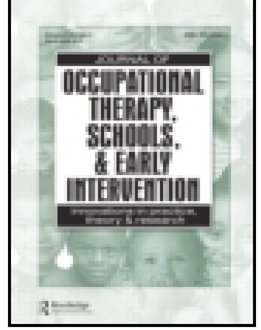
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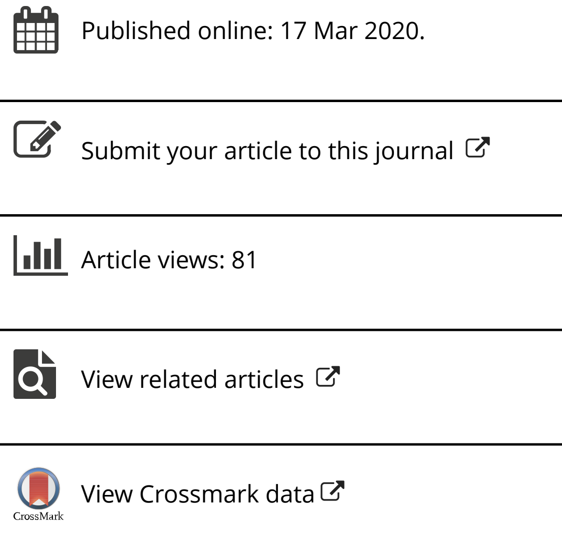
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Using a Public Health Model as a Foundation for Trauma-Informed Care for Occupational Therapists in School Settings

Amy K. Lynch PhD, OTR/L, TBRI Educator[a], Rachel Ashcraft MS, OTR/L[b], Kelly Mahler MS, OTR/L[c], Colleen Cameron Whiting MS, OTR/L[d], Krista Schroeder PhD, RN[e], and Meredith Weber PhD,NCSP[f]

[a]Department of Health and Rehabilitation Sciences, Temple University College of Public Health, Philadelphia, PA; [b]Child's Play / Foster the Future, Birmingham, AL; [c]Mahler Occupational Therapy, Hershey, PA; [d]Norfolk Public Schools, Norfolk, MA; [e]Department of Nursing, Temple University College of Public Health, Philadelphia, PA; [f]Philadelphia College of Osteopathic Medicine, School of Professional & Applied Psychology, Philadelphia, PA

ABSTRACT

Literature is abundant with information about the impact of Adverse Childhood Experiences (ACES) upon adult physical health and well-being. Findings beckon attention by providers to identify and respond to trauma during childhood in order to reduce the significant life-long impact. The purpose of this article is to explore a model for trauma-informed care intervention by occupational therapy practitioners, in collaboration with other providers, within a school system. Authors propose a three-tiered public health model approach to understanding and responding to the needs of children who experience adverse childhood experiences. A tiered public health approach engages providers to develop a model that can be actualized to ensure a "360* based approach" for healing and forward growth in communities supporting students who experience trauma. Authorship by professionals from each profession adds a unique perspective not otherwise found in current literature.

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Childhood trauma; therapeutic alliance; interoceptive awareness; interprofessional collaboration; occupational therapy; felt safety; empowerment

Introduction

In the United States alone, more than half of the population of children have experienced at least one adverse childhood experience. "Adverse Childhood Experiences (ACEs)" reflects an incident or series of incidents in which a child suffers trauma, abuse, or neglect. With such rising and staggering statistics, paired with the rising national rate of hate crimes and the influence of social media upon the incidental experience of trauma, it is important to recognize that trauma has rapidly become a public health crisis (Magruder, McLaughlin, & Elmore Borbon, 2017). The experience of ACEs in childhood correlate with long-term physical and mental health impairments in adulthood. For example, adults who experienced ACEs are more likely to have physical health impairments such as cardiovascular disease, obesity, and cancer. Adults who experience ACES are also more likely to experience anxiety, depression, and addiction (Anda et al., 2006). Early ACEs literature focused upon the individual, allowing for the emergence of intervention and

CONTACT Amy K. Lynch, Associate Professor tuf83028@temple.edu Program in Occupational Therapy, Department of Health and Rehabilitation Sciences, Temple University, Mitten Hall (Suite 201), 1913 North Broad Street, Room 201B, Philadelphia, PA 19122-6092, T: 215-204-0825

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social justice for these individuals as adults. Across time, researchers and providers alike, have begun to recognize aspects of communities (such as those who experience a natural disaster or displaced communities such as refugees) who experience ACES as well as intergenerational experiences of ACEs (such as communities of significant poverty or of high crime rate). For these communities, trauma permeates across individual boundaries, across families, as well as across neighborhoods, schools, and workplaces (Akiki, Averill, & Abdallah, 2018). The ripple effect of a collective group of individuals who have experienced trauma impacts not only the individuals from childhood to adulthood, but also the community at large.

Trauma impacts community relationships, community well-being, and overall community productivity. The prevalence of trauma experiences by members within a community has a significant impact on the long-term health, ecological, and physical well-being of the community for both current and future generations (Kinner & Borschmann, 2017). For example, individuals who experience trauma are at a higher risk of developing a psychiatric disorder. The costs of mental health and pharmacological interventions alone lend financial burden to a community (Fang, Brown, Florence, & Mercy, 2012). Individuals who experience trauma, and who do not have resilience or protective factors "for buffering the impact," are at a higher risk for workplace anger and absenteeism. This limits community workforce productivity and increases employee dismissals for poor workplace behaviors which leads to unemployment costs and layers more financial burden to the community. Communities with higher aggregate ACE scores also experience an increased number of violent crimes conceivably due to cumulative and ongoing trauma-related dysregulation and maladaptive coping skills. This tendency to aggression impacts number of offenders, prisoner behavior, and costs within our penal system (Swogger, You, Cashman-Brown, & Conner, 2011). Furthermore, children of the above noted incarcerated individuals experience trauma at the loss of a caregiver.

Communities can also experience high intergenerational trauma. In these communities, the children in daycares, preschools, and public-school system are at risk for trauma exposure from the trauma-influenced behaviors of their older generations of caregivers (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009). Furthermore, if these settings have workforce staff who are members of the surrounding community, then these providers also bring trauma experiences to a child's educational environment. In consideration of these community trauma concepts, it is clear that children in high-risk trauma communities experience their own individual trauma. If not addressed, then the intergenerational trauma cycling risk becomes higher.

Children, youth, and adolescents who experience trauma can present with difficulties in school performance both academically and behaviorally which are best addressed using a trauma-informed care approach. Health care providers, such as occupational therapists, with specialized training in trauma can work collaboratively using a public health intervention model to respond to the needs of communities and the individual students who experience ACEs.

Multiple barriers impact school-based performance and participation for students with experiences of trauma. Students who experience trauma have difficulty with cognition, such as problem-solving and memory (Gould et al., 2012; Majer, Nater, Lin, Capuron, & Reeves, 2010). Students exposed to trauma experience challenges with sensory processing and regulation, increased rates of anxiety, as well as greater likelihood of exhibiting externalizing, aggressive behavior. Additionally, students who experience trauma are

more likely to have social emotional deficits, such as decreased emotional awareness in both self and others including difficulty with perspective taking. As such, students exposed to trauma experience limitations in social participation and play, negatively impacting school engagement (Whiting, 2018.) In isolation and in combination, these trauma induced impairments limit student success in the school learning and social environment. Earlier response to the outcomes of individual childhood experiences with ACEs in a school setting may enable mitigation of the impacts of trauma into adulthood (Ashcraft, Lynch, & Tekell, 2019.)

The rippling impact of trauma upon the occupational performance of individuals and collectively as a community is apparent. Emergent position statements from national professional organizations, such as AOTA advocate and begin defining roles for professionals in the evaluation and intervention of individuals and communities who have experienced trauma (Champagne, 2018). The American Public Health Association (APHA) also proposes a multi-tiered approach to trauma-informed practice, including direct interventions as well as in social and organizational policies (Bowen & Murshid, 2016). The school setting is an ideal location to begin addressing layers of trauma at the individual and community level. In this setting, students have access to occupational therapists, school psychologists, school nurses, and school guidance counselors. However, while trauma-informed care in schools has become a "hot topic," with literature suggesting that principles of effective intervention need to span across the child's school community, thus far the research appears limited to addressing trauma targeting individuals or addressing small groups and are not specific to occupational therapy. (Walkley & Cox, 2013). However, research about emergent programs has exciting elements that address key needs at various levels within and around individual students experiencing and/or responding to trauma.

Emerging studies reflect efforts at design, execution, and outcomes of various trauma-informed programs primarily at the individual or small group level. For example, the Animated Learning by Integrating and Validating Experiences (ALIVE) program, is a two-tiered approach, introduces students to traumatic experiences and impact upon relationships, learning, experiences of "trauma triggers" in school, and direct education surrounding stress reduction. The program includes a psychoeducational peer group within classrooms (considered "Tier 2" or "small group intervention") and assessment and direct support for individuals with behaviors reflecting trauma (considered "Tier 3" or individual targeted intervention) (Frydman & Mayor, 2017). In another study, the Trauma-Informed Elementary Schools (TIES) model was designed to provide training to staff and families (Tier 2, small groups), and classroom consults (Tier 2, small groups), and direct intervention to children and their families (Tier 3, targeted individualized intervention) (Rishel, Tabone, Hartnett, & Szafran, 2019). Meanwhile, other research focuses on group training for students or for staff. For example, the RAP program was a large reaching program with a twice-weekly group program (Tier 2, small group) (Mendelson et al., 2019). This is a psychoeducational program that uses a cognitive-behavioral approach and positive mindfulness promote self-regulation. Other trauma-informed school emergent models include education of teachers, staff, and/or parents. One such study evaluated the impact of pre-school teacher participation in an intensive Enhancing Trauma Awareness (ETA) training program (Tier 2, small group at the provider level) (Whitaker et al., 2019). Results of this training yielded enhanced teacher to child

relationship and increased empathy. Interestingly, results found no change in teacher report of conflict scores which may suggest that awareness training, alone, does empower teachers with action-oriented skills to respond to trauma-induced conflicts. Other trauma-informed approaches emphasize a change in perspective and psychoeducation, such as utilizing the lens of "what happened to?" versus "what's wrong with?" when conceptualizing child behavioral difficulties, but do not provide specific interventions. A systematic review of the impact of trauma-informed care training for school providers supports that staff training is both imperative but must be followed with coaching and "hands on/how to" training. Empowerment of providers with trauma guided, action-oriented skills are imperative to the cultural shift necessary for a school to self-actualize a trauma-informed approach (Purtle, 2018).

This paper proposes a role for occupational therapists working collaboratively with other professional stakeholders in the education community in order to address the needs of those vulnerable from their trauma experiences. Utilizing a public health model to respond to the emerging crisis of ACEs upon children can be a foundation for earlier intervention in the child's school setting and may empower the traumatized child with strategies to mitigate trauma experiences. SAMSHA principles of a trauma-informed approach ultimately underscore the emergent concept that trauma-informed care is a "universal precaution" (Racine, Killam, & Madigan, 2019). Therefore, we propose that emergent best practice trauma-informed programming designs for occupational therapy practitioners in schools utilize the Multi-Tiered System of Support (MTSS), with intervention at each tier: Universal (Tier 1), Small Group (Tier 2), and Targeted/Individual (Tier 3), with clear links to SAMSHA principles of trauma-informed approach permeating all aspects of the school community and its members (teachers, staff, parents, and students). The six trauma-informed approach principles are safety, trustworthiness, and transparency, peer support, collaboration, and mutuality, empowerment/voice/and choice, and cultural/historical/and gender issues (SAMHSA, 2014). The principles of trauma-informed care applied to schools are also consistent with best practice in school climate, social emotional learning, equitable discipline practices, and other aspects of school life. In this way, they can be regarded as universal precautions which will not only serve to assist students exposed to trauma and chronic stress, but which will also benefit all students.

Proposal of a Collaborative Model for Trauma-Informed Intervention by the Occupational Therapist in Schools

Before understanding trauma-informed care (TIC) strategies within each tier, the occupational therapist should understand three core concepts that permeate all tiers of intervention for the traumatized child: therapeutic alliance, interoceptive awareness, and intentional collaboration by providers of all disciplines within the school setting.

Therapeutic Alliance

The experience of trauma disrupts trust and destabilizes an individual's belief in the value of relationships. Consistent presence of providers providing stable, consistent, empathetic care can empower the readiness of the traumatized student to engage in a therapeutic

relationship (Purvis, Cross, Dansereau, & Parris, 2013). Occupational therapists recognize the value of "therapeutic use of self" as a means of gaining client trust (Taylor, Lee, Kielhofner, & Ketkar, 2009). Therapist utilization of a strength-based, client-centered approach creates a foundation for the student to an active part of developing his/her therapeutic plan. Student involvement in goal setting and leveraging identified strengths demonstrates to the child that his/her voice is heard and valued which strengthens the potential value of a therapeutic alliance. Client perception of strong therapeutic alliance leads to increased motivation and self-determination by the client (Stanhope, Barrenger, Salzer, & Marcus, 2013). Interestingly, interpersonal reasoning, which supports a client engaging in the therapeutic alliance, relies on the integrity of interoceptive awareness in both the therapist as well as the student (Mønster, Håkonsson, D., Eskildsen & Wallot, 2016; Taylor, 2020). This lends further support to the construct that interoceptive awareness is important when providing services to the traumatized student.

Interoceptive Awareness

Individuals who experience trauma have been found to have interoceptive differences (Simmons, Strigo, Matthews, Paulus, & Stein, 2009; van der Kolk, 2014). Interoception is the sensory system that allows us to experience physiological body sensations and correlate with emotional reactions (Craig, 2002). In typical development, interoceptive awareness supports the emergence of emotion regulation (Füstös, Gramann, Herbert, & Pollatos, 2012; Herwig, Kaffenberger, Jäncke, & Brühl, 2010; Kever, Pollatos, Vermeulen, & Grynberg, 2015; Wager & Barrett, 2017). Individuals who experience trauma report an over- or under-responsiveness to interoceptive sensations, both of which lead to difficulty using body signals to inform a clear emotional experience (Teicher, Samson, Anderson, & Ohashi, 2016). For example, a student may not notice a growling stomach, full bladder, or muscle tension, leading to important, but missed cues about their current emotional state (e.g. hungry, need to urinate or anxiety). The missed cues then lead to the inability to seek out a regulation strategy in a timely manner. Instead of regulating the physiological need, the student may exhibit strong, negative externalizing, violent offending behavior such as yelling out in class or hitting a peer (Dambacher et al., 2014; Kever et al., 2015; MacManus et al., 2013; Werner, Kerschreiter, Kindermann, & Duschek, 2013) Given that interoceptive awareness and regulation skills are commonly impacted in individuals who experience trauma, then incorporating interoception into the interventions provided is absolutely essential (van der Kolk, 2014). Many times, when addressing the self-regulation needs of students who experience trauma, occupational therapists and other professionals skip over the foundation of interoception and use interventions that are too high of a demand for where the student is at developmentally, resulting in further dysregulation. Building the ability to both notice body signals and connect the body to a meaning (emotion) in an organized and predictable manner will empower the establishment of healthy levels of emotional awareness, thus in turn supporting the ability to use coping skills and participate with reactions commensurate with a situation.

Collaboration

Collaborative team strategies are imperative for the successful implementation of trauma-informed strategies and positive outcomes in the classroom. The disruption of trust and limited development of interpersonal reasoning experienced by students who have experienced trauma invite an opportunity to strengthen collaboration amongst school team members. A traumatized student who experiences differential responses from school personnel will not experience positive behavioral outcomes. Consistency in interventions through collaboration is essential to positive behavioral outcomes (Bellg et al., 2004) and student inclusion success (Nevin, 2000). For students who have experienced trauma, the intentional collaboration will ensure student experiences of predictable, consistent expectations and responses from all providers within the school setting. Best practice to support the student affected by trauma should ensure collaboration by providers across the dynamic process of assessment of need and across all three tiers of intervention.

Evaluation and Intervention Utilizing a Tiered Public Health Model

In consideration of the rising statistics of school-age children who have experienced early adversity, addressing the public health crisis of childhood trauma is imperative across all tiers of intervention in the public school setting. Occupational therapists are uniquely trained to understand and respond to the needs of students who experience adversity and their school communities. Occupational therapists have knowledge, skills, and an existing role in school service provision across Tiers 1, 2, and 3. A precedent for school-based intervention utilizing this model exists in the "Every Moment Counts" program (https://everymomentcounts.org).

Tier 1 An occupational therapist recognizes that a student environment that fosters a foundational experience of safety and belonging is at the heart of tier 1 interventions for a trauma-informed school environment. This includes education for administration, educators, and school personnel regarding the impact of trauma on participation in the classroom, with peers, and in extra-curricular activities. Tier 1 approaches advocate for the inclusion of regulating activities and opportunities in the general classroom for all children. A trauma-informed school must have established guidelines to identify signs and symptoms of trauma. Further, Tier 1 approaches will continually assess the bigger picture of school culture and procedures, ensuring that safety and belonging are central across school environments and activities. A Tier 1 approach will include occupational therapists promoting changes in policies and procedures for both student and staff support. For students, policies will ensure consistency in response by all staff who interact with students, especially trauma triggered students. Response systems will promote safety, trustworthiness, and collaboration, and empowerment of voice and choice for the child, with all providers assuring that they resist any interactions which might retraumatize the child. For the staff, Tier 1 approaches by the occupational therapist will include advocating for policies and procedures recognizing the staff experiences working with highly traumatized populations. Policies will support staff training, staff physical and mental well-being, staff experiencing physical and emotional safety as well as empowerment of voice and choice. A Trauma-Informed approach at a Tier 1 level will not only benefit children who have experienced early adversity but will also serve as a foundation for a feeling of safety, "felt safety" (Purvis et al., 2013) for all children (Table 1).

Table 1. Strategies for Tier 1 Universal Across All Ages

Tier 1 Universal Across the Ages	Ensure consistent access to food, nutrition, and movement for all members of the school community (staff, teachers, students) Facilitate trauma-informed policies on lock down, fire, and other safety drills Predictable schedules and routines Building cohesion through embedded positive mental health strategies Guidelines to identify signs/symptoms of trauma Educate staff around the effects of toxic stress on the body and the impact on their occupational performance in the school setting. Improving interoceptive awareness for all staff and students to promote co-regulation, self-regulation and emotional well-being. Using interoceptive awareness builders to form the "pulse" of the community, enhance cohesion and develop perspective taking (e.g., how does your body feel, how does my body feel, how do our bodies feel/interact as a group?).

Tier 2: An occupational therapist intervening at a tier 2 level may consult on modification of classroom and school-based activities, suggest environmental modifications, establish a trauma-informed classroom culture that promotes the feeling of safety, and co-lead small groups to develop social, sensory, and regulation skills. Classroom modifications may include modification of the environment itself, of assignments, of scheduled access to nutrition and hydration, and even of the culture of the classroom. Tier 2 intervention will include education on the importance of safe and meaningful relationships with both peers and educators as a necessary component to learning. Other environmental modifications may address extra-curricular environments (art, P.E., band, etc.), peer-based group environments (lunchroom, recess, study hall, etc.), health services (school nurse, counseling, etc.), and transitional services (carpool line, bus, before/after school waiting places, school entrances, etc.). The OT may also provide caregiver education regarding the importance of meeting basic needs (hydration, sleep, nutrition) and the necessity of predictable routines at home to support school participation. See chart below for examples and details (Table 2).

Table 2. Strategies for Tier 2 Targeted, Classroom and Small Groups Across All Ages

Tier 2 Targeted, Classroom and Small Group Across the Ages	Small group cohesion (Positive MH) Co-lead small groups to develop social, sensory, and regulation skills in the classroom Suggest social activities that could help facilitate success for students in free play, lunch, or recess Explicit instruction (via groups) on noticing and interpreting internal interoceptive sensations and other related interoceptive skills Embedding interoceptive awareness builders into daily routines in order to develop the ability to notice and interpret body signals. Emphasis on positive practice opportunities to develop the concrete awareness of what it means to feel safe, secure, calm, etc. Environmental modifications in school settings such as the addition of a sensory safe space, a change in lighting, or addition of music Coaching and collaborating with teachers

Tier 3 Occupational therapists providing Tier 3 interventions acknowledge that Tier 3 interventions will be most effective when tier 1 and 2 interventions are in place. Tier 3 interventions will be as individualized and unique as the children they serve. Core considerations for intensive interventions can inform the practical application and plan for an individual student. These considerations include a thorough review of all possible medical, social, and academic barriers (AOTA, 2015). The occupational therapy

practitioner will address any specific barriers to school participation through Individualized Education Plan (IEP) or 504 plan. For children with trauma histories, the school-based OT should be especially attuned to the child's sensory and regulation needs while building emotional expression and regulation skills. The school-based OT can empower the child with problem-solving skills needed to make choices and reflect on those choices (Petrenchik & Weiss, 2015). A combination of sensory and cognitive strategies can promote a positive self-concept and improve participation (Whiting, 2018). Intervention strategies provided will include both compensatory strategies as well as remedial intervention as individually indicated to secure a "just right" challenge that best sets the child up for success in their unique environments (Table 3) (Table 4).

Table 3. Strategies for Tier 3 universal strategies

Tier 3	Child self-actualization/self-affirmation (Positive Mental health)
Across the ages	Regular consultation time of OT with multidisciplinary team
	Development of individual abilities in the areas of, but not limited to: ● Regulation and sensory registration, interpretation, and modulation ● Social skills ● Motor skills new bullet: Relationship skills including communiation ; new bullet: Cognition skills
	Synchronized and mirror activities, including entrainment of respirations (Müller & Lindenberger, 2011) Targeted interoceptive awareness instruction and strategies embedded in daily routines. Emphasis
	on positive practice opportunities to develop the concrete awareness of what it means to feel safe, secure, calm, etc.
	Promote participation in extra-curricular experiences for the individual student that follow an area of interest or strength
	Environment, task and routine modifications individualized to the student
	Sensory diet or sensory-based school lifestyle individualized to the student but embedded in classroom routines and done whole class when possible to promote self-regulation

Essential Teaming: Intraprofessional Collaborators in the School Setting

For best outcomes, occupational therapists must collaborate with key school professionals including administrators, teachers, school nurses, and school psychologists. *Administrators* in the schools are individuals that can help define the trauma-informed vision for the whole school. Administrators are in the position to be able to create the cultural expectation of a trauma-sensitive school environment in which children feel safe and connected and to advocate and sustain this environment for Tier 1 (Cole, Eisner, Gregory, & Ristuccia, 2013). This atmosphere is helpful to support all learners and is proactive versus reactive. Administrators can also arrange for teacher training so that everyone can become knowledgeable about trauma's impact on learning. By centering attention together with the occupational therapist on supporting students' self-regulation, academic success, and relationships, the team can help transform learning environments (Cole et al., 2013). For example, they together can concentrate on the promotion of positive mental health initiatives as well as focus on social-emotional learning in the classroom. Administrators can also support the creation of a dedicated time for the teacher and occupational therapist to collaborate (Lieber et al., 2002) as well as appropriate time in the occupational therapist's schedule to work on the Tier 1 and Tier 2 pieces.

The *classroom teacher* serves as the main relationship in the school setting for the child who has experienced trauma. In addition, the classroom teacher takes on a significant role

Table 4. Outline of Age Specific Intervention Strategy Considerations at each Tier

	Intervention Considerations by Age and RTF			
	Pre-School	Elementary	Middle School	High School
Tier 1	• Movement breaks involving proprioception, vestibular, tactile, and calming activities every 2 hours • Learning time outside of a chair (centers, floor, circle, etc.) • Protein and water provided every 2 hours • Daily recess • High emphasis on play-based learning • Classroom wide body-emotion checks • Staff trained in talking the "interoception talk" • Collaboration between school and family system to promote predict ability across environments	• Movement breaks involving proprioception, vestibular, tactile, and calming activities every 2 hours • Sensory and regulation break space • Protein and water provided every 2 hours • Daily Recess • Key in pins that hide being on "free or reduced cost" meals • Classroom wide body-emotion checks • Staff trained in talking the "interoception talk" • School-wide interoception themes (announcements, ticket out the door, body check charts in hallways) • School wide good morning rituals and routines promote sense of belonging. • Individualized teacher check ins with students	• Daily PE and opportunitiesfor movement throughout the day • School policy allowing water, snacks, etc. • Key in pins that hide being on "free or reduced cost" meals • Classroom wide body-emotion checks (completed privately) • School-wide interoception themes (announcements, ticket out the door, body check charts in hallways) • At risk youth have assigned check in/out person of the day • Assessing culture of school sponsored but out of classroom activities for safety (both realized and felt). These activities would include sporting events, dances, and other social events	• Opportunities for healthy physical activity/leisure • School policy allowing snacks, water, etc. • Key in pins that hide being on "free or reduced cost" meals • Private body-emotion checks with teacher • Staff trained in talking the 'interoception talk' • At risk youth have assigned check in/out person of the day • Assessing culture of school sponsored but out of classroom activities for safety (both realized and felt). These activities would include sporting events, dances, and other social events

(*Continued*)

Table 4. (Continued).

	Intervention Considerations by Age and RTF			
	Pre-School	Elementary	Middle School	High School
Tier 2	• Creation of sensory rich environments in the classroom • Accessibility and opportunities for gross motor play • Creating culture of safe relationships in classroom with teacher and peers • Include age appropriate emphasis on social emotional learning, including interoceptive awareness (e.g., how my body feels, how your body feels) • Interoception centers or stations • Interoception building activities and instruction incorporated during daily routines (e.g. circle-time, crafts, snack) • Use of explicit instruction to establish connections between comfortable feeling emotions (e.g., safety, relaxation) and regulation strategies	• Every Moment Counts – (Bazyk, 2011) • Adaptations in support services such as PE, art, choir to ensure felt safety established in classroom carries over to these environments Sensory break stations in classroom • Assess school-based transition times (ex: carpool line) and implement modifications as needed • Educate teachers on activity modifications so as not to include unnecessary trauma triggering activities (such as bringing a baby picture, or my family tree activities) • Emphasis on social emotional learning including *interoceptive awareness (e.g., how my body feels, how your body feels)?* • Interoception centers or stations • Use of explicit instruction to establish connections between comfortable feeling emotions (e.g., safety, relaxation) and regulation strategies	• Designated calm down and safe support personnel for students who may need breaks to re-regulate • Emphasis on social emotional learning and strength based approaches • Ensuring opportunities for movement and needed sensory input are not lost in transition to middle school • Establishing culture of belonging and felt safety in the classroom • Use of explicit instruction to establish connections between comfortable feeling emotions (e.g., safety, relaxation) and regulation strategies	• Establishing a classroom culture where students have voice and there is mutual respect between educator and students • Help design hallway culture to promote felt safety • Opportunities for self-regulation in the classroom including breathing activities, short movement breaks, etc. • Opportunities to build interoception and establish body-emotion connections with age-appropriate strategies

Tier 3	• Age appropriate ADLs • Co Regulation opportunities • Teach play in context of safe relationships • Address developmental delays/ barriers to occupation • Opportunities to both give and receive nurture (TBRI principles) • Building skills to make choices and opportunities to have voice • High emphasis on playful interaction • Body-emotion checks via individualized body check charts • Systematic, play-based instruction in developing interoceptive awareness • Consideration of direct occupational therapy with a sensory relationship-based approach if participation challenges are present • Opportunities in therapy to rehearse strategies to raise and lower arousal levels	• Age appropriate ADLs • Moving to more self-regulation plans guided by OT and implemented by all educators • Opportunities for play and learning through sensory rich play experiences as co occupation • Building interoceptive awareness (The Interoception Curriculum, Interoception Activity Cards) • Social skills education in context of social emotional regulation (Alert, Superflex, Zones of Regulation)–but only after typical interoceptive awareness levels have been established • Using explicit instruction to establish connections between comfortable feeling emotions (e.g., safety, relaxation) and regulation strategies • Address developmental delays/barriers to occupation • Building skills to make choices and opportunities to have voice • Explore appropriate extracurricular activities that align with strengths and interests • Opportunities in therapy to rehearse strategies to raise and lower arousal levels • Consideration of direct occupational therapy with a sensory relationship-based approach if participation challenges are present	• Self-regulation plan that student is able to take ownership of–*ensuring that the student has the interoception skills needed to identify when the self-regulation plan is needed 'in the moment'* • Building interoceptive awareness (The Interoception Curriculum, Interoception Activity Cards) • Mindfulness • For internal Mindfulness: Slowly build interoceptive awareness, working on being mindfully aware of one body part and gradually work toward being mindfully aware of body signals coming from the entire body. • Opportunities to explore and develop healthy leisure • Social skills and building capacity for healthy peer relationships • Address developmental delays/barriers to occupation • Building self worth and self efficacy (TBRI principles) • Building skills to make choices and opportunities to have voice	• before every new lineLife Skills • Mindfulness and self-regulation – ability to own feelings and mistakes without loss of the autonomous self and sustaining self worth • Address both healthy and unhealthy leisure • Building capacity for healthy peer relationships • Assertiveness training • Address developmental delays/barriers to occupation • Explicit instruction on linking body signals to emotions and eventually establishing personalized body-emotion-action connections (The Interoception Curriculum, Interoception Activity Cards)

in implementing Tier 1 support suggestions. In Tier 2, occupational therapists need to work closely with classroom teachers for delivery of modifications (Fairbanks, Simonsen, & Sugai, 2008). By teaming the occupational therapist with the classroom teacher, they can develop goals, decide on appropriate strategies, initiate strategies in the general education classroom setting, and review data for effectiveness. In addition, collaborative consultation may serve as a useful way to connect what is happening in therapy to the classroom for Tier 3. However, specialist teachers, as well as individuals such as the lunch monitor and bus driver, all have valuable information about the students and can serve as adults who may be sources of important supportive relationships. By collaborating with all staff that the students interact with, the occupational therapist recognizes the impact of different settings and expectations. The occupational therapist can help the team members better understand the effects of toxic stress on the body and how the trauma response can impact the child's ability to learn and be successful in school (Koomar, 2009). Occupational therapists can also take the concerns of the school staff and suggest modifications that address the cognitive, relational, and sensory aspects of the child's individual profile (Petrenchik & Weiss, 2015) as well as help develop routines and structure (Whiting, 2018).

The *school nurse* plays a key role in optimizing the education and health of students (National Association of School Nurses, 2018; Selekman, 2019) and thus is well suited to collaborate with the OT on identification of and response to trauma. The school nurse serves as a liaison between the student, home, and school with respect to learning, physical and mental health, and well-being. Given this role, the school nurse is ideally poised to collaborate with the OT regarding medical issues that may impact a student's functioning. Working with the school nurse, the OT can explore medical barriers to learning and behavior such as medication side effects vision/hearing deficits, or food insecurity and nutrition deficiencies. A school nurse may also identify for the team the possibility of trauma-related injuries, such as an undiagnosed traumatic brain injury. This is particularly critical for students with chronic health conditions or special healthcare needs. OT and school nurses can also collaborate to address student's experiences with pain and identify interoception awareness impairments that may impact pain perception. In the school nurse's role as a care coordinator, the school nurse can facilitate communication between the school team and the student's primary care provider about trauma-related functioning and interventions. In addition, the school nurse can help identify students who are in need of additional support given that frequent visits to the school nurse may be an indicator of a student's emotional stress or social emotional responses to ACEs. Importantly, school nurses are student advocates whose care is grounded in a public health approach (National Association of School Nurses, 2018; Selekman, 2019); thus they can collaborate with OT and other school team members to address social determinants of health, advance systems-level change to support healthier schools, and connect students, families, and communities with relevant resources.

The *school psychologist* is another important collaborator in understanding a child who has experienced adverse childhood experiences. While the role of an individual school psychologist may vary by district, all school psychologists are trained in assessment, intervention, and consultation. In recent years, the National Association of School Psychologists (NASP) has increased its efforts and resources to support school psychologists in enacting trauma-informed care in schools (Eklund & Rossen, 2016; National Association of School Psychologists, (2016)). As evaluators, school psychologists are able

to assess a child's level of cognitive functioning including any difficulties in executive function, memory, or attention potentially affected by repeated exposure to trauma. The results of this assessment can help to ideally inform the type and frequency of intervention. It is often the case that children exposed to early trauma and significant stress have difficulty with skills associated with the frontal lobe of the brain; most notably, executive function skills such as sustained attention, organization, selective attention, processing speed, and response inhibition (CITE) School-based interventions which specifically target these skills and increase self-monitoring and self-awareness can help to increase student success in school both academically and behaviorally.

School psychologists can also track and monitor the progress of interventions either directly or indirectly as part of a Child Study Team, or as a consultant to the interventionist. As part of the evaluation or assessment process, school psychologists and occupational therapists can draw upon their knowledge of child development to help identify the students who are struggling, and then work together to create a trauma-informed plan for accommodations which may draw upon the strengths of a given child, and help to address their areas needing further development. For example, a school psychologist could work with an occupational therapist and a classroom teacher to develop a plan for a student who struggles with hyperarousal, integrating occupational therapy strategies and tools into a classroom behavior plan to support a student. Students who feel unsafe due to past trauma or due to living in a dangerous home or community often experience hypervigilance. Hypervigilance in an unsafe situation can be adaptive, but in a school setting hypervigilance can interfere with the working memory and sustained attention needed for learning (Jennings, 2018). Hypervigilance can also be a barrier to appropriate interaction and socialization with peers and adults. School-based health providers can support students by allowing them time and space to ground themselves and move out of "fight or flight" mode before any learning begins. Using a tier 1 intervention like mindfulness or meditation for the whole class prior to starting the academic part of the school day can support students who need the time to transition, even if those children are not specifically identified as needing additional support around trauma.

School psychologists and occupational therapists can also collaborate in the design of or application of curricula to support social skills development as part of a preventive or more targeted intervention. Enhancing student social skills can be an invaluable part of trauma-informed care, as this will facilitate improved student relationships with teachers and other prosocial adults, as well as with peers. Support with relationships can help students connect to others in school and enhance their social support systems. For students who may not have strong connections to others outside of school due to lack of opportunity (such as for students who may experience housing instability or caregiver instability), positive connections to adults and peers at schools can both act as a buffer against developing symptoms of traumatic stress, and serve a therapeutic function for students struggling with symptoms of stress and trauma.

On a systems level, each of these providers work collaboratively as advocates promoting trauma-informed practices in the school climate. Team members work toward addressing issues of equity and systemic discrimination within the school in order to prevent the marginalization of students (trauma) as well as to prevent the re-traumatization of vulnerable students (already exposed to trauma). Team members can advocate through the provision of language and concepts for policy-level changes, professional development

for school personnel, as well as consultation for parents and community members on trauma and the principles of trauma-informed care. Additionally, collaborative, multi-disciplinary teams have an obligation to contribute to research considering efficacy of TIC interventions in school (Chafouleas, Koriakin, Roundfield, et al. (2019).

Conclusion

In summary, trauma-informed schools is a "hot topic". Occupational therapists have unique skills to empower stability, safety, and a sense of "being understood" for the child who has experienced trauma. Occupational therapists are uniquely qualified to understand the visible and hidden factors impeding participation in daily life activities for individuals and communities who have experienced trauma. School-based occupational therapists working with individuals and communities who have experienced any type of trauma would benefit from specialized training, including review of publications, to understand the impact of trauma. This paper outlined the role of an occupational therapist in the school-based setting transcending three public health intervention tiers. This paper offers guidance for Occupational Therapists developing trauma-informed practice skills through the provision of specific intervention ideas at each tier. Through the development of intervention models that address building (Tier 1: universal, community), classrooms (Tier 2: small group), and individuals, both staff, and students (Tier 3: targeted), there is a greater potential of Occupational Therapists promoting SAMSHA's six guiding principles of trauma-informed care. Students supported across all of these levels are more likely to experience school as a safe environment where they can be best regulated and supported for optimizing learning outcomes. Written as an "interprofessional voice," this paper offers occupational therapists suggestions for working collaboratively with key stakeholders in the school community toward the promotion of best possible outcomes for students who have experienced early adversity.

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