

Trauma-informed yoga: an embodied, cognitive-relational framework

Abstract

There is a growing need for a theoretical and empirically grounded approach to support effective and safe provision of yoga to potentially vulnerable populations. Yogis In Service, Inc. (YIS), a non-for-profit community service yoga organization, in partnership with the Africa Yoga Project (AYP) and the University at Buffalo, State University of New York has developed an embodied, cognitive-relational framework for trauma-informed yoga (YIS-TIY). YIS-TIY identifies 12 key teaching points of trauma informed yoga, which can be applied when teaching yoga to stressed and potentially traumatized populations. YIS-TIY utilizes the four domains of inner resources, physical basics, self-regulation and mindful grit to empower students in a trauma-informed manner. YIS-TIY can be utilized as a framework and guidance for yoga teachers working in high-risk locations and/or in yoga classes that may include vulnerable and trauma-exposed individuals. The purpose of this article is to (1) review the body of literature of yoga and trauma that informs the YIS-TIY model, (2) outline the 12 key teaching points of trauma-informed yoga within the YIS-TIY methodology for teaching yoga to stressed and potentially traumatized populations, and (3) provide a set of practice recommendations.

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Introduction

Yoga is defined as a mind/body practice comprised of physical postures (asanas), breath work, meditation, and relaxation.¹⁻⁵ Through the teaching and practice of yoga, yoga teachers facilitate an experience of positive embodiment that promotes mindfulness awareness, self-regulation, and physical fitness.^{1,4,6} Each year, those who practice yoga represent a progressively larger proportion of the population.⁷⁻⁹ Further, yoga is increasingly used to enhance outcomes for those with mental health challenges including Post Traumatic Stress Disorder.^{5,9-12} As celebrated in both academic and popular press, yoga-for-trauma classes are being offered in urban, high poverty areas; in high risk, risk poverty schools; for veterans; and within substance use and mental health rehabilitations centers.^{3,6,13} For these reasons, there has been a growing need for a theoretical and empirically grounded approach to support effective and safe provision of yoga to potentially vulnerable populations.^{6,14} Yogis in Service, Inc. (YIS) is a not-for-profit community service yoga organization that provides yoga teacher training in trauma-informed yoga and collaborates with other organizations to develop research-based, trauma-informed approaches to community-based yoga. Through a partnership with the Africa Yoga Project (AYP) and University at Buffalo, State University of New York, YIS has developed and embodied, cognitive-relational framework for trauma-informed yoga (YIS-TIY).

This article reviews the definition of trauma exposure and Post Traumatic Stress Disorder (PTSD) and condenses the body of literature of yoga and trauma that informs the YIS embodied, cognitive-relational framework. Next, the article explicates the 12 key teaching points of trauma-informed yoga within the YIS-TIY methodology for teaching yoga to stressed and potentially traumatized populations. Last, there is set of practice recommendations.

Trauma and yoga research and practice

A growing trend is the use of yoga interventions as part of the PTSD recovery process.^{6,10,15-18} Studies have also examined yoga interventions for children and adolescents who have experienced various forms of trauma exposure in different regions of the world.¹⁹ Several studies thus far have examined the effectiveness of this

approach as an adjunctive treatment for trauma, including in adults.²⁰ and youth.²¹ Capturing the breadth of the work in this area, works cited in this review span the literature on trauma-sensitive yoga as well as other forms of yoga (i.e., trauma-informed yoga) designed as interventions for, and support of, individuals who have experienced trauma as well as the general literature on the impact of trauma.

Trauma exposure and post traumatic stress disorder

According to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), traumatic exposure includes exposure to death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence through both direct and indirect exposure.²² Indirect exposure includes witnessing the trauma, learning that a relative or close friend was exposed to trauma, and indirect exposure to aversive details of the trauma, typically in the course of professional duties (e.g., humanitarian workers, first responders; APA, 2013). Exposure to traumatic events among a national sample of U.S. adults ($n = 2,953$) was found to be high at 89.7% and exposure to multiple traumatic event types was found to be a norm.^{22,23}

To be diagnosed with PTSD the individual must have: (a) experienced trauma as defined by the DSM-5, (b) persistently re-experience the trauma (i.e., intrusive thoughts, nightmares, flashbacks, and emotional distress and physical reactivity related to traumatic reminders), (c) demonstrate avoidance of trauma-related stimuli (i.e., trauma-related thoughts or feelings and trauma-related reminders), (d) experience a worsening of negative thoughts or feelings (i.e., inability to recall key features of the trauma, overly negative thoughts and assumptions about self and world, exaggerated self-blame related to the trauma, negative effect, decreased interest in activities, isolation, and trouble experiencing positive affect), (e) trauma-related arousal and reactivity (i.e., irritability, aggression, risky or destructive behaviors, hypervigilance, heightened startle reaction, trouble concentrating, and difficulty sleeping;²²).

Many who experience trauma fair well and experience limited mental health symptoms.^{6,24} For some, the experience of trauma is associated with mental health issues such as substance abuse, anxiety

and anxiety disorders, depression and mood disorders, as well as more trauma-specific disorders.^{6,25} A subset of trauma-exposed individuals are later diagnosed with Post Traumatic Stress Disorder.^{10,23,26} According to Koenen et al.²⁴, the cross-national lifetime prevalence of PTSD was 3.9% overall and 5.6% among the trauma exposed individuals. Rates of PTSD vary depending on gender, type of trauma, and persistence of exposure.^{23,26,27} Kilpatrick et al.²³ found that among adults exposed to trauma, lifetime, past 12 months, and past 6-months PTSD prevalence was at 8.3%, 4.7%, and 3.8% respectively. Among children rates are considerable (Cook-Cottone, 2004). In a meta-analysis of 72 peer-reviewed articles on 43 independent samples ($n = 3,563$), the overall rate of PTSD was 15.9%.²⁷ Researchers found the lowest rates among boys with non-interpersonal trauma (8.4%) and highest rates among girls exposed to interpersonal trauma (32.9%;²⁷). Social disadvantage, including younger age, female sex, being unmarried, being less educated, having lower household income, and being unemployed, was associated with increased risk of lifetime PTSD among the trauma exposed.²⁴ Statistics suggest that it is likely that in any one studio, community, or center-based yoga class, with 20 people in attendance, there is likely to be at least one or two, yoga students with higher rates among risk populations and at high-risk locations (e.g., four or more per 20 student class).

Yoga for trauma

Systematic reviews of the literature investigating the effects of yoga for trauma and trauma-related mental illness is encouraging.^{6,28-31} Although the body of research is lacking in rigor as well as specificity, reviews of the literature have found yoga for trauma to be acceptable, feasible, and cost effective.^{6,28} Generally, yoga was found to have minimal risks, few negative effects, and is easily adapted to those with physical and mental challenges.⁶ There are several mechanisms of action proposed to explain the benefits of yoga for those who have experienced trauma ranging from the alterations of neurotransmitter levels in beneficial ways to the regulation of the physical stress response in the promotion of wellbeing.^{6,10,15,28,32}

Trauma-sensitive and trauma-informed yoga

There are two approaches through which yoga programs address trauma: trauma-sensitive yoga and trauma-informed yoga. Both approaches emphasize key aspects of yoga delivery such as the idea of befriending the body through mindful awareness of body sensations, teaching coping tools, and emphasizing choice and relationship.^{2,33} However, there are key distinctions related to the populations the approaches are intended to serve, which inform the research on the respective methodologies.

First, use of the term *trauma-sensitive yoga* means that the yoga instructors specifically and intentionally teach individuals who have been through trauma.³³ These types of programs partner with a treatment team including doctors and counselors who are helping the individual with their trauma recovery and yoga is viewed as complementary to psychotherapy.³³ Research on trauma-sensitive yoga approaches is done with individuals who have been through substantial trauma or have been diagnosed with PTSD. The *Trauma Center; the Trauma-Sensitive Yoga* (i.e., TCTSY) is a specific approach to trauma-sensitive yoga. Specifically, TCTSY is considered the most intensive yoga program for trauma, designed for individuals who were not responsive to traditional PTSD treatment.³³ The TCTSY approach emphasizes four key themes: making choices (i.e., participants choose their actions based on a set of choices), present moment experience (i.e., connecting to and noticing physical cues), effective action (i.e., doing something to increase a sense of safety or

wellbeing), and creating rhythms (i.e., noticing that experiences begin and end, synchronizing breath and movement, moving as a group;³³)

Trauma-informed yoga refers to the approach to teaching yoga in which the teachers have knowledge of trauma and the symptoms of trauma, as well as know how to provide a safe and supportive yoga class for individuals who are experiencing stress and/or have been traumatized. Often, the yoga teacher delivers open and inclusive community classes knowing that many yoga students are stressed and some of the people who come to class may have been traumatized. Trauma-informed yoga teachers refer students who are struggling for support to counselors and doctors when needed as they are not part of a treatment team. Specifically, a trauma-informed yoga teacher is trained to have knowledge of: (a) trauma and PTSD, (b) the key points of yoga delivery relevant to trauma, and (c) scope of practice issues related to the treatment of trauma and the provision of yoga.

The embodied, cognitive-relational framework for yis trauma-informed yoga

The YIS-TIY approach is based on an embodied, cognitive-relational framework. The three aspects of this approach are positive embodiment, cognitive intention, and relational attunement (Table 1: Reactions to Traumatic Exposure and the YIS-TIY Approach).

First, embodiment is the way we live in our bodies, presence within the physical self, interoceptive awareness, responsiveness to internal cues, and decision making in the care and nourishing of our bodies.³⁴ Phenomenologically, we are our bodies.^{1,34} Embodiment lies in the choices we make that affect the physical self, the food we eat, physical exercise, sexual decision-making, and more.^{34,35} Similarly, positive embodiment and yoga require presence and engagement in the current moment.¹ Specifically, yoga, when practiced with open awareness, presence, attunement with the physical and emotional self, and intentional action is a practice of positive embodiment.^{12,36} Through the facilitation of positive embodiment, yoga practice addresses two core sets of symptoms associated with exposure to trauma (i.e., hyperarousal and dissociation and avoidance and re-experiencing) as well as a wide range of mental health symptoms associated with trauma.^{14,6} (Table 1). The 12 principles and practices offered below distill the research on trauma and yoga into essential points of practice that help facilitate positive embodiment.

Table 1 Reactions to traumatic exposure and the YIS-TIY approach.

Symptoms Related to Trauma Exposure	Elements of YIS-TIY
Hyperarousal and Dissociation	Embodied Practice (Physicality and Interoceptive Awareness)
Avoidance and Re-experiencing	Engagement in the Present Moment (Yoga and Mindfulness Practices)
Alterations in Cognitions	Intentional, Empowered Thinking (12 Cognitive Intentions)
Relational Disconnection	Yoga Teacher Presence and Responsiveness (Relational Attunement)

The second aspect of the YIS-TIY approach, cognitive intention, addresses the cognitive effects of trauma exposure (e.g., cognitive distortions regarding self, others and world;³⁷). This aspect of the approach is based on an extensive body of literature showing positive effects of cognitive behavioral therapy and yoga on trauma.^{5,37,38} In fact, comparative studies suggest that addressing distorted cognitions may be key to long-term outcomes in trauma recovery.³⁹ Accordingly, many

yoga programs incorporate a cognitive component by incorporating trauma-recovery specific themes for class or intentionally structuring the yoga language used in class.¹⁵ The themes or statements serve as cognitive guides for the yoga students as they practice letting go of negative ruminations and adopting more positive ways of cognitively managing the present moment.¹ For example, Dick et al.¹⁵

randomized controlled study of a yoga intervention for women with PTSD integrated guidelines for specific yoga language for the yoga teachers to use in session to deliver the cognitive aspect of content. To encourage mindfulness, the teachers were guided to say, “Without judgement, notice the breath coming into your body and leaving your body. Simply observe what is happening on your mat”.¹⁵ (Table 2).

Table 2 The 12 YIS- TIY self-statements.

Part I: Inner Resources	
Empowerment	I can
Worth	I am worth the effort
Part II: Physical Basics	
Safety	I deserve to be safe
Breath	My breath is my most powerful tool
Presence	I work toward presence in my body
Feeling	I feel so I can heal
Part III: Self-Regulation	
Grounding	My body is a source for connection, guidance, and coping
Choice	I can find choice in the present moment
Ownership	I can create the conditions for safety and growth
Sustainability	I can create a balance between structure and change
Part IV: Mindful Grit	
Compassion	I honor the individual path of recovery and growth
Self-determination	I work toward the possibility of effectiveness and growth in my own life

SD: Standard Deviation; BMI: Body Mass Index; WC: Waist Circumference; AC: Abdominal Circumference; HC: Hip Circumference; RER: Respiratory Exchange Ratio; HR: Hear Rate.

It is hypothesized that the positive cognitive effects develop in a two-fold process. Specifically, mindful awareness in yoga may reduce negative cognitive rumination through a promotion of adaptive thinking and a corresponding decrease in repetitive negative thoughts and ruminations.^{3,5,6,32} In order to support the use of adaptive and effective cognitions during the physical practice of yoga, the YIS-TIY approach delivers yoga sessions using a set of 12 principles for growth that are based on the body of trauma and yoga literature (Table 2). These principles are shared as reminders during yoga class and as themes across the multi-session delivery of yoga (i.e., a series of 6 to 12 weeks of yoga classes). They are offered as a set of 12 “I” statements that an easily be internalized by the practitioner (e.g., “I am worth the effort,” and “I can find choice in the present moment”). Increasing the likelihood of internalization and effectiveness, the 12 principles are consistently delivered across yoga teachers and sessions to provide a positive cognitive framework for addressing challenge and growth.^{3,40}

The third aspect of the embodied, cognitive-relational framework, *relational attunement*, refers to the presence and responsiveness of the yoga teacher. Requiring mindful and empathic awareness, relational attunement occurs when the yoga teacher

provides assistance and support to the yoga student in a manner that is directly aligned with the needs and experience of the student.^{2,12]. To be effective, Emerson et al. [10] suggest the teacher should be present and positive, encouraging of and open to feedback, and willing to make changes when things are not working. Among mental health clinicians and researchers, it is well accepted that the therapist/client relationship is a critical factor in successful recovery from trauma.⁴¹ In the same way, the substantial body of work on the practice of teaching yoga to those who have experienced trauma emphasizes the presence and actions of the teacher as critical to outcomes for students.³⁴ Thus, the 12 principles also offer guidelines for how to effectively be with yoga students within the context of the student/teacher relationship.}

The 12 key principles and practices of YIS-TIY

The following YIS-TIY key points of delivery build on the principles of trauma-informed care and practice.⁴² Further, they are sourced from the extant body of literature on yoga and trauma as well as from the larger body of research on trauma.^{6,12,34,42} Each key point of delivery addresses the relevant components of yoga class: cognitive intention, practice in the teaching of asana (i.e., teaching of yoga poses, breathing, and sequences), meditation and relaxation, and assisting and supporting yoga practices. The key points of delivery are organized in four domains: (1) Inner Resources, (2) Physical Basics, (3) Self-Regulation, and (4) Mindful Grit (Table 3).

Table 3 YIS-TIY Principles for growth and associated recommendations.

Principle for Growth	Associated YIS-TIY recommendations
Part I: Inner resources	
Empowerment	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “<i>I can.</i>” • Reinforce personal empowerment and effort over achievement and perfection. • Assist and use of props (i.e., yoga blocks, straps, and chairs) to help make poses and practices accessible to students. • Hold the yoga student as expert in his or her own experience yoga and growth (e.g., avoid telling students what poses, stress, challenge, or trauma should feel like or what recovery and growth should look like).
Worth	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “<i>I am worth the effort.</i>” • Encourage commitment to presence and persistence in the face of challenge as an expression of self-worth. • Use the loving-kindness meditation (i.e., may you be happy, well, peaceful, and at ease; for self, beloved others, neutral others, difficult others, and world).
Part II: Physical basics	
Safety	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “<i>I deserve to be safe.</i>” • Prioritize physical and emotional safety in yoga practice. • Demonstrate trustworthiness through task clarity, consistency, and safe personal boundaries. • Avoid a perception of coercion. Teach from inviting students to try something as opposed to getting them to do something • Consider mat placement (e.g., mats set up in a circle so that there is no one behind anyone else, have options to place mats in the back row). • Cover exposed windows and mirrors for privacy. • Be predictable (e.g., tell the students what poses and challenges are coming, how long they will be holding poses, and follow a predictable class structure). • Use caution with yoga postures that may cause physical discomfort, be perceived as threatening, and trigger emotional reactions and/or flashbacks (e.g., poses that expose sensitive parts of the body such as the groin area or chest). • When using physical assists, collaborate with individual students to determine their preferences. • Use verbal and visual assist by explaining or demonstrating the poses. • Consider use of a nonverbal and private method for an opt-out of physical assists (e.g., raise your hand if you do not want assists, chip on mat). • Use caution with meditations, as some forms of meditation may trigger flashbacks. Collaborate with participants to create safe and supportive meditation practices. • Provide support of and permission for students to seek safety in class through adaptations of poses and practices (e.g., talking the final resting pose against the wall with eyes open or meditating with a softened gaze rather than closing their eyes). • Generally, use caution with women who are pregnant, individuals with disabilities, older adults, individuals with psychiatric illness, and individuals with severe trauma.
Breath	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “<i>My breath is my most powerful tool.</i>” • Frequently invite the participants to bring attention to their breath, the qualities of breath (e.g., pace, length, warmth, sound), the muscles that support breath, and the body movement associated with breath. • Offer choices rather than prescribing a way to breathe (e.g., add invitations to add deeper breath or to experiment with nasal breathing [i.e., breathing in and out of the nose], and to notice how that feels in the body). • Use meditations and relaxation sessions that focus on breath, emphasizing breath awareness and the connection of breath to heart rate and physical relaxation. • Note, the associations between breath and emotions and opportunities for self-regulation (e.g., extended exhales for calming). • Use caution as yogic breathing may be contraindicated for some individuals with psychosis. • Emphasize the cognitive intention, “<i>I work toward presence in my body.</i>” • Bring awareness to physical/somatic sensations, as they are experienced in the body, in the present moment (e.g., “You may notice the sensation of your feet pressing into your mat”). • Offer a safe and measured approach to interoceptive awareness by using tentative language (e.g., inviting participants to pay attention, suggesting they may notice a feeling or sensation when they move their bodies in a certain way, recognizing that they may also not notice or feel anything).
Presence	<ul style="list-style-type: none"> • Use suggestive language to emphasize that participants are not required to move in such a way or feel a particular feeling. • Encourage students to notice the experience they are having in their bodies and then highlight the value in not turning the experience into a story or an emotion. • Consider that being in the present moment and aware of body sensations can [feel uncomfortable, even terrifying, to some trauma survivors. • Utilize meditation and relaxation practices that encourage physical presence (e.g., body scan technique and systematic relaxation). • Help bring awareness to the body through verbal cues and physical assisting (with permission). • Emphasize the cognitive intention, “<i>I feel so I can heal.</i>” • Remind students that feelings in the body can take on many forms, including not feeling anything (i.e., feeling numb) or feeling big feelings.
Feeling	<ul style="list-style-type: none"> • Bring attention to the wave (i.e., arising and passing) of physical sensations and feeling states. • Remind students that sometimes simply noticing and allowing emotions is enough. • Encourage students to use breath, grounding, and positive self-talk, “<i>I am worth the effort</i>” and “<i>I feel so that I can heal</i>” as they observe the wave of emotions rising and passing during their practice. • Teach the “<i>Soften, Soothe, Allow</i>” meditation by Kristen Neff (http://self-compassion.org/wp-content/uploads/2016/11/softensootheallow_cleaned.mp3.)

Table 3 Continued...

Part III: Self-Regulation

Grounding	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “My body is a source for connection, coping, and guidance.” • Encourage students to consider that connection with the body is a connection to resources for connection with self and others, coping, and guidance • Remind students that at any given moment they can connect to physical sensations to ground emotional and physical arousal, breath intentionally to calm. • Prompt students to check into their bodies as a source of information to help them make choices in the present moment (e.g., “Notice the sensations in your upper leg, you may want to deepen the pose or ease out of the pose”). • Within the context of communication, choice, and permission, consider that physical assists may have therapeutic value in helping some yoga students tolerate safe, nurturing, and positive touch from another.
Choice	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “I can find choice in the present moment.” • Create an atmosphere of ongoing, informed consent. To do this, be clear about what you are requesting of the students, offer a menu of options, and always include the ability adapt a posture and to opt-out. • Invite participants to make a connection between what they are feeling in their bodies with the choices they are making. • Frequently phrase guidance as suggestions and invitations rather than commands, (e.g., “Consider...,” “If you’d like...,” “You can choose...,” “One option is...”). • Teach the class at a pace that allows yoga students to make a choice. Consider that if the pace is too fast, it may feel like there is no choice. • Reinforce the contention that there is no right or wrong choice regarding what feels right for them in this moment.
Ownership	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “I can create the conditions for safety and growth.” • Prompt students to use the physical sensations coming from their bodies to make safe and effective choices in poses and actions. • Encourage students to take ownership of their yoga practice by listening teacher cues and prompts in equal measure to their own internal cues and prompts. • Support student ownership through your own practice of acceptance and allowing in the yoga room.
Sustainability	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “I can create a balance between structure and change.” • Encourage a balance of effort and rest through instruction. • Work to create a yoga space that honors and celebrates a safe and sustainable practice as well as progress in practice. • Reinforce the contention the sustainable practice of yoga is a mindfulness-based practice that may not be a linear path toward more advanced poses and practices, rather a deepening of awareness, presence and connection.
Part IV: Mindful Grit	
Compassion	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “I honor the individual path of recovery and growth.” • Consider that resistance can be associated with fear and anxiety and can be addressed with support and compassion. • Remind students that growth is a process of gains and setbacks. • Remind students that the moment we begin to judge we lose connection to presence in the moment. • Provide an inclusive yoga space with props (e.g., chairs, straps, and blocks) as well as acceptance of a wide range of experiences within the yoga space.
Self-determination	<ul style="list-style-type: none"> • Emphasize the cognitive intention, “I work toward the possibility of effectiveness and growth in my own life.” • In poses and practices, ask student to notice what is effective for them. • Remind students of the uniqueness of each path, there is no <i>right</i> path for all. • Teach from a sense of possibility for all of your students. • Remind yourself and your students that stress and trauma need not determine the outcomes of one’s life.

Informed by: (Cook-Cottone, 2015a, 2016, 2017; Cook-Cottone, LaVigne, and Travers, 2017; Dick et al., 2014; Emerson, 2015; Emerson & Hopper, 2011; Forflylow, 2011; Harris & Falot, 2001; Krisanapakornkit, Sriaj, Piyavhatkul, & Laopailboon, 2009; Longacre et al., 2012; Macy et al., 2015; Stephens, 2014; West et al., 2016).

Part I: Inner resources

Exposure to trauma can leave those exposed feeling powerless and without worth.^{27,42,43} For example, in a study of 65 participants in South Africa, 36 participants had witnessed the violent death of a close relative (sibling, mother, or father). The remaining 29 had been tortured and detained. Researchers found that traumatic events affected the participants’ basic assumptions about the meaning and benevolence of the world. Critically, the tortured and detained group and the bereaved group showed differences in their assumptions of self-worth following the trauma.⁴⁴ Across the literature, genocide, child sexual abuse, and even vicarious trauma, have all been found to be associated with a reduced sense of self-worth.^{43,45,46} Further, self-worth has been indicated as an important mediator in trauma outcomes.⁴⁷

Inner resources are defined as having a sense of personal empowerment and self-worth and are enhanced through the development effective tools for coping, negotiating challenges and engaging in self-care.^{2,48,49} These are developed through yoga practice

as yoga students are guided to turn within for strength and support and use yoga tools such as breath, attention to body sensations, and active engagement or relaxation of the muscles.^{2,12} Published empowerment programs for trauma have been found to decrease symptoms of powerlessness, low self-esteem, interpersonal difficulties, and trauma symptoms, as well as increase self-efficacy.^{50,51} Empowerment is associated with the practice of a sense of personal agency and initiative taking or the “ability to see oneself as the primary source of action and initiative in one’s life”.³⁷ As empowerment provides the initiative, self-worth supports the effort.⁵² Yoga has been found to increase self-efficacy among those with trauma including abuse and domestic violence survivors.^{12,53–55} The YIS-TIY approach provides individuals in need of empowerment practice a forum in which they can develop their inner resources and the ability to approach yoga and life from the cognitive intention of, “I can” and “I am worth the effort.” The yoga teacher can support the student in his or her efforts in each pose, encourage breath, and embody the dialectic of acceptance and change for the student.¹⁴

Part II: Physical basics

Individuals with a history of trauma often experience disconnection from the physical aspect of self- their bodies, physical sensations, breath, and emotions.^{22,27} It is believed that the body can store traumatic memories.^{14,20,27} In some cases, individuals working toward recovery may feel as though trauma is reoccurring in their bodies. Further, it has also been observed that people who have experienced trauma have a tendency to chronically hold their breath or to breathe in a shallow, erratic way, not able to access the experience of breathing freely.³⁴ For some, being aware of and present in the physical body can be extremely challenging – whether sitting, standing, moving, or simply being- the body can be experienced as a source of great strife and pain.²⁰ Following trauma, the body is often experienced as a source of dysregulation. Illustrating the challenge, Emerson & Hopper.⁵⁶ quote a yoga participant, “I have learned that my body is the enemy.” Seeing the path to recovery, the student states, “...but in order for me to live this life now, I must find a way to befriend my body” (p. 36).

As traumatic experiences at their core involve a lack of physical and emotional safety, yoga can be an opportunity to experience the body, feelings, and relationships in a safe manner.^{2,15} Intentionally, the YIS-TIY approach is physical. It is the active delivery of a yoga class with the principles for growth delivered during the practice. These include safety, breath, physical presence, and feelings.^{1,2,34,42} Cultivating an environment that emphasizes safety allows for yoga students to experiment with being present in their bodies and feeling what they feel.^{1,20,34} Next, breath work, similar to practicing yoga postures, can create opportunities for new experiences that are distinct from than those experienced during trauma.^{5,20,34,51,57,58} Breath work is an opportunity to notice the body (rather than attempt to control it), and to make choices as they correspond to what one notices.^{5,34,58} Further, intentional breathing can activate/deactivate the sympathetic and parasympathetic nervous system (the former to energize, the latter to calm down), which can be useful in intervening in trauma responses, such as dissociation.^{5,12,34,59}

The last two aspects of physical basics within the YIS-TIY approach are physical presence, or interoception, and experiencing of emotions.²⁰ Following exposure to trauma, some individuals may feel as if they have no sense of an inner self at all. Interoception is paying mindful attention and becoming aware of what is experienced in the body. In paying such attention (i.e., open awareness and monitoring), the goal is not to make meaning out of an experience in one’s body, but rather to simply notice it, as it is right now, and once it is felt, to choose what to do with it, to take action.^{5,15,34} For those who have experienced trauma, feeling a certain way in one or more parts of one’s body may be experienced as dysregulating and unsafe. Yoga practice allows yoga students to gradually and carefully experience feelings so they can feel safe again in their own bodies.^{5,34} Learning to tolerate and regulate feelings, rather than avoiding them, can lead to a change in one’s perspective of the self and can also increase affect tolerance, emotion regulation, and overall wellness.^{5,12,20,58}

Part III: Self-regulation

Exposure to trauma can lead to a negative neurological cascade that begins with involuntary shifts in the brain toward survival mode in which attempts to manage the experience evolve into a protracted preoccupation with threat detection and survival.²⁵ Living in survival mode can overwhelm the system with a high allostatic load (i.e., wear and tear on the body associate with managing chronic stress), increasing risk for physical and psychological illness and chronic

dysregulation of the nervous system.^{2,25} Specifically, a persistent survival orientation compromises three key self-regulating centers of the brain (a) reward/motivation system, (b) distress tolerance system, and (c) executive system involved in emotion and information processing.²⁵ The experience of trauma is often characterized by an extreme lack of choice.^{10,20,34} Those suffering from trauma effects often experience the survival orientation as if they have no choice to live another way.^{2,34}

Self-regulation involves the ability to develop competencies to negotiate stress, regulate the states of the body, as well as one’s relationship to the physical and interpersonal environment.^{5,25} For example, students in a trauma-sensitive program reported being able to feel calm in stressful situations as a result of their yoga practice.¹² It is theorized that yoga practice may help cultivate self-regulation via the development of the neurological circuits that integrate emotion awareness, cognitive control over the physiological stress response, and contextual cognitive processes.³ Accordingly, the YIS-TIY approach emphasizes the development of self-regulation through the principles and practices of grounding (i.e., utilizing the body as a source for connection, guidance, and coping), choice (i.e., engage in intentional action that serve one’s present moment safety and longer term goals), ownership (i.e., taking responsibility for the creating the conditions in which one can be safe and grow), and sustainability.

In grounding, the goal is to practice experiencing the body as being a safe place and effective source of connection, guidance and self-regulation.^{2,5,12,34,58} Going beyond interoceptive awareness, practicing yoga targets the neurocognitive processes affected by trauma by replacing experiences of feeling overwhelmed in one’s body with a present moment and somatic focal point that may be experienced as safe.²¹ The body shifts from being the holder of stress and trauma memories to a source of information, guidance, calm, and connection with others.^{1,2,12,25,34} Next, self-regulation involves choice.²⁵ This requires a necessary shift from either being passive (i.e., unresponsive) or reactive (i.e., automatic response tendency) to findings and selecting an intention plan of action.^{12,15,25,58} The YIS-TIY approach provides students with non-trauma somatic experiences and the opportunity to recognize that they have choice.⁵⁷ In practicing yoga, one may practice making choices that are within one’s control and that are kind and caring toward the self, achieved through making minute and manageable choices in relation to one’s body and in response to internal states, through the practice.⁵⁶

The YIS-TIY approach emphasizes an individual’s personal agency, or ownership of their experience as they create the present moment conditions for safety and growth in each yoga pose, through breath work, and within relationships.^{2,56} For example, in one yoga-based study, participants who had experienced trauma noted that feeling empowered and in control of their process, such as choosing to participate or decline participating, made a yoga program helpful to them.⁵⁸ Within the structured framework of a yoga class, yoga students can begin to experiment with what is familiar and unfamiliar as well as what is comfortable and uncomfortable, knowing they have choice and ownership and can take appropriate action to fit their needs as experienced in their bodies, in the present moment.^{10,12,15,56} Ownership of effective action, as it may be taken in this moment, is a choice that the yoga student can make that allows them to feel better physically and empowered psychologically.¹⁵ Finally, sustainability involves the ongoing awareness of the need to balance routine, structure, and rest with change, growth, and recovery.² Dick et al.¹⁵ refer to this combining “ease and edge” (p. 1174).

Part IV: Mindful grit

Mindful grit is a new concept that refers to the combination of compassion for self and others and the pursuit of meaning and possibility in life.² Within the YIS-TIY approach, this is comprised of the principles and practices of compassion and self-determination. Supported by research exploring yoga and these constructs, the YIS-TIY approach emphasizes goal setting as well as fostering feelings of care and kindness toward oneself, a nonjudgmental and accepting attitude toward perceived inadequacies and failures, and an appreciation of the greater collective human experience of suffering.^{2,15,12, 60} Next, self-determination emphasizes that each individual's experience is as valid as another's, and no one person is imposing his or her experience or perspective on someone else's.³⁴ Further, what is learned through this practice can translate to a greater understanding, acceptance, and trust in one's self.⁵⁶ Ultimately, as stated by a yoga student with PTSD, "...it seems like more things are possible".⁵⁸

Program implementation and future directions

The YIS-TIY program is based on the current body of literature on yoga and trauma. The YIS-YIY program's embodied cognitive-relational framework and 12 principles and practices can be used as guidance for yoga teachers working in high-risk locations and classes that may include vulnerable and trauma-exposed individuals. Currently, The YIS-TIY approach is being field tested in Kenya and Somalia among individual at-risk for trauma related to civil unrest, war, and poverty in a study titled, *The Africa Yoga Project Mind and Body Wellbeing Program* (Cook-Cottone & Guyker, manuscript in preparation). Preliminary analyses indicate a reduction in symptoms associated with trauma and increases in measures of wellbeing (Cook-Cottone & Guyker, manuscript in preparation). The YIS-TIY approach is also being implemented across Western New York as part free community yoga program for those who do not have access to yoga due to geographic location and poverty.⁶¹⁻⁶⁴

Yoga students are encouraged to attend 2 to 3 yoga classes per week to receive a sufficient dosage of yoga to affect change. It is also of value for yoga teachers have a clear sense of the role of the yoga teacher (i.e., to deliver the YIS-TIY program), and the role of community mental health professionals (i.e., to create and support those with mental health conditions such as substance abuse, anxiety, PTSD, and depression). Further, YIS-TIY yoga teachers have referral resources for yoga students looking for additional support through counseling or trauma-services and enthusiastically share these resources with yoga students in need. Future directions include publication of the feasibility and acceptability studies (i.e., Cook-Cottone & Guyker, manuscript preparation), which includes a controlled trial comparing yoga student outcomes of students taking classes taught by teachers trained in the YIS-TIY approach and those who were not.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

References

1. Cook-Cottone CP. Mindfulness and yoga for self-regulation: a primer for mental health professionals. Springer, New York, USA 2015.
2. Cook-Cottone CP. Mindfulness and yoga in schools: a guide for teachers and practitioners. Springer, New York, USA 2017.
3. Fishbein D, Miller S, Herman-Stahl M, et al. Behavioral and psychophysiological effects of a yoga intervention on high-risk adolescents: a randomized control trial. *Journal of Child and Family Studies*. 2016;25(2):518.
4. Khalsa SBS. Yoga for psychiatry and mental health: an ancient practice with modern relevance. *Indian J Psychiatry*. 2013;55(Suppl 3):S334-S336.
5. Wells SY, Lang AJ, Schmalzl L, et al. Yoga as an intervention for PTSD: a Theoretical rationale and review of the literature. *Current Treatment Options in Psychiatry*. 2016;3(1):60-72.
6. Macy RJ, Jones E, Graham LM, et al. Yoga for trauma and related mental Health problems: a meta-review with clinical and service recommendations. *Trauma Violence Abuse pii*:2015;1524838015620834.
7. Clarke TC, Black LI, Stussman BJ, et al. Trends in the use of complementary health approaches among adults: United States, 2002-2012. *Natl Health Stat Report*. 2015;(79):1-16.
8. Ding D, Stamatakis E. Yoga practice in England 1997-2008: prevalence, temporal trends, and correlates of participation. *BMC Res Notes*. 2014;7:172.
9. Park CL, Braun T, Siegel T. Who practices yoga? A systematic review of demographic, health-related, and psychosocial factors associated with yoga practice. *J Behav Med*. 2015;38(3):460-471.
10. Emerson D, Sharma R, Chaudhry S, et al. Trauma-sensitive yoga: Principles, practice, and research. *International Journal of Yoga Therapy*. 2009;19:123-128.
11. Price M, Spinazzola J, Musicaro R, et al. Effectiveness of an extended yoga treatment for women with chronic posttraumatic stress disorder. *J Altern Complement Med*. 2017;23(4):300-309.
12. West J, Liang B, Spinazzola J. Trauma Sensitive Yoga as a complementary treatment for posttraumatic stress disorder: A Qualitative Descriptive analysis. *Int J Stress Manag*. 2017;24(2):173.
13. Rosenberg T. For veterans, a surge of new treatments for trauma. *The New York Times* 2012.
14. Cook-Cottone CP, LaVigne M, Travers L. Trauma-informed Yoga in Schools. Yoga in the School Symposium, Kripalu Center for Yoga and Health. Stockbridge, Massachusetts, USA 2017.
15. Dick AM, Niles BL, Street AE, et al. Examining mechanisms of change in a yoga intervention for women: The influence of mindfulness, psychological flexibility, and emotion regulation on PTSD symptoms. *J Clin Psychol*. 2014;70(12):1170-1182.
16. Johnston JM, Minami T, Greenwald D, et al. Yoga for military service personnel with PTSD: A single arm study. *Psychol Trauma*. 2015;7(6):555-562.
17. Mitchell KS, Dick AM, DiMartino DM, et al. A pilot study of a randomized controlled trial of yoga as an intervention for PTSD symptoms in women. *J Trauma Stress*. 2014;27(2):121-128.
18. Reddy S, Dick AM, Gerber MR, et al. The effect of a yoga intervention on alcohol and drug abuse risk in veteran and civilian women with posttraumatic stress disorder. *J Altern Complement Med*. 2014;20(10):750-756.
19. Culver KA, Whetten K, Boyd DL, et al. Yoga to reduce trauma-related distress and emotional and behavioral difficulties among children living in orphanages in Haiti: A pilot study. *J Altern Complement Med*. 2015;21(9):539-545.
20. van der Kolk B. The body keeps the score: Brain, mind, and body in the healing of trauma. Viking, New York, USA 2014.

21. Spinazzola J, Rhodes AM, Emerson D, et al. Application of yoga in residential treatment of traumatized youth. *J Am Psychiatr Nurses Assoc.* 2011;17(6):431–444.
22. American psychiatric association diagnostic and statistical manual of mental disorders. (5th edn), Washington, DC, USA 2013.
23. Kilpatrick DG, Resnick HS, Milanak ME, et al. National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *J Trauma Stress.* 2013;26(5):537–547.
24. Koenen KC, Ratanatharathorn A, Ng L, et al. Posttraumatic stress disorder in the World Mental Health Surveys. *Psychol Med.* 2017;47(13):2260–2274.
25. Ford JD, Blaustein ME. Systemic self-regulation: A framework for trauma-informed services in residential juvenile justice programs. *J Fam Viol* 28:665. van der Kolk BA, Stone L, West J, et al. Yoga as an adjunctive treatment for posttraumatic stress disorder: A randomized controlled trial. *J Clin Psychiatry.* 2013;75(6):e559–e565.
26. Cook–Cottone C. Childhood posttraumatic stress disorder: diagnosis, treatment, and school reintegration. *School Psychology Review.* 2004;33:127.
27. Alisic E, Zalta AK, van Wesel F, et al. Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: meta-analysis. *Br J Psychiatry.* 2014;204:335–340.
28. Cramer H, Lauche R, Langhorst J, et al. Yoga for depression: A systematic review and meta-analyses. *Depression Anxiety.* 2013;30(11):1068–1083.
29. Forfylyow A. Integrating yoga with psychotherapy: a complementary treatment for anxiety and depression. *Canadian Journal of Counselling and Psychotherapy.* 2011;45(2):132–150.
30. Longacre M, Silver–Highfield E, Lama P, et al. Complementary and alternative medicine in the treatment of refugees and survivors of torture: A review and proposal for action. *Torture.* 2012;22(1):38–57.
31. Sharma M, Haider T. Yoga as an alternative and complementary therapy for patients suffering from anxiety: a systematic review. *Journal of Evidence-Based Complementary & Alternative Medicine.* 2013;18:15–22.
32. Telles S, Singh N, Balkrishna A. Managing mental health disorders resulting from trauma through yoga: a review. *Depress Res Treat.* 2012;1–9.
33. Emerson D. Trauma-sensitive yoga in therapy: bringing the body into treatment. WW Norton & Company, Inc, New York, USA 2015.
34. Cook–Cottone CP. Incorporating positive body image into the treatment of eating disorders: a model for attunement and mindful self-care. *Body Image* 2015;14:158–167.
35. Mahlo L, Tiggemann M. Yoga and positive body image: a test of the embodiment model. *Body Image.* 2016;18:135–142.
36. Falloot RD, Harris M. The Trauma recovery and empowerment model (TREM): conceptual and practical issues in a group intervention for women. *Community Ment Health J.* 2002;38(6):475–485.
37. Iverson KM, King MW, Cunningham KC, et al. Rape survivors' trauma-related beliefs before and after cognitive processing therapy: associations with PTSD and depression symptoms. *Behav Res Ther.* 2015;66:49–55.
38. Scher CD, Suvak MK, Resick PA. Trauma cognitions are related to symptoms up to 10 years after cognitive behavioral treatment for Posttraumatic Stress Disorder. *Psychol Trauma.* 2017.
39. Hinton DE, Ojserkis RA, Jalal B, et al. Loving-kindness in the treatment of traumatized refugees and minority groups: a typology of mindfulness and the nodal network model of affect and affect regulation. *J Clin Psychol.* 2013;69(8):817–28.
40. Briere JN, Scott C. Principles of trauma therapy: a guide to symptoms, evaluation, and treatment (DSM–5 update). Sage Publications, New York, USA 2014.
41. Harris M, Falloot RD. Envisioning a trauma-informed service system: A vital paradigm shift. *New Dir Ment Health Serv* 2001;89:3–22.
42. Pearlman L. Restoring self in community: Collective approaches to psychological trauma after genocide. *Journal of Social Issues.* 2013;69(1):111–124.
43. Magwaza AS. Assumptive world of traumatized South African adults. *J Soc Psychol.* 1999;139(5):622–630.
44. Elklit A, Christiansen DM, Palic S, et al. Impact of traumatic events on posttraumatic stress disorder among Danish survivors of sexual abuse in childhood. *J Child Sex Abus.* 2014;23(8):918–934.
45. Kauffman J. Loss of the assumptive world: A theory of traumatic loss. Routledge, New York, USA 2013.
46. Lim BH, Adams LA, Lilly MM. Self-worth as a mediator between attachment and posttraumatic stress in interpersonal trauma. *J Interpers Violence.* 2012;27(10):2039–2061.
47. Davis RE. “The strongest women”: Exploration of the inner resources of abused women. *Qual Health Res.* 2002;12(9):1248–1263.
48. Kelley TM, Pransky J. Principles for realizing resilience: A new view of trauma and inner resilience. *Journal of Traumatic Stress Disorders and Treatment.* 2013;2:1–2.
49. Bulanda J, Johnson TB. A trauma-informed model for empowerment programs targeting vulnerable youth. *Child and Adolescent Social Work Journal.* 2016;33(4):303–312.
50. East JF, Roll SJ, Women, poverty, and trauma: An empowerment practice approach. *Soc Work.* 2015;60(4):279–286.
51. Brown KW, Ryan RM. A self-determination theory perspective on fostering healthy self-regulation from within and without. *Positive Psychology in Practice, Promoting Human Flourishing in Work, Health, Education, and Everyday Life.* (2nd edn), John Wiley & Sons, Inc, USA, pp. 2015:139–158.
52. Dale LP, Carrol LE, Galen GC, et al. Yoga practice may buffer the deleterious effects of abuse on women's self-concept and dysfunctional coping. *Journal of Aggression, Maltreatment & Trauma* 2011;20:90–102.
53. Franzblau S, Smith M, Echevarria S, et al. Take a breath, break the silence: the effects of yogic breathing and testimony about battering on feelings of self-efficacy in battered women. *International Journal of Yoga Therapy.* 2006;16(1):49–57.
54. Martin EC, Dick AM, Scioli–Salter ER, et al. Impact of a yoga intervention on physical activity, self-efficacy, and motivation in women with PTSD symptoms. *J Altern Complement Med.* 2015;21(6):327–332.
55. Emerson D, Hopper E. Overcoming Trauma through Yoga: reclaiming your body. North Atlantic Books, Berkeley, USA, pp. 2011:184.
56. Duros P, Crowley D. The body comes to therapy too. *Clinical Social Work Journal.* 2014;42(3):237–246.
57. Jindani FA, Khalsa GF. A yoga intervention program for patients suffering from symptoms of posttraumatic stress disorder: A qualitative descriptive study. *J Altern Complement Med.* 2015;21(7):401–408.
58. Descilo T, Vedamurtachar A, Gerbarg PL, et al. Effects of a yoga breath intervention alone and in combination with an exposure therapy for post-traumatic stress disorder and depression in survivors of the 2004 South-East Asia tsunami. *Acta Psychiatrica Scandinavica.* 2010;121(4):289–300.
59. Zeller M, Yuval K, Nitzan–Assayag Y, et al. Self-compassion in recovery following potentially traumatic stress: Longitudinal study of at-risk youth. *J Abnorm Child Psychol.* 2014;43(4):645–653.

60. Gurda K. Emerging trauma therapies: Critical analysis and discussion of three novel approaches. *Journal of Aggression, Maltreatment & Trauma*. 2015;24(7):773–793.
61. Hinton DE, Ojserkis RA, Jalal B, et al. Loving-Kindness in the Treatment of Traumatized Refugees and Minority Groups: A Typology of Mindfulness and the Nodal Network Model of Affect and Affect Regulation. *J Clin Psychol*. 2013;69(8):817–828.
62. Iverson KM, King MW, Cunningham KC, et al. Rape survivors' trauma-related beliefs before and after Cognitive processing therapy: Associations with PTSD and depression symptoms. *Behav Res Ther*. 2015;66:49–55.
63. Ehud M, An BD, Avshalom S. Here and now: Yoga in Israeli schools. *Int J Yoga*. 2010;3(2):42–47.
64. Stephens M. Yoga adjustments: philosophy, principles, and techniques. North Atlantic Books, Berkely, USA 2014.