

THE IMPACT OF A TRAUMA-BASED YOGA INTERVENTION ON
POSTTRAUMATIC SYMPTOMS IN JSOS

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Abstract

Juvenile Sex Offenders are an underrepresented group in psychology's empirical literature. The literature suggests that this population has a high prevalence of childhood abuse and neglect, leaving them vulnerable to posttraumatic symptomatology. Treatment often fails to recognize and address these youths' trauma symptoms. There is a preponderance of literature support documenting physiological and somatic effects of posttraumatic stress. Traditional therapies for trauma do not typically address these symptoms directly. This study endeavored to address the need for a holistic, adjunctive treatment for posttraumatic stress symptoms in this underrepresented population. Eleven juvenile sex offenders completed two sessions per week for five weeks of a trauma sensitive yoga intervention. Their trauma symptom and functioning scores were assessed with the Child PTSD Symptom Scale at baseline and after the final session. Paired t-test analysis showed significant decreases in trauma symptoms from pre-test to post-test. Daily functioning scores, however, did not demonstrate a significant change from baseline.

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Dedication

This dissertation is dedicated to my loving and supportive mother and father, who never stopped believing in me. I would not have made it without you. This is *our* achievement. *You* are my rock.

Introduction and Literature Review

Introduction

The purpose of this study was to explore the impact of a trauma-based yoga intervention on posttraumatic symptoms of JSOs.

JSOs (JSOs) are traditionally underrepresented in the psychological literature compared to adult sex offenders. There are a variety of studies that attempt to characterize this population in order to identify key traits that correlate with youth offenders. However, the consensus is clear that these youth are a heterogeneous group with individual needs and unique challenges. Subsequently, therapeutic treatments should be developed phenomenologically and holistically to meet their specific needs. Although the literature documents a prevalence of abusive histories among these youth, conventional treatments tend to omit interventions that address resulting posttraumatic stress symptomatology. Furthermore, the empirically supported treatments available to these young offenders tend to be highly structured and inflexible. As a result, there is need for holistic, humanistic treatments that meet the individual needs of JSOs and also address possible posttraumatic symptomatology.

Yoga has been supported by a number of studies as a therapeutic intervention for both physiological and psychological ailments. There is growing support in the literature endorsing yoga for positive outcomes specifically with management of posttraumatic stress symptoms. To address the need for holistic

interventions and posttraumatic stress in this population, this study examined the impact of trauma-based yoga on posttraumatic stress symptoms of JSOs.

Literature Review

Data representing 12 U.S. states from 1991 through 1996 show that minors (individuals under the age of 18) accounted for 23.2% of all reported sexual assaults with 3.6% of these offenders falling under the age of 11 (Snyder, 2000). Hockenberry (2010) reports a 34% increase in all reported violent crimes and a 31% increase in reported forcible rape committed by juveniles from 1985 to 2007. Because of the indication of this rising rate of sexual crimes committed by youths, there is an equally growing need to understand and treat this population.

Characteristics of JSOs. There are a variety of studies that have attempted to identify key characteristics that predict the behavior of these children and adolescents. Although there is much overlap of features among youth who sexually harm others, the consensus is quite clear. This population is heterogeneous, making it difficult to identify factors contributing to their delinquency (Almond, Canter, & Salfati, 2006; Righthand & Welch, 2004; van Wijk et al., 2006). Sexual offending can range from exhibitionism to forcible rape, contributing to an offending profile as diverse as the offenses perpetrated.

Among the earliest studies that discussed this heterogeneity was performed by Smith, Monastersky, and Deisher (1987), who utilized therapist clinical evaluations and JSOs' Minnesota Multiphasic Personality Inventory

(MMPI) scores in their attempts to categorize JSOs. The authors endeavored to identify a clinically valuable typology of “relatively less violent male JSOs.” They selected 262 male participants from approximately 500 adolescents referred to the University of Washington Juvenile Sexual Offender Program (JSOP). Participants had completed the standard JSOP evaluation, including a clinically valid MMPI and were deemed relatively less violent and less aggressive than typical incarcerated JSOs. Participants and their families were evaluated by family therapists trained in interviewing JSOs. Interviewers responded to a standardized questionnaire after each evaluation. Questionnaires included inquiries regarding the offender’s referral sexual offense, the victim of that offense, previous offenses perpetrated by the participant (sexual and non-sexual), and physical and sexual abuse experienced by the JSO. Evaluators also provided information identified as key to assessing the JSOs’ risk of future offenses. These questions included their clinical perception of the JSOs’ degree of defensiveness during the interview, empathy toward the victim, and degree of familial dysfunction.

The responses were then utilized to formulate four typical groups defined by the participants’ MMPI performance (Smith et al., 1987). Organized by the authors, these four groups were:

- Group I. Normal range profile. Likely to be shy, overcontrolled and a worrier with few friends; attempts to portray self as morally above reproach.

- Group II. Most disturbed profile. Likely to be demanding and narcissistic, using illness (particularly physical illness) to gain attention. Argumentative, insecure, and likely to overrely on personal fantasy to solve problems.
- Group III. Normal range profile. Likely to be frank and realistic in describing self. Socially outgoing, normal affect and no impaired judgment. Likely to be emotionally overcontrolled and given to (perhaps violent) emotional outbursts.
- Group IV. Abnormal range profile. Likely to impulsively act-out, display poor self-control and poor judgment. Distrust and alienation likely to be prominent. Vulnerable to perceived threat; likely to strike out in anticipation. Schizoid and undersocialized.

This outcome demonstrated great variability among the JSO sample evaluated, suggesting that JSOs are a heterogeneous population and difficult to categorize.

Later studies identified three main risk factors associated with JSOs: Deviant arousal and sexual preoccupation, antisocial or delinquent behavior, and difficulty in peer relationships and social skills deficits. Johnson and Knight (2000) looked at developmental precursors to sexual coercion among JSOs. They found a relationship between childhood abuse, juvenile delinquency, and subsequent sexual coercion with youth who sexually harm others. Furthermore, youth who are sexually compulsive and possess hypermasculine traits or engage in misogynistic fantasy behavior are more likely to be sexually coercive.

Van Wijk et al. (2006) reviewed the relevant research between 1995 and 2005 and found that youths who sexually harm are more likely to exhibit internalizing problems and may have more difficulty in peer relationships than non-sex offending youths who commit crime. JSOs also had a history of committing other non-sex crimes, albeit at lower rates than their non-sex offending counterparts. These authors consistently found that sexually offending youth were more likely to be victims of sexual abuse themselves compared to other children who committed non-sexually related crimes. However, all JSOs have not necessarily been victims of sexual abuse, and likewise, all victims of childhood sexual abuse do not become sex offenders.

Almond et al. (2006) uncovered key characteristics of youths who sexually harm. Citing the prevalent literature on this topic, the authors discerned three central themes among the documented traits of child sex offenders: Abuse, delinquency, and impairment. They hypothesized that the heterogeneity of these youth offenders could be broadly represented by one or more of these three general categories, where one grouping would be more prominent than the rest, establishing a dominant theme for each child.

Each of the three general themes is comprised of specific characteristics (Almond et al., 2006). The “Abused” category consisted of: Sex abuse, physical abuse, previous sex offense, neglect, sexual abuse in family, parent/sibling offenders, confused about sexuality, inappropriate boundaries, and sexually

attracted to children. The “Impaired” category comprised: Educational difficulties, behavioral problems at school, care, behavioral problems at home, social isolation, deficient social skills, learning disabilities, low self esteem, bullied, pornography, speech/hearing problems, ADHD, and paraphilic behavior. Finally, the “delinquent” theme was subcategorized by: Not being enrolled in full time education, a history of out-home-placements, a history of vandalism, antisocial behavior, bullying others, witnessing domestic violence, alcohol and/or drug abuse, self-harm, parents with alcohol or drug abuse, attachment disorder, emotional abuse, prior sexual experience, previous person offenses, arson, parents with psychiatric problems, mental disorder, conduct disorder, and cruelty to animals.

Out of the 300 JSOs they investigated, Almond et al. (2006) identified sexual abuse (28%) and physical abuse (27%) as the most prevalent in the Abused category. In the Impairment theme, most minors possessed academic difficulties (42%) and behavioral problems (31%). “Not in Full Time Education” encompassed most individuals in the Delinquent group (40%). In addition, every child received a score for the Abused, Impaired, and Delinquent categories based on the percentage of the variables they possessed from each theme. For each child, any theme score that was greater than the sum of the other two themes was considered the dominant theme of sex offending for that child. Utilizing this equation, 71% of the 300 JSOs could be categorized by one of the three themes

outlined by the authors. Of this 71%, most individuals comprised the Impaired group (29%), closely followed by Abused minors (28%). Delinquent youth comprise 14% of these dominant scores.

Although the literature supports an overlap of sexual preoccupation, delinquent behavior, and social deficits among many JSOs, all studies reviewed discussed a strong relationship between childhood abuse and youth sex offending. Highlighting this phenomenon, The Center for Sex Offender Management (2009) identified abusive experiences and exposure to aggressive role models as primary factors influencing juvenile sex offending. According to their statistics, up to half of these children and adolescents have a history of physical abuse, and even more (up to 80%) have reported past sexual abuse. The Center for Sex Offender Management (CSOM) states, “The presence of child maltreatment—whether neglect, physical abuse, sexual abuse, or other forms of victimization—may eventually prove to be a significant predictor of sexual offending behavior (p. 2).” Exposure to aggressive role models in the family (domestic violence) or the community (violent crimes) also correlates with youth sexual offending.

Other studies also focused on destructive familial patterns and caustic home environments as antecedents to juvenile sex offending (Nelson, 2007; Rightland & Welch, 2004). Nelson (2007) discusses the potential effects and influences of family maltreatment on youth violence, particularly sexual offending. She describes these young people as self-absorbed, manipulative, and

dysfunctional academically, and as having poor social skills. Furthermore, Nelson describes male juvenile offenders as having low self esteem, a fear of rejection, anger towards women, and unusual erotic fantasies. In addition to maltreatment and dysfunctional families, Rightland and Welch (2004) identify social skill deficits, poor peer relationships, prior consenting sexual experiences, cognitive impairments, academic difficulty, and mental health issues as common characteristics among youth who sexually harm others.

JSOs and posttraumatic stress. The literature is comprehensive and overwhelming with regard to the descriptive and predictive factors of this population, with one characteristic identified by all studies. Many sex offending youth had personally experienced various forms of maltreatment including physical abuse, sexual abuse, and neglect. As previously discussed, experiencing long-term abuse or witnessing the abuse of others (especially loved ones) can have profound effects on young, developing psyches, namely posttraumatic stress symptoms. However, the literature connecting JSOs to Posttraumatic Stress Disorder (PTSD) is surprisingly sparse.

The Center for Sex Offender Management (1999) reports that PTSD symptoms and trauma re-enactment are common among youth sexual offenders who have histories of abuse. McMackin, Leisen, Cusack, LaFratta, and Litwin (2002) concur with this assertion and identify child offenders as high risk for developing PTSD as a result of trauma exposure. They examined the incidence of

prior trauma experience and PTSD and its relationship to the sex offenders' cycle of offense. Out of the 40 adolescent sex offenders assessed, only 12.5% of them reported no direct experience with physical or sexual abuse. Forty-seven and a half percent experienced both physical and sexual abuse, while 27.5% were exposed to physical and sexual abuse in addition to other violent experiences. Approximately 77% possessed experiences from 3 or more trauma categories. A total of 65% of the sample met full criteria for PTSD. All of the individuals who were exposed to events from more than two trauma categories met full criteria for PTSD.

PTSD: Diagnostic criteria. According to The Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (*DSM-IV-TR*), PTSD is classified as an anxiety disorder with three main categories of symptom expression (American Psychiatric Association, 2000). In addition, it is the only condition in the *DSM-IV-TR* that stipulates the occurrence of a stressor as part of the diagnosis unlike other anxiety disorders that are merely described by their symptoms (Schiraldi, 2000). According to the American Psychiatric Association (2000), exposure to a stressor includes experiencing, witnessing, or learning of an event or events that involved actual or threatened death, serious injury, or violation of the body of self or others. Also, the response to the stressor must include extreme fear, helplessness, or horror. In children, this response may be expressed as disorganized or agitated behavior.

The three categories of symptom manifestation are comprised of re-experiencing the traumatic event, persistent avoidance of the stimuli associated with the trauma, and recurrent symptoms of arousal that were not present before the traumatic event (American Psychiatric Association, 2000). Re-experiencing the traumatic event can manifest in multiple ways. Repeated, intrusive thoughts or memories that are distressing can unwelcomingly enter the individual's consciousness. Recurring, disturbing dreams or nightmares might also be a form of re-experiencing the traumatic event. Furthermore, the individual may experience flashbacks in which there is a sense of going back in time and reliving the trauma (Schiraldi, 2000). Flashbacks are typically visual experiences but may also include somatic sensations, behaviors, or emotions. In addition, flashbacks may last seconds, hours, or days and are usually forgotten afterwards. Reliving the trauma in any of the above ways can be both psychologically and physiologically distressing (American Psychiatric Association, 2000). Likewise, internal and external cues may trigger the traumatic re-experiencing.

The second symptom category, persistent avoidance of stimuli associated with the trauma, includes numbing of general responsiveness existing only after the event (American Psychiatric Association, 2000). An individual may make concerted efforts to avoid thoughts, feelings, or conversations associated with the trauma. In addition, places, activities, or people that elicit memories may be avoided. Traumatized individuals may have significant difficulty remembering

important aspects of the trauma, which may further complicate the processing of the traumatic event and subsequent emotions. Depressive symptoms are also common in these individuals resulting in social detachment and isolation. Symptoms may also include a restricted range of affect, a sense of foreshortened future, and anhedonic responses.

The final category of symptoms is marked by increased physiological arousal that was not present before the trauma (American Psychiatric Association, 2000). However, the arousal may be generally experienced or in response to internal or external cues (Schiraldi, 2000). Because the nervous system becomes sensitized, it often overreacts to innocuous stressors as well as maintaining a general state of elevated arousal. Symptoms include difficulty falling or staying asleep, irritability or outbursts of anger, difficulty concentrating, hypervigilance, and an exaggerated startle response (APA, 2000).

Complex PTSD. Although the DSM-IV-TR criteria offer a reliable framework for diagnosis and a useful reference for trauma symptomatology, many argue the obsolescence of these criteria for all effects of trauma (Cloitre et al., 2009; Cook et al., 2005; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Of all criteria, the most contended in the literature is Criteria A as it limits the traumatic experience to a single event. Based on countless studies and clinical observations, it is clear that chronic trauma, such as child abuse, domestic violence, or war, may result in significant posttraumatic stress symptomatology.

Professional report and empirical data collected over the last 20 years reveal the existence of a more complex form of symptoms for individuals who have sustained prolonged, repeated trauma (Cloitre et al., 2009; Cook et al., 2005; Herman, 1992; van der Kolk et al., 2005). In addition to the DSM- IV-TR prescribed symptoms for PTSD, those who have been exposed to prolonged trauma or multiple traumatic events, often experience a complex symptom presentation influencing affective, interpersonal, and self-regulatory capacities (Cloitre et al., 2009).

Collegially coined Complex Trauma, the syndrome was considered for inclusion in the DSM-IV under the name “Disorders of Extreme Stress” (DESNOS) (Herman, 1992). After the review of existing research on children with trauma, women of domestic violence, and Holocaust survivors, twenty-seven DESNOS symptoms were generated (van der Kolk et al., 2005). Utilizing Herman’s (1992) conceptualization of the DESNOS symptomatology, Van der Kolk and his colleagues combined these symptoms into seven categories: (a) alteration in regulation of affect and impulses (affect regulation, modulation of anger, self-destructive, suicidal pre-occupation, difficulty modulating sexual involvement, excessive risk taking); (b) alterations in attention or consciousness (amnesia, transient dissociative episodes and depersonalization); (c) somatization (digestive system, chronic pain, cardiopulmonary systems, conversion systems, sexual symptoms); (d) alterations in self perception (ineffectiveness, permanent

damage, guilt and responsibility, shame, nobody can understand, minimizing); (e) alterations of perception of the perpetrator (adopting distorted beliefs, idealization of the perpetrator, preoccupation with hurting the perpetrator); (f) alterations in relations with others (inability to trust, revictimization, victimizing others); (g) alterations in systems of meaning (despair and hopelessness, loss of previously sustaining beliefs) (p.391).

The field trial workgroup hypothesized that chronic, interpersonal trauma that begins when an individual is very young will result in more DESNOS symptoms than those experiencing interpersonal trauma later in life or victims of one event traumas, such as natural disasters or car accidents (van der Kolk et al., 2005). In addition, they believed that most individuals who sustained prolonged childhood trauma would experience DESNOS symptoms but not PTSD.

Contrary to their hypothesis, the workgroup found that individuals who endured prolonged, interpersonal trauma at an early age (younger than fourteen years), were more likely to experience both DESNOS and PTSD symptomatology (van der Kolk et al., 2005). This effect is intensified the younger the age of onset and the longer the exposure to the trauma. Individuals who have had traumatic experiences at a later age (older than fourteen years) were almost as likely to develop PTSD symptoms alone as they were to acquire PTSD and DESNOS symptoms. Victims of natural disasters or a single traumatic event were more likely to develop PTSD symptoms alone. These results provide evidence of a

more complex adaptation to prolonged, repeated traumas, especially those of an interpersonal nature. However, the experience of a more complicated form of PTSD does not negate the experience of the traditional Posttraumatic symptoms outlined in the DSM IV-TR.

Neuropsychology of PTSD. Although PTSD is classified as a psychiatric disorder, there are strong biological underpinnings for the symptoms experienced by those coping with it. In fact, Allen (2001) refers to this disorder as a “chronic physical illness” as its biological basis is responsible for much of the long-term effects. Traumatic hyperarousal is mediated by the limbic system (Rothschild, 2000). The limbic system regulates survival behaviors, such as eating, sexual reproduction, and the fight/flight/freeze response, influences memory processing, and is responsible for emotional expression. Likewise, it evaluates situations for danger and signals the autonomic nervous system (ANS) to prepare the body for action or remain at rest. The ANS is further divided into two sections, the sympathetic (SNS) and the parasympathetic (PNS) branch (Rothschild, 2000).

After a threat is perceived, the amygdala, which is influential in memory, signals the hypothalamus to activate the SNS which releases corticotrophin-releasing hormone (CRH) (Rothschild, 2000). Activation of the SNS further stimulates the adrenal glands to produce epinephrine and norepinephrine, which mobilizes the body for fight or flight. The release of norepinephrine is also influenced by the locus coeruleus, a group of cell bodies located in the dorsal

pons of the brain stem with long neurons that innervate multiple brain sites for direct release of norepinephrine (Bremner, 2002; Scaer, 2001). This causes an increase in respiration, heart rate, and blood flow to the muscles so that the body has adequate oxygen to quickly take action in the face of danger (Rothschild, 2000). Meanwhile, the CRH that was released activates the pituitary gland, which releases adreno-corticotrophic hormone (ACTH). The ACTH, in turn, stimulates the adrenal glands to release cortisol. In a healthy human being, the cortisol halts the reactivity of the fight or flight reaction when the perception of danger has passed by ceasing the production of epinephrine and norepinephrine, which brings the body back to homeostasis. This system of events is called the Hypothalamic-Pituitary-Adrenal (HPA) axis.

In addition to fight and flight, the HPA axis and cortisol are responsible for the “freezing” reaction sometimes seen in response to traumatic threats (Rothschild, 2000). The limbic system can simultaneously activate the PNS when death seems imminent or escape is impossible. The PNS, which slows the body down (opposite of the SNS in functioning), causes a freezing effect called “tonic immobility”. As described by individuals who have been in such encounters and survived, an altered state of reality is experienced where time slows down and there is no fear or pain. In addition to this protective aspect, tonic immobility can also create disinterest in an attacker (human or animal) serving as an additional defensive mechanism.

In individuals with PTSD or chronic stress, this HPA system becomes maladaptive and does not turn off (Allen, 2001; Bremner, 2002). These stress responses are specific and react to changes in the environment (Bremner, 2002). However, when the system is overused, it becomes dysfunctional and can no longer adapt to new stressors. Bremner (2002) says this reaction is analogous to a thermometer that was exposed to too much heat. After awhile, says Bremner, the thermometer can no longer respond to excessive increases in heat and fails to turn the temperature down. Multiple studies have demonstrated that individuals with PTSD have lower levels of cortisol than controls, which may explain the chronic hyperaroused symptomatology (Rothschild, 2000). Decreased release of cortisol will inadvertently prevent the body from returning to homeostasis after activation. The prolonged effect of these reactions over time has significant implications for the mental, emotional, and physical health of the traumatized individual.

JSOs: Trauma treatment. Research addressing trauma treatment and interventions for JSOs is limited. Because treatment and rehabilitation had traditionally focused on preventing recidivism, the majority of the published studies in this area focus on the same topic.

JSOs: Recidivism. The literature is mostly congruent on the rate of recidivism among JSOs. Typically, the reported rate of re-offense is between 5% and 14% for sexual re-offenses and 5% to 58% for non-sexual re-offenses for youth sex offenders (Bonner, Chaffin, & Pierce, 2003; Caldwell, 2007, 2010;

Kemper and Kistner, 2007; Parks & Bard, 2006). However, most recidivism studies have not accounted for the diversity of this population within their re-offense research. Only two studies found considered this issue by looking at victim type to predict recidivism.

Parks and Bard (2006) examined recidivism predictors among 3 groups of juvenile male offenders divided by victim type: offenders against children, offenders against peers or adults, and “mixed type” offenders. They specifically reported an overall reported re-offense rate of 6.4% of their sample of 156 juvenile males. Of this percentage, 4% were from the child offender group, 9.8% from the peer/adult group, and 6.5% from the mixed group.

Kemper and Kistner (2007) also examined recidivism among youth sex offenders based upon victim offense history. Similar to Parks and Bard, these authors looked at recidivism rates of youth who had offended against children, peers, and a mixed group comprised of both children and peers. Data was collected approximately 5 years after the offenders’ release from their treatment facility. Out of their sample of 196 adolescent male sexual offenders, they reported a 6.48% recidivism rate, very similar to Parks and Bard. However, they discovered more recidivism among offenders that targeted children and mixed offenders. Only 1.32% of the youth that targeted peers re-offended sexually.

Traditional treatment of JSOs. Traditional sex offending treatment for juveniles is subsequently focused on recidivism prevention. Therapeutic treatment

for this population tends to be as diverse as the offending youth themselves.

Primary problems on which most therapies focus are: Deviant sexual interests, dysfunctional parent-child relationships, problems with social environment (isolation, impaired social skills, and social confidence), cognitive distortions and attitudes that support offending, impulsivity, antisocial values and behaviors (emotional insensitivity and lack of empathy), and treatment non-completion (CSOM, 2006). Because of the heterogeneity of youth who sexually offend, no one therapy would be suitable for all individuals within this population.

Therefore, therapy interventions should be specific to the individual being treated. Calley (2007) further suggested that effective treatment of this diverse group not only requires specialization but also longer therapeutic engagement with qualified professionals than treatment for other criminally offending youth.

According to Nelson (2007), Cognitive Behavioral Therapies (CBT) and Multisystemic Therapy (MST) are the frequently utilized approaches for this population. She also adds that psychopharmacological treatments are occasionally used in conjunction with CBT (Beck, Rush, Shaw, & Emery, 1979; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). The primary goal in CBT interventions is to identify, examine, and ultimately alter the maladaptive thought patterns and cognitive distortions that underlie consequent feelings and drive undesirable behaviors. Nelson (2007) discussed five main techniques used within this approach: satiation training, covert sensitization, role playing (to

confront cognitive distortions), masturbatory-reconditioning, and cognitive restructuring.

Satiation training is an extinction method in which the deviant sexual fantasy is repeated by the client continually after reaching masturbatory climax until its poignancy has been extinguished through boredom (Nelson, 2007). Covert sensitization requires the youth to cognitively pair the sexually deviant behavior with an undesirable, reality-based consequence or other aversive results (Rosenberg, 2002). Sometimes the client is asked to visualize the chain of behavioral events that led up to the sexual offense and mentally interrupt these behaviors by imagining an aversive consequence or fleeing a high-risk situation (Nelson, 2007). During masturbatory reconditioning, the client is asked to actively switch their thoughts from their deviant fantasies to more socially acceptable fantasies when climax is imminent during masturbation. Cognitive restructuring includes identifying and challenging maladaptive beliefs and cognitive distortions.

Multisystemic therapy originated from a need to address the inadequacies of the mental health system in meeting the therapeutic needs of juvenile offenders (Henggeler et al., 1998; Nelson, 2007). To date, it is considered one of the most empirically supported treatments for adolescents who engage in serious and violent criminal behavior. MST functions under the old, African proverb, “It takes a village to raise a child” by including all the systems involved with the

adolescent. Although the majority of the interventions focus on the family system, the school, peer, legal, and community systems are also included in promoting and developing prosocial behaviors and decreasing antisocial behaviors.

With techniques adapted from substance abuse literature, the Relapse Prevention Model emphasizes continued support and treatment for adjudicated youth who are no longer incarcerated, especially those who have been recently released from detainment (Nelson, 2007). Clients are taught to identify situations that pose a higher risk for relapse as well as their internal (emotional, psychological, physiological) warning signs. Once greater awareness of these high-risk triggers and signs is developed, the adolescent learns a multitude of coping strategies to gain greater control of their subsequent behaviors in these risky situations.

Group therapy is also utilized in the treatment of sex-offending youth (Nelson, 2007). Therapeutic groups offer an ideal environment for psychoeducation as well as peer-facilitated processing. Group members can provide support and encouragement from others working through similar struggles but can also be integral in challenging the offender's psychological defenses such as denial or minimization.

The Transtheoretical Model of Change (TMC), also utilized with male JSOs, was developed to improve motivation for treatment and is demonstrated to vastly increase treatment participation in clients previously resistant to change

(Patel, Lambie, & Glover, 2008; Prochaska & DiClemente, 1984). It is comprised of six stages of change (precontemplation, contemplation, preparation, action, maintenance, and sometimes termination) in which the therapist pairs the intervention to the client's readiness to change. TMC or Motivational Counseling incorporates theories that encourage collaboration and autonomy to produce a positive, therapeutic environment versus those techniques that promote resistance such as confrontation or authority. Thus, interventions within this model are driven by five fundamental principles: expressing empathy and respect, developing discrepancy (developing awareness of the discrepancies between their maladaptive behaviors and belief systems), rolling with resistance (using reflective response versus confrontation), normalizing and exploring ambivalence, and supporting the client's sense of self-efficacy.

Empathy development is key within many therapeutic frameworks used with JSOs to assist them with identifying with their victims' pain. Callie and Gerber (2008) view empathy enhancement as a developmental process and cite Marshall, Hudson, Jones, and Fernandez's (1995) four stages of developing empathy (emotion recognition, perspective taking, emotion replication, and response decision). Callie and Gerber assert that clinical interventions must occur in a stepwise manner in accordance with the client's current stage of empathy development. For example, interventions with clients in the first stage of empathy

development (emotion recognition), should focus primarily on affective development such as identification and expression of emotion.

Calley (2007) merged elements from theory and research to develop an integrative therapeutic model for working with JSOs. With CBT as the primary theoretical foundation, Calley's integrative treatment utilizes individual, family, and group therapy modalities. This treatment model is comprised of seven sequential modules that address an array of treatment issues identified by the author. Each module prescribes activities that build on the accomplishments of the previous module and utilizes key components from most evidenced based and theoretical approaches discussed in working with JSOs. Some of these approaches include ownership of behavior, affective awareness, empathy development, and relapse prevention.

Non-traditional treatments of JSOs. In recent years, scholars have clearly demonstrated a growing need to look beyond the traditional approaches offered to treat these young offenders and embrace more holistic, non-traditional therapies. Longo (2004) identifies a growing problem of assessing and treating JSOs without addressing their individual differences and therapeutic needs. He further contends that traditional modes of treatment for these youth (CBT and Relapse Prevention models) tend to misuse technology, negate the client's developmental stage, utilize language and materials not easily understood by youth with learning challenges, can be highly confrontational (potentially

triggering those with traumatic histories), fail to address cultural needs and differences, and underestimates resiliency in these young people. He identifies the Relapse Prevention Model utilized by most to treat JSOs as being particularly inflexible, extremely academic (intellectualizing sexual offending), and lacking strength-focused interventions (e.g., avoidance and escape modes of coping).

As a result, Longo (2004) encourages combining both traditional and non-traditional methods with healing and well-being as the fundamental goals of treatment. This integrated method would embrace both theoretical and humanistic disciplines buttressed by the therapeutic relationship as a fundamental aspect of the treatment process. This approach would naturally include people's universal needs for generosity, belonging, mastery, and independence as well as the four aspects of self (the emotional, mental, physical, and spiritual selves) identified by Longo.

In spite of Longo's recommendations, there is a paucity of empirical evidence demonstrating the professional utilization of non-traditional approaches for working with JSOs. One such example is Moroz's (2000) anecdotal account of utilizing Progressive Muscle Relaxation (Jacobson, 1938) with her client, which yielded positive results in decreasing "stomach attacks" due to stress. However, this author only explored this technique with one individual, limiting its generalizability to a greater juvenile sex offending population.

Derezotes (2000) examined the subjective experience of yoga and meditation trainings of a group of eight adolescent male sex offenders. After three months of the training, all eight participants reported favorable consequences resulting from their training experience, including less desire to reoffend. Other positive effects reported from the training included increased anger control, stress tolerance, relaxation, awareness of thoughts and feelings, control of their thoughts and feelings and decreased anxiety. Seven of the eight boys also reported that the trainings supported their own spiritual development. Qualitatively, these results are promising. However, the small sample size and unstructured experimental design leaves opportunities for additional examination of this intervention with young male sexual offenders.

Derezotes is among many who have uncovered the comprehensive beneficial effect of yoga. Physiological benefits of yoga include increased cardiovascular health with increased flexibility and strength. Bijlani et al. (2005) reported restorative properties of yoga for hypertension, diabetes, and cardiovascular disease. In fact, Ross and Thomas (2010) suggest that yoga may be more beneficial than other forms of exercise for treating heart disease and other medical populations that benefit from exercise. Research examining the emotional and psychological advantages of yogic practice has skyrocketed over the past decade.

Yoga as a treatment for PTSD. Supported by several studies, the positive effects of yoga have been demonstrated for treating stress, anxiety, and depression (Brown & Gerbarg, 2005), eating disorders (Daubenmier, 2005), and ADHD in children (Sadiq, 2007). This ancient practice has even infiltrated college counseling centers for stress management therapy and the attainment of overall psychological wellness for students (Adams & Puig, 2008; Milligan, 2006).

In the past five years, there has been increased attention on the use of yoga in response to Posttraumatic Stress symptomatology as well. Intuitively, one may surmise that the relaxing nature intrinsic to the practice and discipline of yoga could quell the anxiety that PTSD creates. However, there is evolving empirical support in neurological science for the positive effects researchers have begun to observe in recent years. In addition to the development of respiratory and cardiac control inherent to yoga practice, there is evidence that yogic exercise increases the levels of cerebral GABA, a neurotransmitter that inhibits excitatory responses, i.e., anxiety (Streeter et al., 2007). Although science and medicine have recently begun to examine the powerful effects of yoga on posttraumatic symptoms, researchers and practitioners alike have been observing great positive outcomes.

The Walter Reed Army Medical Center found success in their study utilizing Yoga Nidra, one of the many varieties of yoga that induces deep relaxation (Wills, 2007). Active duty soldiers with PTSD reported less depression,

greater comfort with situations out of their control, increased command of their lives, and better sleep. Brown and Gerbarg (2005) also report positive outcomes with Sudarshan Kriya Yogic Breathing (SKY), another variation of yoga. They noted an improvement of physiological and psychological symptoms in patients with PTSD with an overall “amelioration of feelings of fear, neglect, abuse, rejection, depression, isolation, and worthlessness” (Brown & Gerbarg, 2005).

Researchers at the Trauma Center at the Justice Resource Institute led by Dr. Bessel van der Kolk have studied the powerful effects of yoga on posttraumatic stress symptomatology. In a pilot study performed by Emerson, Sharma, Chaudhry, and Turner (2009), a 75- minute yoga class was compared to a Dialectical Behavior Therapy (DBT) group to assess the greatest decrease of PTSD symptoms, positive and negative affect, and body awareness. After eight weeks, the Yoga group reported a larger decrease in PTSD symptoms, a greater positive affect, less negative affect, and more physical vitality and body attunement. The authors add that “Yoga appears to positively affect self-regulation and decrease hyperarousal” in PTSD patients (Emerson et al., 2009).

As a result, Emerson (2009) has developed a model of yoga practice he coined, “Trauma-Sensitive Yoga.” Trauma-Sensitive Yoga emphasizes the language utilized in yoga practice so as to minimize triggering the client’s symptoms. It is a client-centered approach intended to maintain the power of the individual and create a safe, secure environment in which to “reclaim” one’s

body. Emerson offers three primary steps in attainment of this goal: (1) knowing you have a body, (2) befriending your body, (3) experiencing your body as a resource.

Critical Summary and Statement of the Problem

Although there is literature supporting the need for holistic treatments that meet the individual needs of JSOs, traditional treatments incorporate cognitive-behavioral interventions that tend to be rigid and lack person-centered approaches. Additionally, the research reports prevalent histories of neglect and physical, emotional, and sexual abuse among youth offenders that often result in posttraumatic symptomatology. However, most treatments discussed in the literature neglect this vital issue. As a result of the paucity of empirically supported, non-traditional, holistic treatments for JSOs that focus on posttraumatic stress and the growing evidence of yoga's positive effects on posttraumatic stress symptomatology, this study will look at the effect of yoga on posttraumatic stress symptoms in JSOs utilizing Emerson's (2009) model for Trauma-Sensitive Yoga.

Hypothesis. It is hypothesized that participants will experience a significant reduction in posttraumatic stress symptoms and an increase in daily functioning following the Trauma-Sensitive Yoga intervention.

Methods

Design of the study

A paired sample t-test was used to compare symptom and daily functioning means at pre-test and post-test. This quantitative design was selected to observe the impact of the trauma sensitive yoga intervention on posttraumatic symptomatology and daily functioning of these youth after five weeks of its implementation.

Overview of the study

Twenty participants were recruited with the help of staff from a residential treatment facility for JSOs. This study consisted of 10 Hatha yoga sessions informed by Emerson's Trauma-Sensitive model and occurred twice per week, over five consecutive weeks. Participant ages ranged from 13 to 18. They were screened for exercise compatibility and clinical appropriateness by the clinical director of the treatment facility. The Physical Activity Readiness Questionnaire (PAR-Q) was administered as a further exercise screening device. The Child PTSD Symptom Scale (CPSS), a measure of PTSD symptomatology for children 8 to 18 years old, was administered prior to the first session and after the 10th session. Data was analyzed using SPSS (18th edition).

Participants

Recruitment. Participants for this study were recruited from a residential treatment facility for juvenile male sex offenders. Once IRB approval was granted

from Chestnut Hill College and the residential facility, the chief investigator provided a brief overview of the study to the clients in each of the five therapeutic groups scheduled for all residents. This information included the frequency and length of time of participation, incentives, participant rights and responsibilities, and an overview of what the informed consent process would be if they decided to participate. As suggested by the program clinical director, a pizza and cola party was offered to all residents who completed the study. Residents who missed a yoga session or terminated their participation due to illness or medical necessity were permitted to take part in the pizza party, and their termination did not negatively affect the group's participation in the pizza party. The participants were given several opportunities to ask questions throughout the discussion and were presented with signup sheets for the study. The participants were informed that they could sign up at anytime during the following week, and the signup sheets were left with the group facilitators. After a week, the lead investigator obtained the signup sheets, which were transported in a double locked carrying case and stored in a locked filing cabinet in the researcher's home office.

Inclusion. Interested parties who provided appropriate informed consent and who were deemed physically appropriate for physical activity by both the PAR-Q and by the Clinical Director of the residential facility were permitted to participate in the study. Interested individuals were also cleared clinically by the Clinical Director to be included in the study.

Exclusion. Individuals for whom physical activity was contraindicated by the PAR-Q or for whom this study was deemed physically or psychologically unsafe by the Clinical Director would have been excluded from this study; however, there were no participants for whom this was true. Potential participants who did not provide written consent were excluded from this study. One individual attempted to join the yoga class in week four without providing informed consent. The lead investigator gently discussed the process for participation, upon which the individual opted not to participate. Adolescents under the age of fourteen would have also been excluded from the study if their legal guardians did not provide written consent, but again this did not describe any individuals in this study.

Informed consent. Residents interested in participating in the study were asked to attend a meeting to provide them with information regarding the basic procedure of the study, including areas concerning confidentiality, inclusion and exclusion criteria, participant safety, and incentives. Information was provided to participants both verbally and in writing. Parents or guardians of children under the age of 14 were invited to this meeting but were given the option of also meeting individually with the lead investigator at another mutually agreed upon time. It is this residential facility's customary practice to hold meetings for the residents and their parents concurrently. Therefore, this meeting would not have posed a risk to confidentiality or anonymity. There was only one individual under

the age of 14 who wanted to participate in the study. His legal guardian provided written consent for her child's participation but chose not to attend the informed consent meeting or meet individually with the lead investigator. This adolescent provided written assent for his participation.

Adolescents fourteen and older were required to provide written consent to have their parents or guardians attend the information session. Meeting attendees were encouraged to ask questions and share their concerns with the lead investigator. After all questions and concerns were addressed, adolescents who continued to have interest in participating were asked to sign two informed consent forms (one copy for the investigator and one copy for their records). The legal guardian of the child who was under fourteen years of age was also asked to sign two consent forms, one of which was returned to her for her records.

Confidentiality. During the informed consent process, participants were informed of their right to confidentiality and all efforts that will be taken to ensure the privacy of their participation and outcomes. The legal guardian of the participant under fourteen years of age was also notified of the parameters and limitations of confidentiality during the informed consent procedure. These limitations included being compelled to release participation information of a client if a court ordered this researcher to do so. Also, any report of child abuse would have been reported to the appropriate authorities. Likewise, a participant's report of an intention to do harm to himself or another would be reported to the

appropriate person and/or authorities. Clients' participation in the study was made known to the residential staff on a need-to-know basis where the minimum amount of information necessary for clinical coordination was disclosed. Participants and legal guardians were informed that the clinical director would be notified of any clinically relevant experience, such as negative emotional reactions experienced by a participant (e.g., anxiety, fear, depression, suicidal ideation) during the course of the study, such as a client's negative response to a specific yoga position. This disclosure was solely for the maintenance of all participants' safety and the continuity of care throughout their treatment. Information regarding the participation of adolescents age fourteen and older would have only been provided to their parents or guardians with the participant's written consent.

The participants were instructed to choose a fictitious name that they could easily remember, such as that of a favorite cartoon character or sports idol. Only the participant was privy to his code name. All forms, with the exception of the Informed Consent and the PAR-Q, were identified by this code alone. Informed consent forms, PAR-Q forms, and completed CPSS forms were transported from the residential facility to the primary investigator's home office in a double-combination locked carrying case. The forms were then transferred and stored in a keyed-entry, locked filing cabinet in the primary investigator's home office. The keys for the filing cabinet were locked in a small combination-

locked safe to which only the primary investigator has access. CPSS data was entered into a password protected Microsoft Excel document located on a laptop computer that is also protected by a password and has no wireless capability or access to the internet. Passwords for both the Excel document and the laptop are different and known only by the lead investigator. All electronic data was deleted from the laptop, but a paper copy of this information will be retained in a locked filing cabinet in the researcher's home office.

Disclaimer & withdrawal. During the informed consent process, participants and legal guardians were notified that they could withdraw from the study at any time without negative consequence. Participants were instructed to immediately cease all activity and seek assistance from the lead investigator or staff present if they experienced any emotional, physical, or psychological discomfort. Participants who reported such discomfort were given the option of resting quietly in child's pose (for situations of fatigue) or be accompanied to a private location for further assistance by staff or the investigator. The clinical director would have been notified of occurrences that required additional emotional support or medical intervention to ensure the client's safety and wellness throughout the day and duration of the study. However, no participant needed additional support throughout the study.

Incentives/compensation. A pizza and soda party was offered for individuals who participated in the study. Participants who missed a yoga session

or terminated their participation due to illness or medical necessity were not excluded from the party.

Measures

The Physical Readiness Questionnaire (PAR-Q) was administered to all volunteers as a prescreening measure to determine the physical safety of their participation in yoga (The Canadian Society for Exercise Physiology, 2002). Adapted from the American College of Sports Medicine's Fitness Facility Standards and Guidelines, the PAR-Q is recommended as the minimum standard for individuals entering moderate-intensity exercise programs (American College of Sports Medicine, 2009). Individuals for whom yoga may pose a serious health risk would have been excluded from the study. However, all participants screened by the PAR-Q were deemed physically suitable for the study. Reliability and validity information for the PAR-Q could not be found.

The Child PTSD Symptom Scale (CPSS) was administered prior to the first yoga session and after the tenth yoga session. The CPSS is a self-report measure that assesses the severity of DSM-IV-TR PTSD symptom criteria in children who have experienced trauma (Foa, Johnson, Feeny, & Treadwell, 2001). It is comprised of 17 items that measure PTSD symptomatology and seven items that assess functioning. It was chosen for this study for several reasons. It was designed to assess the frequency of all three DSM-IV-TR symptom categories of PTSD. The normative age range of this measure encompasses the ages of the

adolescents who comprised this study's sample of participants. Finally, it requires a grade three education level, and projected completion time is practical (15 minutes).

The three-cluster and total symptom scores of the CPSS established high internal consistency (.89 for total score; .80 for re-experiencing; .73 for avoidance; .70 for arousal). The test-retest reliability for symptom severity yielded a .84 coefficient for the total score and .85, .63, and .76 for re-experiencing, avoidance, and arousal, respectively. Convergent validity of the total score was .80($p < .001$).

The functioning impairment scale demonstrated low internal consistency ($\alpha = .35$). The item that related to "general happiness with life" did not relate to any other item on this scale. When this item was removed, internal consistency of this scale increased dramatically ($\alpha = .89$). The test-retest reliability for the total functioning impairment score was $r = .70$, ($p < .001$).

Permission to use this measure in this study was awarded by an affiliate of Dr. Foa from the University of Pennsylvania (Appendix H).

Scoring & data storage. Data was scored using the methods outlined in Foa et al. (2001). Responses provided on a Likert scale are added to determine symptom severity and the individual's level of functioning.

Data was transported from the residential site to the lead investigator's home office in a double combination locked carrying case and stored in a locked

filing cabinet in the investigator's home office. The keys to this filing cabinet were locked in a small combination locked safe, also in the investigator's home office.

Participants were instructed to choose a single code name to be used as their identification on the CPSS throughout the study. No other identifying information was recorded on the CPSS forms. Data from the CPSS was entered in a password protected Microsoft Excel document kept on a password protected laptop computer that did not have wireless capability or any access to the internet. This laptop was kept in the primary investigator's home office. Data that was entered into the excel document was re-coded using numerical identifiers, such as "P1," P2," etc., to further de-identify each participant. This de-identified document was emailed to a Professor of Statistics at Chestnut Hill College who assisted the lead investigator with the data analysis.

Data Analysis

Data was analyzed using the 18th edition of SPSS on a professor's computer at Chestnut Hill College. A paired samples t-test was utilized to evaluate the difference in participant scores from pre-test to post-test.

Procedures

Setting. The study was conducted at a suburban residential treatment facility for JSOs once Chestnut Hill College IRB approval was obtained. IRB

approval was also obtained from the treatment facility before the study began and after Chestnut Hill College IRB approval had been granted.

Pre-briefing. Individuals who were interested in the study were asked to attend a pre-briefing meeting to learn about the study and obtain answers to any questions they might have had. The attendance of legal guardians was encouraged for potential participants under the age of 14. Information regarding yoga sessions, rules of participation, issues of safety, inclusion and exclusion criteria, and incentives were discussed at this meeting. Informed consent was requested of all participants in attendance at this pre-briefing meeting as well.

Curriculum. Ten yoga sessions were offered to the participants. The curriculum was based on the Trauma Sensitive Yoga Program developed at the Trauma Center at Justice Resource Institute (Emerson, 2009). Permission was granted for a facilitator to utilize the techniques outlined in their manual (Appendix I). Yoga mats were provided by the researcher.

Two yoga sessions per week of the study's five weeks were offered to the participants for a total of ten yoga sessions. Because 20 individuals initially gave consent for participation, two yoga classes were offered for each of the ten days of the study to avoid classes exceeding ten participants, i.e., ten or fewer participants attended either Session one or Session two per given day. The yoga instructor followed the same curriculum and structure for both sessions per day.

The two classes per given day were facilitated as identically as possible to ensure that all participants received the same intervention. Each yoga session was approximately forty-five minutes in duration and utilized a series of trauma-sensitive poses for beginners outlined in Emerson (2009). These poses included Standing Mountain, Table, Child's, simple variations of Tree, Warrior I and II, Janu Sirsasana, Seated Badhakonasana, Bridge, and Supine Knees to Chest (Appendix J). Yoga sessions also employed trauma-sensitive language, instruction, and verbal assists outlined in the manual. Physical assists were not utilized as Emerson highly discourages them for beginners of Yoga with histories of trauma.

Safety. Participants were fully informed of the study's procedures prior to their consent. The lead investigator and an employee of the residential facility were present for all yoga sessions and CPSS administrations. Participants were screened for physical appropriateness by the Clinical Director and the outcome of the PAR-Q administration. Psychological or clinical appropriateness of participants was determined by the Clinical Director.

Participants were instructed to immediately terminate any activity that caused emotional or physical discomfort. These individuals were directed to immediately seek the assistance of the researcher or residential staff in the room. Participants were informed that they may be accompanied to a private location if adverse emotional reactions were experienced so that they could be addressed

appropriately. Those who experienced fatigue or uncomfortable physical effects were given the choice to sit quietly in child's pose or be accompanied to the facility Medical Coordinator as necessary. No clients reported adverse emotional or physical effects from the yoga that necessitated medical or psychological intervention. However, a few individuals chose to occasionally rest in child's pose or cross legged when they became tired.

Each yoga class was comprised of approximately seven to ten individuals. Participants were asked to sign into each class utilizing only their fictitious names previously chosen. Participants were arranged in a semi-circle in front of the facilitator so that individuals were able to see the yoga instructor clearly but could not easily see each other. As suggested by the Clinical Director, "layered formats" utilized in many yoga classes were avoided due to the potential risks associated with this population.

Participants were instructed to wear appropriate attire that allowed for safe and comfortable movement and that met the dress requirements of the residential facility. The yoga instructor was dressed in loose clothing that was not physically revealing.

Facilitator. The yoga instructor was not the primary investigator. The instructor was credentialed as a Registered Yoga Teacher (RYT) and had been actively teaching yoga classes for several years. This instructor possessed a Master's degree in a psychologically-related field and also possessed a strong

basis of knowledge in research methods, neurological functioning, and posttraumatic stress symptomatology. She was familiar with the fundamental characteristics of trauma-sensitive yoga practice discussed in Emerson (2009) and demonstrated her ability to apply this practice in yoga instruction.

Child PTSD symptom scale administration. The CPSS was administered by the researcher immediately prior to the first yoga session and immediately after the last yoga session. The CPSS protocols and number two pencils with erasers were provided to each participant. Prior to each administration, the researcher reminded the participants to write their code name on the top of each protocol and gave basic instructions for completing the assessment. Completed forms were collected and immediately filed in a double combination-locked carrying case and transported to the researcher's home office where they were filed in a locked cabinet.

Ethical Considerations

IRB approval was obtained from both Chestnut Hill College and the residential facility prior to data collection.

Consent. Informed consent of adolescents fourteen and older was required prior to participation. Adolescents under the age of fourteen were required to provide written assent and legal guardian consent for their participation. Only one participant reported that he was less than 14 years of age,

who provided assent for his participation. His legal guardian provided consent as well.

Disclaimer and withdrawal. Participants were informed that their participation was completely voluntary, and that they could have withdrawn from the study at any time without penalty or consequence. Although incentives were offered to encourage participation, at no time were incentives used to coerce participation or reprimand individuals for their withdrawal. As such, individuals who withdrew from the study were still permitted to attend the pizza party. All parameters of incentives were approved by the IRB of both the residential facility and Chestnut Hill College.

Safety. Physical and psychological measures of safety were considered at all times. The lead investigator and an employee of the residential facility were present for all yoga sessions and CPSS administrations. Only those individuals deemed physically appropriate by the clinical director and the outcome of the PAR-Q administration were permitted to participate in the study. Psychological or clinical appropriateness of participants was determined by the Clinical Director.

Participants were instructed to immediately terminate any activity that caused emotional or physical discomfort. These individuals were directed to immediately seek the assistance of the researcher or residential staff in the room. Participants were informed that they could be accompanied to a private location if

adverse emotional reactions were experienced so that they could be addressed appropriately. Those who experienced fatigue or uncomfortable physical effects were given the choice to sit quietly in child's pose or be accompanied to the facility Medical Coordinator as necessary.

The yoga class was comprised of approximately seven to ten individuals. Participants were asked to sign into each class utilizing only their fictitious names previously chosen. Participants were arranged in a semi-circle in front of the facilitator so that individuals were able to see the yoga instructor clearly but may not easily see each other. As suggested by the Clinical Director, "layered formats" utilized in many yoga classes avoided due to the potential risks associated with this population.

Participants were instructed to wear appropriate attire that allowed for safe and comfortable movement and that met the dress requirements of the residential facility. The yoga instructor was dressed in loose clothing that was not physically revealing.

Curriculum. A trauma sensitive yoga approach clinically implemented at The Trauma Center at Justice Resource Institute was utilized to reduce triggering and negative experiences. Participants were approved as physically and psychologically appropriate for the study by the Clinical Director of the residential facility. Moreover, all participants were deemed appropriate for physical activity by the PAR-Q prescreening tool. Participants were observed by

residential staff and the researcher for any adverse effects during yoga sessions and CPSS administration. Participants were reminded at the beginning of each session to cease any position or activity that caused physical pain or emotional discomfort and seek the assistance of the researcher or staff present.

Debriefing. Participants were encouraged to seek help from program staff if they developed any symptoms at any time during the five weeks of study or anytime after the conclusion of the study. Specifically, they were notified of the appropriate staff to whom to report should any negative symptoms be experienced. At the conclusion of the study, the lead investigator discussed with each participant the purpose of the study and what was being measured (see Appendix E). The lead investigator also asked each participant to describe his overall experience of his participation and his likes and dislikes of the yoga practice. The participants were offered an opportunity to request a copy of the overall results of the study when they are available.

Confidentiality. Every effort to maintain participants' confidentiality was taken. Individual rights and exceptions to confidentiality were provided to all potential participants during the Informed Consent procedure.

Data. Completed CPSS forms were identified by a fictitious name chosen by the participants. Forms were transported in a double-locked carrier and stored in a double-combination locked carrying case. This carrying case was stored in a keyed-entry, locked filing cabinet in the primary investigator's home office.

CPSS data was de-identified by using a numerical number and entered into a password protected Microsoft Excel document located on a laptop computer also protected by a password. This computer had no wireless capability and no access to the internet. Passwords for the Excel document and the laptop were different and known only by the lead investigator. Data will be retained for five years and will be digitally deleted thereafter. All physical forms will be shredded after five years.

Data Analysis. A paired sample t-test was used to compare symptom and daily functioning means at pre-test and post-test. This quantitative design was selected to observe the impact of the yoga intervention on posttraumatic symptomatology and daily functioning of the participants at baseline and after five weeks of performing yoga. Twenty participants completed the CPSS assessment at pretest and began the yoga intervention during the first week. Of these 20 participants, 11 completed the study. Participants were male adolescents ranging from 13 to 18 years of age and had all been adjudicated for various types of sex offenses. All participants were full-time residents of the treatment facility where they received various therapies to address the underlying phenomena to their sex offending.

Results

It was hypothesized that participants would report a gradual decrease in posttraumatic stress symptoms and an increase in daily functioning throughout the duration of the yoga intervention with significant decreases in symptoms between pre-test and post-test symptom scores. Using the 18th edition of SPSS, a paired-samples t-test was conducted to compare trauma symptoms at both pre-test and post-test to determine outcomes after the five-week intervention. On average, participants reported significantly fewer trauma symptoms (as measured by the CPSS) after the yoga intervention ($M=9.7$, $SD=10.2$) than before yoga ($M=16.3$, $SD=14.3$), $t(11)=3.20$, $p<.01$, $d=.92$, see Table 1. However, participants reported no significant change in daily functioning from pre-test ($M=4.33$, $SD=2.7$) to post-test ($M=2.75$, $SD=2.9$), $t(11)=1.95$, $p>0.05$, $d=0.56$, see Table 2.

Table 1

Symptoms Compared at Baseline and at Post-Test

| | Mean* | Standard Deviation | N |
|-----------|-------|--------------------|----|
| Pre-test | 16.3 | 14.3 | 11 |
| Post-test | 9.7 | 10.2 | 11 |

**Score possibilities ranged from 0 to 51.*

Table 2

Daily Functioning Compared at Baseline and at Post-Test

| | Mean* | Standard Deviation | N |
|-----------|-------|--------------------|----|
| Pre-test | 4.33 | 2.7 | 11 |
| Post-test | 2.75 | 2.9 | 11 |

**Score possibilities ranged from 0 to 7.*

Discussion

This study examined the impact of yoga on the trauma symptoms and level of functioning of JSOs of a local residential treatment facility. Participants were offered an incentive of a pizza and soda party for their participation. They were screened by the PAR-Q for physical appropriateness for the study and informally by the Clinical Director of the facility for their psychological readiness. The yoga intervention was provided for five weeks. The participants participated in two yoga sessions per week for the five-week duration totaling 10 yoga sessions overall. Each yoga session was approximately 45 minutes in length. The Yoga sessions followed a Trauma-Sensitive Yoga protocol (Emerson, 2009) and were facilitated by a certified instructor. The CPSS was utilized to measure frequency of trauma symptoms and level of functioning impairment experienced by each participant. This self-report measure was administered to all participants before the first yoga session and after the final session.

Of the 20 participants who had signed up and come to the first session, only 11 participants completed the study. This decline in numbers was due to discharges, drop-outs, and lack of attendance, and there was no discernable pattern associated with the decrease. The data obtained from the CPSS administration from these 11 participants was analyzed using a paired-samples t-test. This statistical analysis demonstrated a significant decrease in trauma symptoms experienced by these adolescents from the first session to the last with

a very strong effect size. Although functioning impairment also decreased from the first to the last session, this decrease did not reach statistical significance.

The findings of this study support the hypothesis that yoga is influential in decreasing PTSD symptoms in JSOs. Although there is growing empirical evidence of yoga's positive effect on posttraumatic symptomatology, the research is sparse in this area in child populations and non-existent with regard to JSOs. However, the findings of the present study are supported by the few empirical studies available.

White (2009) reported an increase in awareness and utilization of yoga in many school districts for stress management and overall well-being in non-clinical populations. Anecdotal reports describe emotional and behavioral benefits from yoga in addition to decreased physical complaints and need for medication. Khalsa, Hickey-Schultz, Cohen, Steiner, and Cope (2012) looked at the mental health benefits of yoga in secondary school students. The adolescents were randomly assigned to either 11 weeks of yoga or a regular physical education class. Self-report measures of several mental health variables, including mood, anxiety, perceived stress, and resiliency were collected at the beginning of the study and at the end of program. The students in the Yoga group demonstrated a statistically significant difference over time compared to controls on measures of anger control and fatigue/inertia.

In Baltimore, Maryland, researchers investigated the effects of yoga and mindfulness techniques on disadvantaged youth in urban communities (Mendelson et al., 2010). In their pilot study, the authors assessed fourth and fifth grade students from four urban schools for feasibility and acceptability of the intervention and several psychosocial outcome variables. Male and female students received four 45-minute interventions per week of yoga and mindfulness for a 12-week period. Several questionnaires measuring stress response, “involuntary engagement coping” (including subscales of involuntary and voluntary stress responses to social stress, rumination, intrusive thoughts, emotional arousal, physiological arousal and impulsive reaction), depressive symptoms, positive and negative emotions and relations with peers and school individuals were administered pre- and post- intervention. Three focus groups, where teachers and students reported their thoughts and feelings about their overall experience of the program and intervention were also conducted. Feasibility and acceptability, measured by recruitment and attendance numbers, participant dropout, and responses from the three focus groups, had favorable outcomes. Mendelson and his colleagues found statistically significant improvements in students’ experience overall on the involuntary engagement coping scale with significance on the subscales of rumination, intrusive thoughts, and emotional arousal subscales, variables often experienced by traumatized individuals. Although impulsive action and physiological arousal did not reach

significance, students indicated improvement on these subscales. Likewise, improvement was observed for variables of depressive symptoms and negative affect.

More recently, a group of researchers from the Trauma Center of the Justice Resource Institute in Massachusetts obtained anecdotal support for the implementation of Trauma-Sensitive Yoga for traumatized youth in residential treatment (Spinazzola, Rhodes, Emerson, Earle, & Monroe, 2011). They discussed the preponderance of complex trauma experienced by adolescents throughout their life prior to admission to residential facilities and the re-traumatization that occurs when youth are placed abruptly and unexpectedly in a new environment surrounded by unfamiliar people. Spinazzola and his colleagues further reported that many of these adolescents are often misdiagnosed because their trauma is unknown by residential staff or masked by other clinical presentations. Also, trauma symptoms often present differently in children versus their adult counterparts, further convoluting the clinical picture. Thus, posttraumatic stress, if misdiagnosed, will likely lead to inappropriate treatment, a phenomenon experienced by many of the JSOs in the literature reviewed earlier.

Because Trauma-Sensitive Yoga was successful in other studies performed by the Trauma Center, Spinazzola et al. (2011) adapted this model for adolescents between the ages of 12 and 21 housed in residential treatment facilities and receiving comprehensive educational, behavioral, and mental health

treatment. In their three-year project, Spinazzola's team integrated group and individual yoga training into the framework of several residential facilities. Adolescents reported favorable outcomes as a result of their yoga practice.

One of the clients, highlighted by Spinazzola et al. (2011) experienced a number of chronic traumatic stressors including parental physical abuse, witnessing domestic violence, and neglect prior to a foster care placement and her eventual admission to the residential treatment facility. Diagnosed with PTSD, she experienced overall challenges in emotional and behavioral regulation and intense shifts in mood which included explosive, aggressive, or self-harming behaviors. In addition, she struggled with binge eating, and food hoarding followed by long periods of social withdrawal, shame and dysphoria. After participating in the yoga program implemented in her treatment facility, this client reported a "heightened somatic awareness and responsiveness to bodily needs," and "better self-monitoring of eating behavior." She also demonstrated a willingness to participate in group and individual work on self-soothing techniques to cope with the array of emotions she experienced. She made statements demonstrating greater awareness of her physical, emotional, and cognitive state, increased self-esteem, and a greater sense of empowerment. Staff observations of this adolescent's improvements included affect regulation, impulse control, and physical and emotional awareness.

The literature purports multiple variables underlying yoga's effectiveness with decreasing posttraumatic stress symptoms in individuals. As previously mentioned in the literature review, Streeter et al. (2007) found a statistically significant increase in Gamma-Aminobutyric Acid (GABA) levels in yoga practitioners after a 60-minute yoga session compared to controls. GABA, which tends to be low in people with PTSD (Spinazzola et al., 2011), is the most abundant inhibitory neurotransmitter in the brain and responsible for reducing anxiety (Kalat, 2004). In a later study, Streeter et al. (2010) compared yoga and a metabolically matched walking intervention among healthy individuals to further delineate whether changes in GABA levels were due to variables specific to yoga or related to the metabolic demands of physical activity. Investigators also tested for mood and anxiety differences between groups and correlated these scores with GABA levels for each intervention. Participants received either the yoga intervention or the metabolically matched walking intervention three times per week for 60 minutes over 12 weeks. Streeter and his colleagues found statistically more gains in mood and a reduction in anxiety in the yoga group compared to the walking group. In addition, the yoga group demonstrated positive correlations between changes in mood and GABA levels, suggesting that the effects of yoga on mood and anxiety are not exclusively due to the metabolic demands of physical activity.

It is clear from this research and the anecdotal accounts in the literature that (a) yoga practice is strongly associated with a decrease in anxiety and its subsequent symptomatology, and (b) this effect is due to more than the emotional gains consequent of physical activity. Several individuals have proposed explanations for this effect.

The concept that trauma has neurological and physiological effects as well as psychological is commonly accepted in the literature (Bremner, 2000; Rothschild, 2000; Scaer, 2001; Spinazzola et al., 2011; van der Kolk, 1994, 2003). Spinazzola et al. (2011) state that yoga helps shift children from a chronically traumatized relationship with their bodies to feeling safe, strong, empowered, and accepting of their bodies. Furthermore, this research team identified breathwork (pranayama), body postures (asanas), and meditation as the key factors contributing to the successful decrease in posttraumatic symptomatology from yoga practice.

The breathwork inherent to yoga ultimately decelerates body processes. During hyperarousal, one of the three symptom clusters of PTSD, the heart rate accelerates causing respiration to increase as well. Decreasing the rate of respiration in a controlled, purposeful manner accomplished through pranayama, subsequently decreases the heart rate, thus lowering the body's overall state of hyperarousal. Similarly, individuals who have experienced trauma or other forms of anxiety often report "racing thoughts" or an inability to "quiet the mind." The

meditative aspects of yoga encourage focused thought on the flow of breath, muscle groups, or postures, consequently changing cognition from rampant and uncontrolled to focused and controlled.

Muscle contractions during body postures or asanas provide a feeling of physical strength and body empowerment. Although there is a potential of somatic triggering as a result of different positioning, this risk is decreased through Emerson's (2009) Trauma-Sensitive Yoga model. Clients are always in command of their bodies and given the choice of alternative positions if an experience is physically or emotionally adverse. As physical helplessness often contributes to the development of PTSD, feeling in control of one's own body plays a significant role in re-empowering the individual and processing the trauma somatically (Wylie, 2004). Just having the option of choice is often significant for these chronically traumatized youth.

Yoga provides an adjunct to traditional talk therapies, as well. Individuals who have pursued treatment for posttraumatic symptoms frequently feel "all talked out" (Sparrowe, 2011; Wylie, 2004). Mary Sykes Wylie (2004) chronicles the experiences of Dr. van der Kolk, who reported a decline in his clients' condition as a result of talk therapy focused on their past traumas. Sparrowe (2011) contends that yoga offers a different mode of trauma intervention where somatic experiences of trauma may be worked on and processed without repeatedly talking about them. She states:

Yoga's ability to touch us on every level of our being – physical, mental, emotional, and spiritual – makes it a powerful and effective means for trauma victims to reinhabit their bodies safely, calm their minds, experience emotions directly, and begin to feel a sense of strength and control. (p. 50)

These studies and anecdotal accounts from participants demonstrate several mechanisms that may have influenced the significant results seen in this study, which have important implications for youth offenders overall.

Clinical Implications

The findings of this study have significant implications for the clinical treatment of youth who have sexually offended against others. As previously stated, the literature is clear that many JSOs possess traumatic stress symptomatology as a result of having been victimized themselves. Yet, many residential treatment facilities (RTFs) for this population address only the adolescents' offending behaviors and neglect treating their trauma and symptomatology, thus disregarding the individual as a whole. Furthermore, many of the empirically supported treatments available to young offenders are extremely structured, rigid, and inflexible.

Trauma-Sensitive Yoga may be utilized as an adjunctive intervention for the holistic treatment of trauma in these youth. This study suggests that Trauma-Sensitive Yoga may be highly effective in reducing trauma symptoms for youth

offenders. It provides an additional tool to address emotional dysregulation, thought intrusion, and somatic re-experiencing often seen in this population.

The literature also supports the notion that Posttraumatic Stress affects an individual physically in addition to cognitively and emotionally (Bremner, 2000; Rothschild, 2000; Scaer, 2001; Spinazzola et al., 2011; van der Kolk, 1994, 2003). Traumatic events are experienced through all the body's senses. Sights, sounds, smells, textures, and even tastes are recorded in the memory centers of the brain during such events. When the memories of this stored information are triggered by environmental cues, the individual may have similar emotional, behavioral, and somatic reactions as when they were traumatized. Proprioceptive and vestibular information is stored as memories as well. A person's body positioning or motion through space can trigger traumatic reactions as intense as the traumatic experience itself. Trauma-Sensitive Yoga utilizes the calming effect of yoga through controlled breathing while being sensitive to various body postures that may trigger the individual. Whereas cognitive-behavioral therapies have been effective when specifically implemented in trauma treatment, they do not address the somatic challenges experienced by those with posttraumatic stress.

Similarly, the abuse of power against these youth may be an impetus to reenact the trauma to regain this lost power. Guided by a qualified professional, Trauma-Sensitive Yoga may help individuals eventually gain control over their

bodies and its reactions as well as provide an alternative to regain empowerment that is often lost through trauma.

Additionally, yoga practice in conjunction with traditional talk therapy could provide a more holistic clinical conceptualization of traumatized youth. One individual in this study came to every session, performed a few asanas, and rested calmly in Child's Pose or cross-legged for the remainder of the session. He reported that he was fine when the yoga instructor or staff inquired. He also verbalized an understanding that he may leave the session if he wanted, but he chose to remain in the room and returned to the next session each time. Consequently, his return to each yoga session was perceived positively, but in hindsight, delving further into his experience may have provided additional insight to the participant's clinical presentation, such as a possible presence of dissociative symptoms. Using yoga practice in conjunction with traditional therapies, practitioners have access to a larger repertoire of tools to attain understanding of their clients' trauma symptomatology.

The participants of this study repeatedly inquired about the parameters of the incentive offered for their participation. Specifically, they had difficulty believing that there would be no adverse consequences for their lack of participation. Furthermore, they demonstrated greater disbelief that they would receive the reward of the pizza party regardless of their consistent attendance. These sentiments were most salient during the first two to three weeks of the

study and seemed to dissipate progressively throughout the remaining weeks. This expectation of negative consequences or habituation to punishment was clearly mediated by phenomena resultant of their experience in the study. Although it is highly probable that a therapeutic relationship with the yoga instructor may have strongly contributed to this phenomenon, it is also possible that positively reinforcing aspects of their yoga practice helped dishabituate the participants from their usual expectations punishment.

Throughout the five-week duration of this study, multiple participants reported their enjoyment of their practice and love for yoga. At least two individuals wanted a yoga mat of their own and another wanted a book on Sanskrit, the language used in yoga practice. Most participants reported a desire to continue yoga practice if it were offered. Anecdotally speaking, it is clear that their experience with yoga had a profound effect. This effect has also been observed by a number of psychotherapists, who use yoga to compliment their traditional clinical practice. One resource provided by Amy Weintraub (2012) demonstrates how psychotherapists can implement and integrate basic, introductory yoga philosophy and practice without requiring tremendous experience or a mat.

This study and its findings may also drive further research and development for other somatic therapies for Posttraumatic Stress symptomatology, such as Tai Chi, Qigong, and dance or movement therapies.

The qualities inherent to yoga that precipitated a decline in trauma symptoms in the youth of this study may also be experienced from other philosophies that incorporate movement, relaxation, breath control, and the union of mind and body. Discovering a variety of effective somatic therapies for trauma symptom reduction would provide a range of options for treatment facilities and clients of differing abilities, interests, and fitness levels.

Limitations of Study

Although the results of this study demonstrated a powerful relationship between yoga practice and the reduction of posttraumatic stress symptoms in sexually offending youth, there were several limitations that warrant discussion.

Participant recruitment and data collection occurred at one residential treatment facility due to convenience and time. Therefore, all residents who received the yoga intervention shared the same environment, engaged with the same staff, and received similar clinical treatment. Some of these adolescents even shared the same therapy groups. Performing this study at other facilities would provide more heterogeneity in these variables, thus allowing more generalizability of the results obtained.

Because recruitment and ultimately, data collection occurred only at one facility, the number of possible recruits was also limited to the client capacity of the residence. Larger numbers in recruiting usually correlate with more volunteers, thus providing a larger sample size. In this study, participant numbers

gradually decreased from 20 volunteers to 11 due to drop-outs, discharges, or those participants who did not attend all sessions. A larger sample would enable analysis of more data, providing more robust outcomes.

The short duration of this study's implementation may have also limited the results observed. Due to constraints on time and resources, the yoga intervention was provided for five weeks. Many of the studies discussed in this paper provided yoga for 3 months or more. Participants, who reported a significant reduction in posttraumatic stress symptoms at post-test, did not report a significant increase in daily functioning. However, these scores approached significance. These results are not surprising after five weeks of receiving a therapeutic intervention, as longer-term symptom reduction is a precursor for discernable changes in overall functioning and quality of life. Larger increases in daily functioning may have been experienced by the residents simply by lengthening the time the adolescents received the yoga intervention.

Finally, the absence of a control group also limited the results. Without a control group, it is difficult to isolate the yoga intervention as the only variable responsible for the decrease in trauma symptoms in the participants of this study. There were several possible variables that may have confounded the results, such as other clinical interventions received at the residence, escape from the alternative activity planned for the residents, and even the rapport with the yoga instructor. Therapist rapport was especially pertinent in this study as the yoga

instructor was warm, affable, and nurturing toward the participants. Without a control group, it is difficult to discern whether symptom reduction was primarily due to the effects of yoga or was influenced by a therapeutic relationship with the instructor.

Recommendations for Future Research

Research on JSOs identifies a prevalence of physical and sexual abuse histories among these youth. However, there is a paucity of literature connecting this population to posttraumatic symptomatology or the development of PTSD. Acquisition of empirically based data closing the gap between JSOs and trauma would help provide a greater understanding of these youth. Because many of these adolescents possess antisocial traits, it would be helpful to also gain insight to the prevalence of trauma that is under-reported by JSOs (e.g., due to shame or guilt) versus youth who falsely report a trauma (e.g., for exploitive purposes or to obtain nurturance).

Replicating this study considering of the above variables is also recommended for future research. Therefore, recruiting participants from multiple treatment facilities, increasing the sample size, lengthening the duration of the overall study, and incorporating a control group to minimize confounding variables are all highly encouraged.

In addition, it would be beneficial to know what aspects of the yoga were most beneficial or effective for the residents and their detailed perception of the

entire experience. Adding a qualitative section to the overall design of the study would provide richer information regarding what contributed to the results reported. As a result, a mixed methods design is recommended for future research in this area.

Similarly, it would be helpful to know if there was a greater effect on certain posttraumatic stress symptoms. The CPSS contains one question for every PTSD symptom in the DSM-IV-TR. Analyzing the data reported on each question at pre- and post-test may help shine more light on the presence of a significant effect on specific symptoms and how significant the effect is. Therefore, future research could benefit from analyzing the data from a symptom perspective.

Although there is insufficient empirical support for specific factors underlying recidivism in this population, it is known from the Recovery Movement (Copeland, 1997) that increased coping strategies tend to decrease symptom prevalence and intensity, thus preventing relapse. If this is true for youth who have sexually offended, then there is a possibility that symptom reduction through yoga may help reduce recidivism as well. However, much more research is needed in this area before this distinction can be made.

Finally, the field of psychology would benefit considerably from additional empirical investigation utilizing yoga in other child populations affected by trauma. There is ample anecdotal support for using a trauma sensitive

approach with children as an adjunct to traditional therapies in response to anxiety and stress. However, this study is the first to approach this idea empirically. Therapeutic benefits experienced by the adolescents in this study may be beneficial to other youth with traumatic stress symptoms. Expanding this research structure and design to additional child populations, such as females, younger children, and populations external to the juvenile justice system, is highly recommended.

Conclusion

The results of this study strongly suggest that Trauma-Sensitive Yoga is valuable as an adjunctive intervention for symptom reduction of posttraumatic stress in JSOs. Although the literature identifies a prevalence of traumatic histories among this heterogeneous group, many treatment facilities do not address the somatic aspects of the clients' trauma directly in therapy. In addition, traumatized youth often present differently than their adult counterparts further convoluting the clinical picture. Anger, aggression, and many other “unappealing” presentations are often misdiagnosed as budding Axis II disorders or other inaccurate ailments. These misdiagnoses lead to inappropriate treatment planning and subsequent interventions, thus exacerbating symptoms. There is no doubt that continued research and education regarding the trauma and treatment needs of sex offending youth is imperative.

In addition, there is ample literature support that posttraumatic stress affects an individual multi-dimensionally. Cognitive, neurological, emotional, physiological, social, and even spiritual ramifications exist as a result of untreated or inaccurately treated trauma. Talk therapy that aims to reprocess traumatic memories may be partially beneficial to clients but does not facilitate the processing and management of somatic effects experienced by individuals. A holistic approach that specifically addresses the physiological symptomatology of trauma is vital. Yoga is one such intervention addressing not only physiological difficulties experienced by traumatized individuals but also the other dimensions described above.

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Appendix A



July 7, 2011

Regan Lee-Kin
165 Ardwick Terrace
Lansdale, PA 19446

Dear Ms Lee-Kin,

The Chestnut Hill College Institutional Review Board has reviewed your research proposal, *The Impact of a Trauma-Based Yoga Intervention on Posttraumatic Symptoms in JSOs*, resubmitted July 2011, and we are pleased to notify you of IRB approval to proceed with this project. Enclosed please find a signed cover sheet signifying IRB approval. If you make any changes or will be making any changes to your approved protocol, you are required to submit them to the committee as a revision for approval. In accordance with federal IRB guidelines, a proposal is approved for exactly one calendar year. We will be contacting you again on 7-7-12 to make sure that your protocol has remained the same. May your project be fruitful for all who are involved in any way.

Sincerely,

Jessica Kahn, Ph.D.

Chair, Institutional Review Board

Kristen Dittrich

Assistant to the Institutional Review Board

cc. Susan McGroarty, Ph.D.

Eileen Webb, Department of Professional Psychology

Appendix B

Yoga Study
Parent/Guardian Informed Consent Form

[Date]

Dear Parent/Guardian of _____:

I would like to invite your child to participate in a research project studying how yoga influences trauma and stress symptoms in children and adolescents. Your child's participation in this project is your choice. You may stop your child from participating at any time without consequence to him or you by calling me (Regan Lee-Kin) at (267) 645-9569. You may also call my adviser, Dr. Susan McGroarty, at (215) 248-7068 or Dr. Jonathan Roberds from Mathom House at (215) 343-7720.

If you agree, your child will attend yoga classes for 45 minutes to an hour for two days per week. These classes will last for a total of six weeks providing your child with 12 yoga sessions total. Your child will be asked to fill out a short physical activity questionnaire prior to taking the yoga classes to make sure that doing yoga will be physically safe for him. If the questionnaire clears your child for physical activity, he will be asked to fill out another questionnaire about his experience with trauma symptoms. He will be asked to complete this questionnaire before class 1, after class 6, and after class 12 of the yoga sessions. To protect his privacy, your child's name will not appear on any of the traumatic stress questionnaires. He will also be invited to a pizza party at the end of the six weeks as a reward for his participation. He may attend this party even if he drops out of the project.

To keep your child's records private, he will be asked to choose a made up name that will be recorded on the trauma symptom questionnaire in place of his actual name. This information, the physical activity questionnaire, and consent forms will be transported to the researcher's home office in a locked case and stored in a locked filing cabinet for five years. No one except the researcher will have access to this filing cabinet.

There is a possibility that this study may be published in the future. In this case, all information that may identify your child as a participant will be kept confidential so that his involvement in this project will be kept private.

You need to know that there are a few exceptions to the rules of confidentiality. Because your child resides at Mathom House, certain staff involved in your child's care will know of his participation. However, his

participation will be kept private from all individuals outside of the agency. In the unlikely case that I would receive a court order from a judge to do so, I would be obligated to turn over any data collected from this study. I will also notify you and program staff immediately if your child says that he may hurt himself or someone else in any way. This is to ensure the safety of your child as well as others involved. Finally, if your child reports that he has been abused in anyway, I would be obligated by law to report this information.

Enclosed you will find a list of identified program staff whom your child may contact if he experiences any emotional or physical difficulty during the course of the study. Again, you may stop your child from participating at any time without consequence to you or him by calling me (Regan Lee-Kin) at (267) 645-9569 or Dr. Jonathan Roberds at (215) 343-7720.

If you agree to the items and procedures listed above, please check the line next to "I AGREE," sign at the bottom and return the signed form in the enclosed stamped envelope by _____. There are two copies of this consent form so that you may keep one for yourself. If you wish further information regarding your child's rights as a research participant, you may contact the Institutional Review Board Chair, Jessica Kahn, Ph.D. at 215-248-7045. Please feel free to contact me (Regan Lee-Kin, MS, LPC) with any questions or concerns at 267-645-9569. You may also contact Susan McGroarty, Ph.D., who is supervising this research study, at 215-248-7068.

_____ **I AGREE TO ALLOW MY CHILD TO PARTICIPATE IN THE ABOVE RESEARCH STUDY** conducted by Regan Lee-Kin, MS, LPC. My signature confirms that I have read and understand the above conditions, including the fact that my child's information and his participation will be kept private. However, I understand that there are some exceptions to my child's confidentiality. I understand that certain Mathom House staff involved in the direct care of my child will know of his participation. Also, if my child reports being abused or wanting to hurt himself or others, I understand that the researcher must report this information to keep my child and others safe. I am aware that information about my child's participation must be handed over to a judge in the unlikely event that a court order is received. I understand that my child has chosen and I have chosen for my child to participate in this study, and he or I may end his participation at any point during the study without any consequences or penalties to myself or him.

_____ **I DO NOT AGREE TO ALLOW MY CHILD TO PARTICIPATE IN THE STUDY.**

Parent/Guardian Signature

Date

Printed Name

Appendix C

Yoga Study
Participant Consent Form

[Date]

Dear Participant:

I would like to invite you to participate in a research project studying how yoga influences trauma and stress symptoms in children and adolescents. Your participation is your choice. You may end your participation at any time without consequence by calling me (Regan Lee-Kin) at (267) 645-9569. . You may also call my adviser, Dr. Susan McGroarty, at (215) 248-7068 or Dr. Jonathan Roberds from Mathom House at (215) 343-7720.

If you agree to participate, you will attend yoga classes for 45 minutes to an hour for two days per week. These classes will last for a total of six weeks. You will be asked to fill out a questionnaire about physical activity if you agree to participate. This will help determine if physical activity will be safe for you. If physical activity is cleared by this questionnaire, you will be asked to fill out another questionnaire about certain stress or anxiety symptoms you may or may not have experienced. These symptoms may be related to one or more traumatic experiences you may have had. You will be asked to complete this questionnaire before class 1, after class 6, and after class 12 of the yoga sessions. To protect your privacy, your name will not appear on any of the anxiety and stress questionnaires. As a reward for your participation, you will be invited to a pizza party at the end of the six weeks. You may still attend this party even you are not able to finish the study.

You will be given a list of Mathom House staff, who you may talk to if you feel any discomfort as a result of your participation.

To keep your records private, you will be asked to choose a made up name that will be recorded on the symptom questionnaire in place of your actual name. This information, the physical activity questionnaire, and consent forms will be kept in a locked case or filing cabinet at all times for five years. No one except the researcher will have access to the filing cabinet.

There is a possibility that this study may be published in the future. In this case, all your information will be kept confidential so that your participation in this project will be kept private.

You need to know that there are a few exceptions to the rules of confidentiality. Because you are staying at Mathom House, certain staff involved will know of your participation, but your participation will be kept private from all individuals outside of the agency. It is also encouraged that you inform your

parent or guardian of your participation as they are a part of your treatment team. However, sharing this information with a parent or guardian is your choice. Also, in the unlikely case that a judge may ask for the information I have collected during the study, I would have to give it to him or her. Finally, if you say that you may hurt yourself, hurt someone else, or you're being abused in any way, I would have to report this information to the right authorities to make sure that you and others will be kept safe.

If you understand and agree to the information above, please check the line next to "I AGREE," sign at the bottom, and return the signed form. If you do not understand any of the above items please ask the researcher for more information BEFORE signing and returning this form. There are two copies of this consent form so that you may keep one for yourself. Remember, you may stop your participation in the project at any time without any consequences. You may do so by calling me (Regan Lee-Kin) at (267) 645-9569, my adviser, Dr. Susan McGroarty, at (215) 248-7068, or Dr. Jonathan Roberds from Mathom House at (215) 343-7720.

_____ **I AGREE TO PARTICIPATE IN THE ABOVE RESEARCH STUDY** conducted by Regan Lee-Kin, MS, LPC. My signature confirms that I have read and understand the above conditions. I have been given an opportunity to ask any questions about the information above and what I will be asked to do if I participate in this project. I understand that my participation is my choice. I understand that I may stop the yoga classes and my participation in the project at any time without any consequences or penalties. I also understand that all my information will be kept confidential. However, I know that there are some exceptions to my confidentiality. I understand that certain Mathom House staff involved in my direct care will know of my participation. Also, if I report being abused or wanting to hurt myself or others, I understand that the researcher must report this information to keep me and others safe. I am aware that information about my participation must be handed over to a judge in the unlikely event that a court order is received.

_____ **I DO NOT AGREE TO PARTICIPATE IN THE STUDY.**

Participant's Signature

Date

Printed Name

Appendix D

Yoga Study
Participant Assent Form

[Date]

Dear Participant:

I would like to invite you to participate in a research project studying the impact of yoga on trauma symptoms. Your participation is your choice and your parent or guardian's choice. You may refuse to participate or end your participation at any time even if your parent or guardian approves your participation. You will receive no consequences or penalties if you do so.

If you agree to participate, you will attend yoga classes for 45 minutes to an hour for two days per week. These classes will last for a total of six weeks. You will be asked to fill out a questionnaire about physical activity if you agree to participate. This will help determine if physical activity will be safe for you. If physical activity is cleared by this questionnaire, you will be asked to fill out another questionnaire about certain stress or anxiety symptoms you may or may not have experienced. These symptoms may be related to one or more traumatic experiences you may have had. You will be asked to complete this questionnaire before class 1, after class 6, and after class 12 of the yoga sessions. To protect your privacy, your name will not appear on any of the anxiety and stress questionnaires. As a reward for your participation, you will be invited to a pizza party at the end of the six weeks. You may still attend this party even you are not able to finish the study.

You and your parent/guardian will be given a list of Mathom House staff, who you may talk to if you feel any discomfort as a result of your participation.

To keep your records private, you will be asked to choose a made up name that will be recorded on the symptom questionnaire in place of your actual name. This information, the physical activity questionnaire, and consent forms will be kept in a locked case or filing cabinet at all times for five years. No one except the researcher will have access to the filing cabinet.

There is a possibility that this study may be published in the future. In this case, all your information will be kept confidential so that your participation in this project will be kept private.

You need to know that there are a few exceptions to the rules of confidentiality. Because you are staying at Mathom House, certain staff involved will know of your participation, but your participation will be kept private from all individuals outside of the agency. Your parent or guardian will also be

notified of your interest in participation. They will also have to agree to your involvement in this study. Also, in the unlikely case that a judge may ask for the information I have collected during the study, I would have to give it to him or her. Finally, if you say that you may hurt yourself, hurt someone else, or you're being abused in any way, I would have to report this information to the right authorities to make sure that you and others will be kept safe.

If you understand and agree to the information above, please check the line next to "I AGREE," sign at the bottom, and return the signed form. If you do not understand any of the above items please ask the researcher for more information BEFORE signing and returning this form. There are two copies of this consent form so that you may keep one for yourself. Remember, you may stop your participation in the project at any time without any consequences. You may do so by calling me (Regan Lee-Kin) at (267) 645-9569, my adviser, Dr. Susan McGroarty, at (215) 248-7068, or Dr. Jonathan Roberds from Mathom House at (215) 343-7720.

I AGREE TO PARTICIPATE IN THE ABOVE RESEARCH STUDY conducted by Regan Lee-Kin, MS, LPC. My signature confirms that I have read and understand the above conditions. I have been given an opportunity to ask any questions about the information above and what I will be asked to do if I participate in this project. I understand that my participation is my choice and the choice of my parent or guardian. I understand that I may stop the yoga classes and my participation in the project at any time without any consequences or penalties. I also understand that all my information will be kept confidential. However, I know that there are some exceptions to my confidentiality. I understand that certain Mathom House staff involved in my direct care will know of my participation. Also, if I report being abused or wanting to hurt myself or others, I understand that the researcher must report this information to keep me and others safe. I am aware that information about my participation must be handed over to a judge in the unlikely event that a court order is received.

I DO NOT AGREE TO PARTICIPATE IN THE STUDY.

Participant's Signature

Date

Printed Name

Appendix E

Yoga Study Debriefing Script

Thank you for your participation in this research project. This study was designed to examine how yoga may affect trauma symptoms in children and adolescents. The type of yoga you performed is called Trauma-Sensitive Yoga and was developed for people with trauma symptoms. You were asked to complete a physical activity questionnaire to make sure that doing yoga would be physically safe for you. You were also asked to complete a questionnaire called The Child PTSD Symptom Scale. This questionnaire helped identify if you experience symptoms that people sometimes have after they experience one or more traumatic event. It also helps pinpoint which trauma symptoms, if any, you experience and how severe your symptoms are.

The purpose of this study was to look at whether yoga changes the amount of trauma symptoms you may be experiencing, the intensity of each symptom, and when changes in symptoms begin to occur. The basis of this project is supported by previous research studies on yoga, posttraumatic stress symptoms, and children and adolescents who have sexually offended against others.

The overall results of this study will be statistically analyzed to determine if yoga had an impact on all participants' trauma symptoms as a group. A copy of the results will be given to Dr. Jonathan Roberds and kept on site at Mathom House. You may request a statement of these results at any time by contacting me, Regan Lee-Kin at (267) 645-9569, my advisor, Dr. Susan McGroarty at (215) 248-7068, or Dr. Roberds of Mathom House at (215) 343-7720 for a period of six months after the last yoga session. You are welcome to contact Dr. Roberds or me to ask any other questions about the study that you may have. You are also being provided with a list of Mathom House staff and how to contact them if you feel any emotional or physical discomfort during the weeks after the end of the study.

Appendix F

CPSS




















The Child PTSD Symptom Scale (CPSS) – Part I

Clinic Number

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

Study ID Number

[illegible]Visit Number

_____  -         
 _____ -         

Subject ID Number

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| — | — | □ | ▣ | ▶ | ▶ | ▲ | ▲ | ◆ | ◆ | ◆ | ◆ |
| — | — | □ | ▣ | ▶ | ▶ | ▲ | ▲ | ◆ | ◆ | ◆ | ◆ |
| — | — | □ | ▣ | ▶ | ▶ | ▲ | ▲ | ◆ | ◆ | ◆ | ◆ |

Rater Number























Below is a list of problems that kids sometimes have after experiencing an upsetting event. Read each one carefully and fill in the number (0-3) that best describes how often that problem has bothered you IN THE LAST 2 WEEKS.

Please write down your most distressing event:

Length of time since the event:

| - | □ | ▣ | ◀ |
|------------|---|---------------------------------------|---|
| Not at all | Once a week or less/ once in a while | 2 to 4 times a week/ half the time | 5 or more times a week/almost always |

- | | | | | | |
|----|---|--------------------------|--------------------------|---|--|
| 1. | — | <input type="checkbox"/> | <input type="checkbox"/> | ◀ | Having upsetting thoughts or images about the event that came into your head when you didn't want them to |
| 2. | — | <input type="checkbox"/> | <input type="checkbox"/> | ◀ | Having bad dreams or nightmares |
| 3. | — | <input type="checkbox"/> | <input type="checkbox"/> | ◀ | Acting or feeling as if the event was happening again (hearing something or seeing a picture about it and feeling as if you are there again) |
| 4. | — | <input type="checkbox"/> | <input type="checkbox"/> | ◀ | Feeling upset when you think about or hear about the event (for example, feeling scared, angry, sad, guilty, etc) |
| 5. | — | <input type="checkbox"/> | <input type="checkbox"/> | ◀ | Having feelings in your body when you think about or hear about the event (for example, breaking out into a |

Initials: _____

Date: _____

sweat, heart beating fast)

| | - | | □ | | ☐ | | ◀ | |
|-----|------------|---|---|---|--|--|---|--|
| | Not at all | | Once a week or less/ once in a while | | 2 to 4 times a week/ half the time | | 5 or more times a week/almost always | |
| 6. | - | □ | ☐ | ◀ | Trying not to think about, talk about, or have feelings about the event | | | |
| 7. | - | □ | ☐ | ◀ | Trying to avoid activities, people, or places that remind you of the traumatic event | | | |
| 8. | - | □ | ☐ | ◀ | Not being able to remember an important part of the upsetting event | | | |
| 9. | - | □ | ☐ | ◀ | Having much less interest in doing things you used to do | | | |
| 10. | - | □ | ☐ | ◀ | Not feeling close to people around you | | | |
| 11. | - | □ | ☐ | ◀ | Not being able to have strong feelings (for example, being unable to cry or unable to feel happy) | | | |
| 12. | - | □ | ☐ | ◀ | Feeling as if your future plans or hopes will not come true (for example, you will not have a job or get married or have kids) | | | |
| 13. | - | □ | ☐ | ◀ | Having trouble falling or staying asleep | | | |
| 14. | - | □ | ☐ | ◀ | Feeling irritable or having fits of anger | | | |
| 15. | - | □ | ☐ | ◀ | Having trouble concentrating (for example, losing track of a story on the television, forgetting what you read, not paying attention in class) | | | |
| 16. | - | □ | ☐ | ◀ | Being overly careful (for example, checking to see who is around you and what is around you) | | | |
| 17. | - | □ | ☐ | ◀ | Being jumpy or easily startled (for example, when someone walks up behind you) | | | |

Initials: _____

Date: _____

The Child PTSD Symptom Scale (CPSS) – Part 2

Indicate below if the problems you rated in Part 1 have gotten in the way with any of the following areas of your life DURING THE PAST 2 WEEKS.

- | | Yes | No | |
|-----|--------------------------|----|----------------------------------|
| 18. | <input type="checkbox"/> | – | Doing your prayers |
| 19. | <input type="checkbox"/> | – | Chores and duties at home |
| 20. | <input type="checkbox"/> | – | Relationships with friends |
| 21. | <input type="checkbox"/> | – | Fun and hobby activities |
| 22. | <input type="checkbox"/> | – | Schoolwork |
| 23. | <input type="checkbox"/> | – | Relationships with your family |
| 24. | <input type="checkbox"/> | – | General happiness with your life |

Appendix G

Physical Activity Readiness
Questionnaire - PAR-Q
(revised 2002)

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

| YES | NO | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor? |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Do you feel pain in your chest when you do physical activity? |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. In the past month, have you had chest pain when you were not doing physical activity? |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. Do you lose your balance because of dizziness or do you ever lose consciousness? |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity? |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition? |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Do you know of any other reason why you should not do physical activity? |

If
you
answered

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

- start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.

- take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

DELAY BECOMING MUCH MORE ACTIVE:

- If you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better; or
- If you are or may be pregnant — talk to your doctor before you start becoming more active.

PLEASE NOTE: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME _____

SIGNATURE _____

DATE _____

SIGNATURE OF PARENT
or GUARDIAN (for participants under the age of majority) _____

WITNESS _____

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.



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...continued from other side

PAR-Q & YOU

Physical Activity Readiness
Questionnaire - PAR-Q
(revised 2002)

CANADA'S Physical Activity Guide to Healthy Active Living

Physical activity improves health.

Every little bit counts, but more is even better - everyone can do it!

Get active your way -
build physical activity
into your daily life...

- at home
- at school
- at work
- at play
- on the way
- ...that's
active living!

Increase
Endurance
Activities

Choose a variety of
activities from these
three groups:

Endurance

4-7 days a week
Continuous activities
for your heart, lungs
and circulatory system.

Starting slowly is very
safe for most people.
Not sure? Consult your
health professional.

For a copy of the
Guide Handbook and
more information:
1-888-334-0769, or
www.paguide.com

Eating well is also
important. Follow
Canada's Food Guide
to Healthy Eating to
make wise food choices.

Get Active Your Way, Every Day - For Life!

Scientists say accumulate 60 minutes of physical activity every day to stay healthy or improve your health. As you progress to moderate activities you can cut down to 30 minutes, 4 days a week. Add-up your activities in periods of at least 10 minutes each. Start slowly... and build up.

| Time needed depends on effort | | | | |
|--|--|--|--|-------------------------|
| Very Light Effort | Light Effort | Moderate Effort | Vigorous Effort | Maximum Effort |
| • Strolling • Walking • Sweeping | • Light walking • Walking • Easy gardening • Sweeping | • Brisk walking • Biking • Baking house • Gardening • Playing tennis • Water aerobics | • Aerobics • Jogging • Hockey • Basketball • Fast swimming • Fast dancing | • Sprinting • Diving |

You Can Do It - Getting started is easier than you think

Physical activity doesn't have to be very hard. Build physical activities into your daily routine.

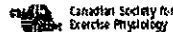
- Walk whenever you can - get off the bus early, use the stairs instead of the elevator.
- Reduce inactivity for long periods, like watching TV.
- Get up from the couch and stretch and bend for a few minutes every hour.
- Play actively with your kids.
- Choose to walk, wheel or cycle for short trips.
- Start with a 10 minute walk - gradually increase the time.
- Find out about walking and cycling paths nearby and use them.
- Observe a physical activity class to see if you want to try it.
- Try one class to start - you don't have to make a long-term commitment.
- Do the activities you are doing now, more often.

Benefits of regular activity

- better health
- improved fitness
- better posture and balance
- better self-esteem
- weight control
- stronger muscles and bones
- feeling more energetic
- relaxation and reduced stress
- continued independent living

Health risks of inactivity

- premature death
- heart disease
- obesity
- high blood pressure
- adult-onset diabetes
- osteoporosis
- stroke
- depression
- colon cancer



Source: Canada's Physical Activity Guide to Healthy Active Living, Health Canada, 1998 <http://www.hc-sc.gc.ca/hppb/paguide/pdf/guideEng.pdf>

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FITNESS AND HEALTH PROFESSIONALS MAY BE INTERESTED IN THE INFORMATION BELOW:

The following companion forms are available for doctors' use by contacting the Canadian Society for Exercise Physiology (address below):

The **Physical Activity Readiness Medical Examination (PARmed-X)** - to be used by doctors with people who answer YES to one or more questions on the PAR-Q.

The **Physical Activity Readiness Medical Examination for Pregnancy (PARmed-X for Pregnancy)** - to be used by doctors with pregnant patients who wish to become more active.

References:

- Arraiz, G.A., Wigle, D.L., Mac, Y. (1992). Rest Assessment of Physical Activity and Physical Fitness in the Canada Health Survey Follow-Up Study. *J. Clin. Epidemiol.* 45:4 419-428.
- Mottola, M., Wolfe, L.A. (1994). Active Living and Pregnancy. In: A. Quinney, L. Gauvin, T. Wal (eds.), **Toward Active Living: Proceedings of the International Conference on Physical Activity, Fitness and Health**. Champaign, IL: Human Kinetics.
- PAR-Q Validation Report. British Columbia Ministry of Health, 1978.
- Thomas, S., Reading, J., Sneyd, R.J. (1992). Revision of the Physical Activity Readiness Questionnaire (PAR-Q). *Can. J. Sport Sci.* 17:4 338-345.

For more information, please contact the:

Canadian Society for Exercise Physiology

202-185 Somerset Street West

Ottawa, ON K2P 0J2

Tel. 1-877-651-3755 • FAX (613) 254-3565

Online: www.csep.ca

The original PAR-Q was developed by the British Columbia Ministry of Health. It has been revised by an Expert Advisory Committee of the Canadian Society for Exercise Physiology chaired by Dr. V. Gledhill (2002).

Disponible en français sous le titre «Questionnaire sur l'aptitude à l'activité physique - Q-AAP (révisé 2002)».



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Appendix H

-----Original Message-----

From: Ellen Kubis [<mailto:ekubis@mail.med.upenn.edu>]

Sent: Monday, November 01, 2010 1:48 PM

To: Lee-Kin, Regan

Subject: Re:

Regan,

Attach is a copy of the CPSS measurement along with the article to help with the scoring. Good luck with your dissertation. Ellen Kubis

Lee-Kin, Regan wrote:

> Dear Ms. Kubis,

>

> I am a Psy.D. student at Chestnut Hill College in Philadelphia doing a

> dissertation study on the impact of yoga on posttraumatic stress

> symptoms in JSOs. My dissertation Chair, Dr. Susan

> McGroarty, was informed that you were the correct person to contact

> regarding this matter. Because it is ideal for my methodology, I have

> chosen Dr. Foa's Child PTSD Symptom Scale (CPSS) as the primary

> measure for my study. I am asking permission to utilize the CPSS in my

> research.

>

> Thank you for your time.

>

> Most sincerely,

>

> Regan S. Lee-Kin, M.S.

> Chestnut Hill College

>

Appendix I

-----Original Message-----

From: David Emerson [<mailto:demerson@jri.org>]

Sent: Tuesday, November 02, 2010 7:56 AM

To: Lee-Kin, Regan

Subject: RE: Permission to use Trauma Sensitive Yoga manual in dissertation study

Hi Regan

I am able to give you permission to use our material with the request that it is properly cited. As long as you are neither training anyone in our protocols nor claiming to be teaching a Trauma Center class this should be fine. In other words, please feel free to cite any of our material at part of your dissertation and I wish you the best in your work!

Best,

Dave

David Emerson, E-RYT

Director of Yoga Services

Trauma Center JRI

www.traumacenter.org

617.232.1303 ext 222

>>> "Lee-Kin, Regan" 11/01/10 12:57 PM >>>

Mr. Emerson,

Thank you so much for your reply. Would you have an e-mail address for Dr. Blaustein?

I would be delighted to share my results with you upon my dissertation's conclusion. Thank you for asking!

I will be in touch... .

Most sincerely,

Regan

-----Original Message-----

From: David Emerson [<mailto:demerson@jri.org>]

Sent: Tuesday, October 19, 2010 12:20 PM

To: Lee-Kin, Regan

Cc: Margaret Blaustein

Subject: Re: Permission to use Trauma Sensitive Yoga manual in dissertation study

Hi Regan

Thanks for your email. I am happy to hear about your dissertation and would be very interested in learning about your results. In terms of using our manual I am going to refer to Margaret Blaustein, Director of Training at the Trauma Center.

Thank you for your interest in our work and best of luck with your project.

Dave

David Emerson, E-RYT
Director of Yoga Services
Trauma Center JRI

www.traumacenter.org

617.232.1303 ext 222

>>> "Lee-Kin, Regan" 10/19/10 10:12 AM >>>

Dear Mr. Emerson,

I am a Psy.D. student at Chestnut Hill College in Philadelphia doing a dissertation study on the impact of yoga on posttraumatic stress symptoms in JSOs. I had purchased your manual, *Toward Becoming a Trauma-Sensitive Yoga Teacher*, and I have deemed it an ideal philosophy and method for my research. I would like to ask your permission to utilize this method and the accompanying worksheets (in the Appendices) in my study.

Thank you so much for your time.

Genuinely,
Regan S. Lee-Kin

Appendix J



Figure G1. Mountain Pose



Figure G2. Table Pose



Figure G3. Child's Pose



Figure G4. Tree Pose



Figure G5. Warrior I Pose



Figure G6. Warrior II Pose



Figure G7. Janu Sirsasana



Figure G8. Seated Badha Konasana



Figure G9. Bridge Pose



Figure G10. Supine Knees to Chest Pose