The Trauma Resiliency Model: A "Bottom-Up" Intervention for Trauma Psychotherapy

Journal of the American Psychiatric Nurses Association 2018, Vol. 24(1) 76–84 © The Author(s) 2017 Reprints and permissions: sagepub.com/journalsPermissions.nav DOI: 10.1177/1078390317745133 journals.sagepub.com/home/jap



Abstract

BACKGROUND: The Trauma Resiliency Model (TRM) is an innovative therapeutic approach for trauma. This "bottom-up" somatic approach comprises nine skills that use sensory awareness for emotion regulation and integration. Body-based therapies may be more effective for trauma than currently used cognitive ('top-down") and exposure therapies. **OBJECTIVE:** The purpose of this article is to present TRM and current literature on the neuroscience of trauma and resiliency, and the rationale for body-based therapy. Two case examples illustrate the practical use of TRM therapy. **DESIGN:** The literature on the neuroscience of trauma, resiliency, and somatic approaches in therapy is reviewed. **RESULTS:** TRM teaches the biology of trauma responses and the practice of emotion regulation through biologically based skills. Neuroscience theory supports somatic awareness models; however, research on somatic therapies is limited. **CONCLUSIONS:** Chronic distress from trauma derails the ability to live life resiliently. TRM addresses trauma processing in a gentle and invitational manner and is a novel departure from existing therapies. Despite a paucity of research on body-based therapy, these therapies have strong neurophysiologic underpinnings.

Keywords

psychotherapy, resilience, trauma-informed care, mindfulness, posttraumatic stress disorder, PTSD

Over the past 20 years, an explosion of new knowledge has created a sea change in our understanding of the lifelong impact of childhood trauma (Centers for Disease Control and Prevention, 2016), as well as our thinking about the neurobiology of trauma and resilience. Simultaneously, mindfulness emerged in Western culture as a powerful modality for mental wellness and for multiple disorders (Grant et al., 2017; Lang, 2017; Rodrigues, Nardi, & Levitan, 2017; Williams, Teasdale, Segal, & Kabat-Zinn, 2007), along with research into the neurobiological underpinnings of mindfulness (Black & Slavich, 2016; Haase et al., 2016; Tang, Holzel, & Posner, 2015). Although standard psychotherapies have been modified by becoming "trauma-informed" or "mindfulness-based," there are also innovative, alternative, body-based, or somatic therapy approaches that have been quietly gaining evidence and momentum and seem to make intuitive sense for trauma survivors who live with intrinsic body memories of trauma. These methods seem particularly well suited for complex developmental trauma or posttraumatic stress disorder (PTSD; van der Kolk, 2014).

There is a paucity of research on body-based approaches in psychotherapy for many reasons: There has been a slow response to understanding and acknowledging the long-lasting impact of adverse childhood experiences (ACEs); persons with complex presentations of trauma are often excluded from research studies; and therapies that are evidence-based are funded preferentially over novel interventions (Corrigan & Hull, 2015). However, there is strong neuroscientific evidence for the cultivation of body (or somatic) awareness (Haase et al., 2015; Haase et al., 2016) in order to develop resilience. Corrigan and Hull (2015) suggest that for "bottom-up," body-based processing therapy, the concept of "evidence" be expanded to account for neuroscientific plausibility.

This article presents the Trauma Resiliency Model (TRM), an innovative somatically-based psychotherapy developed by Elaine Miller-Karas, Geneie Everett, and Laurie Leitch (Miller-Karas, 2015). TRM was initially developed as psychological first-aid for survivors of

Corresponding Author:

Linda Grabbe, PhD, FNP-BC, PMHNP-BC, Nell Hodgson Woodruff School of Nursing, Emory University, 1520 Clifton Road NE, Atlanta, GA 30322, USA. Email: lgrabbe@emory.edu



¹Linda Grabbe, PhD, FNP-BC, PMHNP-BC, Emory University, Atlanta, GA, USA

²Elaine Miller Karas, LCSW, Trauma Resource Institute, Claremont, CA, USA

natural disasters to help them process trauma in brief encounters. Based on well-elaborated body-based psychotherapy principals, TRM was recognized as a useful selfregulation model not only for its simple mental well-being techniques but also as a therapy for cases of cumulative trauma. The neurobiology of trauma and the theoretical underpinnings of TRM skills are described, and two case examples are provided to illustrate the model.

The Epidemiology of Childhood Trauma and Its Impact on Development and Health

In the landmark Adverse Childhood Experiences (ACE) study of 17,000 insured, working adults (Centers for Disease Control and Prevention, 2016), 10% had witnessed domestic violence, 20% had been molested, and 30% had been physically abused before age 18. Replicated many times since, 64% had had at least one type of ACE; among the 25.5% with three or more of these events, the impact of these ACEs on health later in life was startling with dramatically increased rates of mental health problems and a host of ailments including cancer, heart disease, addiction, diabetes, and earlier death; this relationship was dose-related, that is, the more ACEs, the greater the likelihood of health disorders.

Early-life traumas leave their imprint on the anatomy and physiology of the brain (De Bellis & Zisk, 2014) and are associated with the development of dysfunctional neural circuits, behavioral dysfunction, and mental disorders, essentially leaving functional "scars" in emotional control, learning, and memory (Groger et al., 2016). Trauma's impact reaches virtually all body systems, including persistent biological alterations in neuroendocrine and neurotransmitter systems, proinflammatory cytokines, and alterations in brain areas associated with mood regulation; these lead to psychiatric and medical vulnerability (Nemeroff, 2016). Telomeres, the protective covering at the tips of chromosomes, are damaged by childhood adversity, mediating cell aging and early disease (Puterman et al., 2016; Shalev et al., 2013). Chronic stress leaves its mark through DNA methylation of genes in the brain and peripheral tissues, and these changes are associated with adverse gene expression, that is, health disorders, but are potentially preventable and reversible (Szyf, Tang, Hill, & Musci, 2016).

Consistent with the above evidence, current "bottomup" therapeutic thinking is that the response to trauma can be deeply etched and persistently lodged in the body, compromising emotion regulation and potentially leading to serious mental conditions, for example, PTSD, major depressive disorder, and dissociative disorders (van der Kolk, 2014). Other sequelae of trauma can include somatization, substance abuse, compulsions, and cognitive, mood, and identity disturbances (Courtois & Ford, 2014). Levine (2003) points out that the human response to threat is biological, primitive, instinctual, and physiological, that is, subcortical in nature. When one has experienced trauma, an array of multisensory reminders held in implicit memory (i.e., smells, sounds, and images) can trigger emotional dysregulation, and this distress can derail one's sense of well-being and present-moment awareness.

Resilience

Even in cases of severe and long-lasting abuse and neglect, resilient individuals may survive and thrive. Physical resilience refers to of stamina, strength, and the ability to bounce back from excessive body demands. Psychological resilience is the ability to withstand interpersonal, financial, work, or health challenges due to characteristics such as social skills or flexibility, but biologic features of resilience are now under investigation, and may offer options for preventing and treating stress and trauma disorders (van der Werff, van den Berg, Pannekoek, Elzinga, & van der Wee, 2013). Resilience is said to occur because of positive functional adaptations in the brain (Groger et al., 2016), and depends on genetic, epigenetic, neural, and environmental factors-which are mediated by adaptation in neural circuits, neurotransmitters, and molecular pathways (Horn, Charney, & Feder, 2016).

Somatic Mindfulness: A Pathway to Resilience and Recovery

Conscious awareness of the body's internal state and its perturbations, the "felt sense" of interoception, is currently under study as a source of emotion regulation and resilience. Interoception, that is, "looking inside," may be critical to the prevention of stress-related sequelae of trauma (Haase et al., 2016). Neuroimaging research on stress response, resilience, and interoception is in its infancy, but it points to the insular cortex and its associated structures as the prime anatomical locations of interoception and resilience—the dynamic process of positive adaptation in the context of significant adversity (Haase et al., 2016; van der Werff et al., 2013). The insula is part of the cerebral cortex but lies deep in the fissure between the frontoparietal lobes and the temporal lobes. In front of the pons, it is surrounded by the limbic system and the cortical executive control centers, which may help explain how body awareness or mindfulness can reduce impulsivity and promote emotion regulation (Haase et al., 2015; 2016). Long, myelinated neurons, located in the insula and adjoining structures, are thought to be the seat of the social brain-responsible for empathy, social interaction

skill, and the sense of self (Cauda, Geminiani, & Vercelli, 2014). These deep-brain structures demonstrate sharply reduced activity in persons who have experienced cumulative trauma, making awareness of physical sensations and personal meaning of information input challenging (van der Kolk, 2014). These same networks in the brain are affected in acute trauma exposure, with subsequent posttraumatic stress symptoms and diminished volume in the insula and associated structures (Herringa, Phillips, Almeida, Insana, & Germain, 2012). The sense of self may be lost in acute trauma or never fully developed in developmental trauma, but under the gentle guidance of a skilled therapist, the intentional awareness of internal sensations may be learned, leading to enhanced self-regulation and access to positive internal resources. These can be a portal to healing from trauma, a richer sense of being, improved interpersonal relationships, and better control of emotions. Research on body maps of emotions has demonstrated that emotions are registered in the body in the same way across diverse cultures (Nummenmaa, Glerean, Hari, & Hietanen, 2014), which further lends support to body-based therapeutic approaches.

Under severe stress or threat, the body experiences a surge in sympathetic discharge and protective hormones, but when the victim is helpless and unable to act, the after-effects of trauma can live on internally by way of sudden, unexpected trauma responses, for example, flashbacks, hypervigilance, inappropriate behavioral responses, and other symptoms of trauma due to overactivation of the autonomic nervous system (Payne, Levine, & Crane-Godreau, 2015; Scaer, 2001; Schore, 2001; van der Kolk, 2014). Trauma and PTSD reactions occur in the body's thwarted survival (fight and flight) response to danger. When survival responses to fight or flee are impossible to carry out because the individual is in a freeze state, the body's protective defense mechanisms have failed in a profound manner. It is this failure of the survival response that may lead to dysfunctional and entrenched behavior patterns, responses, and symptoms. The somatic psychotherapy approach to healing from trauma acknowledges and teaches the fundamentals of autonomic nervous system dysregulation and physical symptoms of trauma responses. Somatic techniques may help survivors understand trauma responses and regain their sense of self in the most tangible way, by regaining the sense of somatic or body awareness. Miller-Karas (2015) posits that the body has an inherent but unarticulated healing capacity if we can learn how to draw on it. Pain, fatigue, and hunger sensations are readily noticed, but neutral or pleasant body sensations are generally not noticed or described. These sensations, when accessed purposefully and articulated, are a key to recovery from trauma (Miller-Karas, 2015).

Journal of the American Psychiatric Nurses Association 24(1)

The developers of TRM were schooled in Peter Levine's Somatic Experiencing Model (Levine, 1997, 2003, 2010; Payne et al., 2015), which focuses on the biology of the trauma response and somatic techniques linked to cognitive and emotional processing. TRM's brief, effective, body-based crisis response intervention takes advantage of the body's natural propensity to self-regulate using the biological stabilization skills of tracking internal sensations of well-being (Miller-Karas, 2015). The developers of TRM realized that one's ability to track sensations of well-being was transformational not only for survivors of disaster/shock trauma but also for survivors of long-term, developmental, complex, and cumulative trauma. Other psychotherapists have also developed innovative, biological models as a shift away from cognitive-behavioral These models. include Heller and LaPierre's NeuroAffective Relational Model (2012), Ogden's Sensorimotor Psychotherapy (Ogden, Minton, & Pain, 2006; Ogden & Fisher, 2015), and Rothschild's somatic trauma therapy (Rothschild, 2010, 2011, 2017). Traditional talk therapies can help a person gain insight into what happened or reframe thinking, but the multisensory body experience of traumatic events that are so deeply etched in the nervous system may plague trauma survivors even if they have intellectual insight about their experiences. Mindfulness-based cognitive-behavioral therapy and trauma-focused cognitive-behavioral therapy represent useful psychotherapeutic approaches but do not have the specific somatic awareness strategies of TRM or other body-based models. TRM suggests that physical sensations underlie emotions, acknowledges negative affect and its accompanying unpleasant physical sensations, and helps clients learn techniques to intentionally shift to pleasant or neutral sensations and alter emotional states. According to van der Kolk (2014), many persons with complex developmental trauma or PTSD do best with a blend of cognitive, somatic, and psychopharmacologic treatments.

Research on the Trauma Resiliency Model and Other Body-Based Therapies

Research on TRM has taken place mainly in disaster settings. In her work with 53 tsunami survivors in Thailand, Leitch (2007) used Somatic Experiencing as a one- or two-session intervention, and 90% of participants reported full or partial recovery from symptoms at 1-year follow-up. In a separate study of 150 tsunami survivors with trauma symptoms, 75 minutes of Somatic Experiencing therapy and training in self-regulation

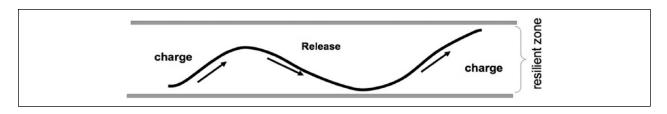


Figure 1. The Resilient Zone.

Note. When functioning within one's Resilient Zone, flexibility and adaptability in body, mind, and spirit can be achieved at highest capacity. Trauma Resiliency Model skills help widen the Resilient Zone. Source. Reprinted with permission from the Trauma Resource Institute.

yielded significant improvement or resolution of PTSD symptoms in 90% of participants (Parker, Doctor, & Selvam, 2008). Following Hurricanes Katrina and Rita, TRM was used with 91 social service workers who subsequently demonstrated statistically lower PTSD symptoms and increased resilience compared with a control group (Leitch, Vanslyke, & Allen, 2009). In the aftermath of the Sichuan Province earthquake in China, Leitch and Miller-Karas (2009) trained more than 350 frontline providers, 88% of whom subsequently reported using the TRM skills in their work.

Although the above studies describe brief therapy for shock trauma victims, findings from a study of the mental wellness self-care skills of TRM demonstrated significance for persons with cumulative trauma. The research targeted 155 marginalized persons in San Bernardino, California, who had experienced racism, homophobia, poverty, and untreated posttraumatic stress from combat. Participants reported statistically significant decreases in depression, hostility, anxiety, and somatic symptoms; relaxation, contentedness, and somatic well-being increased significantly. On follow-up at 3 to 6 months, over 95% of the participants used the self-regulation skills of TRM daily to manage stress (Citron & Miller-Karas, 2013).

The Trauma Resiliency Model

TRM is a set of nine skills, with a subset of these skills, the first six, called the Community Resiliency Model (CRM) because they constitute a model of preventative mental wellness self-care that can be practiced by anyone for emotional stabilization in situations of pressure or emotional distress. CRM skills are used to develop resources that increase resilience and the ability to function under stress (www.traumaresourceinstitute.com). CRM is not therapy and may be taught by non-health care providers as a means to improve one's physical and mental state by changing negative affect through the somatic mindfulness of physical sensations associated with positive internal resources. A core value in developing CRM as an independent model from TRM was to create a model of self-care that was accessible and affordable for adults and children from diverse educational, cultural, and ethnic communities. CRM is a standalone set of skills and is available to anyone through a free app, "ichill," or at www.ichillapp.com. TRM includes CRM but is expanded to include trauma-processing psychotherapy. TRM therapy adds three additional elements: titration, pendulation, and completion of survival response, which are trauma-processing techniques adapted from Levine's Somatic Experiencing psychotherapy model. These latter skills require a firm foundation in basic psychotherapy skills because of the potential to destabilize the client.

TRM Concepts

TRM's cornerstone concept is the Resilient Zone (RZ), which represents the natural rhythm or balanced flow of energy and human vitality (Figure 1) where there is the greatest capacity for balanced thinking and feeling, being our best selves, and functioning well. The RZ is a feltsense experience where one can handle the ups and downs of life experiences. We can be sad and even annoyed in the RZ and still respond constructively. One of the goals of TRM is to help clients identify the sensations connected to their RZ. With stress and trauma, we all experience being thrust into a state of hyperarousal called the "high zone" or into a state of hypoarousal called the "low zone" (Figure 2). These states coincide respectively with excess sympathetic and parasympathetic nervous stimulation. When people are thrust out of their RZ, TRM skills help them become aware of the associated body sensations that accompany anger and irritability in the high zone (excess sympathetic activation), or sluggishness and sadness in the low zone (excess parasympathetic activation). Some individuals, because of temperament or life challenges, may have an innately narrow RZ, while others have a naturally wide RZ. We all have narrowed RZs when we are hungry, angry, tired, bored, lonely, or in pain, which increases the likelihood of being knocked out of the RZ. The RZ concept normalizes stress responses, explains the biology of symptoms, and offers hope that used in any order or independently; they may be taught to groups or in individual sessions.

Skill 1: Tracking

Edgy Irritable

Mania Anxiety & Panic Angry outbursts Pain

> In tracking, the client describes the "felt-sense" of internal and external body sensations. The client reads and monitors the physical reactions to stress, and is able to distinguish between sensations of distress and those of well-being. The clinician may inquire about observed movements or reported sensations but without interpretation: "Is the sensation pleasant, unpleasant, or neutral?" and "What are you aware of now?"

Skill 2: Resourcing and Resource Intensification

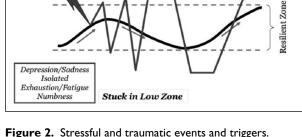
The client is asked to identify a person, animal, place, memory, activity, belief, or personal strength that brings a sense of comfort, peacefulness, or joy. The clinician invites the client to describe the resource and then intensifies the resource by asking for more description, particularly sensory details. As the client responds with a fuller description, the clinician asks what the client is noticing currently in his or her body, and if the sensation unpleasant, pleasant, or neutral. If pleasant or neutral, the client is asked to simply experience the sensations for some moments. These sensations need to be held in awareness for a dozen or more seconds to transfer from short-term memory to long-term storage (Hanson, 2010). This effort is made to develop positive neural pathways to counteract the brain's natural tendency to dwell on the negative. Resource questions can be used to move from thoughts or feelings of stress or trauma to a resilience narrative. For example, "What is it about you that helped you get through that?" allows the client to recognize internal strengths. Resilience-focused questions help shift away from distress, amplifying resources that are often otherwise not in the person's consciousness.

Skill 3: Grounding

Grounding is present-moment awareness of body contact with surfaces, that is, the floor, a chair, one's own clothing or skin. This felt-sense of contact in the present moment provides gravitational security and a sense of safety and control. Sometimes drawing attention to the body in the present moment can trigger uncomfortable sensations or even flashbacks. For this reason, resourcing and tracking are taught before grounding.

Skill 4: Gesturing

Spontaneous expressions beneath conscious awareness can be healing and self-soothing, adding to the client's



Stuck in High Zone

Note. Depiction of stressful and traumatic events and triggers. Note. Depiction of stressful and traumatic triggers and events influencing one's Resilient Zone. Individuals may become stuck in a "high zone" or "low zone" and exhibit behaviors indicative of one zone or the other.

Source. Graphic adapted from an original graphic by Levine/Heller. Reprinted with permission from the Trauma Resource Institute.

clients themselves can widen their RZ or return to it when they sense that they are outside their RZ. The RZ concept is derived from the work of Dan Siegel (1999), but rather than a "window of tolerance," TRM identifies this as a state of well-being and resilience.

TRM Skills

TRM uses a set of nine skills to stabilize the nervous system, reduce or prevent the symptoms of traumatic stress, and reprocess traumatic experiences. The first six selfregulation skills of TRM are fundamental throughout TRM therapy; three additional skills are for reprocessing traumatic experiences. In TRM, clients are educated in the RZ, the nature of trauma, and types of emotional, cognitive, behavioral, spiritual, and physical responses to stress and trauma; the neurobiology of traumatic symptoms with simple explanations about the nervous system, autonomic nervous system responses to threat and fear, trauma and memory (explicit vs. implicit), and the threepart brain model (survival, emotional, thinking) are explained (Miller-Karas, 2015). When using TRM to help an individual reprocess a traumatic experience, the advanced practice psychiatric nurse first helps the client learn the six wellness skills for self-care. Once clients know they can regulate their own nervous system during moments of distress, the advanced practice psychiatric nurse can focus on helping them reprocess traumatic experiences. The ability to shift awareness of sensations of discomfort to sensations of well-being can change the sensory experience of the traumatic memory in the present moment. The basics of TRM's six self-care skills for clients are described here briefly. These skills are then tool box for self-regulation. The TRM therapist may mirror open or soothing gestures, and ask to do the movement together, slowly, and repeat it, noticing accompanying sensation in the body.

Skill 5: Help Now!

The 10 Help Now! strategies decrease or raise activation within the nervous system when a person is hyper- or hypoaroused. The strategies help the clients focus on something other than the distress and the sense of being overwhelmed. Examples are counting steps, identifying objects or colors, or pushing against a wall. Clients can try the strategies when they recognize they are out of their RZ, or in a therapeutic session, the clinician can invite him or her to try one of the strategies and stay with him or her while doing it to reinforce and notice the calming effect of mindful attention to a sensory input.

Skill 6: Shift and Stay

Internal and external triggers can create fear, anxiety, anger, sadness, and isolation. When consciously aware of symptoms of distress, the client has a choice of what might work best to relieve the distress by shifting awareness from the distressing sensations to tracking, a resource, grounding, a gesture, or a Help Now! strategy. The mindful awareness of the more pleasant or neutral sensations is held until stabilization occurs.

Case Example 1. This case example illustrates the use of Skills 1 to 6 in our work with groups of homeless and incarcerated youth with histories of complex trauma. Many of these clients come from unstable and disrupted backgrounds and have experienced multiple traumas disorganized attachment, abandonment, emotional/physical/sexual abuse. Emotional dysregulation is rife, with anger, guilt, and shame being common feelings, as well as labels of "anger management" and behavior problems. Many of the youth have never learned ways to calm themselves.

With these groups, we teach TRM's key concepts and self-regulation skills, with a focus on tracking, resourcing, grounding, and Help Now! The youth can give examples readily of times when they were knocked out of their RZ. These adolescents see that many of their behaviors and symptoms are simply responses to stress and trauma, and that some of their behaviors (e.g., substance use and unsafe sex) make sense as attempts to feel better and to get back into their RZ. In this context, the value of the mental wellness skills, especially tracking, resourcing, and grounding, becomes obvious: they can use their own bodies to regulate their moods, and gain control in unpleasant or stressful moments. These group sessions involve active engagement, teaching the concepts to each other, and role-playing.

In addition to learning how to resource each other, we use a group "check-in," with each youth identifying a resource, for example, a favorite color, an animal they like, or an activity or a place in nature that brings a sense of calm. The youth palpably relax, and often smile, as they name their resource and describe it; they can track internal sensations as they talk about it, even if only their breathing, heart rate, or muscle tone. They understand that they can return to the resource's multisensory elements to gain a sense of inner balance when needed. Grounding, or noticing the support of the floor or chair, or being mindfully aware of texture and temperature of surfaces or objects of contact, is a powerful anchor for them during emotional confrontations or challenging moments.

While the above Skills 1 through 6 are taught to clients for their own use, the next three skills are to be used in one-to-one settings, by a trained therapist or psychiatric advanced practice registered nurse. The therapist trained in TRM acts as a guide, always "one step behind," gently inviting the client to try the skills, encouraging him or her to stop when there is distress, or to just go to the edge of any discomfort or distress and then move to a more resilient place. The client, not the therapist, identifies any new meanings learned from the process.

Skill 7: Titration

The skill of titration refers to becoming aware of smaller, more manageable sensations associated with a traumatic experience. The TRM clinician gently asks the client about sensations connected to the traumatic event; then invites the client to concretize the sensation (e.g., a block or a ball) and describe size, weight, and color. This helps the client learn to manage the sensations without becoming overwhelmed. The client is asked to bring awareness to a small piece of activation within the body: "Can you sense a tiny edge of that distress (block/ball)?" As a small part of the sensation is concretized, the intensity of the experience is generally diminished, with a release of tension. The TRM clinician observes and comments on body movements and appearance, while the client reports subjective sensations in the body, as well as heart rate, breath, and muscle tone.

Skill 8: Pendulation

The skills of titration and pendulation are used together. When a sensation is titrated, a natural shifting occurs, and the client may notice the distressing sensation lessening as the nervous system returns to the RZ. Pendulation is the shifting back and forth between sensations of distress (pain, muscle tension, or autonomic nervous system dysregulation symptoms) and sensations of greater wellbeing (comfortable, neutral, or less uncomfortable sensations). When experiencing sensations of distress, the client is invited to bring awareness to places within the body that are less tense, less painful, neutral, or pleasant, and this will diminish the intensity of the unpleasant sensations. While titrating and pendulating the sensations connected to the traumatic experience, the client may become aware of release sensations such as heat, trembling, burping, yawning, and tingling. The client is then simply invited to notice the sensations of release, which are natural biological responses.

Skill 9: Completion of Survival Response

Following a traumatic event, a person can be triggered by almost anything reminiscent of the event. It is helpful for clients to understand that the nervous system response to triggers is meant to be protective. Levine (1997) conceptualized the body responses to threat as massive amounts of energy mobilized within the body for self-defense. In a therapy session, if the client can complete the defensive response that was not completed at the time of the trauma, there is a natural release of energy. TRM accounts for four phases of the survival response, and the clinician who understands these phases can guide the client to reprocess the traumatic experience. As clients describe the traumatic event or as they are aware of the sensations connected to the trauma experience, the clinician can assess what phase was not completed during the event. The survival response phases are part of Skill 9 and include: (1) the Orienting Response, (2) Mobilization of Fight or Flight, (3) Completion of Survival Responses, and (4) Return to RZ. Each phase is part of the autonomic nervous system's effort to assess, respond, and recover from threat; the client's body urges can be tracked by the client and therapist together. Those somatic sensations that could not be completed at the time of the trauma may be carried out in vivo or mentally and may be critical to resolution of trauma symptoms.

Composite Case Example 2. This case example illustrates TRM skills 1 to 9 integrated in the therapeutic setting for a composite patient. Samantha has complex trauma and is suffering from depression and anxiety. Her TRM therapist first educated her about the RZ model and taught her the six wellness (stabilization) skills. By using the TRM wellness skills, Samantha learned to focus on sensations of well-being rather than those of distress and she could stay in her RZ for longer periods of time. Once she was able to use the wellness skills, she spoke of her specific trauma. When she began recounting the elements of her trauma story, she became distressed and reported tightness in her stomach. She described an image of a bowling ball in her stomach. The therapist invited her to sense a small edge of the image (Skill 7, titration). As she did so, the tightness began to lessen and the image of ball became smaller. As Samantha was invited to notice the spontaneous pendulation (Skill 8), she reported no longer feeling shame.

When Samantha recounted her experience of fear, helplessness, and immobility during the trauma event, the therapist explained the survival response of "freeze" and used Skill 9 (completion of survival response). When asked, "If you could move, what part of your body would you move first?" Samantha said, "I want to move my legs." The therapist invited Samantha to focus on the movement in her legs, and she then had a strong image of running and sensed strength in her legs. As Samantha tracked her sensations, she stated that she felt relief within her body and the release sensation of tingling. As she noticed the sensations, she stated, "I survived, I really survived." The therapist invited Samantha to bring awareness to her body as she made the survival statement. This deepened her sensations of release and her relief. After a series of sessions, Samantha reported the lessening of her symptoms of depression and anxiety and that she could use the wellness skills to stabilize herself.

Discussion

In TRM therapy, the therapist assists the client to access internal sensations and resources that can alter chronic trauma responses. The client is essentially creating positive neural imprints, pathways, or templates (van der Kolk, 2014). The premise of a new neural pathway is based on the concept that "neurons that fire together wire together" (Hebb, 1949; Shatz, 1992). This pairing counteracts the mind's natural negativity bias-how we make sense of the world in an asymmetrical manner, with a tendency to remember negative rather than positive information (Vaish, Grossmann, & Woodward, 2008). Highly emotionally charged negative experiences are quickly stored in memory, for their protective survival value; however, the implicit fragments of trauma memory easily throw trauma survivors into distress and dysregulation, impairing their ability to live in a healthy, vital manner. The mindful awareness cultivated in TRM or other bodybased models creates new, more resilient neural pathways that clients can access increasingly as they integrate the skills in their lives. Training in TRM is offered by the Trauma Resource Institute at www.traumaresourceinstitute.com.

A strength of TRM is its applications in both individual and group settings. Limitations of TRM clinically include the tendency of therapists to direct or interpret the client's discoveries, and the clients' own comfort with the skills. Psychiatric nurses are in an ideal position to use the first six TRM skills for their own self-regulation and to share with their clients. Future research into TRM's self-care mental wellness skills and TRM's psychotherapeutic effectiveness will make a significant contribution toward helping persons who have experienced trauma and live its repercussions.

Conclusion

Persons with complex trauma have physical symptoms, affective arousal dysregulation, and problems with attention, concentration, and perceptions of themselves and the world, but current neuroscience supports the idea that these may be preventable and treatable. Evidence-based, trauma-informed cognitive models provide critical new understandings of the self and past experiences, but somatic therapy models address deep-seated and longterm physiological responses to threat, cues, and triggers when trauma is essentially locked in the body. TRM does not require the telling of any trauma story, and this gentle, invitational approach seems consistent with nursing's ethos and offers opportunities to psychiatric nurses for a new direction in mental health care.

Acknowledgments

The authors wish to thank Kathy Steele, MN, PMHCNS, for her important support.

Author Roles

Linda Grabbe and Elaine Miller-Karas made a substantial contribution to the concept and design, acquisition of data, and analysis and interpretation of data. Linda Grabbe and Elaine Miller-Karas drafted the article and revised it critically for important intellectual content. Both authors approved the version to be published.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

- Black, D. S., & Slavich, G. M. (2016). Mindfulness meditation and the immune system: A systematic review of randomized controlled trials. *Annals of the New York Academy of Sciences*, 1373, 13-24. doi:10.1111/nyas.12998
- Cauda, F., Geminiani, G. C., & Vercelli, A. (2014). Evolutionary appearance of von Economo's neurons in the mammalian cerebral cortex. *Frontiers in Human Neuroscience*, 8, 104. doi:10.3389/fnhum.2014.00104

- Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Violence Prevention. (2016). Adverse childhood experiences (ACEs). Retrieved from https://www.cdc.gov/violenceprevention/ acestudy/index.html
- Citron, S., & Miller-Karas, E. (2013). Community resilience training innovation project: Final CRM innovation evaluation report. San Bernardino County, CA: Department of Behavioral Health.
- Corrigan, F. M., & Hull, A. M. (2015). Neglect of the complex: Why psychotherapy for post-traumatic clinical presentations is often ineffective. *BJPsych Bulletin*, 39(2), 86-89. doi:10.1192/pb.bp.114.046995
- Courtois, C. A. & Ford, J. D. (Eds.). (2014). Treating complex traumatic stress disorders: Scientific foundations and therapeutic models. New York, NY: Guilford Press.
- De Bellis, M. D., & Zisk, A. (2014). The biological effects of childhood trauma. *Child & Adolescent Psychiatric Clinics of North America*, 23, 185-222, vii. doi:10.1016/j. chc.2014.01.00
- Grant, S., Colaiaco, B., Motala, A., Shanman, R., Booth, M., Sorbero, M., & Hempel, S. (2017). Mindfulness-based relapse prevention for substance use disorders: A systematic review and meta-analysis. *Journal of Addiction Medicine*, *11*, 386-396. doi:10.1097/adm.00000000000338
- Groger, N., Matas, E., Gos, T., Lesse, A., Poeggel, G., Braun, K., & Bock, J. (2016). The transgenerational transmission of childhood adversity: Behavioral, cellular, and epigenetic correlates. *Journal of Neural Transmission (Vienna)*, 123, 1037-1052. doi:10.1007/s00702-016-1570-1
- Haase, L., May, A. C., Falahpour, M., Isakovic, S., Simmons, A. N., Hickman, S. D., . . . Paulus, M. P. (2015). A pilot study investigating changes in neural processing after mindfulness training in elite athletes. *Frontiers in Behavioral Neuroscience*, 9, 229. doi:10.3389/fnbeh.2015.00229
- Haase, L., Stewart, J. L., Youssef, B., May, A. C., Isakovic, S., Simmons, A. N., . . .Paulus, M. P. (2016). When the brain does not adequately feel the body: Links between low resilience and interoception. *Biological Psychology*, *113*, 37-45. doi:10.1016/j.biopsycho.2015.11.004
- Hanson, R. (2010, October 26). Confronting the negativity bias [Online newsletter]. Retrieved from http://www.rickhanson.net/your-wise-brain-/how-your-brain-makes-you-easily-intimidated
- Hebb, D.O. (1949). *The organization of behavior*. New York, NY: Wiley.
- Heller, L., & LaPierre, A. (2012). Healing developmental trauma: How early trauma affects self-regulation, selfimage, and the capacity for relationship. Berkeley, CA: North Atlantic Books.
- Herringa, R., Phillips, M., Almeida, J., Insana, S., & Germain, A. (2012). Post-traumatic stress symptoms correlate with smaller subgenual cingulate, caudate, and insula volumes in unmedicated combat veterans. *Psychiatry Research*, 203, 139-145. doi:10.1016/j.pscychresns.2012.02.005
- Horn, S. R., Charney, D. S., & Feder, A. (2016). Understanding resilience: New approaches for preventing and treating PTSD. *Experimental Neurology*, 284(Pt. B), 119-132. doi:10.1016/j.expneurol.2016.07.002

- Lang, A. J. (2017). Mindfulness in PTSD treatment. Current Opinions in Psychology, 14, 40-43. doi:10.1016/j.copsyc. 2016.10.005
- Leitch, L. (2007). Somatic experiencing treatment with tsunami survivors in Thailand: Broadening the scope of early intervention. *Traumatology*, 13, 11-20. doi:10.1177/1534765607305439
- Leitch, L., & Miller-Karas, E. (2009). A case for using biologically-based mental health intervention in post-earthquake china: Evaluation of training in the trauma resiliency model. *International Journal of Emergency Mental Health*, 11, 221-233.
- Leitch, M. L., Vanslyke, J., & Allen, M. (2009). Somatic experiencing treatment with social service workers following Hurricanes Katrina and Rita. *Social Work*, 54, 9-18.
- Levine, P. A. (1997). *Waking the tiger: Healing trauma*. Berkeley, CA: North Atlantic Books.
- Levine, P. A. (2003). Panic, biology and reason: Giving the body its due. USA Body Psychotherapy Journal, 2, 5-21.
- Levine, P. A. (2010). In an unspoken voice: How the body releases trauma and restores goodness. Berkeley, CA: North Atlantic Books.
- Miller-Karas, E. (2015). *Building resilience to trauma: The trauma and community resiliency models*. New York, NY: Routledge.
- Nemeroff, C. B. (2016). Paradise lost: The neurobiological and clinical consequences of child abuse and neglect. *Neuron*, *89*, 892-909. doi:10.1016/j.neuron.2016.01.019
- Nummenmaa, L., Glerean, E., Hari, R., & Hietanen, J. K. (2014). Bodily maps of emotions. *Proceedings of the National Academy of Sciences*, 111, 646-651. doi:10.1073/ pnas.1321664111.
- Ogden, P., & Fisher, J. (2015). Sensorimotor psychotherapy: Interventions for trauma and attachment. New York, NY: W. W. Norton.
- Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy*. New York, NY: W. W. Norton.
- Parker, C., Doctor, R. M., & Selvam, R. (2008). Somatic therapy treatment effects with tsunami survivors. *Traumatology*, 14, 103-109. doi:10.1177/1534765608319080
- Payne, P., Levine, P. A., & Crane-Godreau, M. A. (2015). Somatic experiencing: Using interoception and proprioception as core elements of trauma therapy. *Frontiers in Psychology*, 6, 93. doi:10.3389/fpsyg.2015.00093
- Puterman, E., Gemmill, A., Karasek, D., Weir, D., Adler, N. E., Prather, A. A., & Epel, E. S. (2016). Lifespan adversity and later adulthood telomere length in the nationally representative US Health and Retirement Study. *Proceedings of the National Academy of Sciences of the United States of America*, 113, E6335-E6342. doi:10.1073/ pnas.1525602113

- Rodrigues, M. F., Nardi, A. E., & Levitan, M. (2017). Mindfulness in mood and anxiety disorders: A review of the literature. *Trends in Psychiatry and Psychotherapy*, 39, 207-215. doi:10.1590/2237-6089-2016-0051
- Rothschild, B. (2010). 8 keys to safe trauma recovery. New York, NY: W. W. Norton.
- Rothschild, B. (2011). The body remembers: Vol. 1. The psychophysiology of trauma and trauma treatment. New York, NY: W. W. Norton.
- Rothschild, B. (2017). *The body remembers: Vol. 2. Revolutionizing trauma treatment.* New York, NY: W. W. Norton.
- Scaer, R. C. (2001). The body bears the burden: Trauma, dissociation, and disease. Binghamton, NY: Hawthorn Medical Press.
- Schore, A. N. (2001). The effects of early relational trauma on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal*, 22, 201-269.
- Shalev, I., Entringer, S., Wadhwa, P. D., Wolkowitz, O. M., Puterman, E., Lin, J., & Epel, E. S. (2013). Stress and telomere biology: A lifespan perspective. *Psychoneuroendocrinology*, 38, 1835-1842. doi:10.1016/j. psyneuen.2013.03.010
- Shatz, C. J. (1992). The developing brain. *Scientific American*, 267(3), 60-67.
- Siegel, D. (1999). *The developing mind*. New York, NY: Guilford Press.
- Szyf, M., Tang, Y. Y., Hill, K. G., & Musci, R. (2016). The dynamic epigenome and its implications for behavioral interventions: A role for epigenetics to inform disorder prevention and health promotion. *Translational Behavioral Medicine*, 6, 55-62. doi:10.1007/s13142-016-0387-7
- Tang, Y. Y., Holzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews: Neuroscience*, 16, 213-225. doi:10.1038/nrn3916
- Vaish, A., Grossmann, T., & Woodward, A. (2008). Not all emotions are created equal: The negativity bias in socialemotional development. *Psychological Bulletin*, 134, 383-403. doi:10.1037/0033-2909.134.3.383
- van der Kolk, B. (2014). *The body keeps the score: Brain, mind, and body in the healing of trauma*. New York, NY: Penguin.
- van der Werff, S. J., van den Berg, S. M., Pannekoek, J. N., Elzinga, B. M., & van der Wee, N. J. (2013). Neuroimaging resilience to stress: A review. *Frontiers in Behavioral Neuroscience*, 7, 39. doi:10.3389/fnbeh.2013.00039
- Williams, J. M. G., Teasdale, J. D., Segal, Z. V., & Kabat-Zinn, J. (2007). The mindful way through depression: Freeing yourself from chronic unhappiness. New York, NY: Guilford Press.