential benefit is the future clinical application of yoga and meditation, given its

ease of implementation and cost-effective measures. Also, research in the area of trauma is important and significant because research suggests that most people are exposed to at least one traumatic event during their life (Bonanno, 2005; Breslau, 2002).

CHAPTER II: REVIEW OF THE LITERATURE

Complementary and Alternative Medicine in Therapy

While the literature on mind-body-spirit practices as an intervention in therapy is still in its infancy, the present body of research supported the positive outcomes these holistic practices can have on psychological distress. In other words, complementary and alternative approaches, such as yoga and meditation, have been found to be helpful in an array of diverse populations to mediate the effects of stressors. Both yoga and meditation have been combined within therapeutic approaches to compliment treatment modalities. Individuals with more severe pathologies have also been identified as having positive outcomes from the use of yoga and meditation. Therefore, continued research within this field can help identify the different CAM practices that are most useful in general and with which populations.

Alternative Approaches for Mediating Situational Stressors

In a study examining several CAM practices with college students, yoga, mindfulness meditation, and relaxation training was found to be effective in reducing negative psychological states and enhancing positive mood in 83 predominately-female students experiencing stress as measured by a Brief Symptom Inventory (Jain et al., 2007). The authors compared these three types of interventions and found that mindfulness meditation was more effective than relaxation training in reducing ruminations and distractions. The results of this study suggest that mindfulness meditation can have a positive effect on reduction of situational stress. Correspondingly, Chung, Brooks, Rai, Balk, and Rai (2012) conducted a study of 67 participants receiving inpatient mental health treatment consisting of Sahaja yoga meditation combined with

standard care and compared them to a control group of 62 individuals receiving only standard care treatment (i.e., psychotherapy and medication). They measured the individual's quality of life using a World Health Organization Quality of Life self-report instrument (WHOQOL; Fallowfield, 1990), anxiety was measured by a self-report instrument known as the Clinical Anxiety Scale (Westhuis & Thyer, 1989), and blood pressure was measured by a calibrated sphygmomanometer that read pulse rate. The authors found a significant increase in perceived quality of life and reduced anxiety after a week of daily meditation (minimum 3 hours per day) use as well as an improvement in hypertension. On the contrary, the control group saw a significant decline in quality of life and increases in anxiety after just two weeks. When comparing the meditation group to the control group after the treatment, the meditation group showed significant improvements in quality of life when compared to the controls, improvements in anxiety were found only in the meditation group, and the reduction in pulse rate was significantly lower in the meditation group than the controls (Chung et al., 2012).

Alternative Approaches for Combat-Veterans

There is a growing body of research suggesting that mindfulness and other mind-body interventions, such as yoga and meditation, may lead to significant reductions in PTSD symptomology. During the 1980s, research was beginning to explore the utilization of holistic practices for veterans after the Vietnam war. Brooks and Scarano (1985) conducted a nonrandomized 8-week 20-minute daily transcendental meditation for 10 male veterans with post-Vietnam stress disorder (PVSD, currently known as PTSD) and compared them to 8 male veterans who received psychotherapy. They found significant improvements in PVSD, anxiety,

and depression symptoms in the meditation group when compared to the psychotherapy group. They utilized a PVSD scale that was based on the *DSM-III* criteria (APA, 1980), the Manifest Anxiety Scale (Taylor, 1953), and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and found the pretest and posttest scores of the meditation group significantly decreased when compared to the psychotherapy group. While the sample size was considerably small, it still was a significant study for its time (Brooks & Scarano, 1985).

Presently, the VA has increased its utilization of these holistic practices for military individuals who suffer from PTSD as a result of combat trauma, and the research supports meditation for symptom reduction. Bormann, Liu, Thorp, and Lang (2011) utilized a 6-session 90-minute weekly mantram meditation for male veterans and military-related PTSD civilians, the majority of whom were male in both groups. They utilized the PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) to determine the pretreatment and posttreatment changes in PTSD scores and measured existential, spiritual wellbeing using the Functional Assessment of Chronic Illness Therapy-Spiritual Wellbeing (FACIT-SWB; Peterman, Fitchett, Brady, Hernandez, & Cella, 2002) to see if spiritual wellbeing would increase while PTSD symptoms would decrease following the mantram intervention. The overall results found that there was a negative correlation between the mantram intervention and the PTSD scores, in that PTSD scores were significant and decreased following the intervention. The existential, spiritual wellbeing had a direct effect and was significantly positively correlated with the mantram intervention for both groups (Borman et al., 2011).

Likewise, Kearney et al. (2012) examined the longitudinal effects of an 8-week MBSR training program for 66 veterans (75% male) with PTSD and depression. The measures they used to assess symptoms were the PTSD Checklist (PCL; Weathers et al., 1993) and the Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001), for PTSD symptoms, and Behavioral Activation for Depression Scale (BADS; Kanter, Mulick, Busch, Berlin, & Martell, 2007) for depression symptoms, the Short Form-8 (SF-8) to assess health status, the Acceptance and Action Questionnaire (Hayes, Luoma, Bond, Masuda, & Lillis, 2006) to assess avoidance of stimuli, and the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2008) to assess mindfulness skills. Following the 8-week program, the study found significant improvements in PTSD and depression symptom severity. After 6 months, findings continued to reflect a significant decrease in PTSD and depression symptoms with continued gains including an improvement in behavioral activation and less avoidance, higher acceptance, and increases in mindfulness (Kearney et al., 2012).

Additionally, Johnston, Greenwalk, Li, Minami, and Reinhardt (2015) conducted a 10 week 20-session yoga intervention with 12 male military personnel who experienced PTSD. They utilized the Structured Clinical Interview for the *DSM-IV* PTSD module, a demographic information form, and a medical and personal history form to gather a baseline. To measure the PTSD symptoms, they used the Clinician-Administered PTSD Scale (CAPS; Weathers, 1996). The Resilience Scale and the FFMQ (Baer et al., 2008) were given pretest and posttest to measure the effectiveness of the intervention. The results indicated a clinically significant reduction in PTSD scores on the CAPS from pretest to posttest scores, with a 25% drop in CAPS

scores overall and significant increases in resilience and mindfulness throughout posttest results (Johnston et al., 2015).

Staples, Hamilton, and Uddo (2013) conducted a 6-week, twice a week, yoga therapy for 12 veterans with PTSD. They measured the veterans' PTSD symptoms using the PTSD Checklist-Military Version (PCL-M; Weathers et al., 1993) as well as measuring their quality of sleep on the Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), their level of anger on the State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999), and their quality of life on the Outcome Questionnaire 45.2 (OQ-45.2; Lambert, Morton, & Hatfield, 2004). They established baselines and then measured these results after the yoga intervention. Considering the sample size was small, they found an improvement in hyperarousal symptoms and quality of sleep but did not find improvements in overall PTSD symptoms (Staples, Hamilton, & Uddo, 2013).

Mitchell et al. (2014) conducted a study with 38 veteran and civilian women who had PTSD symptoms. They randomly assigned 20 participants to a yoga group, which met twice weekly for 12 weeks, and assigned 18 participants into the control group. All participants completed a weekly self-monitoring assessment of mindfulness. They measured PTSD symptoms using the PTSD Checklist-Civilian (PCL-C; Weathers et al., 1993), depression symptoms using the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977), and trait anxiety using the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) at baseline, posttreatment, and 1-month follow-up. They noted significant decreases in PTSD symptoms in both the control and the yoga group from pretest to

posttest and at 1-month follow-up, specifically the re-experiencing and hyperarousal symptoms. The similar improvement between groups may suggest a possible positive effect of the weekly mindfulness self-monitoring assessment as participants noted they enjoyed doing it because it made them feel "normalized" (Mitchell et al., 2014).

Alternative Approaches for Child & Adolescent Abuse and Trauma

The research on CAM is beginning to expand to children and adolescents who have been exposed to childhood trauma. For example, after conducting a 12-week yoga-based psychotherapy group for 10 boys ages 8-12 who were exposed to IPV, significant improvements were found in parent's ratings of the boys' interpersonal strength, intrapersonal strength, and family involvement on the Behavioral and Emotional Rating Scale-2nd edition (BERS-2; Beltran et al., 2016).

Gordon, Staples, Blyta, Bytqi, and Wilson (2008) conducted a preliminary study on the effects of a mind-body skills group on 139 high school students (75 boys and 64 girls) who had PTSD from the consequences of the NATO bombing 4 months previously in Kosovo, in which the separated the 139 students into three groups all whom received the same intervention. The mind-body skills group was conducted for 3 hours, once per week, for six weeks and included meditation, biofeedback, "check-ins" of feelings and thoughts, and relaxation techniques. The study was conducted over 9 months with three separate groups of students. The researchers measured the student's pretest, posttest, and follow-up (conducted between 9-15 months for Group I and II and pretest and posttest for Group III) PTSD scores using the PTSD Reaction Index scale (Pynoos, Rodriguez, & Steinberg, 1998). All three groups were found to have

significant decreases in PTSD symptoms at the end of the program. The follow-up scores of PTSD symptoms were also significantly lower than the pretest and posttest scores in Group II. Group I and Group III had follow-up scores that were significantly lower than the pretest scores (Gordon et al., 2008).

Comparably, another study utilized an 8-week MBSR program for 27 adult survivors of child abuse and found a 31% improvement in their PTSD symptoms on the PTSD Checklist (PCL; Weathers et al., 1993) with sustained improvement up to 24 weeks after treatment (Kimbrough, Magyari, Langenberg, Chesney, & Berman, 2010).

Staples, Abdel, and Gordon (2011) incorporated a 5 week, twice per week, 2-hour, mind-body skills group for 129 Palestinian children and adolescents who had PTSD and depressive symptoms due to abuse and exposure to trauma of living in a war zone. The mind-body skills group was the same one utilized in the Gordon et al., 2008 study. This study found a significant decrease in PTSD symptoms measured on the Child PTSD Symptom Scale (Foa, Johnson, Feeny, & Treadwell, 2001), suggesting the feasibility of utilizing meditation and yoga for children who have experienced severe abuse and trauma and PTSD.

Alternative Approaches for Survivors of Natural Disasters

Studies with other forms of trauma, such as experiencing natural disasters, have been conducted to determine if mind-body practices can help alleviate symptoms of PTSD. Descilo et al. (2010), provided a 5-week yoga breathing intervention for PTSD and depression symptoms in 183 tsunami survivors of the 2004 Southeast Asia tsunami. The results found a 60% decrease in

PTSD symptoms at 6 weeks that was retained at 24 weeks, as measured on the PTSD Checklist (PCL-17; Weathers et al., 1993).

Telles, Singh, Joshi, and Balkrishna (2010) investigated the effects of yoga on 22 male Bihar flood survivors who suffered from PTSD symptoms. They randomly assigned participants to the yoga group or the control group. The yoga group practiced for 1 hour per day for 8 days, and the control group maintained their daily routine. They measured the individual's PTSD and depressive symptoms using the Screening Questionnaire for Disaster Mental Health (SQD; Fujii, Kato, & Maeda, 1995). They noted significant decreases in sadness in the yoga group and significant increases in anxiety for the control group. While no reductions in PTSD symptoms were noted, the small sample and short- period of the intervention could contribute to this small effect size (Telles et al., 2010).

Similarly, Waelde et al. (2008) found that an 8-week 30-minute daily meditation routine reduced PTSD symptoms, as measured on the PTSD Checklist—Specific Version (PCL-S; Weathers et al., 1993), for 20 mental health workers who aided in Hurricane Katrina relief. These results indicate the feasibility of using meditation as a form of intervention or as a proactive measure for those who have experienced a natural disaster (Waelde et al., 2008).

Alternative Approaches for IPV Survivors

There is limited research on the effectiveness of yoga and meditation techniques specifically for IPV survivors. The Trauma Center at the Justice Resource Institute in Brookline, MA developed a trauma-sensitive yoga program in 2015 (Emerson, 2015). The distinction in this form of yoga is that it takes the individual's trauma into consideration. For example, it removes

words such as “pose” and “posture” that could be considered suggestive language. It also eliminates the intensity of the physical practice and instead cultivates more mindfulness with a focus on feelings in the present moment. Most importantly, the instructors do not physically assist their clients to avoid re-traumatizing them. Furthermore, the primary goal for the yogi is to focus on the present moment and increase the ability to make decisions, take action, and create movement rhythms to empower the individual (Emerson, 2015).

Trauma-informed yoga has been found to reduce the severity of PTSD symptoms and dissociative symptoms as well as increase the individual’s vitality and body attunement (Emerson, 2015; van der Kolk et al., 2014; West, 2011). Clark et al. (2014) tested the feasibility of using a trauma-sensitive yoga intervention with female victims of IPV who had symptoms of anxiety, depression, and PTSD. A 12-week trauma-sensitive yoga program was administered weekly in 30- to 40-minute sessions to 12 female clients seeking psychotherapy, 6 of whom were placed in the yoga program, and 6 were placed in the control group. The authors measured anxiety and depression using the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983), STAI (Spielberger, Gorsuch, & Lushene, 1970), and the Patient Health Questionnaire (Martin, Rief, Klaiberg, & Braehler, 2006) and measured PTSD symptoms with the PCL-C (Weathers et al., 1993). However, the sample size was small in this study and limited the ability to determine the effectiveness of trauma-informed yoga in improving overall PTSD symptoms. The original sample design required 12 participants in the yoga group and the control group, and they only had 6, so they were unable to establish any statistically significant data. Instead, they noted that the dropout rate was low, the participants noted that they enjoyed the study, and none

of the participants were physically or emotionally harmed. Therefore, further research on a larger scale is needed (Clark et al., 2014).

Franzblau et al. (2006) examined the use of yoga breathing techniques with IPV survivors. The 40 women participants practiced yoga breathing techniques for 45 minutes for 4 days. The study found that yoga breathing increased feelings of self-efficacy, as measured on the Franzblau Self-Efficacy Scale (Franzblau et al., 2006). Despite significant findings, this study had a small sample size, a short period of intervention, and a lack of follow-up, which would suggest further research is needed.

Jindani, Turner, and Khalsa (2015) directed a study with 80 individuals, with PTSD as a result of IPV, found that Kundalini yoga with standard care treatment of psychotherapy resulted in clinically significant improvements in PTSD symptoms on the PTSD Checklist (PCL; Weathers et al., 1993) after 8-weekly 90-minute yoga sessions combined with standard therapy. Additionally, the yoga group had significantly greater improvement than the control group in scores of insomnia on the Insomnia Severity Index (Morin, 1993), perceived stress on the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), positive and adverse effect on the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegan, 1988), resilience on the 25-item Resilience Scale (Wagnild & Young, 1993), and stress and anxiety on the Depression, Anxiety and Stress Scale (DASS 21; Lovibond & Lovibond, 1995). Of note, 20% of the participants had multiple (complex) traumas and were females, which suggests that yoga may be an effective intervention for battered women with PTSD who have experienced complex trauma.

Van der Kolk et al. (2014) conducted the largest-scale research project to date on the effects of a trauma-informed hatha yoga program for women with PTSD as a result of interpersonal violence. The study included 64 women with chronic, treatment-resistant PTSD, who were randomly assigned to a 10-week program of 60-minute sessions of trauma-informed hatha yoga or to supportive women's health education. Self-assessment measures of PTSD were given, including the CAPS (Blake et al., 1995), the Davidson Trauma Scale (Davidson, 1997) and the Beck Depression Inventory-II (Beck et al., 1996). The study found that the CAPS scores decreased significantly in the yoga group from pretreatment to posttreatment and when compared to the control group. At the end of the program, 52% in the yoga group no longer met criteria for PTSD compared to 21% of the control group (van der Kolk et al., 2014).

Rhodes, Spinazzola, and van der Kolk (2016) conducted a long-term (1.5 years after treatment) follow-up study on the effectiveness of yoga for 60 women with chronic treatment-resistant PTSD from the van der Kolk et al. (2014) study. They concluded that continued frequency of yoga practice was a significant predictor of a decrease in PTSD symptoms and reduction in PTSD diagnoses over time. Therefore, they concluded that more frequent yoga practice indicated a higher likelihood of a reduction in PTSD symptom severity (Rhodes et al., 2016).

Similarly, Price et al. (2017) examined nine women with chronic PTSD over the course of a 20-week trauma-sensitive yoga intervention. They measured the individual's PTSD scores using the CAPS and Davidson Trauma Scale for PTSD (DTS; Davidson, 1997) as well as scores from the Dissociative Experience Scale (DES; Bernstein & Putnam, 1986). They took

measurements of these assessments a total of seven times, including two at pretreatments, three during treatment, and two at posttreatments (including at 2-month follow-up). They found a 45% reduction in CAPS scores between the 1-week pretreatment and the 2-month follow-up of individual's PTSD symptoms. Subsequently, 83% of the participants no longer met criteria for PTSD after 1-week posttreatment, including 2 participants reaching asymptomatic levels on PTSD scores. Also, of note, there was a 47% decrease in dissociative scores on the DES from 1-week pretreatment to 2-month posttreatment. While these effects are significant, there was still a small sample size; therefore, further research is needed on a large scale. However, this research provided preliminary evidence of the effectiveness of trauma-informed yoga for individuals with chronic PTSD (Price et al., 2017).

Kelly and Garland (2016) conducted a randomized controlled trial of trauma-informed MBSR for 23 female survivors of IPV compared to a control group of 22 community sample individuals. They assessed symptoms of PTSD using the PCL-C (Weathers et al., 1993), symptoms of depression using the Beck Depression Inventory (BDI-II; Beck et al., 1996), and anxious and avoidant attachment using the Relationship Structures Questionnaire (Fraley, Heffernan, Vicary, & Brumbaugh, 2011), at preintervention and postintervention. The results found statistically and clinically significant decreases in PTSD, depressive symptoms and reduced anxious attachment. Also, the authors reported that a higher frequency of mindfulness per week predicted lower PTSD symptoms (Kelly & Garland, 2016).

Most recently, an 8-week trauma-sensitive yoga program was administered on five women IPV survivors to determine the effectiveness of alleviating PTSD symptoms (Ong &

Cashwell, 2018). The five women completed a demographic questionnaire comprised of 19 questions, including the history of trauma and types of trauma experienced and a Clinician-Administered PTSD Scale-5 (CAPS-5), which is a structured clinical interview used to measure PTSD symptoms. At the conclusion of the study, only three participants met criteria for full participation, as 2 of the participants dropped out early in the study, and completed the pre-CAPS-5 test and post-CAPS-5 test. While the sample size was small, the results suggested statistically and clinically significant decreases in PTSD scores attributed to the trauma-sensitive yoga intervention. Furthermore, this study also investigated and reported the psychological benefits of trauma-sensitive yoga for themes of self-care indicating participants' commitment to enhancing overall wellbeing, spiritual benefits, a shift in perspective of time, and application of positive coping skills, measured through self-report questionnaires. The researchers concluded that trauma recovery is a "multi-dimensional" approach that needs to meet the individual's needs on a higher level than just what is identified in the *DSM-5* PTSD diagnosis (Ong & Cashwell, 2018).

Summary

While the research on trauma-informed yoga and meditation for IPV survivors is still in its infancy, it is clear that there are supportive results in the literature on the efficacy and effectiveness of CAM practices as a treatment for these individuals. The literature is more succinct regarding combat-veterans and the effectiveness of CAM therapies for PTSD diagnosis in combat veterans than other forms of trauma. However, research supports the higher prevalence of PTSD diagnoses in individuals who have experienced interpersonal violence and

trauma compared to other forms of non-interpersonal trauma, such as natural disasters (American Psychiatric Association, 2013). Because IPV appears to be emerging at a rapid rate in the United States, and because of the devastating effects it has on those who are survivors, there appears to be a significant need for effective and adjunctive treatment approaches. Therefore, further research needs to be conducted to assess further the effectiveness of these complementary and alternative treatment modalities, such as yoga and meditation, given the high prevalence of PTSD and its detrimental effects on those who have experienced interpersonal trauma.

The research is limited in the area of interpersonal traumas in the use of CAM therapies, but considering the usefulness with other PTSD populations, we can conclude that there is need for more research in this area. Therefore, while there have been fewer studies in the use of CAM with IPV, the efficacy of CAM with other populations experiencing PTSD provides support for the potential effects of CAM on PTSD symptoms in IPV survivors. Therefore, the current study examined the relationship between the length of time engaged in CAM activities, specifically yoga and meditation, and PTSD symptoms in a group of individuals who have experienced IPV. The goal of this research is to determine if higher uses of yoga and meditation have a mediating and hopefully supporting effect on PTSD symptoms in women who have experienced IPV. Even though the present research cannot determine causation, correlational information would be helpful for future research to determine the length of treatment and possibly adjunctive treatment in yoga and meditation for IPV survivors.

CHAPTER III: METHODOLOGY

Restatement of the Purpose

The purpose of the study was to determine whether more frequent use of yoga and meditation would predict lower scores on a PTSD symptom scale for individuals who had experienced IPV, in order to assess whether yoga and meditation had usefulness in therapeutic interventions for IPV. This study was unique in that it investigated whether yoga and meditation could predict lower-level scores on a PTSD Checklist for individuals who had experienced IPV. The benefit is the clinical application of yoga and meditation, given its ease of implementation and cost-effectiveness.

Research Design

Subjects and Setting

The principal investigator worked with a not-for-profit organization called Purple Dot Yoga Project (PDYP) and emailed yoga students to determine if they would be willing to participate in a survey on their yoga and meditation practice and IPV symptoms. The sample group consisted of adults aged 18 years and old, who were somehow affiliated with PDYP, had a history of IPV, and were using yoga and/or meditation. Those excluded were minors (under age of 18), individuals not utilizing yoga and meditation, individuals without IPV history, and individuals unable to understand the informed consent procedure for any reason, including but not limited to previous traumatic brain injuries or dementing illnesses. Recruitment in the PDYP occurred through several efforts undertaken by the program and was independent of participation in the study. An email was sent out through PDYP, and interested participants were then

contacted by the principal investigator (Kimberly Polignani) to set up appointments to meet at YogaBlue Studio in St. Petersburg FL to complete consent forms, the survey of demographic information, IPV history, and yoga/meditation practice, and the PTSD Checklist. The researcher received written permission by PDYP to utilize their resources.

Measures

The PTSD Checklist (PCL-5; Weathers et al., 2013) was designed to screen individuals for PTSD, assess for diagnostic clarification and the provisional diagnosis of PTSD, and monitor any changes in symptoms of those diagnosed with PTSD. It consists of 20 items and is a self-report, Likert measure that corresponds to the critical *DSM-5* diagnostic symptoms of PTSD. The 20 items are divided into four subscales, which correspond to the *DSM-5* clusters B through E: intrusion (five items), avoidance (two items), adverse alterations in cognition and mood (seven items), and alterations in arousal and reactivity (six items). Each item is rated on a 5-point Likert scale (0 = *not at all* to 4 = *extremely*) and each refers to the individual's self-report of symptoms in the past month that pertains to a particular event in his or her life. The total scores are added and range from 0 to 80; preliminary cut-off scores at 38 are recommended for PTSD (Weathers et al., 2013). The coefficient alpha for the PCL-5 has shown evidence of high internal consistency in samples of war veterans (r = .95; Pietrzak et al., 2015) and military service members (r = .95; Wortmann et al., 2016) as well as civilians (r = .95; Armour et al., 2015). Higher PCL-5 scores were also strongly correlated with depression (r = .73), generalized anxiety (r = .79), and higher levels of functional impairment (rs range from .31 to .59; Hoge, Riviere, Wilk, Herrell, & Weathers, 2014).

The survey consisted of background information including gender, age, race/ethnicity, and covariates including medication use, drug/alcohol use, and education. Amount of time per week spent doing yoga and meditating, how long the individual maintained this practice, the main reason they started yoga and meditation and whether they found it helpful were also on the survey. Survey questions on interpersonal violence included what kind of IPV they experienced, how long it lasted, when it ended, and how much they attributed their level of success in dealing with the symptoms to be a result of yoga and meditation. Consent forms can be found in Appendix A. Survey forms can be found in Appendix B.

Procedures

All email responses from procedure participants with identifying information were only accessible to the principal investigator using a password-protected computer and password-protected email access. All emails were deleted once the participants completed the study. No other identifying information was collected throughout the study, and no audio or videotapes took place To protect the privacy of all participants, consent and study questionnaires were completed at the YogaBlue Studio during the hours in which no classes were taking place. The participants contacted the principal investigator (PI) independently and signed up for appointments with the PI directly and did not interact with other participants in this study. Participants came in during the scheduled appointment time and met with the principal investigator to fill out the consent forms, the survey of demographic information, IPV history, and yoga/meditation practice, and the PTSD Checklist. All completed paper records were kept in locked file cabinets in a secure room to ensure research data safety. The researcher was able to

set up appointments between 12:00 pm and 5:00pm Monday to Friday and 9:00am to 6:00pm Sundays, as the studio was empty and there were no classes taking place during these times. Participants were assigned 30-minute slots to fill out all forms. They filled the forms out in a private room located in YogaBlue Studio with the principal investigator present to answer any and all questions, privately. If they agreed to join the study, the researcher reviewed the consent forms with the participants and obtained signatures and informed them they could opt out at any time and that doing so would not affect whether they still received services at PDYP. Informed consent was discussed with each participant individually. All participants were told that the entire process was voluntary and that they could withdraw at any time. Participants were given as much time as they needed to decide, and the PI encouraged participants to ask as many questions as possible. All questions were answered fully before participants signed the informed consent statement. Informed consent was obtained for all subjects prior to study participation.

Signed consent forms were stored in a locked filing cabinet separate from the surveys and PTSD Checklist in a locked private office. To protect the privacy of each participant, upon study enrollment, all study questionnaires were de-identified and participants were assigned a unique ID number that was used to label all research data and all questionnaires. No other identifiers were included on any questionnaires. The ID number was randomly assigned at the time of study enrollment and used on all study documents, and no identifying information was collected during the study. The surveys were scanned into a de-identified electronic PDF and kept in encrypted format on the principal investigator's computer. All data were stored electronically on the principal investigator's computer and were password protected and encrypted in a locked office

with a backup password-protected encrypted USB drive stored in the same manner. After a period of three years from the end date of the study, signed consent forms will be destroyed. Anonymous raw data and electronic data will be maintained indefinitely. The principal investigator has been trained in confidentiality and CITI requirements. Data analyses were completed using de-identified data, and every possible precaution was taken to ensure the privacy and confidentiality of all participants.

Methodological Assumptions, Limitations, and Delimitations

Methodological Assumptions

The overarching assumption was that the individuals who experienced IPV in this study had a diagnosis of PTSD or at least suffered from symptoms of PTSD at one point in their life. While many studies and theories suggest the adverse effects of IPV on the individual's psychological wellbeing, PTSD is not always a direct result, and some individuals may never have a PTSD diagnosis. Also, the study assumed that these individuals accurately reported their level of yoga and meditation use as well as their PTSD symptoms. We assumed that individuals were answering honestly because anonymity and confidentiality had been preserved and the participants were volunteers who were told they could withdraw from the study at any point without being penalized.

Limitations

First, since human subjects were used, the most significant limitation of this study was that it was all women, so it was not generalizable to the whole population. Similarly, this was a

very small sample size (N = 50). Therefore, it was hard to determine the overall power of the study. Second, the research did not ask the participants their total years of maintained yoga and meditation practice as a definitive time, but rather a time range (i.e., 0-2 years), and this limited the ability for the researcher to determine the overall length of consistent time practiced. Similarly, the researcher was unaware of the severity of the psychopathology of each participant prior to this survey, and none of the participants had present clinically significant PTSD scores at the time of the study. Thus, all of the participants were "healthy," and therefore, it would be difficult to generalize the benefits of yoga and meditation to the effectiveness within clinical populations.

Delimitations

The researcher chose this particular area to study to gain more research on IPV as well as the effects of yoga and meditation. Because the researcher only included individuals who participated in a not-for-profit organization helping IPV and domestic violence survivors and also utilized yoga and meditation, it was likely these individuals had more self-awareness and greater support systems that modified their PTSD symptoms than is likely in a random sample of IPV sufferers. Therefore, the sample was best predictive of individuals who are more inclined to seek out alternative practices to help with their symptoms. Therefore, generalizing this study to individuals who have supportive networks and who have had experienced IPV would be more likely to give an accurate representation of the effects yoga and meditation on PTSD symptomology for this specific subgroup.

Data Processing and Analysis

This study utilized linear regression analysis to test the 6 hypotheses: greater minutes of yoga, greater days of yoga, greater years of maintained yoga, greater minutes of meditation, greater, days of meditation, greater years of maintained meditation practice predicted lower PTSD scores on a PTSD Checklist in IPV survivors. The independent variables were minutes of yoga in a week, days of yoga in a month, and years of maintaining practice; minutes of meditation in a week, days of meditation in a month, and years of maintaining this level of practice. The dependent variables were PTSD scores on a PTSD Checklist. Variables that were controlled for were length since IPV occurred and length of IPV. Statistics that were included were the coefficient of variation (also known as the relative standard deviation), which was used to determine how closely the regression model "fit" or explained the relationship between the independent and dependent variables. Multiple linear regression assumes that there is a linear relationship between the outcome variable and the independent variable. Therefore, while there may be a correlation, such a correlation does did not presume there was causation; in other words, some other factor could be affecting the relationship besides the variables assessed. It also assumed that residuals were normally distributed and that independent variables were not highly correlated with each other. Finally, it assumed that the variance around the regression line was the same for all values of the dependent or predictor variable. Once all survey data were collected, they were placed into SPSS and analyzed. *P*-values less than 0.05 were considered statistically significant. Responses from one participant was not included due to the values on yoga and meditation being skewed (over three standard deviations outside the mean), and

therefore, was assessed as not being an accurate reflection of the overall data. Therefore, 53 participants were included in the statistical analysis.

CHAPTER IV: RESULTS

Restatement of Purpose

The current study examined the relationship between an individual's length of yoga and meditation practice and how it contributed to the individual's PTSD symptoms when controlling for the length of IPV experienced and time elapsed long since the IPV ended.

Overview of Sample

The cohort initially consisted of 54 participants (N = 54) with an age range of 22 to 59 years. However, case number 1115 significantly skewed the results due to much higher yoga and meditation scores than the rest of the sample. Therefore, this case was removed, so that average scores for the sample were not misrepresented. The cohort then consisted of 53 participants (N = 53) with an age range of 22 to 59 years. The mean age of the group was 36.13 (SD = 9.61). The sample consisted of all females identifying as White (60.4%), Black (22.6%), Biracial (9.4%), and Hispanic (7.5%).

Table 1.
Frequency and Percent of Ethnicity

Ethnicity	Frequency	Percent
White	32	60.4
Black	12	22.6
Biracial	5	9.4
Hispanic	4	7.5
n	53	100

Table 2.
Mean and SD of Age

	M	*SD*	Range	*n*
Age	36.13	9.61	22-59	53

Descriptives of Sample

The types of IPV that were reported by the sample included psychological and emotional abuse (47.2%) or a combination of types of abuse (52.8%). The combination could have included rape, stalking, physical assault, domestic violence, emotional or psychological abuse, racial violence, gang violence, or trafficking.

General self-report questions were asked to determine how the participants viewed their yoga and meditation practice. Overall, 81% of participants perceived that yoga helped a great deal with reducing their IPV symptoms and attributed their level of success in dealing with these symptoms as being a result of yoga. Yoga was somewhat helpful in reducing symptoms in 18.9% of participants, who attributed their yoga practice partially to their level of success in dealing with symptoms. Regarding reasons for starting yoga, 62.3% of participants reported starting yoga to help reduce stress, 24.5% reported starting yoga to help alleviate symptoms from IPV, and 13.2% reported starting yoga to gain self-awareness. Similarly, 79.2% reported meditation helped a great deal with reducing IPV symptoms and attributed their level of success for dealing with symptoms to meditation. Meditation was reported to somewhat reduce symptoms in 20.8% of participants (reported meditation somewhat helped reducing symptoms) who somewhat attributed meditation to their success in dealing with these symptoms. Regarding reasons for starting meditation, 62.3% reported starting meditation to help reduce stress, 22.6% reported to

help alleviate symptoms from IPV, 11.3% reported to help gain self-awareness, and 3.8% reported starting meditation to maintain a healthy lifestyle.

Table 3.

Self-report Percentage of yoga and meditation reducing IPV symptoms

	Percent			
Variables	A Great Deal	Somewhat Helpful	A little bit helpful	Not at all Helpful
Yoga in reducing IPV symptoms	81	18.9	0	0
Meditation in Reducing IPV Symptoms	79.2	20.8	0	0

Table 4.

Self-report Percentage of Reasons for Starting Yoga and Meditation

	Percent			
Variable	Help Reduce Stress	Alleviate IPV symptoms	Gain self-awareness	Maintain healthy lifestyle
Reason for Starting Yoga	62.3	24.5	13.2	0
Reason for Starting Meditation	62.3	22.6	11.3	3.8

Assumptions of Multiple Linear Regression

Preliminary analyses were performed to safeguard against violations of the assumptions of normality, linearity, homoscedasticity, outliers, independence of residuals, and multicollinearity. The measurements were all continuous, with related pairs, and the independence of observations. Scores obtained for minutes of yoga practice and for minutes of

meditation practice per week and days in the past month practicing meditation were positively skewed. Days of yoga practice, years of maintaining yoga practice, and years of maintaining meditation practice were normally distributed. Tests for multicollinearity indicated that a very low level of multicollinearity was present (VIF = 1.55, VIF = 1.58, VIF = 2.18, VIF = 1.57, VIF = 1.31, VIF = 2.23) for minutes of yoga in a typical week, days of yoga in the past month, years of maintain yoga practice, minutes of meditation in a typical week, days of meditation in the past month, and years of maintaining meditation practice, respectively. One outlier was present in minutes of yoga practice per month and was removed from the data.

Statistics Utilized

Two types of statistics were utilized for hypothesis testing. The *F*-statistic, which was generated during a regression analysis, indicated whether any variable in the set of predictors had a statistically significant effect on the response variable. Once the *F*-statistic and *p*-value were deemed statistically significant, the *T*-values and the associated *p*-values were examined to determine if any of the variables were a statistically significant predictor for the response variable.

Minutes of Yoga Compared to PTSD Scores

Multiple linear regression was utilized to test the hypothesis that minutes of yoga predicted lower PTSD scores while controlling for the effects of length of IPV and months since IPV ended. The null hypothesis was that as an individual's minutes of yoga practice in a typical week over the last month when controlling for length of IPV and months since IPV ended, would have no effect on the individual's PTSD symptoms. Length of IPV and months since IPV ended

were entered in step 1, explaining only 30.3% of the variance in PTSD scores, as shown in Table 5. After entry of minutes in a typical week of yoga at step 2, the total variance explained by this model as a whole was 40.6%, (F (3, 49) = 11.17, $p < .000$). The measures explained an additional 10.3% of the variance in PTSD scores, after controlling for length of IPV and months since IPV ended, R^2 change = .103, F change (1, 49) = 8.54, $p < .005$, as shown in Table 5. Minutes of yoga in a week was negatively correlated with PTSD scores and statistically significant ($\beta = -.40$, $t = -2.92$, $p < .0025$). In addition, controlling for length of IPV and months since IPV ended improved the prediction of PTSD scores (R^2change = .103, $F = 6.99$, $p < .0025$), as shown in Table 6.

Table 5

Hierarchical multiple regression analyses predicting PTSD scores from minutes of yoga, while controlling for the effects of length of IPV and months since IPV ended

	Step 1					Step 2				
Variable	B	β	t	Sign.	VIF	B	β	t	Sign.	VIF
Months since IPV ended	−.07	−.44	−3.3	.00	1.3	−.05	−.29	−2.2	.04	1.5
Length of IPV	−.03	−.18	−1.4	.18	1.3	−.01	−.05	−.40	.69	1.43
Min. of yoga						−.06	−.40	−2.9	.005	1.55

Table 6

Regression analysis of minutes of yoga predicting PTSD Scores

	R	R^2	R^2 Change	F Change	$Df1$	$Df2$	Sign. F Change
Step 1	.55	.30	.30	*10.85*	2	50	.000
Step 2	.64	.41	.10	*8.54*	1	49	.005

Note. *$p < .05$

Days of Yoga Compared to PTSD Scores

Multiple linear regression was utilized to test the hypothesis that days of yoga predicted lower PTSD scores while controlling for the effects of length of IPV and months since IPV

ended. The null hypothesis was that an individual's days of yoga practice in a typical month over the last year, when controlling for length of IPV and months since IPV ended, would have no effect on the individual's PTSD symptoms. Length of IPV and months since IPV ended were entered in step 1, explaining only 30.3% of the variance in PTSD scores, as shown in Table 7. After entry of days of yoga practice over the past month at step 2, the total variance explained by this model as a whole was 38.4%, (F (3, 49) = 10.18, $p < .000$). The measures explained an additional 8.1% of the variance in PTSD scores, after controlling for length of IPV and months since IPV ended, R^2 change = .081, F change (1, 49) = 6.47, $p < .014$, as shown in Table 7. A Bonferroni correction was utilized and placed the $p < .065$, making days of yoga practice not statically significant. Therefore, we accept the alternative hypothese and days of yoga practice in a month was not significantly correlated with PTSD scores ($\beta = -.36$, $t = -2.54$, $p < .065$). In addition, controlling for length of IPV and months since IPV did not improve the prediction of PTSD scores (R^2 change = .081, $F = 6.46$, $p < .014$), as shown in Table 8.

Table 7

Hierarchical multiple regression analyses predicting PTSD scores from days of yoga, while controlling for the effects of length of IPV and months since IPV ended

	Step 1					Step 2				
Variable	B	*β*	*t*	Sign.	VIF	B	*β*	*t*	*Sign.*	*VIF*
Months since IPV ended	−.07	−.44	−3.3	.00	1.3	−.05	−.29	−2.2	.04	1.5
Length of IPV	−.03	−.18	−1.4	.18	1.3	−.01	−.05	−.40	.69	1.43
Days of yoga						−.61	−.36	−2.54	.014	1.58

Table 8

Regression analysis of days of yoga predicting PTSD Scores

	R	R^2	R^2 Change	*F* Change	*Df*1	*Df*2	Sign. *F* Change
Step 1	.55	.30	.30	*10.85*	2	50	.000
Step 2	.62	.38	.08	*6.47*	1	49	.014

Note. *$p < .05$

Years of Maintained Yoga Practice Compared to PTSD Scores

Multiple linear regression was utilized to test the hypothesis that maintaining a level of yoga practice in years predicted lower PTSD scores while controlling for the effects of length of IPV and months since IPV ended. The null hypothesis was that an individual's level of maintaining this yoga practice in years, when controlling for length of IPV and months since IPV ended, would have no effect on the individual's PTSD symptoms. Length of IPV and months since IPV ended were entered in step 1, explaining only 30.3% of the variance in PTSD scores, as shown in Table 9. After entry of years maintaining yoga practice at step 2, the total variance explained by this model as a whole was 47%, (F (3, 49) = 14.47, $p < .000$). The measures explained an additional 16.7% of the variance in PTSD scores, after controlling for length of IPV and months since IPV ended, R^2 change = .167, F change (1, 49) = 15.44, $p < .000$, as shown in Table 9. Years of maintaining a yoga practice was negatively correlated with PTSD scores and statistically significant ($\beta = -.60$, $t = -3.92$, $p < .000$). In addition, controlling for length of IPV and months since IPV ended improved the prediction of PTSD scores (R^2 change = .17, F = 15.44, $p < .000$), as shown in Table 10.

Table 9

Hierarchical multiple regression analyses predicting PTSD scores from years maintaining yoga, while controlling for the effects of length of IPV and months since IPV ended

	Step 1					Step 2				
Variable	B	*β*	*t*	Sign.	VIF	B	*β*	*t*	*Sign.*	*VIF*
Months since IPV ended	−.07	−.44	−3.3	.00	1.3	−.05	−.29	−2.2	.04	1.5
Length of IPV	−.03	−.18	−1.4	.18	1.3	−.01	−.05	−.40	.69	1.43
maintaining yoga (years)						−4.73	−.60	−3.93	.00	2.18

Table 10

Regression analysis of years of maintaining yoga and predicting PTSD Scores

	R	R^2	R^2 Change	*F* Change	*Df*1	*Df*2	Sign. *F* Change
Step 1	.55	.30	.30	10.85	2	50	.000
Step 2	.69	.44	.17	15.44	1	49	.000

Note. *$p < .05$.

Minutes of Meditation Compared to PTSD Scores

Multiple linear regression was utilized to test the hypothesis that minutes of meditation predicted lower PTSD scores while controlling for the effects of length of IPV and months since IPV ended. The null hypothesis was that an individual's minutes of meditation practice in a typical week over the last month, when controlling for length of IPV and months since IPV ended, would have no effect on the individual's PTSD symptoms. Length of IPV and months since IPV ended was entered in step 1, explaining only 30.3% of the variance in PTSD scores, as shown in Table 11. After entry of minutes of meditation in a typical week at step 2, the total variance explained by this model as a whole was 40.3%, (F (3, 49) = 11.02, $p < .000$). The three measures explained an additional 10% of the variance in PTSD scores, after controlling for length of IPV and months since IPV ended, R^2 change = .100, F change (1, 49) = 8.23, $p < .006$, as shown in Table 11. Minutes of meditation in a week was negatively correlated with PTSD

scores and statistically significant ($\beta = -.40$, $t = -2.87$, $p < .003$). In addition, controlling for length of IPV and months since IPV ended improved the prediction of PTSD scores (R^2 change = .10, $F = 8.23$, $p < .003$), as shown in Table 12.

Table 11

Hierarchical multiple regression analyses predicting PTSD scores from minutes of meditation, while controlling for the effects of length of IPV and months since IPV ended

	Step 1					Step 2				
Variable	B	*β*	*t*	Sign.	VIF	B	*β*	*t*	*Sign.*	*VIF*
Months since IPV ended	−.07	−.44	−3.3	.00	1.3	−.05	−.29	−2.2	.04	1.5
Length of IPV	−.03	−.18	−1.4	.18	1.3	−.01	−.05	−.40	.69	1.43
Mins. of meditation						−.08	−.40	−2.87	.006	1.57

Table 12

Regression analysis of minutes of meditation predicting PTSD Scores

	R	R^2	R^2 Change	*F* Change	*Df*1	*Df*2	Sign. *F* Change
Step 1	.55	.30	.30	*10.85*	2	50	.000
Step 2	.64	.40	.10	*8.23*	1	49	.006

Note. *$p < .05$.

Days of Meditation Compared to PTSD Scores

Multiple linear regression was utilized to test the hypothesis that days of meditation predicted lower PTSD scores while controlling for the effects of length of IPV and months since IPV ended. The null hypothesis was that an individual's days of meditation practice in a typical month over the last year, when controlling for length of IPV and months since IPV ended, would have no effect on the individual's PTSD symptoms. Length of IPV and months since IPV ended were entered in step 1, explaining 30.3% of the variance in PTSD scores, as shown in Table 13. After entry of days a week practicing meditation at step 2, the total variance explained was

35.7%, (F (3. 49) = 9.06, $p < .000$). The three measures explained an additional 5.4% of the variance in PTSD scores, after controlling for length of IPV and months since IPV ended, R^2 changed = .054, F Change (1, 49) = 4.11, $p < .048$, as shown in Table 13. A Bonferroni correction was used, making the $p < .075$, and therefore not statistically significant. Days of meditation in a month was not significantly correlated with PTSD scores and was not statistically significant ($\beta = -.27$, $t = -2.03$, $p < .075$).

Table 13

Hierarchical multiple regression analyses predicting PTSDs Scores from days of meditation, while controlling for the effects of length of IPV and months since IPV ended

	Step 1					Step 2				
Variable	B	*β*	*t*	Sign.	VIF	B	*β*	*t*	Sign.	VIF
Months since IPV ended	−.07	−.44	−3.3	.00	1.3	−.05	−.29	−2.2	.04	1.5
Length of IPV	−.03	−.18	−1.4	.18	1.3	−.01	−.05	−.40	.69	1.43
Days of meditation						−.96	−.27	−2.03	.048	1.31

Table 14

Regression Analysis of days of meditation predicting PTSD Scores

	R	R^2	R^2 Change	*F* Change	*Df*1	*Df*2	Sign. *F* Change
Step 1	.55	.30	.30	*10.85*	2	50	.000
Step 2	.60	.36	.05	*4.11*	1	49	.048

Note. *$p < .05$.

Years of Maintained Meditation Compared to PTSD Scores

Multiple linear regression was utilized to test the hypothesis that the level of maintaining meditation practice in years predicted lower PTSD scores while controlling for the effects of length of IPV and months since IPV ended. The null hypothesis was that an individual's level of maintaining meditation practice in years,w when controlling for length of IPV and months since

IPV ended, would have no effect on the individual's PTSD symptoms. Length of IPV and months since IPV ended were entered in step 1, explaining for 30.3% of the variance in PTSD scores, as shown in Table 15. After entry of years maintaining this level of meditation practice was entered in step 2, the total variance explained was 45.1%, (F (3, 49) = 13.44, $p < .000$). The three measures explained an additional 14.9% of the variance in PTSD scores, after controlling for length of IPV and months since IPV ended, R^2 changed = .149, F change (1, 49) = 13.29, $p <$ .001, as shown in Table 15. Years of maintaining a meditation practice was negatively correlated with PTSD scores and was statistically significant ($\beta = -.58$, $t = -3.65$, $p < .001$). In addition, controlling for length of IPV and months since IPV ended improved the prediction of PTSD scores (R^2 change = .15, $F = 13.29$, $p < .001$), as shown in Table 16.

Table 15

Hierarchical multiple regression analyses predicting PTSD scores from years of maintaining meditation, while controlling for the effects of length of IPV and months since IPV ended

	Step 1					Step 2				
Variable	B	β	t	Sign.	VIF	B	β	t	Sign.	VIF
Months since IPV ended	−.07	−.44	−3.3	.00	1.3	−.05	−.29	−2.2	.04	1.5
Length of IPV	−.03	−.18	−1.4	.18	1.3	−.01	−.05	−.40	.69	1.43
Years of maintaining meditation						−4.61	−.58	−3.65	.001	2.23

Table 16

Regression analysis of years of maintaining meditation for predicting PTSD Scores

	R	R^2	R^2 Change	F Change	$Df1$	$Df2$	Sign. F Change
Step 1	.55	.30	.30	*10.85*	2	50	.000
Step 2	.67	.45	.15	*13.29*	1	49	.001

Note. *$p < .05$.

Summary

In summary, the results suggest that overall the more minutes of yoga and practiced in a week practiced in a month predicted lower PTSD scores on the PTSD Checklist. Similarly, more minutes of meditation practiced in a week predicted lower PTSD scores on the PTSD Checklist.. Finally, years of maintaining the level of meditation practice and years of maintaining the level of yoga practice both predicted lower PTSD scores on the PTSD Checklist. When controlling for length of IPV and months since IPV ended, there were better predictions of PTSD scores for both the hypotheses. However, days of yoga practiced in a week and days of yoga practiced within a month, did not predict lower PTSD scores on the PTSD Checklist. Therefore, the results supported the 4 hypotheses that the more minutes and years spent practicing yoga and meditation, the more likely individuals would have lower levels of PTSD symptoms, however, more days practicing yoga and meditation did not predict lower PTSD scores.

CHAPTER V: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

Recovering from IPV involves learning skills to stay grounded, centered, and be able to regulate emotions. Yoga and meditation have been taught for thousands of years with its primary focus being on soothing and calming the mind, body, and spirit. Recent research has shown the effects that yoga and meditation can have in reducing autonomic sympathetic activation in PTSD, reducing blood pressure, improving emotional regulation, and increasing the overall quality of life of individuals who have experienced some form of trauma (Davidson, 1997; Miller, Fletcher, & Kabat-Zinn, 1995). Therefore, yoga and meditation appears to be efficacious and effective treatment for individuals who have experienced IPV. The present study looked at the effects that the amount of yoga and meditation utilized could have on the level of trauma symptoms in survivors of domestic violence.

The results of this study suggest that longer lengths of yoga and meditation predicted lower-level PTSD scores on the PTSD Checklist in women who have experienced IPV. Overall, the study found that participants reported yoga and meditation were somewhat to a great deal helpful with reducing their IPV symptoms and attributed yoga and meditation use to their level of success for dealing with these symptoms. Furthermore, length of yoga and meditation was still significant after controlling for length since IPV ended and overall length of IPV. Thus, yoga and meditation were both predictors of lower-level PTSD symptoms despite the length of abuse and the amount of time that passed since it ended. Together, these findings suggested that yoga and meditation could potentially be effective in reducing PTSD symptomology in IPV survivors.

The evidence was particularly compelling given the different amounts of times spent in these activities compared to the PTSD scores, including the minutes of yoga averaged per week, days of yoga averaged in the past month, years of maintaining yoga practice, minutes of meditation averaged per week, days of meditation averaged in the past month, and years of maintaining meditation practice. All lengths of yoga and meditation practice were found to be clinically significant and inversely correlated with PTSD scores. Therefore, higher amounts of yoga and meditation practiced predicted lower PTSD scores in women survivors of IPV. Importantly, self-report measures found that individuals reported their primary reasons for starting yoga and meditation were to reduce stress, gain self-awareness, and alleviate symptoms of IPV. As a result, yoga and meditation may have further contributed to these individuals' ability to be more conscious, and therefore, more aware of how their trauma has affected them, creating the ability for them to have more emotional regulation and positive coping skills. Similarly, research has found the positive effects of yoga and meditation are linked to overall emotional awareness and self-perception of one's own mind and body connection (van der Kolk et al., 2014).

The present results have particular relevance for IPV women survivors. If greater yoga and meditation practice are associated with lower PTSD symptomology, this association is likely to have an implication for the effectiveness of more extended uses of body awareness to aid in the emotional regulation component of PTSD (Bluhm et al., 2009). Difficulties with emotional regulation is a significant symptoms of PTSD, and therefore, greater uses of yoga and meditation may aid in the individual's ability to be more in tune with their bodies, minds, and emotions (van

der Kolk et al., 2014). Extensive research on both yoga and meditation has demonstrated effectiveness in the treatment and reduction in symptomology of many disorders including depression, anxiety, and PTSD (Davidson et al., 2003; Miller et al., 1995; van der Kolk et al., 2014). Therefore, current treatments for PTSD often now include emotional regulation and body awareness, such as yoga and meditation, into large programs at facilities such as the VA, showing the effectiveness of these complementary and alternative approaches for PTSD (Johnston et al., 2015). Therefore, the present findings suggested the overall effectiveness of yoga and meditation for IPV survivors could be an acceptable and cost-effective complimentary treatment of women IPV survivors who have symptoms of PTSD.

Strengths and Limitations

The findings of this study are consistent with past research findings that suggest the overall effectiveness of yoga and meditation on the reduction of PTSD symptomology (Bessel et al., 2014; Bormann et al., 2011; Descilo et al., 2010). The results also corroborate the limited studies on the effectiveness of yoga and meditation for PTSD in IPV survivors (Clark et al., 2014; Franzblau et al., 2006; Jindani et al., 2015; Kelly & Garland, 2016; Price et al., 2017; Rhodes et al., 2016; van der Kolk et al., 2014). Therefore, the results of this study contributes to the literature on the possibility of effectiveness of yoga and meditation as a treatment modality for women IPV survivors. The study also had a very effective sample in that the sample includes only individuals with IPV histories due to the use of an organization that specialized in yoga and meditation use for IPV survivors. Therefore, this study was unique in that it limited the research to just women who experienced IPV and utilized yoga and meditation as a tool to help with their

symptomology. Other strengths include the use of a PTSD Checklist that has high reliability and validity in the assessment of PTSD symptoms.

This study only included a small sample size of participants (N = 53) all of whom were women and none of whom appeared to have a current PTSD diagnosis. Since none of the 53 participants had a significant level of PTSD symptomology (all participants had a PTSD score of < 38; the cut off is 38 for a probable PTSD diagnosis), all had lower than clinically significant PTSD symptoms, and thus, none had the possibility of a present diagnosis of PTSD, limiting the research to IPV survivors with no present PTSD diagnosis. Therefore, further research is needed to determine the effectiveness of yoga and meditation for IPV survivors with a present PTSD diagnosis and clinically significant PTSD symptoms (> 38). However, it is possible that the amount of yoga and meditation in which these women participated, mediated their PTSD symptoms, and therefore, they no longer had a PTSD diagnosis. It is possible that these women had a previous diagnosis of PTSD, but the researcher did not focus on the past history of symptoms to determine the possibility of this prior diagnosis.

The study also only included women who had access to a yoga and meditation support system known as PDYP. Therefore, these individuals likely had higher levels of functioning due to the access to support and may not be a good representation of individuals who have suffered from IPV due to a lack of inclusion of women and men with no or limited support networks. Also, this study was limited in that we did not collect an exact time for the years of maintained yoga and meditation practice, which would have been helpful in determining a total time of yoga and meditation practice for comparison with PTSD scores. The researcher realized this data

would have been helpful in order to expand the information regarding overall time spent doing yoga and meditation and to further assess whether it predicted lower PTSD scores. It would have also been helpful to collect information on whether any of the participants underwent a yoga teacher training course, as some of the higher uses of yoga and meditation could have been attributed to yoga teachers. Given that PDYP has a program that helps yoga teachers with IPV gain knowledge and skills to help others who suffer from IPV, it is possible some of the participants were yoga teachers with a greater knowledge and skill set as well as financial resources then might be found in other samples.

While this study only collected data from women, it is a particularly prevalent problem for women, as more than one in three women in the United States have experienced IPV at some point in their lifetime (Plitchta, 2004). Furthermore, women who have experienced IPV are at higher risk for developing PTSD symptoms than women who have not (Rodriguez et al., 2008). Research has found that women who have experienced both psychological and physical abuse are more likely to have PTSD symptoms, and higher severity of the abuse is correlated with higher severity of PTSD symptoms (Tramayne, 2012; Hellmuth, Jaquier, Swan, & Sullivan, 2014). There are severe limitations in the present treatment for women who have experienced IPV and PTSD treatment, as there are high dropout rates and poor intervention results, suggesting that heavily researched PTSD interventions may not be effective for all trauma survivors, particularly women who experienced IPV (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). The present research was limited in the area of treatments for women who experienced IPV, and further research is needed.

Finally, the study was based upon correlations between a survey and symptom checklist, and therefore, does not mean that higher use of yoga and meditation creates a definitive reduction in PTSD symptoms, specifically because the study is correlational, not causational. There may have been other factors unknown to the researcher that could have directly affected the individuals' PTSD scores, such as financial resources, interpersonal resources, prior treatment, or spiritual resources. Therefore, further research is needed on a larger scale with pre, post and follow-up data, collected to examine the overall impact of yoga and meditation, while including appropriate control groups, to determine the overall effects on PTSD symptomology. It would also be helpful to collect data on a more severe population of IPV survivors, such as individuals with severe or co-morbid mental health issues, to determine the effectiveness and predictability of the use of yoga and meditation as related to with lower PTSD symptomology.

Conclusions

With the alarming rate of women experiencing intimate partner violence in their lifetime and the effects IPV has on an individual's mental health, therapeutic interventions must be critically evaluated to determine the effectiveness with this population. When examining the research on effective PTSD treatments, including trauma-informed yoga and meditation practices, it appears that CAM treatment would also be effective for women with IPV. It is important to note that the use of yoga and meditation practices and its incorporation with a mind-body-spirit connection could be beneficial and effective for taking a comprehensive approach in mental health treatment for women who experienced IPV.

The present research on trauma-informed yoga and meditation interventions for PTSD and IPV survivors is becoming more prevalent. However, it is still in its infancy. Research has shown the devastating effects IPV has on women and how PTSD can be the result of IPV. PTSD is a debilitating mental health issue, affecting all areas of the individual's life. In this current study, greater uses of yoga and meditation predicted lower PTSD symptoms, similar to research showing that trauma-informed yoga and meditation interventions have shown decreases in symptoms and increases in positive aspects of the individual's life. Trauma-sensitive yoga has been found to increase emotional awareness and decrease PTSD symptoms by improving the individual's ability to experience the present moment, making choices, taking effective action, and creating rhythms. These interventions may be adjunctive therapy treatments for women who experienced IPV and have PTSD diagnosis. Furthermore, the current researchers hoped to find that more significant uses of these yoga and meditation practices would predict less symptomology, and therefore, higher overall quality of life and fewer mental health issues.

Results from this study informed the literature regarding the association between higher yoga and meditation practice and the prediction of lower PTSD scores in women who have experienced IPV. One of the salient findings was that greater uses of yoga and meditation, regardless of the length of IPV or length since IPV ended, predicted lower PTSD scores. This research provides evidence that there was a correlation between time spent doing yoga and meditation and lower PTSD symptomology in women who had experienced IPV. The mental health field can further identify ways to incorporate trauma-informed yoga and meditation into clinical practice for women who have experienced IPV, given the association with a reduction in

PTSD symptoms. While research is still in its infancy, it is apparent that there is a significant need for trauma-informed treatments for women IPV survivors. Presently, the scope of the literature is focused upon PTSD as a whole, missing the nuances of women who have experienced IPV. Trauma-informed yoga and meditation appear to be empirically supported treatment modalities that have been utilized in various settings such as treatment in other trauma-informed programs (i.e., the VA). It is important to note the implication that none of the present individuals had a clinically significant PTSD diagnosis and all had their symptoms regulated reasonably well (as evident by a PTSD score < 38). However, this may be because these individuals all had significantly high uses of trauma-informed yoga and meditation, which may have mediated some of the symptoms they had in the past. Future research should examine individuals who have significant PTSD symptoms and explore how more significant uses of yoga and meditation affect their symptoms.

Future Research and Implications

There appears to be a gap in the current literature on trauma-informed yoga and meditation practices that include more people of color. The majority of the research is also focused on veterans, women, and White individuals. Which raises many questions on who is accessing these types of interventions. Are these interventions only accessible to individuals with less severe forms of mental health issues, as demonstrated here in this study. Currently, the research that has been conducted shows a positive effect in a reduction of PTSD, depression, anxiety, and other mental health symptoms, which provides significant hope for future research and treatment implications.

Trauma-informed yoga and meditation practices are being shown to be effective for men and women who have experienced trauma. These conclusions are significant for any clinician working in the mental health field, as they provide the impetus for utilizing trauma-informed yoga and meditation treatments in therapy. Because the number of individuals experiencing traumatic events, including IPV, has been increasing dramatically, more people are going to need services. Overall, the implication that trauma-informed yoga and meditation could be utilized in IPV cases could help those who are suffering from trauma symptoms who are not finding relief from other forms of treatment.

Clinicians find themselves accountable for tailoring treatment to each individual client as well as finding empirically-supported treatments and being inclusive of each individual's mind, body, and spirit. Incorporating a biopsychosocial-spiritual framework in clinical practice has become an essential shift in the way that clinicians view, treat, and conceptualize their clients. Trauma-informed yoga and meditation practices can create positive changes in clients when combined with traditional psychotherapy. While there are many positive factors that have been found to be correlated with yoga and meditation therapy, it is also important to note that this is not an intervention that should be utilized with every client. Some clients who may not benefit from yoga or meditation may be clients who have psychosis, thought disorders, or dissociation as it may enhance these symptoms (Siegel, 2013). The client must be informed of what yoga and meditation interventions are and how they can be utilized within therapy. Furthermore, it is essential that the clinician and client have conversations regarding the efficacy of trauma-informed yoga and meditation and how it may be useful for the client's presenting symptoms.

However, it is still always the client's decision to determine if these treatments are most effective for them. Similarly, it is vital that the clinician be properly certified and clinically competent in these areas prior to incorporating yoga and meditation into trauma therapy. Therefore, it would be helpful for clinicians to be trained in trauma-informed or trauma-sensitive yoga and meditation practices.

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APPENDICES

Appendix A

Informed Consent Form

Dear Prospective Participant:

My name is Kimberly Polignani and I am a doctoral student in the Clinical Psychology department at Argosy University, Tampa working on my Clinical Research Project (CRP). This study is a requirement to fulfill the researcher's degree and will not be used for decision-making by any organization. This study is for research purposes only.

You are cordially invited to volunteer your participation in my CRP research. The purpose of this study is to examine the effect yoga and meditation have on helping with symptoms from interpersonal violence.

What will be involved if you participate?

Your participation in this study is completely voluntary. If you participate in this research, you will be asked to complete the following questionnaire.

How long will this study take?

The research will be conducted between 12/2017 and 04/2019. You will be asked to participate during this timeframe. Completion of the questionnaire will take approximately 15 minutes.

What if you change your mind about participating?

You can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether to participate or to discontinue participating will not jeopardize your future relations with Argosy University, Tampa or your service provider. You can do so without fear of penalty or negative consequences of any kind.

How will your information be treated?

The information you provide for this research will be treated confidentially, and all data (written and recorded) will be kept securely. Written documentations will be stored in a locked file cabinet, accessible only by me, in my office. Results of the research will be reported as summary data only, and no individually identifiable information will be presented. In the event your information is quoted in the written results, I will use pseudonyms or codes to maintain your confidentiality.

All information obtained will be held with the strictest confidentiality. You will be asked to refrain from placing your name or any other identifying information on any research form or protocols to further ensure confidentiality is maintained at all times. All written information will be stored securely for three years, as per Argosy University, Tampa requirements. At the end of the three years, all written data will be shredded using secure cross cut shredding.

What are the benefits in this study?

There will be no direct or immediate personal benefits from your participation in this research, except for the contribution to the study. For the professional audience, the potential benefit of this research will provide additional knowledge to the literature on yoga and meditations impact on symptoms of intimate partner violence.

You also have the right to review the results of this research if you wish to do so. A copy of the results may be obtained by contacting Kimberly Polignani at polignk@stu.argosy.edu. Additionally, should you have specific concerns or questions, you may contact my CRP chair, Dr. Kathie Bates at Argosy University, Tampa, by phone at 813-463-7152 or email at kbates@argosy.edu, or Dr. Kathleen Cornett, IRB Chair, Argosy University, Tampa, 1403 North Howard Avenue, Tampa, Florida 33607, by phone at 813-463-7140 or email at kacornett@argosy.edu.

I have read and understand the information explaining the purpose of this research and my right and responsibilities as a participant. My signature below designates my consent to voluntarily participate in this research, according to the terms and conditions outlined above.

Participant's Signature: _____ Date:_____

Print Name: _____

Appendix B.

1. Gender
   01. Male
   02. Female
   03. Other_____

2. Current age _____

3. Race/Ethnicity _____

4. List current medications (i.e. prescription medications, over-the-counter medications, herbal supplements)

   _____
   _____

5. How many alcoholic substances do you drink per week?
   01. <1
   02. 1-3
   03. 3-6
   04. 6+

6. Are you a victim of intimate partner violence?
   01. Yes
   02. No

<u>If yes, answer the following questions below:</u>

7. What kind of intimate partner violence/trauma did you experience?
   01. Sexual coercion/violence
   02. Rape
   03. Domestic Violence
   04. Gang violence/trauma
   05. Racial violence/trauma
   06. Stalking
   07. Trafficking
   08. Psychological/emotional abuse
   09. Physical assault
   10. Other/Combination of the above

7a. How long did you experience intimate partner violence? _____Year(s)
_____Month(s)_____ Day(s) _____one occurrence
7b. Has the interpersonal violence ended? ____Yes ____ No.
If so, how long ago, _____Year(s) _____Month(s) _____ Week (s) _____Day (s)

8. How many minutes in a typical week in the past month have you participated in yoga?
_____minutes

   1a. In a typical month in the past year how many days a week do you practice yoga?
   _____days

   1b . How many years have you maintained this level of practice?
   01. <1 year
   02. 1-3 years
   03. 4-6 years
   04. 6-10 years
   05. >10 years

9. How many minutes in a typical week in the past month have you participated in meditation?
_____minutes

   1a. In a typical month in the past year how many days a week do you practice meditation?
   _____days

   1b . How many years have you maintained this level of practice?
   06. <1 year
   07. 1-3 years
   08. 4-6 years
   09. 6-10 years
   10. >10 years

10. Did you find yoga to be helpful with reducing any symptoms you have associated with intimate partner violence?
   01. Not at all
   02. Only a little
   03. Somewhat
   04. A great deal

11. How much do you attribute your level of success for dealing with your symptoms as being a result of using yoga?

01. Not at all
02. A little bit
03. Somewhat
04. A great deal

12. What was your main reason for starting yoga?
    01. Gain self-awareness
    02. Help reduce stress
    03. Help alleviate symptoms from interpersonal violence
    04. Maintain a healthy lifestyle
    05. Reduce anxiety
    06. Reduce depression
    07. Reduce physical pain
    08. Other_____

13. Did you find meditation to be helpful with reducing any symptoms you have associated with intimate partner violence?
    05. Not at all
    06. Only a little
    07. Somewhat
    08. A great deal

14. How much do you attribute your level of success for dealing with your symptoms as being a result of using meditation?
    05. Not at all
    06. A little bit
    07. Somewhat
    08. A great deal

15. What was your main reason for starting meditation?
    09. Gain self-awareness
    10. Help reduce stress
    11. Help alleviate symptoms from interpersonal violence
    12. Maintain a healthy lifestyle
    13. Reduce anxiety
    14. Reduce depression
    15. Reduce physical pain
    16. Other_____