

The Implementation and Acceptance of Yoga Techniques for Children with Complex Trauma
Among Practicing Clinicians

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Abstract

This mixed-method study was undertaken to determine acceptance and utilization rates of yoga techniques in treatment with children ages 5-17, with complex trauma among practicing-clinicians. Secondly, it was to explore beliefs of effectiveness and barriers of implementation of yoga in a therapeutic milieu.

An online survey was sent through mass emails of local agencies, online social media sites through groups associated with trauma and mental health to determine practicing therapists' interests, utilization, beliefs of effectiveness, and barriers of implementation of yoga techniques in therapeutic practice with children with complex trauma. To qualify to participate in this study, one had to be a practicing clinician who works with children ages 5-17 with complex trauma. The survey consisted of both quantitative and qualitative data that asked for the demographics of the participants, their interests in utilizing yoga in treatment, their beliefs of the effectiveness of utilizing yoga in treatment, their current utilization rates, and further explored, through open ended questions, what some of their experiences were and their beliefs of effectiveness in utilizing techniques in treatment. The findings revealed that a majority of the participants were interested in utilizing yoga for the treatment of trauma; however, implementing these techniques in practice was a challenge for most clinicians. A majority of the participants believed that lack of knowledge or training was a barrier for implementation, and further research needs to be conducted to determine how agencies could provide opportunities for practicing therapists to effectively utilize yoga techniques in their therapeutic practice with children.

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CHAPTER I: Introduction

The utilization of mind-body techniques, such as yoga, for the treatment of complex trauma, is a fairly new and emerging topic in the mental health field. Yoga, an ancient Hindu method of self-preservation and transformation, is known for its health promoting qualities that can balance the nervous system and calm the mind. Many practitioners claim yoga balances the nervous system with asana practice (yoga postures) and pranayama (breathing techniques), and promotes inner calmness and concentration through meditation (Emerson and Hopper, 2011; Forbes, 2011; Weinraub, 2012; NurrieStearns & NurrieStearns, 2013). Many studies proving the benefit of yoga for the treatment of symptoms related to PTSD and its role in psychotherapy (van der Kolk, Stone, West, Rhodes, Emerson, Suvak, & Spinazzola, 2014), claim that yoga is a gentle modality that allows clients who have experienced interpersonal violence to befriend their body. Dr. Bessel A. van der Kolk, a leading pioneer in trauma studies and founder of the Trauma Center at the Justice Resource Institute in Brooklyn Massachusetts states “physical self-awareness is the first step in releasing the tyranny of the past” (2014, p. 101) and promotes the use of mind-body interventions in conjunction with traditional psychotherapy for the treatment of trauma. Yoga can be a value for therapists. Many abused victims struggle with forming a cohesive narrative reflecting their traumatic experiences and memories; various mind-body techniques can be adjunctive to talk therapy by helping to integrate a cohesive narrative and whole self.

However, there is a lack of research regarding the utilization of yoga in the treatment of trauma with children. Throughout childhood, as neural synapses connect based on the accumulation of positive and negative experiences, the brain is continuing to develop and is shaped by these experiences; therefore, because of developmental differences, many traumatized

children may experience symptoms differently than traumatized adults. Symptoms vary among children due to development, past experiences, environment, attachment style with primary caregivers, and other factors. Because children react to trauma differently than adults, they may not meet the criteria of PTSD in the DSM-V and may exhibit symptoms related to complex trauma, or trauma that is repetitive and cumulative on an interpersonal level.

PTSD is a complex disorder to treat as Chu (2011) clearly articulates, “the ongoing and pervasive effects of early trauma and abuse on the somatic experiences of survivors are quite clear. How to provide effective treatment to such individuals is less apparent” (p. 25). Currently, there is little information about how to apply effective mind-body techniques in a therapeutic milieu when working with children and adolescents. There is an extensive amount of research indicating the benefits of mind-body interventions and the need to implement these interventions in tandem with more traditional talk therapies (Ogden, Pain, Minton, & Fisher, 2014).

Most studies investigate the benefits of group yoga classes with children, but few investigate the effectiveness of using these techniques as part of a phase-oriented trauma informed practice as well as whether or not it is a realistic approach for therapy. Becoming properly trained in a technique, like yoga, requires a significant time and financial commitment; most yoga teacher training programs range from approximately two to five thousand dollars per training. According to Yoga Alliance, a non-profit organization that sets the standards for yoga teacher-training schools, the first training is a required two hundred hours and the second is a required five hundred hours. If you were to be trained in only children’s yoga, it would be approximately ninety-five hours (Credentials for Yoga Schools, Yoga Alliance, 2014). In order to be a registered yoga teacher (RYT) through Yoga Alliance, one must complete additional teacher hours outside of the training. As a practicing therapist, however, it’s not necessary to take

a yoga teacher training to apply yoga techniques in your individual sessions. Many community mental health agencies do not have the financial resources to hire a yoga instructor to lead a group class, and instead rely on the skills of the hired staff. Despite the popularity of yoga in the mainstream and promotion of its positive effects in the mental health field, it seems that the regular practice of yoga requires money and a great deal of free time to practice and implement in treatment with children.

The purpose of this study is to research the status of currently practicing therapists' interpretations and opinions regarding the utilization of yoga techniques in a therapeutic setting either through individual or group work with children who experience complex trauma. My proposed research question is "What is the current acceptance and utilization rate of mind-body techniques such as yoga, in a clinical setting for children with complex trauma among practicing clinicians?" I will be writing an online survey that asks questions related to this topic. The participants of the survey will be practicing therapists who currently serve children with complex trauma and who also hold an MSW, LICSW, LCSW, PsyD, Ph.D, or LMHC.

CHAPTER II: Literature Review

There is limited research on the clinical utilization and acceptance rates of yoga techniques in a therapeutic setting; however, research supporting the benefits of yoga techniques for the treatment of trauma is vast. The research of how trauma affects children is an emerging topic that has many developing insights and theories. Since there is little research on the effects that yoga has on children with complex trauma, this literature review covers different topics pertaining to the theory of trauma and the research supporting mind-body techniques in the treatment of complex trauma in children. This literature review summarizes these new findings. This section reviews literature that supports trauma theories and justifies the use of yoga for complex trauma in a clinical setting.

The sections of the literature review are divided based on topic. These topics help the reader to understand the nature of trauma, assisting the reader to understand how complex trauma affects the mind and body, leads to pathology, and why body-oriented approaches are beneficial for some trauma survivors, and reviews empirical studies that research the efficacy of mind-body techniques in reducing symptoms related to complex trauma.

The first topic addresses complex trauma and how it is understood in diagnostic terms. It briefly describes the differences in the diagnosis of PTSD versus complex trauma. It also explores how children with complex trauma are often treated for their co-morbid disorders while their trauma is left unprocessed. The next topic then reviews how trauma affects the development of the brain, summarizing new neuroscience research that studies: how memories are stored within the brain, how affect is developed, how people are able to form cohesive narratives and meaning through the functions of different parts of the brain, and how complex trauma may cause disconnection in certain parts of the brain, leading to pathology. This body of research then

advocates for more mind-body integrative approaches to treatment. The next section addresses the movement for more body-oriented or bottom-up approaches in treatment as opposed to talk therapy. Yoga, an ancient technique used for over five thousand years, has been used to balance the mind and body. The next topic summarizes the practice of yoga in the West, and how the system of yoga can help treat and reduce some symptoms of trauma. The nervous system is a huge component in yogic philosophy and the Polyvagal theory, a theory of how the nervous system is affected by trauma leading to behavioral and emotional pathology, is introduced. This section goes over how breathing exercises, such as pranayama, can help regulate the nervous system, promoting social engagement and reducing anti-social behavior. The last few sections of the literature review summarize studies related to the utilization of mind-body techniques in a therapeutic setting. The first section is a summary of three systematic reviews about mind-body techniques and the treatment of mental health in children and adolescents. The last section summarizes case studies and group studies utilizing trauma-sensitive yoga in treatment for complex trauma in youth. The studies show that yoga greatly reduces symptoms of complex trauma, but larger randomized control trials need to be conducted. It also shows the popularity and emergence of yoga and other mind-body techniques as an adjunct to mental health services for trauma treatment; however, it is not clear what some of the barriers clinicians face in implementing mind-body techniques in a therapeutic milieu. It is still unclear as to whether implementing mind-body techniques in a clinical setting is a realistic technique to use, and if so, how clinicians are implementing these techniques in their practices with children.

Complex Trauma and PTSD

There is a controversial debate in the psychiatric world about the diagnosis of PTSD in the DSM-V and whether it captures the full spectrum of trauma-related symptoms in children.

The National Child Traumatic Stress Network (NCTSN) derived the term “Complex Trauma” to integrate the complexity and multiplicity of symptoms and disorders that are caused from trauma-related experiences in childhood. Children exhibit symptoms of complex trauma in multifaceted ways and are often diagnosed and treated with “comorbid” disorders, such as “depression, attention-deficit/hyperactivity disorder, oppositional defiant disorder, conduct disorder, anxiety disorders, eating disorders, sleep disorders, communication disorders, separation anxiety disorders, and reactive attachment disorder” (Cook et al., 2005, p. 390-391), that seem independent of the symptoms of PTSD, “none of which do justice to the spectrum of problems of traumatized children, and none of which provide guidelines on what is needed for effective prevention and intervention” (van der Kolk, 2005, p.8).

Children who have been chronically and repeatedly maltreated through either physical, emotional or sexual abuse, neglect, witnessing violence or abuse or have experienced a significant loss, may show their inability to self-regulate through emotional and behavioral issues that disrupt their attachment relationships. The domains of impairments, according to Cooke et al., (2005) in children exposed to complex trauma are attachment, biology, analgesia, affect regulation, dissociation, behavioral control, cognition problems, and problems with self-concept (p. 392). In conclusion, treating complex trauma in children requires more than treating “comorbid” disorders, such as anxiety, depression, or ADHD and requires a more comprehensive biopsychosocial perspective in their treatment interventions.

One article written by Christine Courtois from the Psychiatric Institute of Washington examines the current treatment of clients with complex trauma or specifically CPTSD (complex post-traumatic stress disorder). Most treatment plans “includes psychotherapy supplemented by psychopharmacology” (Courtois, 2004, p. 417). There is a plethora of cognitive-based-therapy

approaches that have been proved to be evidence based practices for the treatment of trauma. According to Courtois, the research on these methods is just beginning and showing some “rates of success” (p. 417). Throughout the article she stresses the importance to find a “multimodal and transtheoretical” (p. 417) approach that serves the multiple and diverse issues that clients with complex trauma face, because CPTSD has “biopsychosocial and spiritual components that require an array of linked biopsychosocial treatment approaches” (p. 417). She goes into detail about the phase and stage-oriented treatment model of clients with CPTSD. When writing about stage one, which focuses on the therapeutic alliance, education, skill building and self-care, she emphasizes the importance of self-care and mind-body issues related to all these topics. “The mind-body split experienced by these clients is often quite problematic, with the client in a more or less perpetual state of disconnect... as these issues are identified, the clinician may need to actively engage the client in paying attention to his or her bodily reactions and around planning for general self-care, preventative medicine, and/or actual treatment” (p. 420). By treatment, she means treatments that treat the body and the mind through a phase treatment approach. In stage two, the client begins to process and integrate the trauma and in stage three the client begins to learn how to enhance their daily living through self and relational development. The success of stage two and three depend on the ability for the client to develop the skills in stage one, as each stage utilizes these skills to help the client cope and self-regulate throughout the treatment process.

In this article Courtois does not differentiate between the treatment of children and adult clients; however, she does state that the change from PTSD to CPTSD is “due to a new understanding related to the complexities of child abuse in which clinicians were discovering

that these complex conditions were extremely difficult to treat and varied according to age and stage at which the trauma occurred” (p. 412-413).

Trauma and the Brain

There have been many studies researching the effects early trauma has on the brain. According to researchers Dr. Bessel A. van der Kolk, a leading pioneer on the current studies about trauma and neurobiology and founder of the Trauma Center at the Justice Resource Institute in Brooklyn, Massachusetts, and Daniel Siegel, a clinical professor of psychiatry and executive director of the Mindsight Institute, a child’s ability to interpret explicit memory shuts down while experiencing a traumatic event and is unable to form a coherent narrative about the details of the experience.

Left and Right Hemispheres

According to Daniel Siegel, your brain is made up of many parts. In simple terms he categorizes your brain into four major regions: the left and right hemisphere, and the top and bottom brain. According to Siegel, mental health is the ability to integrate these four regions of your brain to form a coherent self when operating and interacting in the world. Your left hemisphere forms logic and gives language and order to experience, while your right hemisphere forms feelings and images that are nonverbal, allowing one to “see and interpret emotional information” (Siegel and Bryson, 2011, pp.15-16). Some speculate that the left side of the brain stores factual elements of memory, while the left side of the brain stores autobiographical memory, or your sense of self in the past (Siegel, 2003, p. 15, 49); it is the right hemisphere, the logical, factual, literal, and linguistic part that can shut down while experiencing or witnessing a traumatic event, while the emotional, bodily sensations and sense of self associated with the trauma remains. This disconnection between the left and right hemispheres disables the left-brain

to draw on information from the right brain; thus, it disables the child to form a coherent logical narrative (Siegel, 2003, p. 15). This, according to Bessel A. van der Kolk is the reason why when a traumatized patient is experiencing a flashback they have a hard time putting their thoughts into words. The region of the brain that is responsible for speech, known as the Broca's area, is "offline when a flashback is triggered" (van der Kolk, 2014, p. 43). It is the integration of the left and right hemispheres of the brain that can bring a sense of coherence, resolution, and wholeness in one's meaning of their traumatic experience, and it is the disconnection that is the reason why children may have a difficult time self-regulating, controlling their impulses, and using their executive functioning. According to Amy Weintraub, the founder director of LifeForce Yoga Healing Institute, yoga can integrate the right and left hemisphere of the brain. "Yoga works bilaterally, integrating the emotions back into left-brain narrative in the case of developmental trauma and integrating a more linear left-brain narrative into the emotionally laden intrinsic memories that accompany shock trauma" (Weintraub, 2012, p.13).

Emotional Brain

Within the brain there are also the limbic structures/reptilian brain and a neo-cortex. This is also referred to the "upstairs brain" and the "downstairs brain" (Siegel and Bryson, 2011). The reptilian brain consists of the brain stem and the cerebellum. The brainstem is what connects the body to the head brain (Siegel, 2013) and carries the vagus nerve, which is a central part in most yoga studies and the science behind the mind-body connection. The brainstem and cerebellum is responsible for autonomic and bodily functions such as fight, flight, and freeze mode when one senses danger and the regulation of autonomic functions such as digestion, respiration, and breathing (Siegel and Bryson, 2011, p. 39). The limbic structures contain the hippocampus, amygdala, and anterior cingulate and "generally mediates emotion and generates motivational

states” (Siegel, 2003, p. 20). Bessel A. van der Kolk refers to the reptilian and limbic area of the brain as the “emotional brain” (2014, p. 56). The downstairs or emotional brain is known for its primitive nature. Young children tend to rely on their emotional brain. You see this in how children react to uncomfortable situations or when they simply can’t get their way. They may throw temper tantrums and have a difficult time understanding another’s perspective. They are merely reacting using their emotional brain; however, as children develop and learn through experiences, they begin to integrate their upstairs, or rational brain, into their awareness, affecting their behaviors.

The Rational Brain

The upstairs brain, the neocortex, or “rational brain” (van der Kolk, 2014, p. 57) consists of the frontal and temporal lobes and is responsible for more mature functions in humans, such as self-reflection, mentalization, empathy, morality, conceptualization, and the ability to share and understand different perspectives. The frontal lobe is particularly important for the development of mental health in children. The neo-cortex is shaped by the experiences throughout their lifetime starting from when one may exit the womb to when one is well into old age (Siegel, 2012). The prefrontal cortex, or the area of executive control begins to mature in children at the ages of five to seven and reaches full maturity in their mid-twenties. There are many studies researching the interference trauma can have on frontal lobe development; trauma leads to an overuse of the amygdala or fight or flight response to stimuli and the underuse of the prefrontal cortex. In other words, your downstairs brain hijacks your upstairs brain, causing you to act out in an irrational manner due to incoming stimuli that your amygdala associates with your past experiences.

Neural Integration

In a healthy individual, according to Siegel (2003), the orbitofrontal cortex region of the brain, behind the orbit of the eyes, is the region that is the center of neural integration of all areas of the brain, the brain stem, the limbic areas and the cortex (p. 22). This area is anatomically significant because it is “only one synapse away from all three major regions of the brain” (p. 21). It is the neural integration of the left and right brain and between the emotional brain and the rational brain that allows resolution and healing to occur (Siegel, 2003; 2014; van der Kolk, 2014). According to Siegel, creativity emerges from neural integration through creative activities such as art, music, writing, dance, drama, or any other artistic pursuit. These activities can link and integrate the different parts of the brain, promoting vitality and wellbeing (Siegel, 2013).

Trauma in children could drastically interfere with the development of the orbitofrontal cortex of the brain. “The individual” according to Siegel (2003) “may feel a sense of disconnection from others and an impairment in a reflective sense of self while exhibiting the emergence of knee-jerk responses rather than flexibility of response” (p. 22). The feelings and emotions associated with traumatic experiences are stored within the body, through the bits of pieces of sensations and images (van der Kolk, 2014). The bodily sensations are different in patients but can manifest as migraines, muscle pain, fibromyalgia, or emotional and behavioral problems in children.

Siegel and van der Kolk both advocate for interventions that promote the integration of the disconnected areas of the brain. One way to integrate these areas of the brain is through mindfulness and gentle yoga practices. Bessel A. van der Kolk states the importance of knowing the difference in “top-down or down-up” approaches in treating traumatic stress. Top down approach strengthens the prefrontal cortex’s ability to “monitor your body’s sensations” (van der

Kolk, 2014, p. 63). This is a cognitive approach to treatment; meditation, mindfulness and cognitive-based-therapy, are examples of cognitive approaches (p. 63). A bottom-up approach can also help with integrating the emotional brain with the rational brain by “recalibrating the autonomic nervous system...through breath, movement, or touch” (p. 63-64). This bottom-up approach is a body-based method that focuses on listening to the body and felt sensations. This is yoga.

The Movement Toward Mind-Body Integration

Dr. Bessel A. van der Kolk advocates the implementation of mind-body practices in the treatment of trauma-related interventions. Because "memories of the traumatic event are imprinted as sensations of feeling states, and are not collated and transcribed into personal narratives, the failure to process information on a symbolic level, which is essential for proper categorization and integration with other experience, is at the very core of the pathology of PTSD” (van der Kolk, 1996, p. 296). There is a need to bring the bodily sensations associated with the trauma into conscious awareness. By assisting the client to become consciously aware of sensory information related to the trauma and “distinguish the possible physical action from the actual physical response to the original trauma, these new actions can become explicit, conscious, and available to the client, and the future often begins to hold more promise” (p. 296).

Since emotional pain associated with the traumatic memories is stored within the body (Emerson and Hopper, 2011), body-oriented approach or bottom-up approach to healing trauma is an alternative to a cognitive approach or top-down approach to healing trauma. Bottom-up approaches such as yoga or other mind-body interventions “prioritize making a connection at the somatic level, and then moving from that entry point to addressing emotions and cognitions” (p. 24).

“The cutting edge of trauma treatment today involves alternative and integrative intervention strategies that move beyond traditional verbal therapies” (Emerson and Hopper, 2011, p. 17) and “enhance neural integration and collaborative inter-hemisphere function” (Siegel, 2003, p. 15). These include modalities such as art, dance, EMDR, and yoga. Mind-body interventions according to researchers Ogden, Pain, Minton, and Fisher (2014), complement psychotherapy for trauma patients. They stress the importance of including techniques that integrate the right and left-brain, thus creating healing for survivors who may have difficulty vocalizing their traumatic experiences and symptoms. Of these mind-body modalities, yoga is particularly helpful for trauma victims because it integrates the breath with movement, helping to calm and focus the mind.

What Is Yoga?

Yoga, an ancient five thousand year-old Hindu mind-body technique, “can be thought of as the original body-inclusive psychotherapy” (Crowley and Duros, 2014, p. 1). Today, there are various yoga schools that teach different methods of instruction. Traditionally, yoga was meant to end suffering and to liberate human beings to transcend reality of the ego (Feuerstein, 2003, p. 3). According to master yoga teacher and founder of Embodyoga in Amherst, Massachusetts, the meaning of yoga is integration and building a deeper relationship with our surroundings,

We live in a relational world. We cannot do it all alone. In fact, we don't do anything alone. We are always in relationship. Yoga can be a process of learning to navigate, refine, and explore how we relate to self, earth, and others. (Townshend, 2015, p. 13)

Today, yoga is taught to cultivate bodily awareness and integration while balancing the nervous system. The practice of yoga promotes self-transformation through a reflective mind. Yoga can help cultivate a balanced and integrated mind. According to Sri Iyengar, world-renowned yoga

teacher and author of many books on yogic philosophy, yoga is what brings “the incoherent and scattered mind to a reflective and coherent state” (2014, p. 4): Historian writer Georg Feuerstein (2003) emphasizes that “we ought to engage both cerebral hemispheres when applying ourselves to the yogic path” (p. 165).

According to Feuerstein (2003) and Iyengar (2014) the word yoga is derived from the Sanskrit root “yuj” which means to “yoke or harness”. Your attention must be harnessed or yoked to endure the difficult poses and techniques in yoga practice. This harnessed attention is called mindfulness and differentiates the practice of yoga from the practice of stretching. In the *Hatha Yoga Pradipika*, Swami Muktibodhananda advises teachers to use yoga to treat the “total personality” (2012, p. 20). “Improving just the physical body is not enough. The mental health must also improve, the nature must change, the personality must change, the psychological, and psychic framework also has to change” (Swami Mukibodhanada, 2012, p. 20).

Yoga strives for self-understanding and self-acceptance, the ultimate goal of all spiritual pursuits that “empowers us to live a life that is not dictated by the mechanism of our unconscious” (Feuerstein, 2003, p. 164); therefore, self-study (svadhyaya) and self-acceptance (santosha) are important disciplines of the practice of yoga. It is the awareness of the true self that is the highest attainment of yoga (Iyengar, 2014, p. 6), and this is not attainable until you are able to be content with “what is”. According to Patty Townshend, when being content, “you need to accept that you feel angry, hurt, unloved, or are in some kind of pain...deepening self-acceptance becomes the basis for much more effective action in all areas of your life” (2015, p. 13).

Yoga is a way of life and is part of a holistic system that included daily life routines outside of the physical practice. By cultivating self-knowledge and awareness, you are able to

lead a more virtuous path that may include being more compassionate and kind towards yourself and others. Yoga is a way of interacting with the world and is not just a set of poses and meditations.

According to the Indian sage Patanjali, influenced by the eightfold path in Buddhist studies, there are eight stages of raja yoga. These eight stages are: *yama*, or moral ethical commandments; *niyama*, or self-purification and self-study; *asana*, or physical postures that integrate the bodily systems; *pranayama*, the practice of breath control; *pratyahara*, quieting the mind and senses; and *dharana*, *dhyana*, and *samadhi*, or different stages of meditation and bliss. The eightfold path is often left out of classes and is encouraged to be taught through self-study.

What is often practiced today is what is known as hatha yoga or forceful yoga, a version of yoga that focuses specifically on asana, pranayama, and meditation. In Sanskrit, the word hatha means “force or forceful” (Feuerstein, 2003, p. 41) and “approaches self-realization through the vehicle of the physical body and its energetic template” (p. 41). Teachers of hatha yoga intentionally leave out the religious pursuits of the yamas and niyamas in their classes, because of the complexities one might face while practicing self-control and discipline. According to master teacher Swami Mukibodhananda “if harmony is not created in the personality, then self control and self-discipline will create more conflict rather than peace of mind” (2012, p. 4). Hatha yoga was primarily a body-based system that was to bring the body and consciousness into balance and transcendence through the practice of asana, pranayama, and meditation. In order to create this balance, harmony, and transcendence, the automatic nervous system must be regulated.

The Nervous System and Yoga

Regulating the nervous system is the central component in the practice of yoga and is the reason why many practitioners claim the mental health benefits of yoga (NurrieStearns and NurrieStearns, 2013, p. 69-77). Your autonomic nervous system consists of your sympathetic branch (SNS) and parasympathetic branch (PNS); both are important in maintaining balance and regularity in your emotional life. Your sympathetic branch is activated when you inhale and consists of feelings of excitement, alertness, and fear. The sympathetic nervous system is stimulated by stress, vigorous exercise, movement and activity, and also activates the fight-flight response we see in our clients when they are triggered. It is your parasympathetic branch that must be activated to feel a sense of calmness and safety. Your parasympathetic branch is activated through exhale; the heart rate slows down, allowing feelings of calmness, inner tranquility, and relaxation while promoting “growth, health, and restoration” (Porges, 2009, p. 34). The activation of the parasympathetic nervous system is necessary for the emergence of creativity, social bonding, communication, and relationship. It was believed and still is taught in physiology today, that mental health results from the balance of the PNS and the SNS; however, research involving the ANS now proposes a new theory that explains behavioral strategies and adaptive functions often seen in pathology and diagnosis of depression, anxiety, PTSD, and autism (Porges, 2009). This theory is called the Polyvagal Theory (Porges, 2009; Porges, 2009; Porges, 2007; Porges, 2012).

Polyvagal Theory and Mind-Body Connection

For yogis and yoginis, the mind-body connection was an intuitive concept and was rarely questioned. Western scientists, however, could not fully understand how mind and body were connected. It was a philosophical debate in the world of physics; there wasn't enough empirical

evidence justifying this connection. For the longest time scientists, such as Descartes, believed that the mind controlled the body and the body's existence was to function as a vehicle for the mind; however, many later scientists questioned Descartes' reasoning. Darwin's work in the *Expression of Emotion in Man and Animals* (1872) proposed a relationship between the heart and the brain and the "mutual action" or relationship between these two organs through the vagus nerve.

Stephen Porges, professor in the Department of Psychiatry at the University of North Carolina and director the Brain-Body Center proposes a new theory called the Polyvagal Theory. Poly means "many" and "vagal" referring to the "vagus nerve". This theory proposes that our understanding of the autonomic nervous system (ANS) is premature and offers a deeper understanding of how our emotions, mental health, body-state regulation, and social communication system are interlinked through the complex cable connections of the vagus nerve (Porges, 2007; Porges, 2009; Porges, 2009; Porges, 2012). This theory provides therapists with an explanation to why people with trauma have difficulty with interpersonal relationships; they struggle with problems such as emotional dysregulation and a lack of social communication skills: poor eye contact, poor listening, flat affect, language delays, and problems reading social cues. This theory also provides scientific evidence supporting the claims that therapeutic modalities that help strengthen social engagement, provide a safe therapeutic environment, and regulate body-states, are helpful for the treatment of trauma.

Vagus Nerve

The vagus nerve, or the 10th cranial nerve, is the connecting nerve that connects the brain and the viscera or body organs, such as the heart. It is a cable of fibers that run from your brainstem to your viscera or organs. "The vagus is not merely a motor nerve, meaning that is

comes from the brainstem to the viscera; it's also a sensory nerve, going from the viscera up to the brain" (Porges, 2012). According to Porges (2007; 2009; 2012) your vagus nerve splits into two pathways: the myelinated vagal pathways and the unmyelinated vagal pathways, "each branch supporting different adaptive functions and behavioral strategies" (2009, p. 88). The myelinated vagal pathways are associated with the organs above the diaphragm such as the lungs and heart and are shared among mammals. The unmyelinated vagal pathways are associated with the organs below the diaphragm, such as the intestines and reproductive organs, and are shared with other vertebrates such as reptiles (Porges, 2008, p. 89). The myelinated vagal pathways are associated with the parasympathetic nervous system and involves the social communication system, "which serves to foster calm behavioral states by inhibiting sympathetic influences to the heart and dampening the hypothalamic-pituitary-adrenal (HPA) axis" (p. 89).

According to the polyvagal theory, as our species evolved into mammals, so did our nervous system. To survive as a species, we relied on social groups; as a result of this social dependency, our nervous system developed to support social engagement. This explains why reptiles don't have the need to be social and survive in solitude, while mammals can die without another's touch.

According to the polyvagal theory, each branch of the vagus nerve has adaptive functions and behavioral strategies due to our responses to life challenges and the quest for safety; they are grouped into three hierarchical phylogenetic stages or circuits of the autonomic nervous system, "providing adaptive responses to safe, dangerous, or life threatening events and contexts" (Porges, 2007, p. 122). These stages are social communication, mobilization, and immobilization.

Three Circuits. The more we evolved as mammals, the more complex our interaction with the world and the more our autonomic nervous system changed in response to these complex social interactions. The social communication stage, according to the polyvagal theory, is part of the social engagement system and can be activated only when one feels safe. The mobilization and immobilization stages are defensive strategies to deal with danger or threat. This theory is consistent with the Jacksonian principle of dissolution, where the newer and recently evolved neural circuits in the brain inhibit the older neural circuits in the brain; however, when the phylogenetically newer circuits are dysfunctional, the phylogenetically older neural circuits will take over (Porges, 2009, p. 90). “All though Jackson proposed dissolution to explain changes in brain function due to damage and illness, the polyvagal theory proposes a similar phylogenetically ordered hierarchical model to describe the sequence of automatic response strategies to challenges” (p. 90).

Social communication. The social communication stage is the phylogenetically newer stage and involves the myelinated vagal pathways and parasympathetic nervous system that support growth, health, and restoration. The myelinated pathways, also called the Ventral Vagal Complex (VVC), is a network of neural connections of the striated muscles of the face and head, middle ear, the voice box, and head turning muscles (van der Kolk, 2014, p.81). This neural connection helps to distinguish the human voice from background noise while also maintaining eye contact. These set of nerves activate the parasympathetic nervous system, which promotes healing, growth, creativity, and social connection, all of which are the essential components of the social communication system.

According to Porges, “deficits in the social engagement would compromise spontaneous social behavior, social awareness, affect expressivity, prosody, and language development”

(Porges, 2009, p. 124). Many diagnostic features related to disorders of the social engagement system, such as difficulties with social awareness and expressiveness, are seen in variety of psychiatric diagnoses, such as autism, social anxiety, reactive attachment disorder, and posttraumatic stress disorder (p. 124).

Mobilization. The mobilization stage is the flight-flight response initiated by the sympathetic nervous system (Porges, 2007, p. 3). This is the second stage of reactivity of the nervous system. According to the polyvagal theory, the mobilization stage is activated when one interprets the environment as dangerous. Since one can't feel safe, the social engagement system fails, there is vagal withdrawal, and the sympathetic nervous system (SNS) activates. The heart beats faster and the HPA axis is engaged, causing the body to go into stress mode. The response to threat initiates automatic movements such as kicking, punching, or running, allowing one to escape a dangerous situation.

If one escapes the dangerous situation and is able to find a "safe" environment, their nervous system is able to go back to the first "social engagement" stage, promoting healing and restoration to occur; however, if there is no place to go that is safe, such as a child who is in an abusive home environment, the defensive systems are constantly activated. Being stuck in the mobilization stage, with a constant overload of the sympathetic nervous system and HPA axis, causes one to always be on guard. As a result, the social engagement system malfunctions, causing many problem behaviors that we see in traumatized children, relating to antisocial behavior and emotional dysregulation. These problem behaviors can be seen as aggression, withdrawal, impulsivity, and anxiety.

Immobilization. When we are in an inescapable dangerous situation that inhibits our bodies from any movement that can protect ourselves, out of survival our ANS shuts down.

According to Porges, immobilization is the oldest circuit of the ANS and is often seen in reptiles. This stage is related to the unmyelinated vagus nerve, which is connected to the organs below the diaphragm, such as the digestive organs. This is why our gut can empty when we are in an inescapable situation. During the stage our body freezes, we collapse, lose consciousness, and our metabolic rates decrease. Out of survival and in order not to feel pain related to the situation, our minds block out the experience, which in return affects any relocation and memory of the event.

Neuroception. Our nervous system was evolved in order to promote survival in dangerous situations as well as living harmoniously in social groups. As a result, based on our experiences, we go in and out of these three neural circuits. According to Porges, “to effectively switch from defensive to social engagement strategies, the mammalian nervous system needs to perform two important adaptive tasks: (1) assess risk, and (2) if the environment is perceived as safe, inhibit the more primitive limbic structures that control fight, flight, and freeze behaviors” (2009, p. 5). In order to do this, “any stimulus that has the potential to increase an organism’s experience of safety has the potential of recruiting the evolutionarily more advanced neural circuits that support the pro-social behaviors of the social engagement system” (p. 5). We do this through a process called *neuroception*: the ability to distinguish safe and dangerous situations through neural circuits, enabling social interaction (Porges, 2009).

Children who have experienced complex trauma may experience a mismatch in their ability to assess risk and distinguish safe and dangerous environments. This results in the inability to inhibit the sympathetic nervous system and causes one to initiate fight, flight, and freeze behaviors; therefore, any therapeutic intervention that promotes the inhibition of the

defense stages and initiates calmness or feelings of safety, allows one to be able to socially engage and communicate with others.

According to researchers Beauchaine, Gatzke-Kopp, and Mead (2007), preschool years to middle childhood is a critical period for children to adapt and utilize the social engagement system. A child's ability to self-regulate is highly affected by the familial relations within this period of time. Yoga can be an effective tool to help promote these feelings of safety and calmness within school age children, particularly children who have emotional and behavioral disturbances that prevent them from engaging with peers. One technique that has proven effective for assisting in this self-regulation is the technique of pranayama yoga.

Pranayama Yoga

The ability to move with your breath is the central component of yoga practice. The act of controlled breathing, or "the prolongation of breath and restraint" (Iyengar, 2014, p.13) is called pranayama. The Sanskrit words "prana" means "breath, life, vitality, energy or strength (p. 13) and the word "ayama" means "stretch extension, expansion, length, breadth, regulation, prolongation, restraint or control" (p. 13). Pranayama is usually taught in the beginning and end of a yoga class, and then throughout the practice. For example in a classic "sun salutation", the process of moving fluidly with one's breath is taught. For example, on inhale you reach up, and on exhale you forward bend; on inhale you place your right foot back into a lunge, and exhale you pause. It is the breath that moves you in a yoga practice.

Breathing exercises engages the Ventral Vagal Complex (VVC), allowing the ability to socially communicate. "When the VVC is engaged, it sends signals down to our heart and lungs, slowing down heart rate and increasing depth of breathing" (van der Kolk, p. 81). Pranayama breathing allows one to activate the parasympathetic nervous system, creating neural circuits that

promote inner calmness and feelings of safety; as a result, one is able to socially engage without utilizing the older neural circuits of fight, flight, and freeze response. In many studies, the practice of pranayama allowed practitioners to enter “a state of deep psychosomatic relaxation associated with highly significant decrease in oxygen consumption within five minutes of practicing *savitri pranayama*, a slow rhythmic deep breathing, and *shavasana*, a meditative state of relaxation (Sengupta, 2012, p. 457). As a result of deep breathing, yoga helps to down-regulate the hypothalamic-pituitary-axis (HPA), the body’s stress response system (Sengupta, 2012). “There is also evidence that yoga practices help increase heart rate variability, an indicator of the body’s ability to respond to stress more flexibly” (p. 456). Heart rate variability is linked to the breath. It is through deep breathing techniques and pranayama, that yoga is able to allow one to deeply relax.

Due to the vast amount of research and theories supporting yoga techniques in the treatment of trauma, there are many studies inquiring as to the effectiveness of these techniques in case and group studies with the treatment of complex trauma.

Systematic Reviews of Yoga and Mental Health

In the article, *Yoga as a complementary therapy for children and adolescents: A guide for clinicians*, the authors summarize the current research regarding utilizing yoga as a complementary alternative medicine (CAM) among many medical and psychological practices in the pediatric population. The studies included treatment of mental health disorders such as anxiety, eating disorders, and the treatment in medical disorders such as asthma, irritable bowel syndrome and diabetes. The objectives of the article were to briefly summarize yoga and its therapeutic use with children, review current research regarding its use and effects at improving health and wellbeing among children, and provide information about available resources for

children and adolescents (Kaley-Isley, Peterson, Fisher, and Peterson, 2010, p .22). The authors cite surveys from the year 2000 “assessing the familiarity and acceptance of complementary and alternative medicine (CAM) practices by the general public and medical practitioners” (p. 21). According to the study, “yoga was ranked fifth out of 39 therapies surveyed in terms of its perceived effectiveness” (p. 21).

The authors state the need to “provide clinicians with practical information about yoga and the current state of evidence supporting its use with children and adolescents” (p. 22). The results of the empirical studies researching yoga effectiveness in reducing mental health and medical related symptoms were promising, but many of the studies were limited due to small sample sizes and lack of random control studies. The article stresses the importance for more studies due to the results indicating “consistent reduction in problem behaviors and mixed results in terms of promoting positive affect states” (Kaley-Isley, Peterson, Fischer, and Peterson, 2010, p. 29) and the issue that “the utilization of yoga is outpacing the Western scientific study of yoga (p. 30). They conclude, “given the initial research on the use of yoga for children and adolescents is promising, more systematic study is needed” (p. 31). They recommend more randomized studies that are longer term with larger sample sizes and that use appropriate control groups. One limitation of this survey is that its more than ten years old. In the span of ten years, there has been more information and research conducted related to the usage of yoga with trauma survivors. Another limitation of this study is that the researchers did not investigate yoga and its use specifically for children with complex trauma; instead, the review was very general and covered many populations regarding it’s use among the pediatric population, including schools and the medical field.

Kobayashi-Suzuki, Tachibana, Okuyama, and Igarashi (2014), conducted a systematic review of clinical trials on “efficacy of breathing focused mind-body approach to treat PTSD symptoms among children” (p. 2). The studies consisted of clinical trials that were predominantly breathing techniques used for the treatment of PTSD in children and adolescents in English and Japanese. In their search, they had only one randomized control trial and they did not have enough studies to perform a meta-analysis. There were a total of four screened studies in their review.

In one of these studies was a RCT trial conducted Gordon, Staples, Blyta, Bytyqi, and Wilson (2008). Employing a control group of traumatized adolescents by war in Kosovo to participate in a mind-body skills program, symptoms of PTSD, such as re-experiencing, avoidance, and arousal, were reduced. The mind-body skills program consisted of two weekly two-hour sessions for six weeks implemented by schoolteachers trained by The Center for Mind-Body Medicine (CMBM). The mind-body techniques used in this program were “guided imagery, relaxation techniques, different forms of meditation, autogenic training, and biofeedback” (p. 3). The intervention group had a reduction in symptoms of all three clusters, re-experiencing, avoidance, and arousal, after the three-month period, while the control group only had a reduction in the re-experiencing and avoidance but not the arousal symptoms. Gordon, Staples, Blyta, Bytyqi, and Wilson conducted a previous open trial study in 2004 using the same program from the study with high school adolescents traumatized by war. In this study “significant decrease of PTSD Reaction Index scores were observed” (Kobayashi-Suzuki, Tachibana, Okuyama, and Igarashi, 2014, p. 4).

Another study, conducted by The Center for Mind-Body Medicine, was implemented by Staples, Atti, and Gordon (2011), consisted of 129 children and adolescents whose age ranged

from eight to eighteen years and who met the criteria for PTSD according to DSM-IV, suggested that the age of the participant was a factor in recovery. There was a larger improvement in older children compared to younger children, suggesting, “significant developmental differences can impact the outcome” (Kobayashi-Suzuki, Tachibana, Okuyama, and Igarashi, 2014, p. 5).

A RCT study compared the efficacy of two treatment programs, a Narrative Exposure Therapy (KINDNET) and meditative relaxation techniques (MED-RELAX) (Catani, Kohiladevy, Ruf, Schauer, Elbert, et al. 2009), in the treatment of PTSD for children who were exposed to tsunami in north-eastern part of Sri Lanka. Both groups showed a decrease in PTSD symptoms and no significant differences were found between the two interventions. According to the Kobayashi-Suzuki, Tachibana, Okuyama, and Igarashi, “The study shows promising results for breathing focused approach to be as effective as exposure treatment” (2014, p. 5). They also advised for a “replication with control group and bigger sample size” (p. 5) for future studies.

Review of prior studies “suggests that breathing focused mind-body approach is promising for children and adolescents who experience PTSD symptoms” (p. 5) and that more RCT needs to be implemented to determine the efficacy of certain techniques as well as differences in development age and response to the interventions. One limitation in this study is that due to a distrust of health care professionals in the community, schoolteachers were the preferred professional members in the Kosovo; therefore, because schoolteachers, rather than health care professionals, implemented the programs, it is unclear if this caused a bias in the improvements of the participants. Social support was a large factor in the recovery rates, so it is unclear whether recovery was heavily influenced by the social support of the schoolteachers or the implementation of the mind-body techniques. This systematic review did not address any

practicing clinicians in the United States and the acceptance rate of using these techniques in a clinical setting.

Another review article by Hagen and Nayar (2014) summarize the benefits of yoga for children's mental health and wellbeing in various research studies. The authors stress the amount of modern demands many children face in their everyday that contribute to mental illness and how the mental health profession must "seek other solutions comprising empowerment to give children and young people the tools to develop self-reflection, self-protection, self-regulation, and holistic self-development" (Hagen and Nayar, 2014, p. 3). Within their review, they indicate the "need of more scientific research enriched with demonstrative practice among children and make recommendations on how to introduce yoga into children and young people's lives, based on cultural perspective on child development and childhood sociology" (p. 4). They also assert that there is a lot of medical research among yoga research but there are gaps relating to "the nature and type of impact of yoga practice on children, from a psychological perspective (p. 4). They further state gaps in the "relationship between various yoga techniques/practices and mental health benefits and specific yoga techniques and developmental milestones in children" (p. 4).

Casadi Marino, a PhD student at Portland State University of Social Work and Graduate Research Assistant with the Regional Research Institute writes about her experience with bipolar disorder and substance abuse and how her practice and utilization of yoga led to her road to recovery and is part of her wellness plan. The article introduces yoga and reviews part of the literature available for utilizing yoga practices with traumatized youth, while also providing guidance for a personal yoga practice (Marino, 2012). She briefly summarizes the effectiveness of yoga in self-regulation and stabilization through practices such as yoga. In a focus group of

NCTSN clinicians, the clinicians reported that self-regulation and stabilization through these practices are a preliminary and key component for the treatment of trauma (2012, p. 6). Casadi summarizes three yoga studies and the neurochemistry of yoga (p. 6). In these studies, yoga was found to reduce cortisol levels, increase grey matter in the hippocampus and cerebellum, regions of the brain responsible for memory and emotional regulation and coordination and motor control (p. 6). Another study reviewed by Marino, found increases in GABA levels, after a one-hour yoga class (p. 6). Marino's positive personal experience of utilizing yoga in the treatment of bipolar disorder and substance abuse influences her work as a therapist. Towards the end of the article, she advises the reader to start a personal practice, and gives advice and feedback based on her own experiences. The article is brief; however, she offers a lot of supporting evidence of the effectiveness of yoga in the treatment of symptoms of complex trauma. Though, she talks about the benefits of yoga in a therapeutic context, she does not discuss how yoga can be utilized in a therapeutic session as opposed to a group class and whether or not the difference in setting is beneficial for the client.

Trauma Sensitive Yoga Methods

A study conducted by Spinazzola, Rhodes, Emerson, and Earle (2011), showed the benefits of implementing a "Trauma-Sensitive" yoga modality for adolescents who experienced child abuse in a residential setting. They spoke of the benefits yoga offers to "build attachment, self-regulation, and competency in the context of structured, consistent routines" (p. 441) in addition to other trauma-based therapies. The study reviewed a case study investigating the benefits of yoga for the treatment of traumatic symptoms. They found that yoga helped to develop self-awareness within the client and helped her to work cooperatively in a therapeutic milieu while developing self-soothing techniques for self-regulation.

The researchers discuss the key elements of utilizing a gentle-yoga trauma-sensitive approach in a therapeutic context. These key elements are: “invitational language; emphasis on personal experimentation, choice, curiosity, and self-care; individually tailored selection of postures, pacing, and challenge level; repetition of specific postures and forms to build an incremental mastery; application of yoga elements (breathing, meditation, postures) as primary vehicles of self-control and self-regulation (affective, somatic, behavioral, cognitive); and provision of contained opportunities for social learning, attunement and modeling, co-regulation, and peer support” (p. 441). They discuss the importance of personal choice for the participants and discouraged any rewards or punishments for participation. The writers discuss the importance of class structure and strongly suggest to include well-trained yoga teachers “who are also trained in trauma and PTSD to lead yoga sessions in this particular setting” (p. 437), a residential staff member to ensure regulation of program rules, and one to four students to participate in the yoga class. Including well-trained yoga instructors are to ensure the integrity of implementing safe yoga techniques. The group advised to implement small class sizes rather than large class sizes in order to prevent attrition where larger classroom sizes lead to higher dropout rates (p. 437). Over three decades of implementing yoga into group settings with traumatized youth, they observed high rates of dysregulation among the participants due to the combination of being in an interpersonal group context while “enacting and witnessing that inherently asks participants to place themselves vulnerable physical positions” (p. 438). In response, the writers developed three small group configurations: integration of yoga into their classrooms; a triad configuration with student, yoga teacher, and residential staff person; and a quad configuration of two students, a trusted residential staff member, and the yoga instructor.

The authors emphasize that utilizing yoga techniques in a residential setting is “fluid” due to high demands for staff persons and the many internal and external distractions for the clients. They suggested that the implementation of trauma-sensitive yoga should be a “clinical objectives-based protocol” versus a “fixed protocol intervention” (p. 441).

In a trauma-sensitive framework, the therapist slowly and safely exposes the client to different forms of healing such as breath work, mindfulness, and yoga; she takes extra care that the treatment is gradual. Crowley and Duros (2014) used a “Collaborative Change Model” (CCM) that provides a guideline for “how and when to engage clients in body-mind approaches; how to help clients learn to recognize when they are in a fight, flight, or freeze response patterns; and how to develop skills for managing emotional dysregulation” (p.1). Crowley and Duros (2014) expressed the need for the integration of neuroscience and body-mind therapies for the treatment of survivors of trauma. They discuss the many different forms of mind-body interventions such as yoga, expressive arts, mindfulness, and EMDR, all of which have a place and time for interventions based on where the client is mentally, emotionally, spiritually, and physically. This study researched the effectiveness of mind-body interventions, with a trauma-sensitive methodology on a woman with severe traumatic history. The authors used a series of modalities that enabled the case study to feel safe, present, and focused on future goals and career. They worked very closely with her therapist who also assisted the woman to form a coherent narrative - something she was unable to do for nine years – only after she was able to form a sense of grounding and safety within herself. The outcome of the treatment was positive; the case study’s quality of life improved as she felt she could live with less rigidity.

One limitation of this study is that it's a case study and it's not generalizable to a larger population. It's also not clear as to whether this modality will work for other groups, particularly groups of children.

Yoga is an effective adjunctive treatment in therapy for the treatment of PTSD. A 2008-2011 study conducted by Bessel A. van der Kolk at the Justice Resource Institute (JRI) in Brookline Massachusetts researched the benefits of yoga for women with PTSD as an adjunctive treatment in a randomized controlled trial. They hypothesized that traumatized women in the yoga group would show significant reduction in PTSD symptoms than women in a weekly health education class (van der Kolk, Stone, West, Rhodes, Emerson, Suvak, and Spinazzola, 2014). Sixty-four women with "chronic, treatment-resistant PTSD, were randomly assigned to either trauma-informed yoga or supportive women's health education, each as a weekly one-hour class for ten weeks" (p. 559). Assessment scales measured DSM-IV PTSD, affect regulation, and symptoms of depression. The yoga class consisted of yoga postures, yoga breathing, and meditation and the trauma-informed yoga class was created by "professionals with masters and doctoral level degrees in psychology. The program "emphasized curiosity about the bodily sensations, in which self-inquiry is prominent" (p. 560). The control group was a ten week women's health education class that focused on "active participation and support, and utilized an interactive teaching style to increase knowledge about different health areas and increase women's self-efficacy to: seek medical services; discuss issues; normalize the experience of talking about potentially uncomfortable issues of the body; use medical or body terminology; and conduct and pursue self-care activities" (p. 561). The health education group was an intervention that utilized social support with sharing of food and permitted interactions between classes. While the participants in the yoga class were not to meet outside of the research period.

Among the groups there were no significant differences related to health, psychopathology, education, or family income.

Within both study groups, there was a reduction in PTSD symptomatology; however, of the total women in the yoga group, 52% no longer met criteria for PTSD, while only 21% of the control group no longer met criteria for PTSD. The reduction in symptoms sustained in the yoga group while the control groups' PTSD symptoms relapsed toward the end of the study (p. 562). This study suggests that the physicality and movement, rather than social support and education, more effectively addressed PTSD symptomatology (p. 562). This study adds to the knowledge that body awareness plays a significant role in affect regulation and tolerance.

One limitation of this study is that the study only involves treatment-resistant adult women with chronic PTSD and not children. The authors note that “our results need to be replicated with younger, less educated, and more acutely traumatized populations of both genders, in a variety of cultural settings” (p. 564).

Attitudes Towards Complementary Medicine

In a study conducted by Furham in 2000, a survey of over 400 participants asked what their current attitudes were towards complementary alternative medicine (CAM) – or medicine that was alternative and not of the traditional biomedical method - such as yoga, homeopathy, acupuncture, dance movement therapies, hypnosis, art therapy, etc. The researchers wanted to know if there were any correlations with attitudes towards other CAM therapies and their attitudes towards homeopathy. The participants came from diverse backgrounds and were randomly selected through a marketing tool by the British Market Research Agency. The participants were from and around England. The CAM therapies rated most effective in this study were massage, relaxation, acupuncture, counseling, and yoga (p. 332); however, less than

half of the participants tried yoga as a CAM and knew how it worked; 58% heard of yoga, 75% said it worked, and only 32% tried yoga. “The results showed that those who have tried fewer CAM therapies or not actually heard of many were less well disposed to homeopathy” (p. 336). They also found that the “more CAM therapies the participants had personally tried and the more religious they were the more positively disposed they were to homeopathic treatment” (p. 337). This study was focused mostly on how attitudes towards other CAM therapies, such as yoga, affect one’s attitudes and beliefs towards homeopathy. One limitation to this study is that the participants were not practicing therapists but randomly selected by a research-marketing tool and came from diverse professional backgrounds, also the participants were from England and not the United States; homeopathy and CAM therapies may be viewed differently in European countries than in the United States. It would be interesting to determine whether or not practicing psychotherapists are more inclined to utilizing yoga in their therapeutic work with children as well as the relationship between their utilization and what their current attitudes regarding beliefs and effectiveness towards other mind-body techniques.

Characteristics of Yoga Users

Because of the lack of information related to the characteristics of yoga users in the United States, Birdee, Legedza, Saper, Bertisch, Eisenburg, and Phillips (2008), observed the data from the 2002 National Health Interview Survey (NHIS) and examined correlations and characteristics of yoga use within in the survey respondents. According to the data, 5.1% out of the 10 million adults were yoga users and were predominantly white, female, college-educated, and had a mean age of 39.5. They found through statistical analysis that most users were more likely to use yoga for the treatment of musculoskeletal conditions, mental health conditions, severe sprains within the last 12 months, and asthma (2008, p. 1653). The authors stated the

importance of having more RCT studies to prove the efficacy for the treatment of these conditions. They also saw within the participants a divide between yoga for their preventative care and their conventional medical care. “A majority of yoga users (61%) felt yoga was important in maintaining health, though only 25% disclosed yoga practice to their medical professional” (p. 1653); however “more than 1 in 5 reported that a medical professional recommended yoga for a specific condition” (p. 1657).

Some limitations of this study are: (1) the survey consisted of participants who use yoga for health and there may be more participants who use yoga for spiritual or recreational purposes, and were not included in the survey; (2) they can't link causal relationships between characteristics of yoga users and yoga use due to the cross-sectional survey design of the NHIS; and (3) the data was from 2002 and may not capture the current trends of yoga use today. They concluded that “future research should identify which populations are most likely to benefit from yoga practice...Only more rigorous randomized clinical trials with large sample sizes will elucidate the potential therapeutic and preventative applications of yoga” (p. 1657).

Summary

Due to the complexity of the nature of complex trauma and how children experience symptoms differently, treatment protocols must be flexible and adaptive to address the multitude of problems that can result in the mind-body disconnect. Currently, there is emerging scientific theories in neurobiology, affect regulation, trauma, and the nervous system that promote the integration of mind-body techniques as a complementary approach to trauma treatment. Yoga, part of an ancient mind-body system, may be an effective therapeutic technique to bridge the disconnection between the two hemispheres in the brain, promote regulation of the nervous system, and enhance social engagement. Many studies suggest that mind-body techniques help to

reduce PTSD symptoms, and they are just as effective as other studied methods; however, more RCT studies with larger populations need to be conducted to get more of an understanding of the efficacy of mind-body techniques in the treatment of trauma with children.

Yoga and mind-body techniques in the treatment of complex trauma is a new and emerging area of research in the western therapeutic world; whether or not it is a realistic approach in a mental health facility has been unaddressed in the research. It is unclear whether or not practicing clinicians believe in its efficacy, or whether they find these interventions to be ineffective for the treatment of children with complex trauma. In order to fully understand and teach yoga, one has to have their own personal yoga practice and take a teacher training program that allows them the knowledge to safely teach a class. To become a yoga-instructor is an expensive and time-consuming endeavor. In addition to needing time within the session, a typical yoga class uses props such as yoga mats, blocks, blankets, and straps that are expensive when added up. Appropriate space is also an issue. Typically, to teach a class, an instructor needs to have a large empty room or enough space in your office to hold group or private sessions. All of this requires funding and resources.

Regardless of the obstacles to becoming a teacher, implementing yoga techniques in a therapeutic setting has become an interest for many practicing therapists. This is seen in the amount of new research studying yoga's affect on reducing traumatic symptoms. It is not uncommon to see many practicing clinicians taking workshops at health centers and conferences on using mind-body techniques in their own clinical practice.

Furthermore, community mental health centers that serve low socioeconomic areas may lack proper resources to implement yoga programs due to lack of funding. Although, within low socioeconomic communities, there is a high need to treat many clients with complex trauma,

these community mental health clinics may not have the proper resources, space, training, and funding to implement a yoga program in their facility. This study is to research current practicing therapists' rate of acceptance and utilization of techniques in a therapeutic milieu. It is to also investigate whether there is any correlation with socioeconomic status, region of practice, place of practice, and credentials and their utilization of yoga techniques with their clients.

CHAPTER III: Methodology

The purpose of this mixed-method study is to research the status of current practicing therapists' interpretations and opinions regarding the utilization of yoga techniques in a therapeutic setting either through individual or group work with children with complex trauma. My proposed research question is "In a clinical setting, what is the current acceptance and utilization rate among practicing clinicians of mind-body techniques such as yoga, for children with complex trauma?"

I decided to implement an online questionnaire in order to better understand and gain a snapshot of the current phenomenon of yoga and mind-body modalities in the treatment of complex trauma with children and adolescents. I conducted an online survey of questions regarding the utilization of yoga techniques in a therapeutic setting. Some information I hoped to determine was if current practitioners use these mind-body techniques, and if so, how often and if they find yoga techniques to be effective in reducing symptoms of complex trauma. For the practitioners who do not utilize yoga techniques, I wanted to know to what extent they are interested, and what may have prevented the implementation of these techniques in practice. I, additionally, wanted to study any correlations regarding demographics such as income, gender, practice setting, training, years of practice and location in relation to the acceptance and usage of these techniques in practicing with children with complex trauma symptoms. I wondered whether or not therapists have used yoga techniques in their treatment but abandoned the implementation of these techniques in their treatment approach. If that were the case, this study looked for any reasons why such techniques were discarded by practicing therapists.

Survey Development

In the development of the survey, I created a twenty-three-question survey that had a combination of multiple choice, open-ended, and scaled questions. I asked questions pertaining to demographic information such as the gender of the practicing clinician, the income-base of their clients, practice setting, how long they have been practicing with children, and in what region do they practice. I then asked information regarding their interest in yoga techniques in a therapeutic context and what domains of impairments and symptoms do they think yoga can help treat. I wanted to know how interested the clinicians were in the yoga techniques regardless of utilization.

Because I'm also interested in the utilization and acceptance rates of clinicians, I asked the clinicians if they utilized yoga in their treatments and how often, the modalities they employ - individual or group classes - and the extent they believe yoga helped to reduce symptoms of depression and anxiety and promote self-regulation in their clients. For the clinicians who utilized yoga techniques, I wanted to know what specific techniques they incorporated in their treatments such as asana, breathing, meditation, or other techniques, and how often such techniques were employed. Of all the participants, I wanted to know who took a yoga teacher training course. I wanted to see if yoga teachers were more likely to utilize the techniques in a therapeutic context than non-yoga teachers. For open-ended questions, I asked for the participants to please describe their experience of using yoga as a complementary approach to treatment and what they believe to be the effectiveness of implementing yoga for complex trauma. I wanted to make these last two questions open-ended in case the multiple-choice questions didn't address all clinicians' personal experiences. I also asked what the barriers were

to utilizing yoga techniques in a therapeutic context to better understand reasons why clinicians may not utilize yoga or mind-body technique in their context.

Survey Implementation

The survey asked both quantitative and qualitative information. The internet-based survey had a consent form in the beginning of the survey, addressing information related to the purpose of the survey and confidentiality. The online survey had a welcome page where the participant either agrees or disagrees in meeting the requirements for participation. If they agree, they were sent to the second page of the online survey. If they disagree, they were sent to the disqualification page, where they will be thanked but informed that they do not meet the requirements for participation.

I also screened for the participants to ensure all participants were practicing therapists who work with children from ages five through seventeen with complex trauma through the online survey. If they answer “no” to the second question on page two of the survey, “are you a practicing therapist who works with children ages five through seventeen with complex trauma?”, they were sent to the disqualification page, thanking them for their time and informing them that they are ineligible to participate.

I created this online survey via Survey Monkey, an online web service that allows you to create easy anonymous surveys for educational, commercial, or personal use for a small monthly fee. I then decided to run a test of the survey to determine whether or not the survey properly worked or if there were any technological glitches that needed to be fixed. During the test run, I sent out a test survey to friends and family members and asked them to pretend to be a therapist and answer the questions. I found that the link worked properly, but that many questions that had the option “choose all that apply” were not properly working. I found out that I didn’t specify

this option in the edit section of the survey question that allowed all the answers to be check off. After I fixed this problem and the survey was working properly and I was ready to recruit participants.

Sample and Recruitment

The participants were practicing therapists who work with children ages five through seventeen, who hold a MSW, LICSW, LCSW, Ph.D, PsyD or LMHC. The sample was open to all genders, races, socioeconomic levels, and sexual preferences. Excluded were yoga teachers who were not practicing therapists because I'm interested in clinicians' interpretations of any reduction in symptoms. It felt that yoga teachers would not have the needed diagnostic skills so as to identify symptoms related to trauma.

I initially anticipated attracting about fifty participants. Since my survey is a mixed study, fifty participants is a good sample size in making the study more generalizable to a larger population of practicing therapists and thus statistically significant. Including the qualitative questions made up for the weaknesses of the quantitative information; that is, if the quantitative information wasn't too specific and the participant wanted to have more detailed responses, or if the participant had a different experience they would like to share that the quantitative questions didn't address. To analyze qualitative information, I would need a smaller sample size; therefore, if I wasn't able to recruit fifty participants, I could still use the qualitative information to represent a population of therapists in my analysis. Time is also a factor in recruitment of the number of participants; I only have a limited amount of time to recruit and have the survey up before I have to analyze the data.

Participants were recruited from online social media through mass emails sent to local agencies. I recruited participants through LinkedIn groups: *Yoga and Mental Health*; *Psychology*

and Yoga; The Trauma Center, and Children's Trauma Institute. LinkedIn groups are open to the public or require permission to join. They are online social networks where one can post or discuss information regarding the topic of choice, enabling opportunities for networking between professionals. I also attempted to recruit participants through the social media Facebook group, *Smith School for Social Work Alumnae Page*, a page for all alum of Smith College for Social Work. I also asked many directors of local agencies to send out mass emails asking local therapists to fill out this survey. For all these emails and social media recruitment strategies, I used the same message that is found in the appendix. Some of the participants were my peers at the same agency as my placement. To prevent the appearance of coercion, I ensured that I ask the participants from my agency through the same exact email (in appendix c) that I sent to all participants, indirectly asking for them to participate in my study.

To adhere to federal guidelines protecting human subjects, the participants are not defined as members of a vulnerable population such as minors, prisoners, pregnant women, persons with physical disabilities, persons with mental disabilities, economically disadvantaged, or educationally disadvantaged.

Ethics and Safeguards

In order to ensure ethical guidelines and safety precautions with human participants, this research had to be approved by the Human Subjects Review Board at Smith College. This was a timely endeavor, as my research question changed due to time constraints and limitations. I worked on the HSR application throughout the fall months, changed my research question in December, and subsequently reapplied for HSR approval after modifying my topic and HSR application.

To ensure proper ethics and safeguards, to ensure participants were not being coerced or their privacy protected, I did not meet or interact with the participants regarding the study. The surveys were anonymous and the participants' identities were not linked to the online survey. I did not use any names or associated data that will reveal the identities of the participants. I also ensured that the data is contained in a securely locked place during and after the study.

All research materials, including recordings, transcriptions, analyses and consent/assent documents will be stored in a secure location for three years in accordance with federal regulations. In the event that materials are needed beyond this period, they will be kept secured until no longer needed, and then destroyed. All electronically stored data will be password protected during the storage period.

There are no risks and rewards associated with completing the online survey. This prevents from any biases in relation to the participants from taking the online survey. It also protects the participants from any ethical risks from taking the survey. The benefit for participants in this study is to be part of further research relating to complex trauma and mind-body practices for the betterment of the treatment of complex trauma. The benefit for social work is to gain a better understanding of what current practicing clinicians are practicing for the treatment of complex trauma in children and the usage and acceptance rate of implementing yoga techniques in their treatment. This information may be used to further research in this field.

Data Analysis

For this study, in order to get a well-rounded understanding of the phenomenon of yoga in mental health practices, I collected both quantitative and qualitative data. I've decided to conduct a mix method approach because of the unique insights that may be interpreted from

different approaches, since there is limited information regarding yoga utilization in the treatment of trauma with children and adolescents. The research design is a convergent parallel design (Engel and Schutt, 2013, p. 333), where I will be relating or comparing information from both qualitative and quantitative data and interpreting the results. The quantitative and qualitative data was collected during the same time through the same survey. The qualitative questions follow the quantitative questions in the survey. The findings will be integrated and interpreted together. The qualitative data will develop more insight and meaning into the quantitative interpretations.

The analysis of the data collected in this research consisted of descriptive statistics, statistical tests to determine association and correlations, and comparative analysis in grounded theory. To help me interpret the data, I used SPSS on Microsoft Excel 2011 Version and the assistance of Marjorie Postal, the Smith College research analysis consultant at Smith College. After sending Marjorie my excel spreadsheet from the results and codebook, she helps to organize the data and interpret the results into frequencies and descriptive statistics via SPSS, to help further interpret the data, and conduct any additional tests to determine any variance and correlation. I will compare demographic variables to determine whether or not there are any factors associated with usage, acceptance and availability of resources to implement these techniques among practicing clinicians.

The analysis of qualitative data will help me understand current beliefs on effectiveness and desirability or acceptance of yoga techniques for the treatment of complex trauma. To analyze the qualitative data, I will be using an open coding system for any emerging themes in relation to the therapists' personal experience with yoga. I will look for any recurring themes in the qualitative analysis and then use a codebook to determine any patterns related to the themes.

I will be using a grounded theory approach, “to build inductively a systematic theory that is grounded, or based on, the observations” (Engel and Schutt, 2013, p. 316). With the information provided by the data, I will develop a theory to explain the usage of yoga modalities in a therapeutic context; that is, why or why not practicing therapists decided to utilize yoga or mind-body techniques in a therapeutic context. Through this mixed method approach, I will get a better understanding as to whether or not practicing clinicians believe yoga is effective in treatment with complex trauma and some possible barriers that keep them from using these techniques such as income, proper training, resources, location, or agency structure.

Discussion

This study had many limitations related to time constraints, resources, location, possible bias, and feasibility. When I first began this study, my initial research question appertained to the effectiveness of yoga techniques in the treatment of complex trauma with children from the perspective of therapists. I initially planned to implement a training program and then send out three surveys inquiring as to what the therapists’ experiences and results were when using the techniques from the training. I wasn’t aware of the time constraints related to implementing this study, and in December decided to change my research question to make it easier to analyze in a few months time. Because of this change, I had to wait longer to get approval from the human subject review board. My survey wasn’t up until mid-January until mid-February. As a result, I didn’t get as many participants as I would have liked, limiting the generalizability of the quantitative study; however, even though twenty-three participants is a recommended amount for the qualitative portion of my study, only sixteen answered the qualitative questions while eight skipped the questions. Most of my participants are located in the Northeast region; this could be because of my location and my ability to network within my region.

I also had some trouble sending out the survey to a vast amount of people. This could be for a couple of reasons: (a) I used social networks sites such as LinkedIn and Facebook. This limits my participants to those who actively use these sites; (b) many therapists, especially those who work with children, may have a busy schedule; therefore, asking them to fill out a survey is not an easy task; (c) therapists who are actively using email or social networking sites were able to fill out the survey. Those who are not able to access their emails on a daily basis, or frequently use social networking sites were not informed of my survey and able to participate, limiting my audience to therapists who may be of higher socioeconomic status who have more time and resources than those who may have more demands by working in an agency with lower socioeconomic status and fewer resources.

Many of the questions were skipped in my survey, leading to the lack of information. I could have prevented this by (1) having fewer questions, (2) preventing “skip question” as an option in the survey, and (3) have the qualitative questions in the beginning of the survey, instead of the end of the survey. Having the qualitative questions in the beginning of the survey may have resulted in more detailed answers.

Expected Findings

There is a lot of research studying the benefits of yoga in the treatment of complex trauma in mental health. Because of the recent findings and research around trauma, I expect many clinicians to become interested in implementing more mind-body techniques in their therapeutic toolbox. Below is a list of my expected findings:

- I. Due to the popularity of yoga in the mental health field but many constraints for practicing therapists to implement these practices in a clinical setting, I expect that many

therapists find it useful for the treatment of complex trauma; however, many therapists will find it hard to implement the practices in a therapeutic context.

- II. I expect to find some correlations with placement and ability to utilize yoga. For example, I expect that an outpatient community mental health clinic would have more difficulty utilizing yoga in treatment than a private practice. This I think would be because of adequate training and resources needed to feel confident enough to administer some yoga techniques.
- III. I also expect more women than men to be interested in yoga due to gender differences in our culture; that is, typically, women are more interested in yoga than men and also, there are more women therapists who work specifically with children than male therapists who work specifically with children.
- IV. To become a yoga-instructor requires time, money, and resources. I also suspect that practicing therapists who work in higher paying fields, with fewer productivity demands, such as private practice, may be more inclined to become yoga instructors than those who may not have the resources within their agency settings.

CHAPTER IV: Findings

This mix-method study was to research practicing therapists current utilization and acceptance rates of yoga and other mind-body modalities in the treatment with children from ages five through seventeen with complex trauma. The survey was online between the months of January and February for a total of about seven weeks. I received thirty-three participants (N=33), in which ten were disqualified, leading to a total of twenty-three participants (N=23). Among these 23 participants only 21 answered questions four through twenty-three. I discarded the two participants who were missing answers from question four through twenty-three, making it a total of 21 participants (n=21).

Consistent with expected findings, one major finding was that many practicing therapists are somewhat to very interested in learning yoga techniques for the treatment of complex trauma; however, most find it difficult to implement these techniques in their own practice with children. The participants found that resources such as training, space, and time are needed to correctly implement the techniques in a therapeutic context. A majority of the participants believed yoga to be an effective tool for treating affect regulation, self-concept, and behavioral control and for reducing depression, anxiety, panic attacks, and emotional dysregulation. Another interesting finding was that many therapists that have a personal practice of yoga found it easier to incorporate their knowledge based on their own experience with yoga techniques into their own practice with children. Personal experience and developing their own personal practice was a frequent theme for developing techniques in their own clinical practice.

This chapter begins with a summary of demographics of the participants. Table 1 displays the findings of the demographics of the respondents. It then proceeds into the summary of the

participants' interest in utilizing yoga in a therapeutic context and their belief of the effectiveness of yoga techniques in treating complex trauma in children. Table 2 and 3 display the responses of the therapists' interests and beliefs in effectiveness of utilizing yoga techniques. The chapter then summarizes the current utilization rates based on therapists' primary setting of practice and comparison of barriers of utilization in primary setting: this information is detailed in Table 4.1 and 4.2. Figure 1 and Table 5.1 and Table 5.2 display the comparison of the rates of utilization of yoga techniques and the primary setting of practice. The chapter then reveals the findings for any variances and correlation tests between utilization of yoga techniques in practice and the participants' clients' income-base. Tables 6.1, 6.2, and 6.3 display the variance among utilization rates of yoga techniques and clients' socioeconomic status through a One Way ANOVA test, Spearman's Rho, and test of homogeneity of variance. Figure 3 shows the differences in client-income base and completion of yoga teacher training, indicating whether there are any difference associated with level of client-socioeconomic statuses and completion of yoga teacher training. The chapter concludes with the qualitative data findings. Table 7.1 and Table 7.2 show the categories based on the respondents' answers from question 22 and question 23 of the survey; these questions inquired for more detailed descriptions of practicing therapists experiences utilizing yoga in a therapeutic setting and their beliefs of the effectiveness of utilizing such techniques in practice with children with complex trauma.

Demographics

In total, there were thirty-three participants (N=33) in which 10 were disqualified, leading to a total of twenty-three qualified participants (N=23); however of these twenty-three participants, two were missing information from question three to twenty-three, so only twenty-one participants answered most of the questions and were included in the analysis (N=21). Of

those participants 86% (18) were female, and 14% (3) were male. About 31% (7) hold an MSW, 4% (1) hold an LISW, 35% (8) hold a LICSW, 13% (3) hold a Ph.D, 4% (1) hold a PsyD and 4% (1) hold a LMHC.

On average, 62% or 13 participants work with clients whose income was below average, while about 33% or 7 participants worked with client's whose income was average, and 5% or 1 participant work with clients whose income was above average. Among these participants: 12 participants, or 58%, work in an outpatient clinic; 3 participants, or 15%, work in private practice; 1 participant, or 4%, works in residential; 2 participants, or 10%, work in schools; and 3, or 14%, work in other settings such as at home, an intensive outpatient clinic, and an unspecified agency.

A majority of the participants were from the Northeast region, about 16 participants, or 76%. This could have been because I was able to network in my region, the Northeast, so I was able to receive more participants from this area. Fourteen participants (67%) worked with children four years and longer, while 7 participants (33%) have been working with children for only 1 to 3 years.

About 15 or 71% of the participants have not completed a 200 and 500-hour teacher training while 6 or 29% have completed a 200 or 500-hour teacher training.

Table 1

Demographics of Participants

Characteristics	Responses	Frequencies	Valid Percentage
Practicing Title	MSW	7	35%
	LISW	1	5%
	LICSW	8	40%
	PH.D	3	15%
	PsyD	1	5%
	LMHC	1	5%
Gender	Male	3	14%
	Female	18	86%%
Income of Client Base	Below Average	13	61.90%
	Average	7	33.33%
	Above Average	1	4.76%
Primary Setting	Private	3	14.29%
	Outpatient	12	57.14%
	Residential	1	4.76%
	Inpatient	0	0%
	School	2	9.52%
	Other	3	14.29%
Region of Practice	Northeast	16	76.19%
	Midwest	2	9.52%
	South	0	0%
	West	3	14.29%
Years of Practice with Children	1-3 Years	7	33.33%
	4-7 Years	1	4.76%
	8-10 Years	5	23.81%
	More than 10 Years	8	38.10%
Completed Yoga Training	Yes	6	28.57%
	No	15	71.43%

Note. The “valid” percentage indicates the percentage of participants from the total respondents (n=21).

Interest in Yoga

A majority of the participants were interested in implementing yoga in the treatment with children with complex trauma. About 62% of the participants (n=13) were very interested in implementing yoga in the treatment with children with complex trauma and 29% (n=6) were somewhat interested, while 4.5% (n=1) were neutral and 4.5% (n=1) were not very interested (see Table 2).

Beliefs of Effectiveness of Yoga Techniques

Regardless of low rates of utilization, there were fairly high rates of beliefs of effectiveness for treatment of impairments in children: 86% (n=18) believe that yoga can help treat affect regulation, self-concept, and behavioral control impairments in children; 56% (n=12) believe that yoga can help treat dissociation and cognition impairments in children; 48% (n=10) believe yoga can help treat biology impairments in children; and 29% (n=6) believe yoga can help treat attachment impairments in children (see Table 2).

Of the total participants (n=18) who answered questions 15-17, the mean average in believing that the implementation of yoga techniques have in reducing systems of depression, anxiety, and improving self-regulation from a scale from 1 (not very much) to 7 (very much) are as follows: depression: 3.94; anxiety: 4.94; and improving self-regulation: 5.06 (see Table 3).

Table 2

Interest and Beliefs in Yoga Techniques in Therapeutic Practice

Response	Frequency	Valid Percentage
Q9: How interested are you in implementing yoga in treatment with children with complex trauma?		
Very Interested	13	61.90%
Somewhat Interested	6	28.57%
Neutral	1	4.76%
Not Very Interested	1	4.76%
Not at all Interested	0	0%
Total	21	100%
Q11: Which of the following symptoms related to complex trauma do you believe yoga can help treat? Check all that apply.		
Depression	17	81%
Anxiety	20	95.24%
Emotional Dysregulation	20	95.24%
ADHD	14	66.67%
Body Image Issues	12	57.14%
Eating Disorders	10	47.62%
Panic Attacks	17	80.95%
Attachment Disorders	8	38.10%
None of the Above	0	0%
Q10: Which of the following domains of impairments do you believe yoga can help treat? Check all that apply.		
Attachment	6	28.57%
Biology	10	47.62%
Affect Regulation	18	85.71%
Dissociation	12	57.14%
Behavioral Control	18	85.71%
Cognition	12	57.14%
Self-Concept	18	85.71%
None of the Above	0	0%

Note. The "valid" percentage indicates the percentage of the respondents from the total amount of participants (n=21). Q11 and Q12 were "check all that apply"; therefore, participants were allowed to check more than one answer.

Table 3

Effectiveness for Treatment of Symptoms of Complex Trauma

	Scale 1-7	Frequency	Valid Percentage
Q15: On a scale from 1 (not very much) to 7 (very much), to what extent does the implementation of yoga techniques have in reducing symptoms related to depression in your clients?			
	1	1	5.56%
	2	2	11.11%
	3	3	16.67%
	4	5	27.78%
	5	5	27.78%
	6	2	11.11%
	7	0	0%
Total		18	100%
	Mean	3.94	
	Median	4.00	
	Std.Deviation	1.39	
	Variance	1.94	
Q16: On a scale from 1 (not very much) to 7 (very much), to what extent does the implementation of yoga techniques have in reducing anxiety in your clients?			
	1	1	5.56%
	2	0	0%
	3	1	5.56%
	4	3	16.67%
	5	5	27.78%
	6	8	44.44%
	7	0	0%
Total		18	100%
	Mean	4.94	
	Median	5.00	
	Std.Deviation	1.35	
	Variance	1.82	
Q17: On a scale from 1 (not very much) to 7 (very much), to what extent does the implementation of yoga techniques help improve self-regulation and stability in your clients?			
	1	1	5.56%
	2	0	0%
	3	2	11.11%
	4	0	0%
	5	6	33.33%
	6	8	44.44%
	7	1	5.56%
	Mean	5.06	
	Median	5.50	
	Std. Deviation	1.39	
	Variance	1.94	

Note. The valid percentage indicates the percentage of participants were answered the relevant question. For Q15, the total amount of respondents was 18; for Q16, the total amount of respondents was 18; and for Q17, the total amount of respondents was 18. The frequency indicates the number of respondents.

Utilization Rates of Yoga Techniques

Consistent with expected findings, few of the participants utilized yoga techniques very often in their practice; among the total participants (n=21), only 4.5% (n=1) utilized yoga techniques very often in their clinical work, 24% (n=5) utilized techniques often, 43% (n=9) occasionally, and 29% (n=6) rarely utilized yoga techniques with children with complex trauma. Nineteen of the total participants (n=19) or 91% were very and somewhat interested in utilizing yoga techniques in their therapeutic practice; of these 19 participants, only 1 participant (5%) utilizes yoga techniques very often, 5 participants (26%) utilize yoga techniques often, 9 participants (47%) utilize techniques occasionally, and 6 (32%) participants utilize techniques rarely or never. Among the participants that do utilize yoga techniques (n=17), 4 participants employ the techniques within group classes, 8 participants employ the techniques within one-on-one sessions, and 3 participants employ the techniques within both group and individual settings. Breathing is the most popular form of yoga technique for the treatment of complex trauma; fourteen or 67% of the total participants use breathing techniques very often and often in their therapeutic work. Table 4.1 and 4.2 show the frequencies and valid percentage of utilization and barriers of utilization among the respondents.

Table 4.1

Utilization and Barriers of Utilization of Yoga Techniques in Therapeutic Practice

	Responses	Frequency	Valid Percentage
Q12: Do you utilize yoga techniques in your treatment with children with complex trauma? How often?			
	Yes, very often	1	4.76%
	Yes, often	5	23.81%
	Yes, occasionally	9	42.86%
	No, rarely	6	28.57%
Total		21	100.00%
Q14: If you use yoga to treat complex trauma. Which of the following modalities do you employ?			
	Group Class	4	23.53%
	One-on-One Sessions	8	47.06%
	Both	3	17.65%
	Other	2	11.76%
Total		17	100.00%
Q18: If you use yoga to treat complex trauma, which of the following yoga techniques do you use and how often?			
Asana	Very Often	1	5.56%
	Often	4	22.22%
	Occasionally	8	44.44%
	Rarely	1	5.56%
	Never	4	22.22%
Total		18	100%
Breathing	Very Often	11	57.89%
	Often	3	15.79%
	Occasionally	2	10.53%
	Rarely	2	10.53%
	Never	1	5.26%
Total:		19	100%
Meditation	Very Often	1	5.56%
	Often	7	38.89%
	Occasionally	5	27.78%
	Rarely	3	16.67%
	Never	2	11.11%
Total:		18	100%

Table 4.2

Utilization and Barriers of Utilization of Yoga Techniques in Therapeutic Practices (continued)

Responses	Frequency	Valid Percentage
Q19: Do you use other yoga techniques other than asana, breathing, and meditation in your treatment? How often?		
Yes, very often	3	14.29%
Yes, Often	1	4.76%
Yes, Rarely	2	9.52%
No	15	71.43%
Total	21	100%
Q20: How often do you use other mind-body techniques other than yoga techniques with your clients?		
Never	4	19.05%
Sometimes	8	38.10%
Often	6	28.57%
Always	3	14.29%
Total	21	100%
Q13: Which do you believe are barriers that prevent use of yoga in a clinical setting? Check all that apply.		
Lack of training/knowledge	15	71.43%
Time in Sessions is limited	9	42.86%
Not enough space	9	42.86%
Lack of Resources	9	42.86%
Lack of Support of agency	7	33.33%
I believe it is not as effective	0	0%

Note. The total number for Q.12, Q.14, Q.18, Q.19, is the total amount of participants that answered the question. Participants were allowed to skip a question if it wasn't relevant to their experience; therefore, fewer clients answered some questions than other questions. On Q.13, participants were allowed to "check all that apply"; therefore, participants were allowed to answer more than one barrier to utilization of yoga techniques in their therapeutic practice with children. The valid percentage indicates the percentage of respondents who answered the relevant question.

Utilization of Yoga Techniques in Primary Setting

There wasn't a large enough sample size to determine any variance between primary setting and utilization of yoga in their therapeutic practice with children. The utilization of yoga techniques of the participants is grouped and compared with different primary settings of practices, such as in schools, outpatient, private practice, and other settings. Participants from private practice, outpatient, school and other utilized yoga very often or often in their practice with children, indicating that in this particular study, there is no major differences in utilization rates based on primary setting. There were no respondents from an inpatient facility so it is unclear as to whether or not there is a differences of utilization rates based on this primary setting.

Barriers of Utilization and Primary Settings

There also were no notable differences in barriers of utilization of yoga techniques determined by their primary practice setting. This finding is contrary to my expected findings that suggested an association between primary practice setting and barriers to utilization. On average, a majority of participants who work from private-practice, outpatient, residential, school, and other settings, believe that lack of training is a barrier for implementation of yoga techniques in a clinical setting, followed by not enough space, time constraints, and lack of support of methodology. There were no participants from all settings of practice that indicated that the lack of effectiveness is a barrier to utilization. Table 5.1 and Table 5.2 shows the comparison of utilization rates among practicing therapists based on their primary setting of practice.

Table 5.1

Differences of Utilization of Yoga Techniques and Barriers in Primary Setting of Practice

Responses	Primary Setting					
	Private Practice		Out-Patient		Residential	
	Number of Participants	Percentage	Number of Participants	Percentage	Number of Participants	Percentage
	3	14%	12	57%	1	5%
Utilization of Yoga Techniques in Therapeutic Practice						
Very Often	1	33%	0	0%	0	0%
Often	0	0%	2	17%	0	0%
Occasionally	1	33%	5	42%	1	100%
Rarely	1	33%	5	42%	0	0%
Total	3	100%	12	100%	1	100%
Barriers of Utilization of Yoga Techniques in Practice						
Lack of Training	2	67%	8	67%	1	100%
Time Constraints	1	33%	5	42%	1	100%
Not Enough Space	2	67%	5	42%	0	0%
Lack of Resources	1	33%	5	42%	1	100%
Lack of Support of Methodology	2	67%	4	33%	1	100%
Not as Effective as other Methods	0	0%	0	0%	0	0%

Table 5.2

Differences of Utilization of Yoga Techniques and Barriers in Primary Setting of Practice (continued)

Responses	Primary Setting					
	Inpatient		School		Other	
	Number of Participants	Percentage	Number of Participants	Percentage	Number of Participants	Percentage
	0	0%	2	10%	3	14%
Utilization of Yoga Techniques in Therapeutic Practice						
Very Often	0		0	0%		
Often	0		1	50%	2	67%
Occasionally	0		1	50%	1	33%
Rarely	0		0	0%		0%
Total	0	0%	2	100%	3	100%
Barriers of Utilization of Yoga Techniques in Practice						
Lack of Training	0		2	100%	2	67%
Time Constraints	0		2	100%	1	0%
Not Enough Space	0		1	50%	1	33%
Lack of Resources	0		2	100%	0	0%
Lack of Support of Methodology	0		0	0%	0	0%
Not as Effective as other Methodologies	0		0	0%	0	0%

Differences in Client-Income Base

In order to find out whether or not there was a difference between practicing clinicians’ clients’ income-base and utilization of yoga techniques in practice, a One Way ANOVA was conducted, and the level of significance was 0.43 ($p > .05$), indicating that there was a significant difference between the two groups. The test of homogeneity of variance determined a .437 level of significance ($p > .05$), indicating that the level of homogeneity between the groups was met and that the differences between the two categories, clients’ income-base and utilization of yoga techniques in practice, are equal.

When looking at Figure 2, more participants from settings that serve clients with lower socioeconomic status utilized yoga techniques more often in their treatment with children: this indicates a negative correlation between clients’ socioeconomic status and the utilization of yoga techniques in treatment for children with complex trauma.

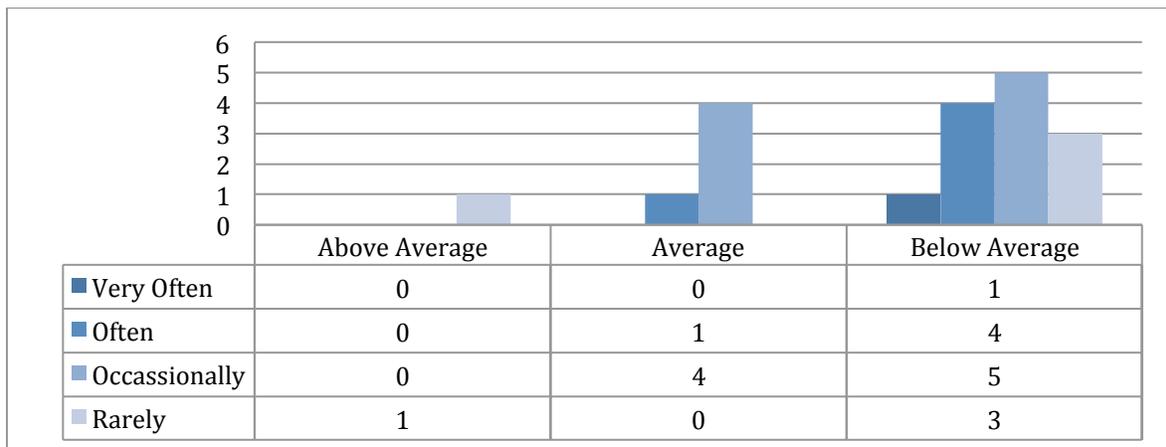


Figure 1: Figure 1 displays the comparison of utilization of yoga techniques among different client socioeconomic statuses. The total number of participants who answered the question regarding their average client-income base was 19 out of 21 participants; therefore, 3 participants did not answer the question and are missing information. The left column depicts the coded categories of the rates of utilization of yoga techniques. The x-axis depicts the number of participants.

This is contrary with my expected findings that suggested that more practicing therapists who work with clients from higher socioeconomic backgrounds will be more inclined to utilize these techniques in their therapeutic repertoire. A Spearman's Correlation was run to determine the relationship between client socioeconomic status and utilization of yoga techniques in treatment. There was a negative association between client socioeconomic status and the utilization of yoga techniques; however, it is not statistically significant and is not generalizable to the larger population ($r=-.332$, $n=21$, $p>.05$).

In this current sample pool, there seems to be no statistically significant relationship in income of client-base and yoga teacher training. Contrary to expected findings, more participants who work in settings with low-income clients have completed a teacher training compared to those who work with average to high-income settings (see Figure 3); however, more clinicians who work with children from low-income settings completed the survey.

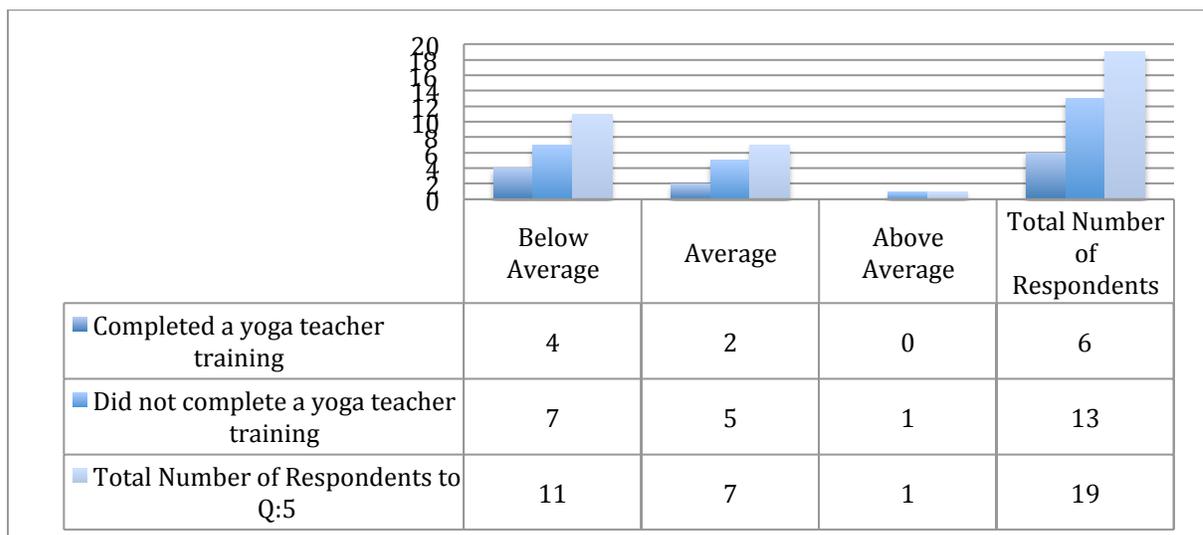


Figure 2: Figure 2 displays the comparison of the average income of the participants' client-base and completion of yoga training. Only 19 out of 21 participants answered Q5 regarding the average income of their client-base; therefore, there is missing information from 3 respondents. The left column indicates the color coded category of the participants who have completed a yoga teacher training and those who have not completed a yoga teacher training. The body indicates the numbers of participants in categories determined by the income of their client-base. The x-axis displays the number of participants.

Differences Between Male and Female Clinicians

Consistent with expected findings, of the total respondents (n=21), only 3 or 14%, were male and 18 or 86%, were female. This was consistent with my hypothesis that generally, there are more female therapists who work with children with complex trauma than male therapists. Because of the low sample size, I was unable to conduct any inferential statistics to determine correlation of utilization rates, interests in yoga techniques, and gender; however, 2 out of 3 male therapists were very and somewhat interested in utilizing yoga techniques in their treatment with complex trauma, while 1 male participant was not very interested. Only 1 out of 3 (33%) male participants occasionally utilize yoga techniques in their treatment with children, while 2 out of 3 (67%) male therapists rarely or never use techniques in their treatment. Out of the total female therapists, 17 out of 18 (94%) therapists were very or somewhat interested, while only 1 out of 18 (5%) female therapists were neutral in implementing yoga techniques in a therapeutic context. These findings may suggest some variance in interest and utilization rates between genders in this particular sample pool.

Qualitative Data

For the qualitative questions, I wanted to give the respondents opportunities to provide detail descriptions of their experiences and beliefs of effectiveness utilizing yoga in their therapeutic practice with children with complex trauma. Overall, about 15, or 71%, of the participants responded to Question 22: Please describe your experience with yoga as a complementary treatment approach in your practice, and 16, or 76%, of the participants responded to Question 23: Please describe your belief as to the effectiveness of yoga in treating complex trauma with children and adolescents.

For the participants who responded to Question 22 (n=15), I was able to categorize their responses into different categories based on their answers of their experiences with yoga as a complementary approach to their therapeutic practice. These categories are as follows: influence of personal practice; reduction of symptoms; effective in treatment; integration with psychological work; promotes body awareness/relaxation/inner awareness; and negative experiences/challenges (see Table 7.1). Majority of the respondents thought positively about their experiences utilizing yoga in treatment with children. About 11 out of the 15 respondents (73%) had positive experiences of utilization yoga in their treatment with children and 4 out of 15 respondents (23%) actively integrate yoga into their psychotherapeutic work with children. About 4 out of the 15 (27%) respondents had the experience of reduction of symptoms in their clients that assist with clients who are dysregulated, anxious, dissociative, experience symptoms of ADHD, and to assist in building a positive sense of self, and 3 out of the 15 respondents (20%) believed yoga is helpful with relaxation and body awareness in their clients.

For the participants who responded to Question 23 (n=16), I was able to categorize the answers into different groups based on their answers of their belief for the effectiveness of utilizing yoga in treatment with children with complex trauma. The response categories are as follows: process trauma through mind-body connection; skill development; helpful/effective in reducing symptoms of complex trauma; age differences; and negative beliefs of effectiveness. Table 7.2 displays more details of the participants' answers that are categorically organized. Out of the 16 respondents, 8 responded that they (50%) believed that yoga help process trauma through integration of the mind-body; 50% or 8 of the 16 respondents also believed that yoga can help and reduce symptoms of trauma for children; and 4 out of 16 respondents (25%) believed

that yoga can help with skill development in children; and only 1 out of the 16 respondents (6%) believed that it was “more effective outside in a group setting”.

Only about two respondents mentioned challenges of using yoga in their treatment. They both mentioned that the challenges are homework, where the clients are encouraged to practice yoga at their homes, “kids don’t want to do the poses at home” but they “do use guided imagery and breathing at home”. Another participant said, “Not all clients are prepared to practice at home”. One more challenge is the newness of utilizing yoga techniques in therapy sessions. One participant said that when she encourages her clients to practice a pose in session, they are usually not expecting this treatment and the client is often surprised. She didn’t say this could be a good or bad thing, but questions whether or not clients expect physical activities, such as yoga, in treatment. Another respondent mentioned the difficulty of utilizing yoga in an outpatient setting, “I find it hard in an outpatient setting. I think it’s more effective outside in a group setting”. This is conducive to my expected findings that it is difficult to implement yoga techniques in different settings, such as outpatient settings, due to some barriers related to sufficient time and adequate space; however, it is unclear whether this is shared among a majority of the participants.

Table 6.1

Responses to Question 22: Please describe your experience with yoga as a complementary treatment approach in your practice

Categories	Responses			
Influence of Personal Practice	“Long personal practice”	“I’ve only taken a few yoga classes in my life, but have downloaded poses and information from the internet to incorporate in my sessions”	“I have practiced myself and use some of the derivative experiences”	“I have a yoga instructor I work with.”
Reduction of Symptoms	“Use yoga pranayama for students who are dysregulated”	“I’ve always used mind/body techniques with clients who are anxious.”	“It is a great skill for clients who dissociate or clients with ADHD.”	“Kids love to build their own yoga poses and routine. This build a positive self-concept”
Effective in Treatment	“Very Successful”	“Positive Feedback from patients”	“I’ve heard it’s helpful”	“Helpful in stretching and movement”
Integration with Psychological Work	“I integrate it (yoga) into my regular psychological work”	“Use yoga to get ready for (psychological) work”.	“I use yoga occasionally with simple postures like cat, cow, down dog for children”	“Beginning stages of implementing a program for children.”
Promotes body awareness/Relaxation/Inner awareness	“Calms the body and makes the client more present”	“Helpful in stretching and movement”	“Yoga allows movement with breath, which enables a deep relaxation and inner awareness”.	
Negative Experiences/Challenges	“No idea how to implement it”	I don’t find that kids use the yoga poses at home.		

Table 6.2

Responses to Question 23: Please describe your belief as to the effectiveness of yoga in treating complex trauma with children and adolescents

Categories	Responses			
Process trauma through body/mind-body connection.	“...through the use of modalities besides talk, trauma is changed”	“There is something to do with children moving and breathing in a synchronized manner”	“I think it is a useful as part of the effort for children to reclaim their body”.	“I believe in the connectedness of mind and body and that it could be very helpful in treatment”
	“Yoga brings us closer to the present moment, which is critical to victims of trauma as they are often not in the present moment or not able to reside within their bodies.”	“They (children) are able to reconnect with themselves and regain control of their bodies”	“Children are able to connect mind and body when they are often so separate”	“Helps with processing trauma that is contained in the body... helps to get the child out of their head and into their body”
Skill Development	“Yoga and mindfulness are important skill sets for children to develop”	“I believe it enables team building and skill development for school aged children.”	“Foster discipline in teenagers and self-awareness”	“I think it could help with relational support and a lot of training. I like the experimental aspect of how it can contribute to self soothing and a sense of mastery over stress feelings and scary or bad thoughts.”
Helpful/effective in reducing symptoms of trauma	Appears to be effective	“Helpful”	“Can be very helpful”	Helpful for bilateral integration
	“I believe that yoga offers time and space for students who are dysregulated”	“Helps with regulation, discharge of affect”	“I believe it can be very helpful”	“I believe yoga is an effective treatment for treatment, healing, and regulating symptomology”
	“Trauma is something that can be changed through the use of acupuncture, EMDR, and yoga, as the third most effective, so I use it”.			
Age Differences	“Success rate is more with age-increasing.”			
Negative Belief on Effectiveness	“I find it hard in an outpatient clinic. I think it’s more effective outside in a group setting”			

Summary

Out of the total participants (n=21), most of them were from the Northeast, LICSWs, female, and worked in outpatient setting. A majority of the clinicians (91%) are interested or somewhat interested in the utilization of yoga or mindful-body techniques for the treatment of complex trauma within children; however, only 29% of the clinicians utilize yoga techniques in a therapeutic context. Breathing techniques (pranayama) are the most popular yoga modality to utilize in a therapeutic context as 67% of the total respondents utilize breathing techniques very often or often in the therapeutic work with children. There is a negative association between clients' socioeconomic status and utilization of yoga techniques in practice; however it is not generalizable to the larger population. Due to small sample size and issues of generalizability, it is unclear as to whether or not client-base income, agency resources, or other barriers are correlated with clinicians being trained in yoga. Further research with a larger sample size needs to be conducted to determine any correlation or analysis regarding primary setting, differences in clients' income, gender, interest and utilization of yoga techniques in practice, and clinicians being trained in yoga.

A majority of the participants 15 out of 21 responded to the open ended question 22 and 16 responded to question 23; of these total respondents a majority had many positive statements regarding utilizing yoga in their therapeutic work and beliefs of the effectiveness of utilizing such techniques in their work with children. Three negative experiences and beliefs described by clinicians are that children don't use poses at home and one clinician is "interested in using these techniques in their treatment but has "no idea how to implement them" into their practice. Another clinician responded that they "find it hard to implement in an outpatient setting and is more effective in a group setting". Further training in yoga techniques for the treatment of

trauma and agency support needs to be addressed as a barrier for yoga in a therapeutic context to help support clinicians who are interested in implementing these techniques in their therapeutic practice.

CHAPTER IV: Discussion

The implementation of yoga has been highly effective for the treatment of trauma in many group settings; however, there is limited information regarding the effects of yoga techniques on the treatment of trauma with children with complex trauma in a therapeutic milieu. Complex trauma can be detrimental to a child's cognitive development, verbal functions, academic performance, and interpersonal relationships (Kobayashi-Suzuki, Tachibana, Okuyama, and Igarashi, 2014, p. 1). Yoga for the treatment of trauma can help facilitate integration of traumatic memories, without using verbal processing, but instead focus on the body-sensations that are linked to their traumatic experiences. According to Duros and Crowley (2014), "the field of psychotherapy has come a long way with regard to recognizing and honoring the importance of the connection between body and the mind, particularly when it comes to the treatment of trauma" (p. 1). The findings of this study reveal practicing therapists' utilization and interest rates of yoga for the treatment of trauma in children. A majority of the therapists' reveal that are very interested in implementing yoga in their practice and believe in the positive effects of utilizing such techniques for the treatment of complex trauma in children; however, how to implement these techniques is a challenge in therapeutic practice and is an avenue to explore in future research.

This study was a mixed method approach to understanding practicing therapists' experiences, utilization rates, and beliefs of effectiveness of utilizing yoga techniques in treatment for complex trauma with children ages 5-17. The findings suggest that most clinicians, about 91%, are interested or somewhat interested in the utilization of yoga or other mindful body movements for the treatment of complex trauma within children; however, utilization in treatment is less popular among therapists, as only 29% of clinicians utilize yoga techniques in a

therapeutic context. A majority of the participants, about 71%, felt that lack of training and knowledge was a barrier for utilization of yoga techniques in their treatment with children. The most practiced form of yogic technique among the participants is pranayama, or deep breathing techniques; about 67% of the total respondents utilize breathing methods very often or often in their therapeutic practice with children. Additionally, it was found that there was a statistically significant difference between clients' socioeconomic status and the utilization of yoga techniques indicated in the ANOVA test ($p < .05$). In the Spearman's rho test, a negative correlation was found related to utilization rates of yoga in therapeutic practice and income of client-base ($r = -.332$); however this test was not statistically significant ($p > .05$), indicating that a correlation is not generalizable to the greater population.

This chapter is organized firstly by the connections between the literature and the findings. These connections with the literature begin with the beliefs of effectiveness of yoga techniques in practice with children and the utilization rates of implementing yoga in a therapeutic milieu. Many different theories are explored as to why yoga is very popular as a form of trauma treatment, but a majority of these clinicians do not utilize these techniques in their current practice with children. Client-base income and utilization rates among therapists are explored in the next section, relating the findings of this current study to earlier survey data that addressed the relationship between income and personal practice of yoga. The most-used yoga techniques - pranayama and meditation - are examined, as well as the many different interpretations of why pranayama is used by a majority of therapists based on different theories and the realities of many practice settings. Lastly, the section then examines the differences of class size and the effectiveness of utilizing yoga techniques based on the structure of the class. It then is followed by a summary of the connections between the literature and findings. The

section then explores the strengths and limitations of the study, implications for future research and policy, and recommendations for future research. The chapter concludes with a paragraph summarizing the research of this paper.

Beliefs of Effectiveness and Utilization Rates Among Clinicians

Many practicing therapists believe in yoga's ability to assist with treating traumatic symptoms in youth. This is consistent with many findings relating to how mind-body techniques can be an adjunctive tool to psychotherapeutic work with clients who have difficulty verbally processing traumatic events. As indicated in the literature review, much research had been conducted studying the benefits of mind-body techniques, such as yoga, in the treatment of trauma (Duros and Crowley, 2014). The data from this study suggests that practicing therapists are aware of the benefits and believe the outcomes of yoga to be effective for treatment of complex trauma; however, how to implement these techniques in therapeutic work is a challenge for many therapists in this study. Because yoga for the treatment of complex trauma in children is a new field of research, it is understandable that a barrier for utilization is proper training and agency support.

With further research and more evaluation of trauma-sensitive yoga classes for the treatment of children, opportunities for more agency support and resources will be made available for therapists who are interested in utilizing these techniques in their practices. This need is particularly important in community mental health centers, where many children with complex trauma are served, but where many agencies struggle with limited resources. More grant-funded programs and workshops that could train qualified clinicians to become trauma-sensitive yoga instructors in under-served communities could assist with this need, as well as an expansion of services for traumatized youth. One creative approach to address this need is

collaboration between local yoga studios that have space, teachers, and props and local community mental health centers and trauma-informed clinicians who are interested in implementing yoga in their treatment with children.

In the Kaley-Isley, Peterson, Fischer, and Peterson (2010) comprehensive literature review on yoga as a complimentary therapy for children and adolescents, they reported “the 2002 and 2007 United States National Health Interview Surveys (NHIS) which included specific questions on CAM (complimentary and alternative medicine) by adults and children, document a growing trend of yoga practice by adults and children” (p. 21). This trend is seen in this study’s findings, as many clinicians are interested or somewhat interested in utilizing yoga techniques in their therapeutic practice.

A survey conducted by Furnham (2000) found a positive correlation between personal experience and interests with complimentary and alternative medicines and positive attitudes regarding homeopathic methods. “The more therapies [homeopathic methods] a participant tried, the less they were against” (Furnham, 2000, p. 340). Similar to the Furnham article, the qualitative data in this current study revealed a relationship between personal practice and a clinician’s willingness to utilize techniques in their therapeutic work. According to Emerson and Hopper (2011) “generally it is helpful for a facilitator to have a personal practice of yoga” (p. 92) in order to fully understand how certain postures, meditations, and breathing techniques work with the body and relieve tensions and anxieties. This is seen in the data where many clinicians indicated a “strong personal practice” and their “work with a yoga instructor”, as well as applying the techniques they have learned in their own “derivative experiences” from their personal practice; however, there isn’t enough information in the qualitative data to reveal any association that is generalizable to the larger population. More research would need to be

conducted to determine any relationship between personal practice of yoga and the utilization of techniques in their own clinical work with children.

Client-Base Income and Utilization Rates

This current research project hoped to establish a statistically significant relationship between client-base income and utilization rates among clinicians; however, in this current pool of respondents, the sample size was too small to make any statistically significant correlations related to the relationship between clients' income base and utilization of yoga techniques in the larger population. In this data, there was an indication of a negative correlation between client-base income and utilization rates seen in the Spearman's Rho test ($r = -.332$). This relationship corresponds to the 2002 National Health Interview Survey, where income and insurance status "were not statistical significant correlates of yoga use" (Birdee, Legedza, Saper, Bertisch, Eisenberg, and Phillips, 2008, p. 1653). In this study by Birdee, Legedza, Saper, Bertishch, Eisenber, and Phillips (2008), they found that yoga use was not correlated with income or insurance status, meaning that participants with lower socioeconomic status were as likely to participate in yoga as survey respondents with higher socioeconomic status. In this current sample pool, a negative correlation was indicated between clients' base income and the utilization of yoga techniques in treatment; however, there were more participants with clients of lower socioeconomic status, indicating the possibility of bias.

Most Used Yoga Techniques: Pranayama and Meditation

The most used yoga technique in this current sample of practicing clinicians was pranayama, or deep-breathing techniques, followed by meditation. There are three possible reasons: (1) breathing and meditation are easy tools to use in an outpatient or clinical setting; (2) deep breathing techniques can help stimulate the parasympathetic nervous system (PNS), which

helps regulate one's emotions and promotes social engagement; and (3) pranayama and meditation are inexpensive tools that do not require intensive training, while asana require some yoga background and training.

A majority of the participants were from outpatient settings. This fact could be one reason why many participants, 14, or 71%, of the participants who utilize yoga in treatment, utilized pranayama or deep breathing techniques very often or often in their practice, and 8, or 45%, of the participants who utilize yoga in their treatment utilized meditation very often or often in their practice, while only 5, or 26%, of the participants who utilize yoga in their treatment utilize asana or postures, in their practice with children with complex trauma. One possible reason why pranayama and meditation are most often used could be that they are both simple but effective tools that promote self-regulation in clients (Emerson and Hopper, 2011; van der Kolk, 2014) and don't require a lot of resources to implement and practice in a therapeutic setting. "Breathing techniques used in relaxation and meditation are easily taught and learned, and are known to reduce symptoms of anxiety, prevent hyperventilation, stress reaction" (Kobayashi-Suzuki, Tachibana, Okuyama, and Igarashi (2014, p. 1). Compared to asana practice, which requires time, space, and props, breathing and meditation can be skills a client can use in a short amount of time in a small space. Meditation, or the act of mindfully paying attention to one's thoughts or body sensations, is not often recommended for children who dissociate because the client could potentially experience flashbacks triggered through the act of sitting still. This could be one possible reason why a majority of the participants utilize pranayama more than meditation. Pranayama is a tool that clients can bring with them throughout their day - in school, at home, or outside the community - and there is no risk for dissociation or flashbacks.

According to the polyvagal theory, breathing techniques can help stimulate the social engagement neural circuit by allowing neuroception, or the ability to neurocept real and imagined social threats. This makes it a great tool to use for PTSD or any other disorders that affect the ability to communicate or pick up on social cues. Many studies have used the tools of pranayama in the treatment of stress, anxiety, and depression (Brown and Gerbarg, 2005; Brown and Gerbarg, 2005) and have found it effective in reducing symptoms while promoting relaxation and stimulation of the parasympathetic nervous system through the myelinated vagal nerve pathways.

Breathing techniques are simple to learn as well, and practicing clinicians do not need to obtain intensive training to learn this skill. Breathing techniques are already taught in trauma-based therapy with children and frequently taught as a grounding technique. It is interesting to note that the majority of clinicians stated they didn't utilize yoga techniques in their therapeutic work with children; however, about 71% responded that they utilized breathing techniques, or pranayama, very often or often in their work with children. This could be because breathing is not only limited to the art of yoga practice, but is also found throughout many mind-body modalities, such as Tai Kwon Do, Pilates, Tai Chi, and Chi Gong and is taught as a core grounding technique in trauma treatment. It is questionable whether or not the participants utilize "yogic" breathing techniques or breathing techniques from other mind-body modalities.

In a trauma-sensitive framework a clinician would be trained to implement meditation, breathing, and asana into practice while integrating traumatic memories into the clients' present experience (Emerson and Hopper, 2011). Many of the clinicians in this study were not trained yoga instructors, which could explain why pranayama and meditation, which require limited training and are easier to implement, were used more often than asana practice; however, it has

been stressed by many researchers, including Bessel A. van der Kolk, that it is the connection of the body with movement and breath that promotes change and healing in trauma treatment (2014, pp. 263-276). More trauma-sensitive yoga training opportunities need to be available for clinicians who work with children so they can properly implement a combination of pranayama, meditation, and asana into their therapeutic repertoire with children with complex trauma.

Barriers for Utilization of Trauma-Sensitive Yoga

According to Spinazzola, Rhodes, Emerson, and Earle (2011), to properly treat complex trauma in a yoga session, there is a need to have more qualified yoga instructors who are trained in trauma-sensitive framework within agency settings. This will enable adequate implementation of yoga skills in a therapeutic context. In this current study there was a lack of trained yoga instructors among the participants; only 29%, or 6, participants, were trained in either a 200 or 500 hour yoga teacher training. A majority of participants, about 15, or 71%, believe that lack of training is a barrier for implementation of yoga techniques in a clinical setting, followed by not enough space, time constraints, and lack of support of methodology.

In this current sampling pool most therapists who were not trained in a 200 or 500 hour yoga training implemented techniques based on their own personal knowledge of yoga; the teachers implemented the techniques through the influence of their own personal practice, a teacher they work with, or information from the internet. Implementing yoga in therapeutic practice, without the proper training, could potentially lead to ineffective techniques and be dangerous for the clients, causing experiences related to triggers and flashbacks.

More research needs to be conducted to determine some strategies or methods for agencies to enable funding for more trauma-sensitive yoga trainings. More collaboration between trauma-sensitive yoga trainings/workshops and agencies that serve youth with complex trauma

could enable the ability for more clinicians to be trained properly in implementing yoga in their sessions with children. Hiring more staff who are trauma-sensitive yoga instructors and developing more yoga group classes would also be of benefit, ensuring that the yoga techniques are effectively utilized in treatment.

Class Size

In one study (Earle, Emerson, Monroe, Rhodes, and Spinazzola, 2011) it is encouraged to teach a trauma-sensitive yoga class with a small group of children. Many clinicians indicated the barriers in an outpatient clinic, where small group classes or one-on-one sessions with a qualified teacher may be difficult to implement. One participant stated, “I find it hard in an outpatient setting. I think it would be more effective outside in a group setting”. There is not enough information to know whether or not funding is an issue for these outpatient clinicians; however, due to recent budget cuts, it is not hard to believe that funding for proper training and hiring of trained staff would be difficult to obtain in an outpatient agency. More research needs to be conducted to determine how different settings, such as community mental health agencies, implement yoga classes and whether or not they hire or staff trained yoga instructors.

One possible solution to this dilemma would be to form a collaboration with outside yoga studios, where they may have trained trauma-sensitive yoga instructors who could work with clinicians in implementing a program for the mental health agency. Another possible solution could be to start a fundraiser to make more financial resources available to clinicians who are interested in obtaining trauma-sensitive yoga training, as well as to provide funding for other resources that agencies may need in applying trauma-sensitive classes within their agency.

Summary

Yoga for the treatment of complex trauma in children is a new field of research. There has been an increasing interest in practicing alternative methods for the treatment of trauma and for establishing a therapy that is more of a “bottom-up” approach compared to trauma-based cognitive behavioral therapy (CBT) or dialectical behavior therapy (DBT), which are “top-down” approaches in treatment. Yoga can help to bridge the mind-body connection in trauma survivors and help to eliminate many uncomfortable symptoms related to their early traumatic experiences. A majority of the practicing clinicians in this current study accept and express interest in utilizing yoga techniques in the treatment of children with complex trauma. This is consistent with the literature revealing the positive benefits yoga can have on the treatment of trauma and the popularity of yoga in the general population.

In this study a negative correlation was found between utilization of yoga techniques and client-base income; however, this finding was not statistically significant and cannot be applied to the larger population. This finding corresponds to the 2002 National Health Interview Survey, which revealed that a client’s insurance status and income and their yoga use were not correlated. More research needs to be conducted to explore how agencies that utilize yoga classes for groups and individual sessions are able to fund and properly train their staff. This information is imperative data for more agencies that seek to utilize alternative mind-body techniques in their treatment but struggle with implementation. To become a certified yoga instructor can be a costly endeavor; however, if more agencies were to support the knowledge and implementation of the techniques in clinician work, more clinicians could effectively implement these techniques in their work with children.

Pranayama was the most popular form of yogic technique in clinical practice. This correlates to the theories of the benefits of deep breathing techniques and the treatment of trauma and the reduction of symptoms. Among one of the practicing clinicians the age of the clients was determined as a factor for effectiveness - the older the client, the more effective the outcome. Many trauma-sensitive yoga programs were developed for adults with PTSD; there is a need to develop more trauma-sensitive yoga programs for children. Since yoga is a fairly new treatment modality in the field of trauma, there is also a need for more agency supported yoga trainings for qualified and interested clinicians who work with children.

Lastly, implementing yoga techniques in a school setting versus an outpatient setting may have its differences and challenges. More research needs to be done to determine how to effectively implement yoga programs in different settings and which resources, such as funding, props, space, and class size, different settings would need to effectively implement a trauma-sensitive yoga program.

Strengths of the Study

I was able to get a snapshot of current practicing therapists' utilization and interest rates of yoga techniques in a therapeutic practice. Among the demographics of clinicians I was also able to find barriers of utilization, beliefs in effectiveness, and their experiences utilizing techniques in their primary setting of practice. Most of the data I collected was both quantitative and qualitative data. I used SPSS and the help of Marjorie Postal for analysis of the quantitative data. A Spearman's rho test and a One Way ANOVA test were run to determine any correlation and variances among participants' client base income and utilization of yoga techniques in their practice. Though the sample was small (N=21) for the quantitative analysis, it was sufficient for my qualitative analysis, and I was able to obtain many insights on practicing therapists' personal

experiences utilizing yoga in their treatment of children, as well as their beliefs on effectiveness for reducing symptoms related to complex trauma.

Limitations

One limitation for this study is the sample size (n=21) was too small to allow any statistical significance for inferential statistics. This made it difficult to determine any generalizability to the larger population regarding correlation between primary setting, clients' socioeconomic status, and utilization and interest of yoga techniques in their therapeutic practice. This sample consisted of mostly female outpatient therapists who work with children from the Northeast. To make this survey more generalizable to the greater clinical population, I would need to include more therapists from other regions of the US, more male therapists, and therapists from other clinical settings such as schools, residential centers, and inpatient centers. To practically accomplish this, I could have reached out to NASW chapters, which may have had a broader audience of clinicians, in addition to local agencies and social network sites.

The sample was looking for practicing clinicians who work with children with complex trauma. Many clinicians' work schedules are very busy. Most of their time consists of trying to fulfill productivity demands for insurance purposes or other paperwork required by their jobs. It could be that clinicians did not see my email linked to the survey, or that they simply do not have enough time to fill out the survey. One way of getting more participants could have been through in-person interviews and questionnaires at a training workshop for trauma, which many trauma-based clinicians would likely attend and have the time to fill out a quick survey.

Another limitation is due the time constraint of this project. Since this project has a tight time constraint and deadline, the survey was online between January and February; this may be one of the factors as to why my sample size was small. If the survey were online for a longer

duration of time, I could have reached out to different agencies, and my sample size could have been larger.

I changed my research question before I applied for human review board, which made time even more constrained, as I had to wait further for an approval from the human review board. I wasn't able to put the survey online until late January due to the holiday break. I also had some unforeseen obstacles related to social media and emails to recruit participants. I was unable to send out mass emails to directors of agencies due to approval I needed to obtain from the department director beforehand. Because of my limited timeframe, I was only able to recruit a few participants from local agencies in the Northeast. This could be why I received many participants from the Northeast region and few from other regions. I also needed to obtain permission from the group administrator before I posted the link and information to my survey on the group page on LinkedIn and Facebook. This also took up valuable time in allowing my survey to be seen by participants. For example, it took me about a month to be approved by a PTSD and Trauma group in LinkedIn, and I was unable to post the link to my survey by this time. To prevent this, I could have come up with more ways of reaching participants besides through email or online groups in social media. If I had planned ahead and asked the directors of the departments to send out a survey email, it may have prevented some obstacles for reaching qualified participants and saved a substantial amount of time.

Bias

I am a registered yoga instructor who may have some bias on the benefits of utilizing yoga in a therapeutic context. This may affect my ability to interpret the qualitative data, since most of it is subjective. It is unclear whether the information regarding client income and utilization rates of yoga is biased because a majority of the participants, about 62%, or 13 out of

21 participants, work with clients with lower socioeconomic status, while 29% or 6 participants, work with clients of average to above average socioeconomic statuses. There is a possibility of slight bias due to a majority of the participants coming from the Northeast region, being female, working with clients of lower socioeconomic status, and working in outpatient settings. This may have affected the findings in that a majority of the participants work with clients with lower socioeconomic statuses and thus experience more barriers for utilization of yoga techniques, such as training and space, than those who may work with clients of higher socioeconomic status. Since the demographics of the majority of yoga practitioners are females in the Furnam (2000) study, and a majority of the practicing therapists in this current study are females as well, it would be interesting to see whether or not male clinicians have the same interest in utilizing yoga techniques in therapeutic practice as do female clinicians and whether or not, with the inclusion of more male clinicians, the interest of utilizing yoga in treatment for complex trauma with children, increases, declines, or remains the same.

Yoga is popular in the Northeast region and is an accepted form of therapeutic modality for many health-related problems. It would also be interesting to explore whether or not, if the sample consisted of more clinicians from different regions, this would affect the results of the study.

A majority of the clinicians also worked primarily in an outpatient setting. The barriers of utilization may be different depending on the setting where clinicians work. Those who work in an outpatient clinic may favor utilizing yoga techniques more so than those who work in an inpatient setting due to the reality of implementing the techniques in their treatment settings. Inpatient settings may be fast paced and have shorter durations of treatments, while outpatient settings see clients for a longer duration of time and the pace can be gradual and slow. Many past

studies were conducted utilizing yoga techniques in residential centers; however, in this current sample, there was only 1 participant in this study who worked in a residential setting. It would be interesting to explore, if this study were to include more participants from residential settings, whether or not the utilization of yoga techniques in therapeutic practice rates were higher or lower. If the study were to include more clinicians from different regions of the United States, more male clinicians, clinicians who work in other settings, such as schools, inpatient, and residential, the results would be more generalizable to the larger clinical population in the United States.

Implications for Future Practice and Policy

Yoga is a growing trend in the world of psychology and social work to help treat trauma. Not only is yoga popular for clinicians to utilize in their own personal practice, but the ancient mind-body technique has also been given a lot of attention in the field of trauma research. It has been proven effective to help reduce symptoms related to trauma; however, how to effectively implement these techniques in a therapeutic setting may be a difficult task. Therapy has a history of being talk-based therapy or play therapy for children, which can require a smaller space and fewer resources, while implementing yoga in treatment may be more complex, as it requires more space, adequate training and knowledge, and props for asana practice. The use of mind-body techniques in psychotherapeutic work is a fairly new concept in the world of trauma treatment; therefore, more research needs to be conducted on how to effectively implement yoga in a therapeutic setting, and what resources agency settings may need to implement these techniques properly in their treatment of children with complex trauma.

Conclusion

Previous research has indicated high rates of practicing yoga for the treatment of health related-disorders (Furnam, 2000), and a correlation with personal practice and the willingness to use other CAM methods for the treatment of health-related disorders (Kaley-Isley, Peterson, Fischer, and Peterson, 2010). Many theories on the treatment of trauma propose the benefits of utilizing mind-body techniques in treatment for symptoms of complex trauma; these theories propose that yoga can help facilitate a positive relationship with one's body, integrate the mind and body, help form a cohesive sense of self, and regulate the nervous system so that one can feel calm and safe in a social environment. Many agencies, such as the Trauma Center at the Justice Resource Institute in Boston, Massachusetts, are in the beginning stages of implementing yoga programs by qualified and trained trauma-sensitive-yoga-therapists, as an adjunctive treatment for trauma survivors (Spinazzola, Rhodes, Emerson, and Earle, 2011). There have been many recently conducted studies investigating the benefits of utilizing yoga programs compared to other evidence-based methodologies for the treatment of trauma. A majority of these studies prove that yoga is as effective as other methodologies for the treatment of trauma. More RCTs need to be conducted, however, to determine the benefits of yoga for the treatment of complex trauma in children ages 5-17.

There currently is a lack of research involving current practicing therapists' experiences as well as beliefs of effectiveness of utilizing these techniques in a therapeutic milieu with children with complex trauma. This thesis was conducted to help bridge this gap of information. The study was a mixed method approach to research current practicing therapists' utilization and acceptance rates of yoga techniques in therapeutic practice with children with complex trauma. It consisted of an online questionnaire that inquired as to the therapists' experiences utilizing yoga

in therapeutic practice, beliefs of effectiveness with using such techniques, demographics of therapists as well as their client-base, and lastly any barriers to utilization. The sample size was too small (n=21) to find any statistically significant correlations; however, the findings did suggest that a majority of practicing therapists (91%) are very to somewhat interested in utilizing techniques in their therapeutic work with children with complex trauma; however, less than a third of the participants (29%) utilize yoga techniques in their therapeutic work, indicating barriers that may be preventing therapists from utilizing yoga techniques in their therapeutic work with children. A majority of the clinicians believe that lack of training is a barrier for implementation of yoga techniques in a clinical setting, followed by not enough space, time constraints, and lack of support of methodology. More agency-supported trainings for trauma-sensitive yoga for children need to be implemented in trauma programs. Pranayama yoga, or deep breathing techniques, was the most popular form of yogic technique in this current sample pool, as it is an easy technique to utilize and implement in a therapeutic practice. As yoga becomes a growing trend in the therapeutic world, and as this study suggests, there needs to be more research and demonstration projects on how to effectively implement yoga techniques in therapeutic practice with children.

References

- Beauchaine, T., Gatzke-Kopp, L., & Mead, H. (2007). Polyvagal and developmental psychopathology: emotion dysregulation and conduct problems from preschool to adolescence. *Biological Psychology*. 74, 174-184.
- Biegel, G., Brown, K., Shapiro, S., & Schubert, C. (2009) Mindfulness-based stress reduction for the treatment of adolescent psychiatric outpatients: randomized clinical trial. *Journal of Consulting and Clinical Psychology*. 77:5, 855-866.
- Birdee, G., Legedza, A., Saper, R., Bertisch, S., Eisenberg, D., & Phillips, R. (2008). Characteristics of yoga users: results of a national survey. *Journal of Genetics and Internal Medicine*. 23:10, 1653-1658. DOI: 10.1007/s11606-008-0735-5
- Brown, R., and Gerbarg, P. (2005). Sudarshan kriya yogic breathing in the treatment of stress, anxiety, and depression: part I-neurophysiologic model. *Journal of Alternative and Complimentary Medicine*. 11:1, 189-201
- Brown, R., & Gerbarg, P. (2005). Suarshan kriya yogic breathing in the treatment of stress, anxiety, and depression: part II-clinical applications and guidelines. *Journal of Alternative and Complimentary Medicine*. 11(4), 711-717.
- Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., DeRosa, R., ...Bessel van der Kolk. (2005). Complex trauma in children and adolescents. *Psychiatric Annals*. 35(5), 390-398
- Courtois, C. (2004). Complex trauma, complex reactions: assessment and treatment. *Psychotherapy: Theory, Research, Practice, Training*. 41(4), 412-425. DOI: 10.1037/0033-3204.41.4.412

- Crowley, D., & Duros, P. (2014). The body comes to therapy too. *Clinical Social Work Journal*. DOI: 10.1007/s10615014-0486-1
- Chu, J. (2012). *Rebuilding Shattered Lives. Treating Complex PTSD and Dissociative Disorders*. New Jersey: John Wiley and Sons.
- Darwin, C. (1872). *The Expression of emotions in man and animals*. New York, NY: D Appleton.
- Spinazzola, J., Rhodes, A., Emerson, D., & Earle, E. (2011). Application of yoga in residential treatment of traumatized youth. *Journal of the American Psychiatric Nurses Association*. 17, 431-444.
- Emerson, D., & Hopper, E. (2011). *Overcoming trauma through yoga. Reclaiming your body*. Berkeley, CA: North Atlantic Books.
- Erfer, T., & Ziv, A. (2006). Moving towards cohesion: group dance/movement therapy with children in psychiatry. *The Arts in Psychotherapy*, 238–246. doi:10.1016/j.aip.2006.01.001
- Engel, R., & Schutt, R. (2013). *The practice of research in social work*. (3rd ed.). Los Angeles, CA: Sage Publications Inc.
- Forbes, B. (2011). *Yoga for emotional balance: Simple practices to help relieve anxiety and depression*. Boston, MA: Shambhala Publications
- Frenette, E., Perrin, E., Pop, P., Steiner N., & Sidhu, T. (2012). Yoga in the urban school for children with emotional and behavioral disorders: a feasibility study. *J Child Family Study*, 22, 815-826.
- Feuerstein, G. (2003). *The deeper dimension of yoga. Theory and practice*. Boston, MA: Shambhala Publications Inc.

- Furnham, A. (2000). Attitudes towards homeopathy in particular and beliefs about complementary medicines in general. *Psychology, Health, and Medicine*, 5(3), 327-343.
- Hagen, I., & Nayar, U. (2014). Yoga for children and young people's mental health and well-being: research review and reflections on the mental health potentials of yoga. *Frontiers in Psychiatry*. 5(35), 1-6. DOI: 10.3389/fpsy.2014.00035
- Iyengar, B.K.S. (2014). *Light on pranayama. The yoga art of breathing*. New York, NY: The Crossroad Publishing Company.
- Kaley-Isley, L., Peterson, J., Fischer, C., and Peterson, E., (2010). Yoga as a complementary therapy for children and adolescents: a guide for clinicians. *Psychiatry*. 7(8), p. 20-32.
- Kobayashi-Suzuki, E., Tachibana, Y., Okuyama, M., and Igarashi, T. (2014). Breathing focused mind-body approach for treatment of posttraumatic stress disorder among children and adolescents: a systematic review. *Journal of Psychology Psychotherapy*, 4(3). DOI: 10.4172/2161-0487.1000142
- Libby, D., Reddy, F., Pilver, C., et Desai, R. (2012). The use of yoga in specialized VA PTSD treatment programs. *International Journal of Yoga Therapy*. 22, 79-87.
- Marino, C. (2012). Yoga and traumatized youth. *Focal point: youth, young adults, and mental health. Healthy Body-Healthy Mind*. 26 (1), 5-7.
- National Child Traumatic Stress Network Complex Trauma Task Force. (2003). Complex trauma in children and adolescents. Los Angeles, CA & Durham, NC: National Center for Child Traumatic Stress.
- NurrieStearns, M., & NurrieStearns, R. (2013). *Yoga for emotional trauma: Meditations and practices for healing pain and suffering*. Oakland, CA: New Harbinger Publications Inc.

- Ogden, P., Pain, C., Minton, K., & Fisher, J. (2014). Including the body in mainstream psychotherapy for traumatized individuals. Retrieved from: <https://www.sensorimotorpsychotherapy.org/article%20APA.html>
- Porges, S. & Buczynski, R. (2012). Polyvagal theory: why this changes everything. [Webinar]. In *The National Institute for the Clinical Application of Behavioral Medicine*. Retrieved from: <http://files.nicabm.com/Trauma2012/Porges/NICABM-Porges-2012.pdf>
- Porges, S. (2007). The polyvagal perspective. *Biological Psychology*, 74(2), 116-143.
- Porges, S. (2009). The polyvagal theory: new insights into adaptive reactions of the autonomic nervous system. *Cleveland Clinical Journal of Medicine*, 76(2), 86-90
- Porges, S. (2009). Reciprocal influences between body and brain in the perception and expression of Affect: a polyvagal perspective. In D. Fosha, D.J Siegel, & M. Solomon (Eds.), *The healing power of emotion*. (pp. 27-54). New York: NY: W.W Norton and Company.
- Sengupta, P. (2012). Health Impacts of Yoga and Pranayama: A State-of-the-Art Review. *International Journal of Preventive Medicine*, 3(7), 444–458.
- Siegel, D. (2003). An interpersonal neurobiology of psychotherapy: the developing mind and the resolution of trauma. In M.F. Solomon and D.J. Siegel (Eds.), *Healing Trauma: Attachment, Mind, Body, and Brain*. (pp. 1-56). New York, NY: W.W Norton and Company.
- Siegel, D. (2012, May 2). Dan Siegel: Exploring Relationships and Reflection in the Cultivation of Well-Being. [Video File] Retrieved from: <http://youtu.be/LiyaSr5aeho>
- Siegel, D. (2013, May 25). Dan Siegel: Are we our mind? [Video File] Retrieved from: <http://youtu.be/MyhxXwclfnS>

- Siegel, D., & Bryson, T. (2011). *The whole-brain child: 12 revolutionary strategies to nurture your child's developing mind*. New York, NY. Delacorte Press.
- Sparrowe, L. 2011. Transcending trauma. *Yoga International*. Retrieved from:
http://www.traumacenter.org/products/pdf_files/yoga_transcending_trauma.pdf
- Streeter, C.C, Gerbarg, P.I., Saper, R.B., Ciraulo, D.A., & Brown, R.P. (2012). Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy. Depression, and post-traumatic stress disorder. *Medical Hypotheses*. 78, 571-578. doi: 10.1016/j.mehy.2012.01.021.
- Swami Muktibodhananda. (2012). *Hatha yoga pradiipika: Light on hatha yoga*. (4th ed.). Bihar, India: Yoga Publications Trust.
- Townsend, P. (2015). Module 3 week 1. *500-hour embodyoga teacher training program*. Amherst, MA.
- Weintraub, A. (2012). *Yoga skills for therapists: Effective practices for mood management*. New York, NY: W.W Norton and Company.
- White, L. (2012). Reducing stress in school-age girls through mindful yoga. *Journal of Pediatric Health Care*, 26, 45-56.
- Van der Kolk, B. A. (2003). Post traumatic stress disorder and the nature of trauma. In Solomon, M. & Siegel, D. (Eds.), *Healing Trauma Attachment, Mind, Body, and Brain*. New York, NY: W.W. Norton and Company.
- Van der Kolk, B. A. (2005). Developmental trauma disorder. *Psychiatric Annals*. 35(5), 401-408.
- Van der Kolk, B. A. (2014). *The body keeps the score: Brain, mind, and body in the healing of trauma*. New York, NY: Penguin Group.

Van der Kolk, B. A., Stone, L., West, J., Rhodes, A., Emerson, D., Suvak, M., & Spinazzola, J. (2014). Yoga as adjunctive treatment for posttraumatic stress disorder: a randomized controlled trial. *J Clinical Psychiatry*, 75(0). Retrieved from: http://www.traumacenter.org/products/pdf_files/Yoga_Adjunctive_Treatment_PTSD_V001.pdf

YogaAllaince, 2014. Credentials for teachers. Retrieved from: https://www.yogaalliance.org/Credentialing/Credentials_for_Teachers

Appendix A

Client Consent Form

The Implementation and Acceptance of Yoga Techniques for Children with Complex Trauma Among Practicing Clinicians

Welcome to My Survey

**Consent to Participate in a Research Study
Smith College School for Social Work, Northampton, MA*****The Implementation and Acceptance of Yoga Techniques for Children with Complex Trauma among Practicing Clinicians*****Investigator(s):**

Danielle Martineau
Smith College for Social Work
Dmartineau@smith.edu
XXX-XXX-XXXX

• Introduction

- You are being asked to be in a research study of the current acceptance and usage rate for the utilization of yoga techniques in the treatment of children with complex trauma among practicing clinicians.
- You were selected as a possible participant because you're a practicing clinician with an MSW, PhD, PsyD, or LMHC who serve children between ages of 5-17 with complex trauma.
- We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

• Purpose of Study

- The purpose of the study is to obtain current acceptance and usage rates among practicing clinicians in utilizing yoga techniques for the treatment of complex trauma in children. This research will summarize the potential barriers and/or advantages and disadvantages for utilizing yoga techniques in clinical or group settings with children and adolescents.
- This study is being conducted as a research requirement for a masters in social work degree.
- Ultimately, this research may be published or presented at professional conferences.

• Description of the Study Procedures

- If you agree to be in this study, you will be asked to do the following things: fill out an online survey regarding your therapeutic work with children from ages 5-17 with complex trauma and any mind-body techniques you have implemented in treatment

with them. You will also be asked your personal experience and opinions on the effectiveness of utilizing these techniques in treatment.

- **Risks/Discomforts of Being in this Study**
 - There are no risks for participating in the study.
- **Benefits of Being in the Study**
 - The benefits of participation are the opportunity to participate in research that can be used to further the knowledge of treatment modalities for children with complex trauma. This study is an opportunity for you to elaborate on your own experience utilizing mind-body techniques in your treatment with children.
 - The benefits to social work/society are: To further the research and knowledge around utilizing yoga and other mind-body techniques in treatment with children with complex trauma.
- **Confidentiality**
 - This study is anonymous. We will not be collecting or retaining any information about your identity.
- **Right to Refuse or Withdraw**
 - When filling out the online survey, you have the right to withdraw at anytime; however, after completing the survey you agree that the information you entered will be used in the study and there is no way to remove the entered data.
- **Right to Ask Questions and Report Concerns**
 - You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about the study, at any time feel free to contact me, Danielle Martineau at Dmartineau@smith.edu or by telephone at [XXX-XXX-XXXX]. If you would like a summary of the study results, one will be sent to you once the study is completed. If you have any other concerns about your rights as a research participant, or if you have any problems as a result of your participation, you may contact the Chair of the Smith College School for Social Work Human Subjects Committee at (413) 585-7974.
- **Consent**
 - By clicking on the “agree” button you have indicated that you have read the above information, agree to participate in the study and meet the criteria for participation.

***1.**

Please indicate whether or not you agree or disagree with the above information.

- Agree
- Disagree

Next

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Appendix B

Survey

The Implementation and Acceptance of Yoga Techniques for Children with Complex Trauma Among Practicing Clinicians

2. Are you a practicing therapist who works with children ages 5-17 with complex trauma?

- Yes
- No

Prev

Next

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The Implementation and Acceptance of Yoga Techniques for Children with Complex Trauma Among Practicing Clinicians

3. What is your gender?

Female

Male

4. What is your current practicing title?

MSW

LISW

LICSW

Ph.D

PsyD

LMHC

5. Which of the following would best describe the income of your client base?

Below average

Average

Above average

6. Please select the primary setting in which you work with children.

Private

Outpatient

Residential

Inpatient

School

Other (please specify)

7. How long have you been practicing with children?

1-3 years

4-7 years

- 8-10 years
- More than 10 years

8. From what region do you currently practice?

- Northeast
- Midwest
- South
- West

9. How interested are you in implementing yoga in the treatment with children with complex trauma?

- Very interested
- Somewhat interested
- Neutral
- Not very interested
- Not at all interested

10. Which of the following domains of impairment to you believe yoga can help treat? (Check all that apply)

- Attachment
- Biology
- Affect Regulation
- Dissociation
- Behavioral Control
- Cognition
- Self-Concept
- None of the above

11. Which of the following symptoms related to complex trauma do you believe yoga can help treat? Check all that apply.

- Depression
- Anxiety
- Emotional Dysregulation

- ADHD
- Body Image Issues
- Eating Disorders
- Panic Attacks
- Attachment Disorders
- None of the Above

12. Do you utilize yoga techniques in your treatment with children with complex trauma?

If yes, how often?

- Yes very often
- Yes often
- Yes occasionally
- No rarely

13. Which do you believe are barriers that prevent the use of yoga in a clinical setting?

Check all that apply.

- Lack of training/knowledge
- Time in sessions is limited
- Not enough space
- Lack of resources
- Lack of agency support of methodology
- I believe it is not as effective compared to other modalities

14. If you use yoga to treat complex trauma, which of the following modalities do you employ?

- Group Class
- One-on-one sessions
- Both
- Other (please specify)

15. On a scale of 1 (not very much) to 7 (very much), to what extent does the implementation of yoga techniques have in reducing symptoms related to depression in

your clients?

	1	2	3	4	5	6	7
Depression	<input type="radio"/>						

16. On a scale of 1 (not very much) to 7 (very much), to what extent does the implementation of yoga have in reducing symptoms related to anxiety in your clients?

	1	2	3	4	5	6	7
Anxiety	<input type="radio"/>						

17. On a scale from 1 (not very much) to 7 (very much), to what extent does the implementation of yoga techniques help improve self-regulation and stability in your clients?

	1	2	3	4	5	6	7
Self-Regulation	<input type="radio"/>						

18. If you use yoga to treat complex trauma, which of the following yoga techniques do you use and how often?

	Very often	Often	Occasionally	Rarely	Never
Asana (Postures)	<input type="radio"/>				
Breathing	<input type="radio"/>				
Meditation	<input type="radio"/>				

19. Do you use other yoga techniques other than asana, breathing, and meditation in your treatment. Please specify the technique and how often you use that technique.

- Yes, very often
- Yes, often
- Yes, rarely
- No

Specify Technique

20. How often do you use other mind-body techniques other than yoga techniques with your clients. Please specify the technique.

- Never

- Never
- Sometimes
- Often
- Always

Please Specify the Technique

21. Have you completed a yoga teacher training of either 200 hour or 500 hour?

- Yes
- No

22. Please describe your experience with yoga as a complementary treatment approach in your practice.

23. Please describe your belief as to the effectiveness of yoga in treating complex trauma with children and adolescents.

Prev

Done

Appendix C

Code Book

? Num	VAR NAME	VAR LABEL	L O M	VALUE LABELS	MISSIN G VALUE S
2	PRACTSTAT	Practicing status of therapist	N	1=yes 2=no	9=missi ng
3	GENDER		N	1=Female 2=Male 3=Trans/other	9=missi ng
4	TITLE	Practicing Title	N	1=MSW 2=LISW 3=LCSW 4=PsyD 5=PhD 6=LMHC	9=missi ng
5	CLIENTINCOME	Client's Income	R	1=Below average 2=Average 3=Above average	9=missi ng
6	PRIMSETTING	Primary Setting	N	1=Private 2=Outpatient 3=Residential 4=Inpatient 5=School 6=Other	9=missi ng
7	YEARSEXPRNCE	Years of experience with working with children	R	1=1-3 years 2=4-7 years 3=8-10 years 4=more than 10 years	9=missi ng
9	REGION	Region therapist practices	N	1=Northeast 2=Midwest 3=South 4=West	9=missi ng
10	INTEREST	Level of interest for yoga	O	1=Very interested 2=Somewhat interested 3=Neutral 4=Not very interested 5=Not at all interested	9=missi ng
11	ATTACHMENT		N	1=Checked 2=Not Checked	
	BIOLOGY		N	1=Checked	

				2=Not Checked	
	AFFECTREG	Affect Regulation	N	1=Checked 2=Not Checked	
	DISSIOCAT	Dissociation	N	1=Checked 2=Not Checked	
	BEHAVECNL	Behavioral Control	N	1=Checked 2=Not Checked	
	COGNITION		N	1=Checked 2=Not Checked	
	SELFCONCEPT		N	1=Checked 2=Not Checked	
	NONEABOVE		N	1=Checked 2=Not Checked	
11	DEPRESSION		N	1=Checked 2=Not Checked	
	ANXIETY		N	1=Checked 2=Not Checked	
	EMODYS	Emotional Dysregulation	N	1=Checked 2=Not Checked	
	ADHD		N	1=Checked 2=Not Checked	
	BODYIMAGE	Poor Body Image	N	1=Checked 2=Not checked	
	EATDISODER	Eating disorders	N	1=Checked 2=Not Checked	
	PANICATTACK		N	1=Checked 2=Not Checked	
	ATTCTMNTDIS	Attachment Disorders	N	1=Checked 2=Not Checked	
	NONEABOVE	None of the above	N	1=Checked 2=Not Checked	
12	YOGAUSE	Current utilization of yoga in treatment	O	1=Yes very often 2=Yes Often 3=Yes Occasionally 4=No rarely	9=missing
13	LACKTRAINING	Lack of training or knowledge	N	1=checked 2=Not checked	
	TIMELIMIT	Lack or limited time	N	1=Checked 2=Not checked	
	SPACE	Lack of space	N	1=Checked 2=Not checked	
	LACKRESOURCE	Lack of resources (funds, equipment, qualified teachers)	N	1=Checked 2=Not Checked	
	LACKAGENCY	Lack of agency support of	N	1=Checked 2=Not checked	

		methodology			
	EFFECTIVENESS	Lack of effectiveness	N	1=Checked 2=Not Checked	
14	MODE	Mode of implementing yoga techniques	N	1=Group Class 2=one-on-one sessions 3=Both 4=Other	9=missing
15	REDUCEDEP	Reduce symptoms of depression	I	1=Not at all 7=Very Much	9=missing
16	REDUCEANXTY	Reduce symptoms of anxiety	I	1=Not at all 2=Very Much	9=Missing
17	IMPRVESELFREG	Improve self-regulation	I	1=Not at all 2=Very Much	9=Missing
18	ASANA	How often do you use asana in your practice	I	1=Very Often 2=Often 3=Occasionally 4=Rarely 5=Never	9=Missing
	BREATHING	How often do you use breathing in your practice?	I	1=Very Often 2=Often 3=Occasionally 4=Rarely 5=Never	9=Missing
	Meditation	How often do you use meditation in your practice?	I	1=Very Often 2=Often 3=Occasionally 4=Rarely 5=Never	9=Missing
19	OTHERTECHNQ	Other yoga technique	I	1=Yes, very often 2=Yes, often 3=Yes, occasionally 4=Yes, rarely 5=Never	9=Missing
20	OTHERMB	Other mind body techniques	I	1=never 2=sometimes 3=often 4=always	9=missing
21	YOGATRaining	Completed a yoga teacher training	N	1=Yes 2=No	9=missing
22	EXPERIENCE	Experience complementary		1=Personal Practice/experience	

		approach in therapy	<p>2=Patients Find it Helpful 3=Use for dysregulation 4=Integrate into sessions 5=reduce symptoms 6=Flexibility 7=Use with families 8=No idea how to implement 9=Find it helpful 10=Helps to calm body and make client more present 11=builds self awareness 12=Use for dissociation 13=Use for ADHD</p>	
23	Belief	Belief in effectiveness of yoga	<p>1=Trauma is changed through non-talk therapies 2=Most effective in group setting 3=Hard to implement in outpatient 4=Fosters discipline 5=Fosters self-awareness/present moment 6=Life Skill for children/self soothing skills 7=Bilateral integration 8=Believe it is helpful/effective 9=success rate increases with age 10=Needs lots of training 11=Relational Support</p>	

Appendix D

Email Sent

Subject Heading: Participate in Quick Online Survey Mind-Body Techniques with Children
Hello,

The implementation of mind-body techniques in the treatment of complex trauma with children is a growing and interesting field of study. I would like to know your personal experiences and opinions regarding your work implementing mind-body techniques in the treatment of trauma with children!

I'm currently a graduate student at Smith College for Social Work. I'm writing my thesis on the implementation of mind-body techniques in the treatment of children with complex trauma. I would like to know more about your current practicing experiences and beliefs about utilizing mind-body techniques in treatment with your clients. In order to complete the thesis, I need qualified therapists to fill out a ***quick and easy anonymous online survey***. You do not need to have experience with these techniques to qualify to participate. *You must however, be a qualified therapist who works with children from ages 5-17 who have symptoms of complex trauma.* Your support is greatly appreciated and will add to the research of treatment for children with complex trauma! If you have any questions regarding this survey, please email me at dmartineau@smith.edu and I would be happy to answer your questions or concerns.

Click on the link to fill out the survey:

<https://www.surveymonkey.com/s/MINDBODYWITHCHILDREN>

Best,
Danielle Martineau
[Dmartineau@smith.edu](mailto:dmartineau@smith.edu)

Appendix E

HSRB Approval Letter



School for Social Work

Smith College

Northampton, Massachusetts 01063

T (413) 585-7950 F (413) 585-7994

January 13, 2015

Danielle Martineau

Dear Danielle,

You did a very nice job on your revisions. Your project is now approved by the Human Subjects Review Committee.

Please note the following requirements:

Consent Forms: All subjects should be given a copy of the consent form.

Maintaining Data: You must retain all data and other documents for at least three (3) years past completion of the research activity.

In addition, these requirements may also be applicable:

Amendments: If you wish to change any aspect of the study (such as design, procedures, consent forms or subject population), please submit these changes to the Committee.

Renewal: You are required to apply for renewal of approval every year for as long as the study is active.

Completion: You are required to notify the Chair of the Human Subjects Review Committee when your study is completed (data collection finished). This requirement is met by completion of the thesis project during the Third Summer.

Congratulations and our best wishes on your interesting study.

Sincerely,

A handwritten signature in black ink, appearing to read 'Elaine Kersten'.

Elaine Kersten, Ed.D.

Co-Chair, Human Subjects Review Committee

CC: Laurence Cadorette, Research Advisor

