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Integrating Sensory and Trauma-Informed Interventions: A Massachusetts State Initiative, Part 1

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A great deal has been written about trauma, symptoms of trauma, and related clinical programs and treatment interventions, particularly over the past 2 decades. More recently, the biological impact of trauma on brain development, neurobiology, and the general physiological response has been the subject of neuroscientific research (van der Kolk, 2004, 2006). Although this research has grown, the exploration of treatments that directly address the neurophysiological disruptions of trauma are limited (Fisher, 2005; van der Kolk, 2004). Sensory-based interventions have been promoted as a promising approach to working with children and adults with trauma histories (Champagne & Stromberg, 2004; National Association of State Mental Health Program Directors [NASMHPD], 2009; Ogden & Minton, 2000). This article establishes the value and relevance of integrating sensory-based, trauma-informed interventions in the delivery of mental health services.

Acknowledging Trauma

Exposure to trauma is a significant factor in the lives of many people who enter the mental health system (NASMHPD, 2009). It is estimated up to 90% of persons with severe psychiatric disorders have experienced abuse involving violence and victimization in childhood, adulthood, or both (Felitti, Anda, & Nordenberg, 1998; Mueser et al., 2004; Rosenberg et al., 2001). Psychiatric manifestations related to trauma exposure include mood, anxiety, behavioral, identity, eating, and substance abuse disorders, many of which may be co-occurring (van der Kolk, 2001).

Posttraumatic stress disorder (PTSD) is the most clearly defined and understood trauma-related diagnosis to date (American Psychiatric Association [APA], 2000). Although there has been some improvement in the assessment of trauma, PTSD and co-occurring trauma-related disorders continue to be missed, misunderstood, and inadequately treated (Mueser, Rosenberg, Goodman, & Trumbetta, 2002; NASMHPD, 2009; Rosenberg et al., 2001). Even when PTSD is recognized, experts contend that the diagnosis is imprecise and inadequately captures the intricacies of trauma, particularly in children (Ford & Kidd, 1998), and advocate for the diagnosis that incorporates the developmental

perspective—developmental trauma disorder (van der Kolk, 2005). Having proper diagnostic tools, assessments, and training to ensure the understanding of trauma prevalence and symptoms and correlation to sensory-based interventions is essential to identifying and providing client-centered services for this large segment of the mental health population (Carmen et al., 1996; NASMHPD, 2009).

The Impact of Trauma on the Body

Research has demonstrated that exposure to trauma can negatively affect the mind, body, and ability to develop healthy attachments (Hughes, 2004; Schore, 1994). Traumatic experience can usher in a cascade of sequelae that adversely affect normative functioning, socioemotional well-being, and experience of sensation (Kardiner, 1941; Saporta, 2003). The perception, effect, and response to trauma, however, are unique to each individual (Aldwin & Yancura, 2004; NASMHPD, 2009; Olff, Langeland, & Gersons, 2005; Pine, 2003), which makes individualized interventions toward healing and recovery essential.

A recent meta-analysis indicated that PTSD compromises several neurological structures and functions (Karl et al., 2006). Specifically, PTSD adversely affects the hippocampus, which is involved in learning and memory, and multiple frontal-limbic system structures, which help regulate emotional responses to stress and fear (Karl et al., 2006). Furthermore, traumatic experience has an untoward impact on the hypothalamic-pituitary-adrenal axis, a major part of the neuroendocrine system that controls responses to stress and regulates many body processes (Bremner et al., 2003; Caffo, Forresi, & Lievers, 2005; Rasmussen & Friedman, 2002; Sala et al., 2004). Some studies suggest that traumatic exposure may be associated with other physiological abnormalities, illnesses, or deficits, including elevated thyroid hormone levels (Friedman, Wang, Jalowiec, McHugo, & McDonagh-Coyle, 2005), hypertension and heightened tachycardia rates in adulthood (Perry, 2000), respiratory abnormalities (Blechert, Michael, Grossman, Lajtmann, & Wilhelm, 2007), and verbal memory deficits (Bremner, Vermetten, Afzal, & Vythilingam, 2004).

It is not surprising, therefore, that with cortical structural and functional compromise, the capacity to process and integrate sensory information and regulate emotional states is impaired (Ogden & Minton, 2000; van der Kolk, 2004). Consequently, persons

Trauma Treatment

A number of trauma treatments and models exist. Some focal therapies, such as eye movement desensitization and reprocessing, hypnosis, and sensorimotor processing, address the body's reaction to trauma (Fisher, 2006; Lynn & Cardena, 2007; Ogden & Minton, 2000). Traditional therapies for trauma tend to address the cognitive and emotional elements (Linehan, 1993; McCann & Pearlman, 1990; Najavits, 2006), but many do not fully address the somatically based effects. Instead, these therapies tend to be language dominant, focusing on the client's emotional feeling state. Therapies that rely on verbal processing may be insufficient in attending to the gestalt of the trauma effect and resulting attachment issues (Hughes, 2004; Ogden & Minton, 2000; van der Kolk, 2004). According to Wylie (2004), words alone "can't integrate the disorganized sensations and action patterns that form the core imprint of trauma" (p. 34). Few approaches consider "disorganized sensations" and incorporate the physical feeling state of the body into treatment. One promising and emerging practice area that transcends this fundamental limitation is sensory approaches.

Sensory Approaches

Sensory approaches can be used to target intense physical manifestations of traumatic sequelae and have been found helpful to persons with trauma histories, caregivers, and the general mental health population (Atchison, 2007; Champagne & Stromberg, 2004). Additionally, sensory approaches are being used to address attachment and other developmentally based issues faced by persons with trauma histories. These evaluation and treatment interventions offer a different therapeutic experience that goes beyond the realm of conventional trauma approaches (e.g., exposure interventions, cognitive restructuring, didactic psychoeducation, other talk-based therapies) and is an emerging evidence base from occupational therapy research (Moore & Henry, 2002; Smith, Press, Koenig, & Kinnealey, 2005). Thus, sensory approaches have become increasingly popular in general mental health practice largely because they provide experiential opportunities to help individuals recognize and regulate sensory experiences, identify sensory preferences, and begin to heal the mind through the physical sensations of the body (Champagne & Stromberg, 2004; Fisher, 2006; Ogden & Minton, 2000). In this way, individuals engage in "experiences that directly contradict the emotional helplessness and physical paralysis that accompany traumatic experiences" (van der Kolk, 2004, p. 336). Through the use of preparatory, purposeful, and occupation-based interventions, sensory approaches are used to foster feelings of safety and support development and engagement in meaningful life roles, routines, and activities.

Operationalizing Sensory Approaches

Operationalizing sensory approaches into the culture of care requires a mindful approach, including determining the purpose and intended goals of their use before implementation. In general mental health practice, sensory modulation-related interventions increasingly have been implemented. According to Miller, Reisman, McIntosh, and Simon (2001), sensory modulation is,

The capacity to regulate and organize the degree, intensity and nature of responses to sensory input in a graded and adaptive manner. This allows the individual to achieve and maintain an optimal range of performance and to adapt to challenges in daily life. (p. 57)

Regardless of whether an individual has a specific type of sensory modulation dysfunction, sensory modulation-related interventions provide experiential opportunities that may be used collaboratively

with trauma-related disorders experience a high degree of neurophysiological reactivity that significantly impedes processing and learning, demonstrating why talk therapies alone are insufficient (Ogden & Minton, 2000; van der Kolk, 2004). Hence, Luxenberg, Spinazzola, Hidalgo, Hunt, and van der Kolk (2001) recommended the following three phases of trauma treatment: (a) stabilization, (b) processing and grieving, and (c) transcendence. Sensory approaches may be used across these phases to foster safety, development, functional performance, and recovery.

Responding to Trauma

Trauma-informed care (TIC) addresses the relationship among environmental or subjective triggers, perception of danger, neurobiological activation that leads to a distressed neurophysiological state, and resulting functional and behavioral problems (Harris & Fallot, 2001; NASMHPD, 2009). From the understanding of extreme states as they relate to survival, defense mechanisms, and the stress response emerges a greater conceptual awareness of the impact of trauma on the ability to feel safe and functional. Thereby, TIC acknowledges the centrality of trauma and its profound impact on a person's perception of emotional and physical safety, medical status, sensations, behaviors, and relationships (NASMHPD, 2009). The goal of trauma-sensitive work is to help the individual restore a sense of personal control, safety, and stability through implementation of individualized strategies so that emotional distress is minimized, and a more calm, safe, and adaptive state attained (Champagne & Stromberg, 2004). In this way, the more dynamic and resilient state supports occupational engagement.

van der Kolk (1997) described a significant factor contributing to dysregulation as the experience of "overwhelming stimuli that give rise to the dissociated sensory experiences characteristic of PTSD" (p. 1). Further, he discussed the powerful reexperiencing of traumatic events and the body's reaction within a kind of timelessness, leaving the individual flooded with multi-sensory experiences as if the trauma were occurring in the present. These unwanted sounds, smells, bodily discomforts, nausea, intrusive memories, numbing, and feelings of frozenness or paralysis as well as the inability to manage states of over- or underarousal, however fragmented, are real and overwhelming. Thus, one's physical state often must be addressed before interventions targeting higher cortical processes related to cognitive appraisal and understanding occur (Fisher, 2006; Ogden & Minton, 2000; van der Kolk, 2001).

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to enhance occupational performance skills while targeting occupational performance barriers.

Guidelines exist to help operationalize sensory modulation interventions, such as *How Does Your Engine Run?* (Williams & Shellenberger, 1994) and *Sensory Modulation and Environment* (Champagne, 2008). Key components of sensory modulation programming are assessing, exploring sensory tendencies and preferences, creating sensory diets (individual and programmatic), using sensorimotor activities and modalities, modifying the physical environment, and educating caregivers. Sensory modulation programs can be used in isolation or in combination to enhance other TIC or mental health approaches (e.g., dialectical behavioral therapy, cognitive behavioral therapy, 12-step programs). The blending of sensory modulation and self-regulation concepts and the availability of implementation guidelines that take into account adaptations for context, age, cognition, sensory abilities, and other strengths and barriers is helpful when engaging in trauma-informed program development.

Massachusetts State Initiative

The national initiative to reduce the use of seclusion and restraint, coupled with the TIC and recovery movements, promotes the potential of sensory approaches and advocates for skilled, collaborative, and individualized use (NASMHPD, 2009). Many inpatient mental health programs across the state of Massachusetts use sensory approaches in an effort to provide a more nurturing, healing, and trauma-informed culture of care. Additionally, occupational therapists incorporate the use of sensory modulation interventions across a broad range of mental health service delivery areas (e.g., veterans' hospitals, the criminal justice system, school-based practice, outpatient clinics).

Since 2003, Massachusetts has contributed to NASMHPD's National Technical Assistance Center resources and received grant funding from the Substance Abuse and Mental Health Service Administration to actualize seclusion-and-restraint reduction initiatives. In 2006, the state Department of Mental Health passed a regulation requiring that all state-licensed facilities incorporate sensory approaches into care delivery. Recognizing the high prevalence of trauma and diversity of sensory processing needs, TIC and sensory modulation approaches have been strongly supported across Massachusetts's mental health care delivery systems. Part 2 of this article will outline the change process and examples of quality improvement outcomes related to the use of sensory approaches and other quality indicators. ■

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