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Fostering Entry Level Practitioner Knowledge, Confidence, and Competence in Trauma-Informed Care Application

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Abstract

Trauma is pervasive worldwide and is associated with poor health outcomes if left unaddressed, however, a gap in practice continues to exist in the implementation of trauma-informed care (TIC). Occupational therapy practitioners will encounter individuals, communities, and populations influenced by trauma, which warrants the need for TIC to improve overall service delivery across the lifespan. However, TIC is currently not systematically integrated into any Accreditation Council for Occupational Therapy Education (ACOTE) occupational therapy educational standards. The purpose of this study was to design, implement, and evaluate a TIC application-based workshop for a sample of entry-level occupational therapy doctorate (OTD) students. The program evaluation component utilized pre-and post- survey design with Likert, forced choice, short-answer, and open-ended questions related to the delivery of content from the trauma-informed care workshop. Outcomes were evaluated through descriptive statistics and content analysis examining participants' perception of change in TIC knowledge, confidence, and competence in application to occupational therapy practice. Overall, participants' perception of TIC application knowledge, confidence, and competence improved following the workshop. The workshop and its associated program evaluation built on prior work across healthcare disciplines establishing the need for proactive TIC education. The current study supports the need for TIC to be intentionally situated within occupational therapy academia to prepare occupational therapy practitioners to understand and apply TIC across the lifespan and practice settings to improve patient outcomes and experiences.

Keywords

Trauma, trauma-informed care, occupational therapy, curriculum

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ABSTRACT

Trauma is pervasive worldwide and is associated with poor health outcomes if left unaddressed, however, a gap in practice continues to exist in the implementation of trauma-informed care (TIC). Occupational therapy practitioners will encounter individuals, communities, and populations influenced by trauma, which warrants the need for TIC to improve overall service delivery across the lifespan. However, TIC is currently not systematically integrated into any Accreditation Council for Occupational Therapy Education (ACOTE) occupational therapy educational standards. The purpose of this study was to design, implement, and evaluate a TIC application-based workshop for a sample of entry-level occupational therapy doctorate (OTD) students. The program evaluation component utilized pre-and post- survey design with Likert, forced choice, short-answer, and open-ended questions related to the delivery of content from the trauma-informed care workshop. Outcomes were evaluated through descriptive statistics and content analysis examining participants' perception of change in TIC knowledge, confidence, and competence in application to occupational therapy practice. Overall, participants' perception of TIC application knowledge, confidence, and competence improved following the workshop. The workshop and its associated program evaluation built on prior work across healthcare disciplines establishing the need for proactive TIC education. The current study supports the need for TIC to be intentionally situated within occupational therapy academia to prepare occupational therapy practitioners to understand and apply TIC across the lifespan and practice settings to improve patient outcomes and experiences.

Introduction

Trauma can be defined as “any disturbing experience that results in significant fear, helplessness, dissociation, confusion, or other disruptive feelings intense enough to have a long-lasting negative effect on a person’s attitudes, behavior, and other aspects of functioning” (American Psychological Association, n.d., para. 1). Trauma may involve exposure to violence, natural disasters, bullying, displacement, food insecurity, abuse, neglect, sexual assault, terrorism, motor vehicle accidents, or military incidents (Fette et al., 2019). Trauma is multidimensional and has the capacity to cross contexts and borders, and influence individuals across social, economic, educational, and ethnic characteristics (Benjet et al., 2016). It involves three interrelated and highly subjective components: events, experiences, and effects (Lathan et al., 2021).

When understanding an individual’s potential experience of trauma, emphasis must be placed on the individual’s *perception* of trauma, as opposed to the event itself. Trauma can present differently in clients across the lifespan with a myriad of potential signs and symptoms. In children, trauma may present as conduct problems, dysregulation, dissociative symptoms (i.e., “daydreaming”), or even sensory processing differences (Fette et al., 2019; Hiles Howard et al., 2019). Common traumatic stress reactions for adolescents include substance abuse, poor school attendance, and health compromising behaviors (Gionvanelli et al., 2016). Meanwhile adults and older adults may present differently as evidenced by post-traumatic stress disorder (PTSD) symptoms, difficulty maintaining employment, emotional outbursts, or decreased problem-solving abilities (Brown et al., 2019; Hardcastle et al., 2019).

There are various types of trauma that may be experienced across the lifespan. Trauma is often *complex* and *intergenerational*. Parents with their own trauma histories may have difficulty nurturing and caring for their own children, which, without meaningful therapeutic intervention, can lead to a vicious cycle of trauma passed on from generation to generation referred to as intergenerational trauma (Chamberlain et al., 2019). When trauma occurs following multiple adverse events during early childhood development, it is often termed as *complex trauma* (Cook et al., 2005). The foundational Adverse Childhood Experiences (ACEs) study (Felitti et al., 1998), along with many other contemporary updated ACEs studies (Bernard et al., 2021), have well-documented trauma’s strong association with many poor health outcomes in adulthood including increased risk for adult risk behaviors (i.e., drug abuse) and diseases (i.e., ischemic heart disease).

It is estimated that 70% of people have experienced trauma worldwide, regardless of age or socioeconomic strata (Benjet et al., 2016). Given that this staggering statistic was identified prior to the coronavirus disease 2019 (COVID-19) global pandemic, it is likely that the actual prevalence of trauma may be even higher. Contemporary research (Horesh & Brown, 2020) emphasized that the COVID-19 pandemic can be considered both an acute and a chronic traumatic event resulting in continuous stress, anxiety, and uncertainty for people on an international scale. The sociopolitical climate across the world following the onset of the pandemic reflected great instability and stress due to the overall unpredictability, novelty, and mortality rate of COVID-19 (Centers for

Disease Control and Prevention [CDC], 2019a). There has also been a worldwide increase in mob violence and acts of state repression against civilians associated with the onset of the pandemic. For example, anti-Asian violence has increased across the globe in response to this uncertainty and fear (Armed Conflict Location and Event Data Project, 2020). Overall, the pandemic has significantly affected client populations in unanticipated ways that have required innovative responses from professionals to address recovery and lasting complications, role and routine disruption, and emotional health concerns brought about by long-term social isolation (Dirette, 2020). Therefore, it is vital that OT students have a curriculum that prioritizes comprehensive education on trauma and trauma-informed care (TIC).

Occupational Therapy and the Trauma-Informed Care Framework

Given the high prevalence of trauma and long-term societal impacts following the recent global pandemic, OT practitioners will encounter individuals, groups, communities, and populations influenced by trauma. Trauma can influence all meaningful occupations such as activities of daily living (ADLs), instrumental activities of daily living (IADLs), rest and sleep, education, work, play, and social participation.

- **ADLs**: Trauma literature highlights the impact that trauma may have on children's interception ability or the awareness of sensation within their body, which may lead to difficulty with basic self-care tasks such as eating, toileting, dressing, and bathing (Finn et al., 2017; Khalsa & Feinstein, 2019).
- **IADLs**: Chamberlain and colleagues (2019) demonstrated the influence that trauma may have on IADLs like child rearing due to difficulties providing sensitive caregiving.
- **Rest and Sleep**: Sleep dysfunction has been commonly observed in traumatized individuals and may present through nightmares, short sleep duration, frequent waking, insomnia, or poor sleep quality (Brown & Garcia, 2020).
- **Education and Work**: Trauma may impact successful functioning in school (Whiting, 2018) and achieving productive employment due to potential mental health conditions associated with trauma exposure (Ford et al., 2012).
- **Play**: Trauma has the potential to negatively impact a child's playfulness or joy in play (Cooper, 2000) and has been linked to decreased play initiation (Valentino et al., 2011).
- **Social Participation**: Challenges in social participation may also be apparent due to delays in social skills (Becker-Weidman, 2009) and difficulty forming peer relationships related to trauma exposure (Gatwiri et al., 2019).

Thus, trauma can have far-reaching ramifications and can disrupt occupational performance across various aspects of an individual's life.

To increase the likelihood that students and future OT practitioners deliver quality care to clients who have experienced trauma, a TIC framework should be implemented across education and practice settings. Trauma-informed care refers to evidence-based trauma interventions, whereas a TIC framework refers more broadly to a systems level approach that integrates trauma-informed practices within a service delivery system,

including the health care system. However, TIC and TIC framework terminology may be used interchangeably within the literature. The Substance Abuse and Mental Health Services Administration (SAMHSA) developed the first and most widely accepted TIC framework in response to the growing recognition of impacts on trauma on public health (SAMHSA, 2015). As a seminal strengths-based framework, it continues to be adopted and further supported as a lens to mitigate the impact of trauma within contemporary literature (Baird & Alaggia, 2019; Garza et al., 2019; Menschner & Maul, 2016;) and is grounded in four core assumptions (SAMHSA, 2015):

1. Realizing that trauma has widespread impacts and that there are various potential pathways to recovery
2. Recognizing the signs and symptoms of trauma in clients, their family members, co-workers, and other system related affected individuals
3. Responding by integrating knowledge on trauma into system-wide practices, policies, and procedures
4. Resisting the re-traumatization of patients, staff members, and family members (SAMHSA, 2015).

Six principles are used to guide TIC (SAMHSA, 2015):
1. Safety
2. Trustworthiness and Transparency
3. Peer Support and Mutual Self-help
4. Collaboration and Mutuality
5. Empowerment, Voice, and Choice
6. Awareness of Cultural, Historical, and Gender Issues

The effectiveness of TIC has been recognized across healthcare disciplines (Dennis et al., 2022; Berge-Poppe et al., 2022) and has been shown to substantially improve client outcomes. Effective TIC practices have been associated with reduced depression rates, increased engagement and adherence to interventions, and improved provider understanding of client needs (Gundacker et al., 2021). Trauma-informed care has also been shown to improve therapist-client rapport by promoting client-centered communication, reducing client anxiety, and limiting re-traumatization. In mental health settings, TIC sensory interventions have even been associated with reduced rates of seclusion and restraint by promoting self-organization and recovery (Champagne & Stromberg, 2004).

Occupational therapy practitioners are well-positioned to intervene in the various occupations that trauma affects through successful application of the TIC framework across practice settings. Occupational therapy practitioners' unique skill set allows them to consider clients experience of trauma and its impact on occupational engagement. Occupational therapy practitioners can then leverage strengths, modify, and adapt contexts to facilitate participation in daily activities disrupted by trauma. To do this successfully, OT practitioners must learn to integrate the principles of TIC (SAMHSA, 2015) and utilize this lens within their clinical reasoning process to holistically explore client's thoughts, actions, and behaviors.

Knowledge Gap and Research Aims

Despite several studies demonstrating the crucial need for TIC education to enable these positive client outcomes (Champagne & Stromberg, 2004; Gundacker et al., 2021; Raja et al., 2015), and the well-suited role of OT practitioners in TIC, OT education has yet to integrate this content into their curriculum systematically. Trauma-informed care education is currently not required in the following aspects of OT programs: Accreditation Council for Occupational Therapy Education (ACOTE, 2018) standards, fieldwork preparatory courses (Baum et al., 2010), or foundational texts (Helfrich et al., 2022). Of note, the first foundational TIC textbook specifically aimed at OT students and practitioners was only recently published by the American Occupational Therapy Association (AOTA) in 2021 (Lynch et al., 2021), suggesting emerging and overdue attention to this vital area of OT education. Without clear standards or guidelines for OT programs, TIC is often dispersed sporadically in OT curricula leaving students unprepared to meet their clients' trauma-related needs upon entering practice. Many entry-level practitioners must then turn to various TIC continuing education courses to fill this gap retroactively (Cerny et al., 2022).

To ensure that entry-level OT practitioners feel confident and competent enough to carry out TIC in their practice, related proactive education is needed (Cannon et al., 2020). Literature supports this need for intentionally and comprehensively situated TIC education in OT academia (Berge-Poppe et al., 2022; Dennis et al., 2022).

The overall purpose of the current project was to address this gap in TIC education in academia and to provide an enduring means for enhancing instruction around TIC knowledge and application within an entry-level occupational therapy doctorate (OTD) curriculum to better meet the needs of students as emerging practitioners. The aim was threefold: 1) design and implement a TIC application based workshop and resource guide, 2) evaluate outcomes to determine effectiveness, and 3) facilitate integration of TIC training into an entry-level OTD curriculum using application of principles across the lifespan. This study was deemed exempt by the university’s Institutional Review Board.

Methods

Procedures

To meet these study aims, a pretest-posttest survey study design was utilized. Surveys were administered through Qualtrics Software (Qualtrics, Provo, UT). Pre-surveys were administered 24 hours prior to the workshop and closed at the start. Post surveys were administered at the close of the workshop and remained open for 24 hours. All survey data was de-identified, as participants were assigned a formula to create their own code name, which was used across both surveys.

The pre-survey included a total of nine questions and the post-survey included a total of 14 questions designed to assess knowledge about SAMHSA principles, trauma symptoms across the lifespan, and tangible TIC application strategies. Survey questions also assessed perceptions of the effectiveness of the workshop in regard to knowledge (i.e., “how effective do you think this workshop was in developing your TIC knowledge?”), confidence (i.e., “how confident would you say you are in applying

trauma-informed care in practice?"), and competence in applying TIC following a TIC workshop (i.e., "how effective do you think this workshop was in developing your TIC application?"). Both surveys contained questions that elicited short-answer and open-ended responses and quantitative data via Likert scales, forced choice, and multiple choice items. A few survey items were adapted with permission from the Attitudes Related to Trauma-Informed Care (ARTIC) scale (Baker et al., 2016). The ARTIC scale is a self-report instrument with evidence of validity as a measure of TIC attitudes of staff working with individuals with trauma histories.

The workshop was run by the workshop leader, a doctoral student in the program, who was serving as a guest lecturer as part of a professional leadership goal. The workshop leader also served as the primary researcher of the current study. The workshop occurred as a guest lecture during regularly scheduled class time and ran for a total of 120 minutes. Upon arrival, attendance was taken and students were randomized into groups of three to four students and provided one of four intergenerational case studies (see Appendix A) with a coinciding student learning packet. Content included an overview of trauma, importance of TIC, trauma reactions across the lifespan, universal TIC key concepts, impacts of trauma, trauma and the role of OT, vital collaborations, and organizational level TIC (see Appendix B). Lecture content was interspersed with small group case study application learning activities. The case studies represented clients across the lifespan and settings including: Child/School-Based, Adolescent/Inpatient Psychiatric, Adult/Outpatient Hand Therapy, and Older Adults/Skilled Nursing Facility. Literature supports successful educational outcomes for application-based workshops involving realistic case studies (Fialkowski et al., 2022; McDowell et al., 2022).

In abiding with current best practices (Jones et al., 2020), group guidelines were created (i.e., safe space to process and learn about a difficult topic together) and the workshop leader's positionality and intent were addressed opposed to a 'trigger warning.' Previous research has indicated there is no evidence-based reason for educators, administrators, or clinicians to use trigger warnings since they have been found to increase trauma survivors' anxiety unnecessarily, even when they warn about content that closely matches survivors' traumas (Jones et al., 2020). An overview of the workshop agenda was provided to facilitate optimal orientation. Effective pedagogical methods were also utilized to develop a workshop that followed a flexible learning cycle, in which the workshop leader aimed to engage, explore, explain, elaborate, and evaluate student learning (Department of Education and Training, 2020).

At the close of the workshop, students were oriented and provided with a customized supplemental resource guide, which included annotated information on various books, podcasts, and websites for further enhancement of TIC foundations and setting-specific sources. The resource guide also included supportive information related to interprofessional collaboration and referrals, trauma reactions across the lifespan, responding to trauma disclosures, an overview of the ACEs study, practitioner self-care, and printable TIC pocket cards. Post workshop surveys were then administered and closed within 24 hours.

Overall, the workshop was developed using the Universal Design for Learning (UDL) framework (Center for Applied Special Technology [CAST], 2018). The framework was developed by CAST, which is a nonprofit education research and development organization. The UDL framework strives to improve teaching and learning for all people based on scientific insights into how humans learn (Rose & Meyer, 2002). The framework provides educators with corresponding guidelines and checkpoints that outline strategies to utilize in education to provide students with multiple means of engagement, representation, action, and expression to optimize learning (CAST, 2018). See Table 1 for further information on how the UDL framework was integrated into the workshop.

Table 1

Application of UDL Guidelines in Workshop Design

Principle & Guideline	Checkpoint	Workshop Application
Engagement Recruiting Interest (7)	Optimize relevance, value, and authenticity (7.2)	Disclosed relevant personal anecdote and discussed evolving interest in TIC through past clinical and research experiences. Contextualized TIC content to students' by asking them to consider where they had learned about TIC earlier in the university entry-level OTD curriculum (i.e., assigned in readings or attended class lectures with TIC related information)
Sustaining Effort & Persistence (8)	Foster collaboration and community (8.3)	Small group learning utilized throughout workshop
Self-Regulation (9)	Facilitate personal coping skills and strategies (9.2)	Given the nature of this topic, students were informed of optional in the moment support and other resources (i.e., Counseling Services) to ensure safety and well-being
Representation Perception (1)	Offer ways of customizing the display of information (1.1)	The workshop presentation offered varied graphics, charts, and images to enhance accessibility of information
Language and Symbols (2)	Support decoding of text, mathematical notation, and symbols (2.3)	Additional links were easily accessible on some slides to support a deeper understanding of complex topics, such as, the neurobiology of trauma

Comprehension (3)	Highlight patterns, critical features, big ideas, and relationships (3.2)	Highlighted patterns and major takeaway points both verbally and visually via synthesizing bullet points.
Action & Expression Physical Action (4)	Vary the methods for response and navigation (4.1)	Students were provided opportunities to move around the classroom to write responses on large sticky notes
Executive Functions (6)	Facilitate managing information and resources (6.3)	Students were provided learning packets during the workshop with prompts to guide students through case study application learning activities with supplemental organizational charts and blank paper to scaffold student work

Participants

Participants were recruited from a convenience sample of 31 students in their second year of an entry-level OTD program. Inclusion criteria consisted of being a member of the University's entry-level OTD 2024 cohort (*N* = 31), attending the workshop, and completing both pre-and post-surveys. Recruitment occurred one month prior to the workshop at which time the workshop leader was introduced as third year entry-level OTD student who would be providing the workshop as an upcoming guest lecturer. The primary author attended the end of a regularly scheduled class to provide informational fliers, printed consent forms, and offer an opportunity for questions regarding voluntary participation in the research study component to the student convenience sample. During this time, the workshop leader's role as the primary investigator (PI) was explicitly established to students. The informational flyer informed students that the TIC workshop would be provided as part of their required regular class time as a guest lecture, and invited them to voluntarily opt in to the research component, which would include completion of both the pre-and post-surveys. Consent forms further clarified students' ability to opt in or out of the survey research component at any time without penalty or consequences.

Thirty students attended the workshop. The general demographics of the cohort followed the trend of the field of OT (Banks, 2022) in predominantly identifying as female (90%; *n* = 27) and white (63%; *n* = 20). The age range of the cohort spanned from 23 to 32 years-old. Most students were in their twenties at the time of the workshop (97%; *n* = 29) with the highest percentage being 23 years-old (30%; *n* = 9). Attendees had a diverse range of undergraduate majors, which were collected to determine possible TIC familiarity. Academic undergraduate majors of the total sample (AOTA, 2023) that may have included education on TIC included Psychology, Health/Community Health, Health Science, Public Health, Human Development, and Child Development, which represented 33% (*n* = 10) of attendees (see Table 2).

Table 2

Demographic Characteristics of Workshop Attendees

Characteristic	n	%
Gender		
Female	27	90
Male	3	10
Racial Identity		
White	20	63
Asian	4	13
Multiracial	3	10
Black	2	7
Hispanic	3	10
Age		
23	9	30
24	7	23
25	7	23
26	3	10
28	3	10
32	1	3
Undergraduate Major		
Psychology	3	10
Biology/Biological Science	2	7
Health/Community Health	2	7
Anthropology	2	7
Health Science	2	7
Public Health	1	3
Human Development	1	3
English	1	3
Biopsychology	1	3
Sociology	1	3
Environmental Studies	1	3
Anatomy	1	3
Exercise Science	1	3
Social Welfare	1	3

A total of 13 students voluntarily engaged in the program evaluation component, which represented 43% of the total sample. To ensure anonymity, demographic items were limited in the program evaluation. Overall, 69% (n = 9) of participants reported they received TIC education prior to the OTD program.

Data Analysis

Quantitative Data Analysis

Descriptive statistics, including frequencies, means, and standard deviations were computed. Normality was tested using the Shapiro-Wilk test, as it is more robust with small samples (Shapiro & Wilk, 1965). For non-normal data, the nonparametric Wilcoxon's Signed Rank and Kendall's W were calculated. Kendall's W values between 0.3-0.5 indicate a moderate effect and those $\geq$ 0.5 indicate a large effect (Cohen, 2013; Cohen, 1992). Positive *Z*-scores indicate the raw score is higher than the mean average (Table 3). Data were analyzed in SPSS (Version 29).

Content Data Analysis

A combination of deductive or *a priori* analysis and inductive analysis (Bingham & Witkowsky, 2022), was used to analyze the short-answer and open-ended responses. When applicable, frequencies were calculated in Microsoft Excel (Microsoft Corporation, 2023). Deductive analysis involved directed content analysis methodology (Hsieh & Shannon, 2005) to identify linkages to relevant trauma research provided during the workshop. The purpose of using directed content analysis was to organize the data into categories that aligned with the second research aim; evaluate outcomes to determine workshop effectiveness. The inductive analysis involved summative content analysis methodology (Hsieh & Shannon, 2005) to derive keywords, develop response patterns, and facilitate meaning making. Content analysis was completed independently by the primary author, followed by a meeting with the secondary author during which patterns were discussed, and concordance was sought in the categorization of each response. A corresponding systematic structure was developed (Saldaña, 2016) using pre-determined matches to facilitate overall data organization. The process was followed by data sorting, open categorization, and then finally identifying overall content patterns. Data were analyzed using Microsoft Excel (Version 16.75.2).

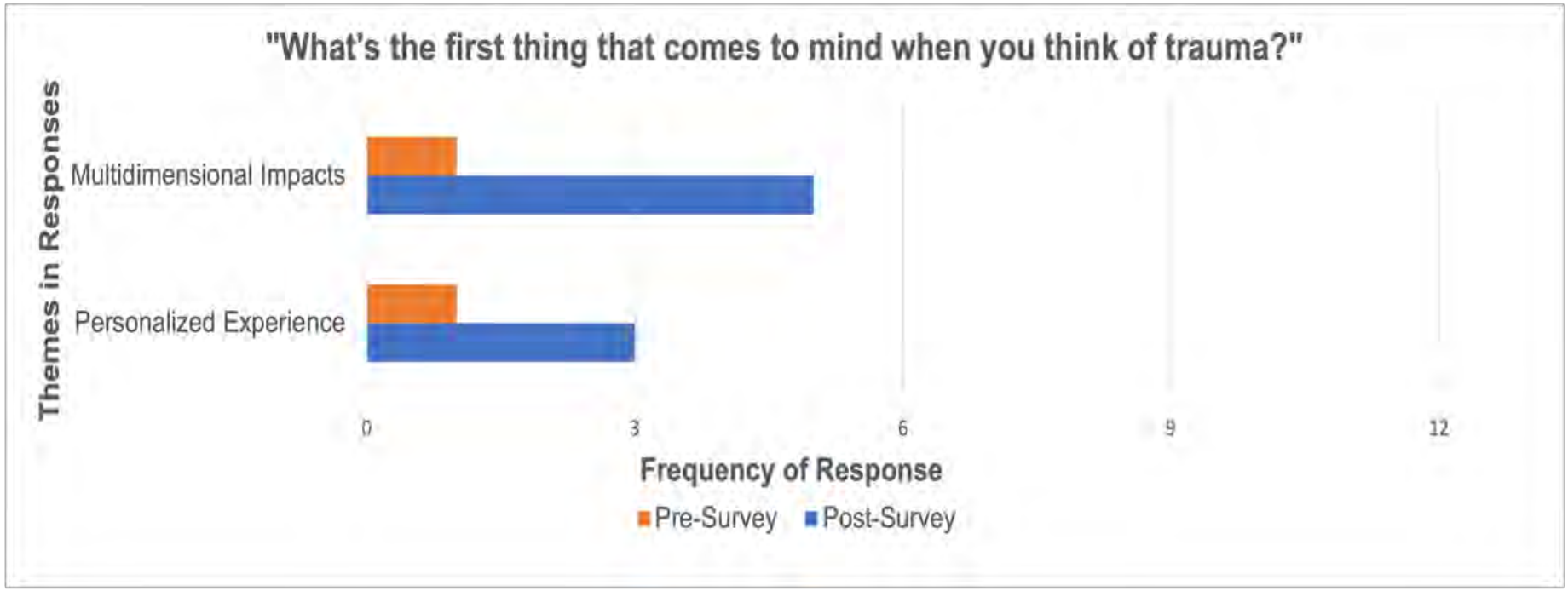
Results

Change in Perceived TIC Knowledge

Overall, most participants rated the workshop as "very effective" (69%; *n* = 9) and somewhat effective (31%; *n* = 4) in developing their TIC knowledge (measured on a 5-point Likert scale with 0 = "not effective" and 4 = "extremely effective"). Participants were asked an open-ended question about trauma and included more key concepts from the workshop in their responses from pre-to post assessment, suggesting an increase in knowledge on trauma, especially in the following areas: trauma as a personalized experience (i.e., "individual experience" or "diversity of experiences") and the multidimensionality of trauma (i.e., "trauma can impact functioning in every aspect of one's life"; see Figure 1).

Figure 1

Personalized and Multidimensional Pre-Post Participant Response

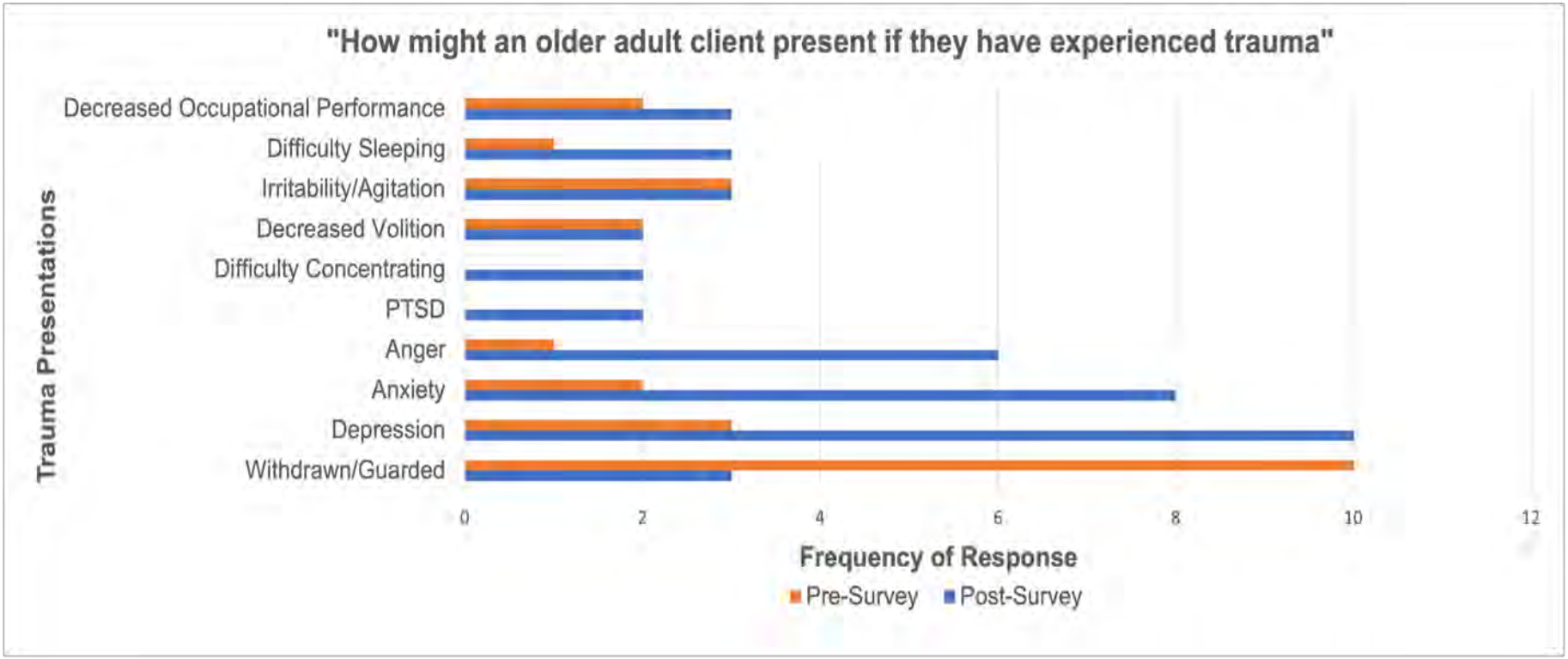


Participants were asked a short-answer question regarding the SAMHSA TIC principles, ("what are the six SAMHSA TIC principles?"). On average, participants included significantly more principles in their responses following the workshop (raw score change of 3.38 principles; $Z = 2.82$, $p = 0.005$, Kendall's W =.78; see Table 3). Also of note, in the pre-survey responses 46% ($n = 6$) of participants stated some variation of "I don't know" regarding the SAMHSA principles (i.e., "I can't remember them," "unsure," "I don't know off the top of my head"). In the post-survey responses, no participants ($n = 0$) stated any variation of "I don't know." Most participants in the pre-survey included principles of safety (69% $n = 9$) and trustworthiness and transparency (46% $n = 6$), followed by collaboration and mutuality (38% $n = 5$), empowerment, voice, and choice (38% $n =5$), awareness of cultural, historical, and gender issues (23% $n = 3$), and peer support and mutual self-help (15% $n = 2$). In the post-survey, participants demonstrated the most growth in the principles of peer support and mutual self-help (85% $n = 11$) and awareness of cultural, historical, and gender issues (92% $n = 12$). All participants in the post-survey included safety, trustworthiness and transparency, and collaboration and mutuality (100% $n=13$). There was also additional growth observed in the remaining SAMHSA principle: empowerment, voice, and choice (92% $n = 12$).

Specific survey items addressed lifespan trauma considerations. Participants were asked short-answer questions about how older adults and children may present if they have experienced trauma. On average, participants included significantly more trauma reactions for both age groups (average of older adults, raw score change of 1.46, $Z = 2.67$, $p = 0.008$, Kendall's W=.57; average of children, raw score change of 1.38 $Z = 2.10$, $p = 0.04$, Kendall's W =.21) (Table 3). When asked how an older client might present if they have experienced trauma, most participants in the pre-survey reported withdrawn/guarded (77% $n = 10$). In the post-survey, most participants reported depression (77% $n = 10$), anxiety (62% $n = 8$), and anger (46% $n = 6$) with the addition of new categories not selected in the pre-survey including PTSD symptoms (15% $n = 2$) and difficulty concentrating (15% $n = 2$). Trauma reactions stated consistently across both surveys included decreased volition (15% $n = 2$) and irritability/agitation (23% $n = 3$). In the pre-survey, a total of 10 categories of trauma presentation were reported, while in the post-survey 12 categories of trauma presentation were reported (see Figure 2).

Figure 2

Pre-post Trauma Presentation Categories: Older Adult



When asked how a child may present if they have experienced trauma, most participants in the pre-survey reported avoidance behaviors (69%; *n* = 9), dysregulation (46%; *n* = 6), and conduct problems (38%; *n* = 5). In the post-survey, most participants reported avoidance behaviors (54%; *n* = 7), dysregulation (54%; *n* = 7), and conduct problems (46%; *n* = 6), with the addition of new categories not selected in the pre-survey including dissociation (15%; *n* = 2), somatization (15%; *n* = 2), decreased engagement in school 23% (*n* = 3), impaired social skills 23% (*n* = 3), and decreased play initiation (23%; *n* = 3). Trauma reactions that were stated consistently across both surveys included intrusive thoughts (8%; *n* = 1), irritability (23%; *n* = 3), worry/fear (31%; *n* = 4), anxiety (31%; *n* = 4), and sensory processing differences (8%; *n* = 1). In the pre-survey, a total of 11 categories of trauma presentation were reported, while in the post-survey 15 categories of trauma presentation were reported (see Figure 3).

Change in Perceived TIC Confidence

On average, participants' confidence in applying TIC in practice rated via a Likert scale question increased significantly following the workshop (raw score change of 0.77; Z = 2.64, p = 0.008, Kendall's W =.62) (Table 3)**.** Participants who reported having no prior TIC education had a higher average increase in confidence. Additionally, participants were asked two forced choice (True/False) questions adapted from the ARTIC scale (Baker et al., 2016) about their perception of optimism and support in implementing TIC. A majority (85% *n* = 11) of participants confirmed their optimism. In terms of confidence in having support with applying TIC in practice, participants responded with 100% (*n* = 13) agreement.

Figure 3

Pre-post Trauma Presentation Categories: Child

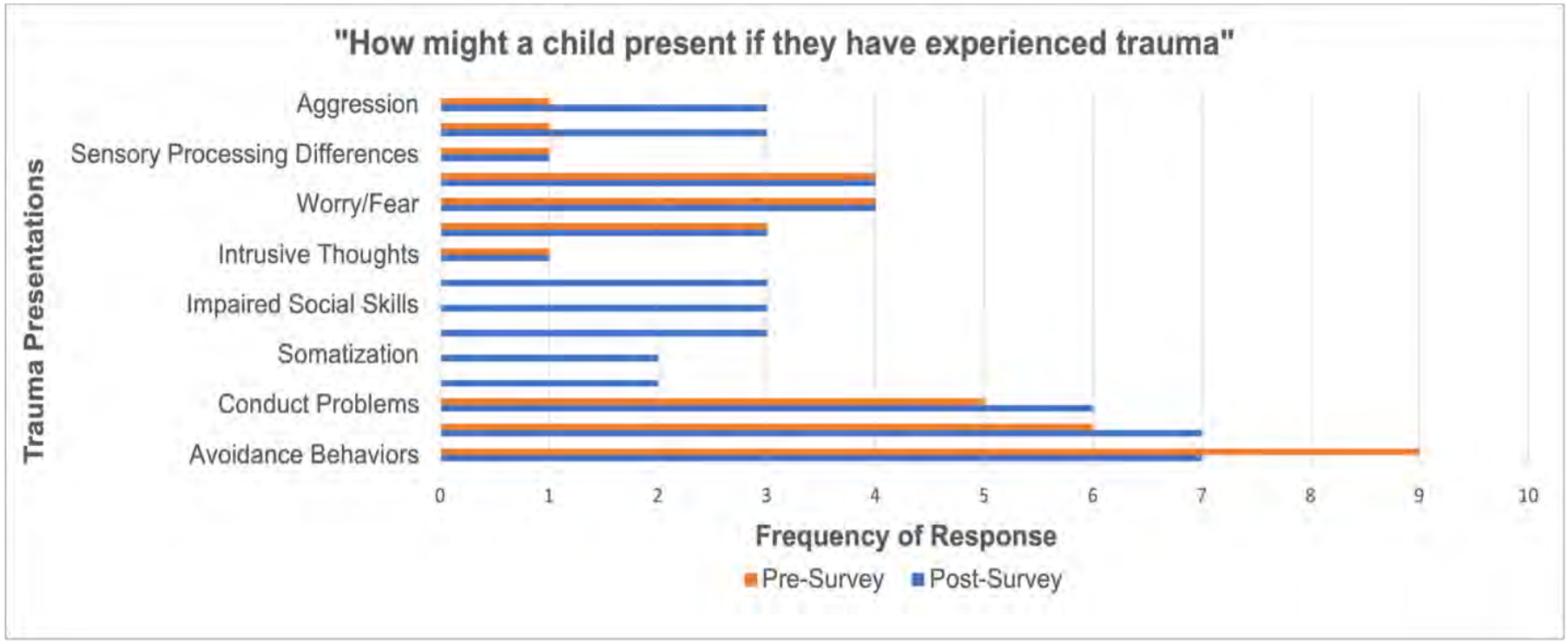


Table 3

Descriptive Statistics for Change in Knowledge and Confidence

Measure Pairs	Pre-Survey	Post-Survey	Wilcoxon's Rank		Kendall's W	
Knowledge	*M(SD)*	*M(SD)*	*Z*	*p*	*W*	*p*
SAMHSA Principles	2.31(2.21)	5.69(0.63)	2.82	**0.005****	0.78	**0.002****
Older Adults Presentation	2.46(1.13)	3.92(1.44)	2.67	**0.008****	0.57	**0.007****
Child Presentation	2.85(1.07)	4.23(2.46)	2.10	**0.04***	0.21	**0.096**
Confidence						
Level of Confidence	1.77(0.73)	2.54(0.52)	2.64	**0.008****	0.62	**0.005****

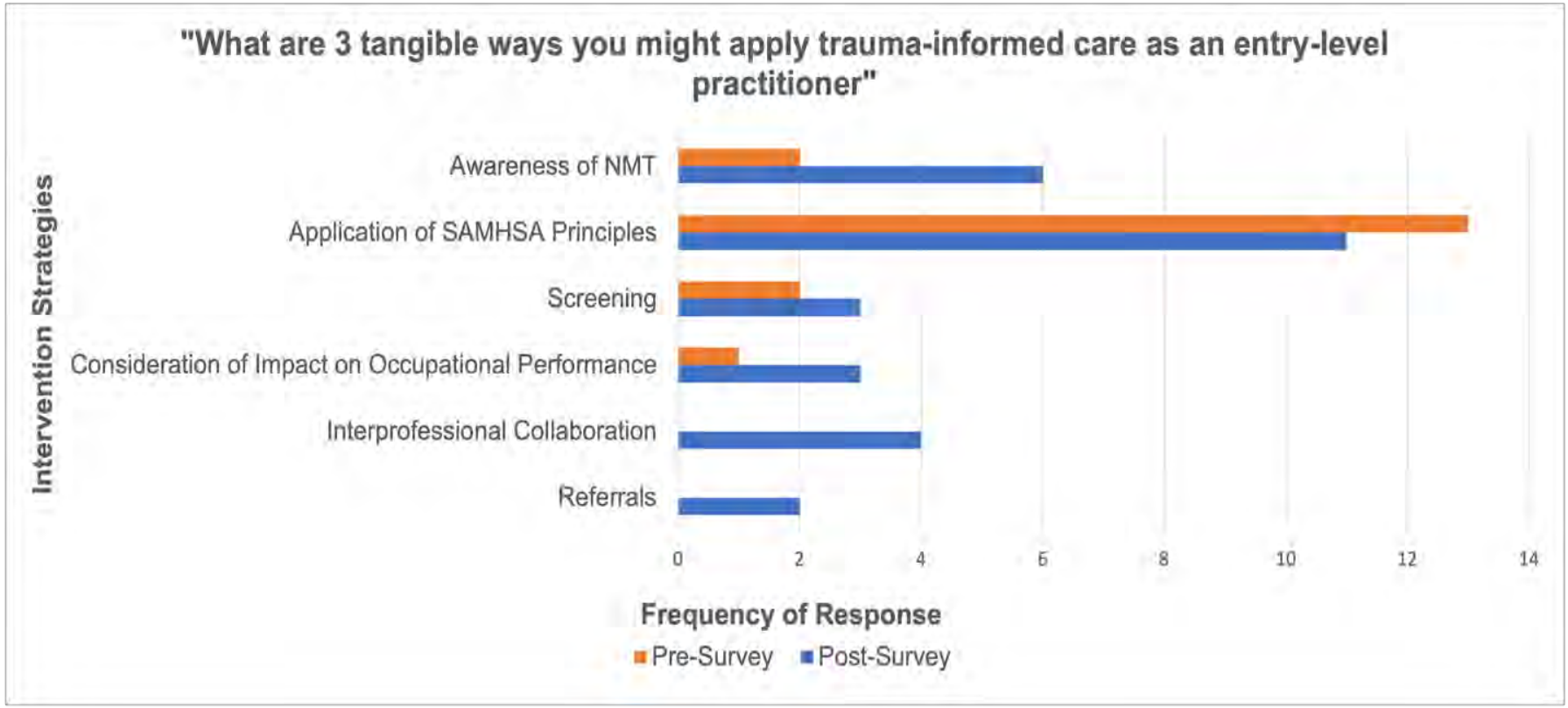
*$p < .05$ **$p < .01$
Note. SAMHSA = Substance Abuse and Mental Health Services Administration. Kendall's W: 0.3-0.5 = moderate effect; $\geq$ 0.5 = large effect.

Change in Perceived TIC Competence

All participants perceived the workshop to be effective in developing their TIC application, which suggests the workshop developed their perception of competence. Specifically, participants were asked a Likert scale question related to the effectiveness of the workshop in developing their TIC application. Participants reported the workshop to be "very effective" (46%; *n* = 6); "somewhat effective" (46%; *n* = 6); and "a little effective" (8%; *n* = 1). Participants were asked the short-answer question, "what are 3 tangible ways you might apply trauma-informed care as an entry-level practitioner?" In the pre-survey, all of participants' responses included application of various SAMHSA principles. In the post-survey, most participants included other key concepts from the workshop such as: awareness of the Neurosequential Model of Therapeutics (NMT) (Perry, 2009; Perry & Dobson, 2013; Perry et al., 1995) to inform TIC interventions (46%; *n* = 6), seeking to understand a patient's behavior and occupational performance through a TIC lens (23%; *n* = 3), and utilizing interprofessional collaboration to guide treatment (31%; *n* = 4; see Figure 4).

Figure 4

Intervention Strategies



General Feedback on the Workshop

In the surveys, participants were provided opportunities to report what was most helpful (Table 4) and what was least helpful (Table 5) in relation to their educational experience of the workshop. The content analysis revealed participants found the opportunity to consider TIC through realistic case studies and having an opportunity for group discussion helpful in facilitating TIC application. Participants also enjoyed practicing tangible application strategies related to the 6 SAMHSA TIC principles (SAMHSA, 2015) and acquiring an awareness of the Neurosequential Model of Therapeutics (Perry, 2009; Perry & Dobson, 2013; Perry et al., 1995). Likewise, they provided positive feedback for the supplemental TIC resource guide in enhancing their learning potential.

Table 4

Most Helpful Aspects of the Workshop (n=13)

Most Helpful	Example Quote	Frequency, *n* (%)
Case Study Group Discussion and Application	"I felt that going through the case studies was most helpful in small groups."	10 (76.9)
Components of the Lecture Content (i.e., tangible application of SAMHSA principles, introduction to NMT)	"Working through actually thinking about WHAT to do in a particular case study across all areas (regulate, relate, reason)"	5 (38.5)
Supplemental Resource Guide	"[the primary author] created such a rich resource for emerging and established practitioners that I know I'll come back to"	2 (15.4)
Opportunity for Group Engagement	"group engagement in case study discussion"	2 (15.4)

In terms of what was least helpful, participants reported feeling constrained by the limited amount of time allotted to the workshop and therein decreased chance for optimal interactive opportunities. Some participants perceived the content to be occasionally redundant and/or overwhelming in quantity. Others expressed a desire for alternative (digital) discussion platforms to improve accessibility during small group sharing of application ideas. Overall, this feedback was incorporated into the future recommendations for longevity when integrating content into courses in the curriculum.

Table 5

Least Helpful Aspects of the Workshop (n=13)

Least Helpful	Example Quote	Frequency, *n* (%)
Time Constraints	"It felt a little rushed"	8 (61.5)
Desire for More Interactive Opportunities	"I wish we had more opportunity for interaction and collaboration and less lecture."	7 (53.9)
Components of the Lecture (i.e., redundant content, overwhelming amount of content)	"It was a lot of information in a short period of time and it was hard to stay engaged the whole time due to cognitive overload so having the session more spread out would have helped me retain more I think"	7 (53.9)
Alternative Accessibility	"It was challenging to hear everyone share their case study and when we did have someone writing down our thoughts/ideas it was really difficult to see. This might have been more effective in a digital format with a shared document or something else collaborative like Jamboard."	2 (15.4)

Discussion

Participants found the workshop to be somewhat to very effective in developing their knowledge on TIC. Following the workshop, participants acknowledged additional aspects of trauma including the highly-personalized experience and multidimensional impacts (see Figure 1), which are concepts supported by trauma research worldwide (Benjet et al., 2016). As anticipated, when asked "what are the six SAMHSA TIC principles?" participants generally included more principles in their responses following the workshop. Specifically, participants in the pre-survey demonstrated the most knowledge of the principles of safety and trustworthiness and transparency, which suggests that the program curriculum has reinforced these principles throughout prior course content. After the workshop participants identified more principles as well as

principles that recognized the importance of broader contemporary and historical influences and social supports associated with trauma recovery, as seen through improved inclusion of the principles of peer support and mutual self-help and awareness of cultural, historical, and gender issues in survey responses. The change in knowledge was not only significant but showed large effect and seemed to indicate a shift in students' understanding to include the broader contexts that contribute to trauma that OT practitioners must be sensitive to as well as ways to support trauma recovery.

Following the workshop, participants' knowledge of trauma reactions for older adults showed a significantly higher quantity and their responses showed a moderate effect in their expanded understanding of possible trauma presentations in older adults. Responses expanded to include manifestations such as depression, anxiety, anger, PTSD, and difficulty concentrating. For the survey question regarding child presentation of trauma, while not achieving significance, a similar pattern of identifying more potential symptoms was observed. Responses included a higher quantity of trauma reactions for children, with expanded understanding of possible trauma presentations in children moving beyond avoidance behaviors, dysregulation, and conduct problems to other possible manifestations, such as dissociation, somatization, decreased engagement in school, impaired social skills, and decreased play initiation. The increase in knowledge related to lifespan trauma considerations is consistent with Cannon and colleagues (2020) who reported a significant increase in participant's ability to identify trauma symptoms following TIC training.

Participants also showed a significant increase in confidence in applying TIC in practice following the workshop with large effect. Prior TIC education appeared to be associated with participants' change in confidence; participants who reported having no prior education in TIC had a higher increase in confidence than those who reported having prior TIC education. When participants were asked about their optimism and support in implementing TIC, a majority confirmed their optimism. The small percentage who did not indicate optimism may have been due to the absolute wording of the question ("I am optimistic that I will be able to carry out *all* my responsibilities with respect to the trauma-informed care approach"). Likewise, it may have been linked to possible internal inconsistency since one participant rated themselves as "very confident" in applying trauma-informed care in practice, but denied optimism, suggesting a notable discrepancy. Overall, when asked about their perception of having support with applying TIC in practice, all participants were in agreement regarding having sufficient support following the workshop. The increased confidence may represent feeling more prepared, perhaps in part to having increased knowledge.

All participants reported the workshop to be effective in developing their TIC application abilities, suggesting an increase in TIC competence via improved strategy knowledge. When asked about three tangible ways they might apply TIC as an entry-level practitioner, participants discussed new strategies following the workshop beyond application of SAMHSA principles, suggesting a diversification of their repertoire of TIC skills. Application of the SAMHSA principles may have also been less prioritized in post-survey responses due to participants' willingness to incorporate new strategies into the

allotted *three* strategies. Following the workshop, there was also notable growth in participant's consideration of interdisciplinary actions to guide TIC via referrals and interprofessional collaboration.

Overall, the 30 student attendees responded positively in the moment to the workshop content, remained engaged throughout and expressed their own resilience for a difficult and potentially distressing topic. Student attendees demonstrated resilience during the workshop by willingly sharing their experience of the content throughout the workshop, and anecdotally reporting gratitude for the workshop leader's opening and recurrent statements of positionality and intent. Students were visually monitored for emotional distress by the authors and students were aware of support available in the moment and beyond the workshop if needed. Student attendees consistently remained physically present and appeared emotionally present; not requiring or requesting additional support to process the material despite being informed of and offered available resources. Additionally, during designated workshop breaks, a few student attendees approached the workshop leader to openly share their thoughts and feelings regarding the content, which suggests they felt safe enough to disclose their personal reactions in the moment.

Limitations

The current study has a few notable limitations. Data was derived from a small convenience sample from one university, which impacts the overall generalizability. Additionally, the outcome measurement survey was designed specifically for the workshop content and only pretest and posttest data were collected from this sample.

Another limitation of the current study was that the workshop was situated into an existing, entry-level OTD specific curriculum. Therefore, the overall flexibility in available time and sequence within the curriculum was limited. Since self-report measures were used in the surveys, they are subject to social desirability bias and participants may have responded in a manner that they expected researchers to find favorable.

Although significant effects of this education immediately following the delivery of content were found, it was not feasible as part of this project to assess the enduring nature of these changes. A delayed posttest to analyze retained knowledge was not conducted due to constraints of the project timeline. Specifically, it was not feasible to measure the effects of the perceived knowledge of the students when applied in situ in practice settings during upcoming Level II fieldwork placements as part of this project. Future studies evaluating the long-term impacts of TIC OT education using case based application on future practice and client care are warranted.

Implications for Occupational Therapy Education

Based on feedback from the participants in this workshop, future TIC integration efforts should similarly utilize lifespan case study application. Tangible application of strategies related to the SAMHSA TIC principles (SAMHSA, 2015) should be provided. Introducing interdisciplinary models that can be used pending further training and certification, such as the Neurosequential Model of Therapeutics, which is a hierarchical heuristic of the

brain and approach to working with children and families who have experienced trauma (Perry, 2009; Perry & Dobson, 2013; Perry et al., 1995), is also recommended (Lynch et al., 2021). A flipped classroom approach with ample small group opportunities to optimize time use and peer engagement would allow students to deepen their reflective work on cases and to explore system level TIC practices (Menschner & Maul, 2016). Additionally, using digital discussion platforms (i.e., Jamboard or Google Docs) would provide greater accessibility of small group sharing of application ideas. A supplemental TIC resource guide should be provided to support ongoing self-directed learning in this area.

Integration across the curriculum may help avoid overwhelming learners, with attention to a TIC curricular thread to avoid redundant content. Providing the workshop across multiple days during an accelerated Fieldwork Seminar course could also provide sufficient time for application of material to cases. The workshop and associated program evaluation builds on prior work (Denis et al., 2022; Berge-Poppe et al., 2022) establishing the need for proactive education on TIC for healthcare professions.

Conclusion

Study findings showed that an application-based TIC workshop improved entry-level OTD students' perceived knowledge, confidence, and competence related to providing TIC in OT practice. These findings build on existing work showing the need for education on TIC to be systematically integrated into the curriculum for healthcare professions (Berge-Poppe et al., 2022; Dennis et al., 2022).

Broadly, expanding OT practitioners' knowledge, confidence and competence with TIC may improve the visibility of the OT profession as a support to those who are working through traumatic experience and those working with them. It may also address a growing need for understanding trauma by developing emerging OT practitioners who are adept at facilitating recovery from trauma and consequently promoting better health outcomes for clients across the lifespan.

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Appendix A

Case Studies Vignettes

Client	Age/Setting	
Ben	Child/ School Setting	Ben is a Caucasian 9-year-old boy in third grade. He lives in an urban area with his non-binary older half-sibling Cassie and mother Janice. Ben's father has a history of incarceration during Ben's childhood and was recently re-incarcerated. Prior to incarceration, when Ben's father would drink, he would target Ben with violent outbursts, which involved both emotional and physical abuse. Ben was recently referred to OT services, due to reports of "unprovoked aggression" towards his male teacher, Mr. Dawson. Mr. Dawson notes that Ben is often irritable with other classmates, has been having difficulty concentrating, and has had repeated conduct related issues where he appears to lose emotional control. In Ben's most recent violent outburst, he required a 5-minute hold and the classroom to be cleared for his privacy and other students' safety. Mr. Dawson also stated that Ben's peers are beginning to distance themselves from him. One student told Mr. Dawson, he was "a little afraid" of Ben. After reviewing each event with Mr. Dawson, you both identify that they all have occurred when Mr. Dawson is standing close to Ben. Beyond proximity, you require additional observational data to pinpoint other more specific triggers since the instances have occurred across multiple contexts (i.e. lining up, in the lunchroom, and in the classroom). Mr. Dawson reports that when Ben is feeling his best, he appears to enjoy drawing and sings quietly to himself. He often sees Ben reaching for artistic outlets like playdough and paints during free play opportunities within the classroom. You also notice that Ben's school supplies are decorated with space related elements including rocket ships, planets, and stars. Overall, Ben seems to be having challenges performing well in school, interacting with his peers, and playing at recess Case adapted from (Fette et al., 2019; Perry & Winfrey, 2021; Whiting & Tekell, 2021)

Cassie Adolescent/ Inpatient Psychiatric Hospital Setting	Cassie is a non-binary biracial (their father identifies as black and mother identifies as Caucasian)18-year-old whose preferred pronouns are they/them/theirs. They were recently admitted to an inpatient psychiatric hospital due concerns from their therapist about an exacerbation of mental health symptoms. Cassie had been working as a veterinary assistant because of their love for animals but was fired after not showing up to work multiple times. Cassie lives in an urban area at home with their little brother Ben and mother Janice. Cassie is estranged from their biological father and reports having a “tumultuous” relationship with their stepfather who was recently incarcerated and has a history of repeated incarcerations throughout their childhood. Cassie was diagnosed with major depressive disorder and suicidal ideation at the age of 16 when they were hospitalized for the first time. During this hospitalization, Cassie discovered they enjoy practicing mindfulness techniques like body scans, but reports having difficulty integrating this into their daily routine after leaving the unit. In one of your OT sessions, Cassie discloses to you an incidence of sexual abuse at age 11 after their mother had a family friend over to babysit, while she worked an overnight shift. Cassie reports that from an early age they felt like they did not seem to fit into the culture of their Caucasian family. Cassie reports experiencing periodic disturbing “flashes” of the sexual abuse at night since the event, which limits the quality of their sleep. You notice in your OT group therapy sessions, that Cassie often has difficulty engaging with the other group members and sits a few chairs away with their arms crossed tightly against their body. You also notice that Cassie frequently gazes off, responds incongruently to the present context (i.e. laughing when another member is expressing sadness), and has sudden flattening of affect and long periods of silence when called upon to engage. Cassie has been having difficulty completing their basic ADLs, socializing with others, and maintaining employment. Case adapted from (Fette et al., 2019; Lambdin-Pattavina, 2021; SAMHSA, 2015)

Janice Adult/ Outpatient Hand Therapy Clinic	Janice is a 45-year-old Caucasian woman who lives in an urban area with her two children whom are 18 and 9 years old. Janice works as an ICU nurse and is currently separated from her husband who is incarcerated. She has a PMH of major depressive disorder and hypertension. Janice is receiving hand therapy status post R flexor tendon repair after a recent MVA. Of note, Janice is R hand dominant. Your colleague asked you to take Janice off her caseload since she is "fed up with her noncompliance with the HEP and splint wearing." While working with Janice, she discloses the details of MVA; She reports that she was driving to her elderly father's house around 6pm to help him with meal preparation and medication management when a driver crossed into her lane and hit her head on. Janice states she remained conscious while she waited for hours to be freed from the car and watched helplessly as her injured arm bled copiously. Even though her medical scans do not show any signs of mechanical head injury, Janice reports experiencing reoccurring headaches in the evening that seem to come out of nowhere and began after her accident. While providing education on Janice's HEP and splint wearing schedule you ask her to repeat it back to you to ensure her understanding. Janice reports confusion and is unable to recall the information you have provided her. Janice also tells you that she feels hurt by the other OT "passing her along" because it reminded her of moments in her childhood when her mother who was diagnosed with BPD would "flip from loving her to hating [her] without warning." Janice reports that she used to love writing poetry and going to art museums but has no time for any of that since she is currently functioning as a single working parent and taking care of her father. Overall, Janice has been having challenges returning to her busy routine and managing her roles as a mother, daughter, and nurse. Case adapted from (Lynch & Mahler, 2021; SAMHSA, 2015)

Christopher Older Adult/ Skilled Nursing Facility	Christopher is an 80-year-old Caucasian man who lives in a rural area. He resides alone in a 2-story house with 5 stairs to enter and 15 internal stairs to his bedroom. Christopher presents in a SNF for OT services after receiving CABG surgery due to CHF. Christopher stayed in the ICU longer than anticipated due to complications associated with contracting COVID-19 post-surgery. Christopher is hoping to return home where he was previously independent with all ADLs and received assistance with IADLs weekly from his daughter, Janice. Of note, his daughter was recently in a motor vehicle accident and is unable to provide care for him at this time. Christopher has a PMH of digit 4 and 5 amputation on the L hand, generalized anxiety disorder, hypertension, and glaucoma. During one of your skilled sessions, Christopher discloses that he is a retired veteran and witnessed his best friend be shot and killed while serving in Vietnam. He vividly describes carrying his deceased body for hours to the main camp. Christopher reports that “even after all these years” he still has difficulty sleeping due to disturbing dreams related to this event. You notice that Christopher seems to have a heightened startle response, often becoming jumpy when a door closes or you approach him quietly to bring him to the therapy room. Christopher also notably becomes irritable intermittently throughout the session and is difficult to redirect. When you ask Christopher about his hobbies and interests, he tells you he used to enjoy reading nonfiction books, but now it’s “not enjoyable” due to his worsening vision. He reports having “no other interests.” Christopher has been having trouble engaging in OT sessions and consequently completing his ADLs (i.e. dressing while maintaining sternal precautions and using the bathroom without physical exertion), which is exacerbating his anxiety about returning home. Case adapted from (Gill, 2021)

Appendix B

On-Site Educational Agenda

Introduction, Workshop Guidelines, & Agenda

Objective 1. Consider where you have experienced TIC in the university EL OTD curriculum.

Prompt: Where have you seen TIC show up in the curriculum so far?

Class Discussion

Case Study Prompt: Take a moment to read your case and jot down some initial big ideas and initial thoughts

Objective 2. Conceptualizing and defining trauma.

Lecture Content:

- **Defining Trauma** – *Definition, examples, and themes*
- **3 E's of Trauma** – *Method to hypothesize trauma with emphasis on the person's experiences, events, and effects*
- **Intergenerational Trauma** – *Definition, impacts, and risk factors for transmission*

Objective 3. Understanding the importance of trauma.

Lecture Content:

- **Prevalence** - *Trauma statistics within the US*
- **Historical and Modern Implications of Trauma and OT**
  - **Racial Trauma** – *Definition, shift in awareness within the US following pandemic, and action steps for entry-level practitioners*
  - **COVID-19** – *Possible trauma experiences and considerations and action steps for entry-level practitioners*
  - **Political Turmoil** – *Current events globally and trauma considerations and action steps for entry-level practitioners*
- **TIC and Client Outcomes** – *Literature illustrating potential positive impacts of TIC on quality of care*

Case Study Prompt: Consider what about your client's behavior increased your awareness of their trauma experiences. What are some of the signs and symptoms reported by the team or directly observed by you?

Class Discussion

Objective 4. Consider the multidimensional impacts of trauma.

Lecture Content:

- **Neurobiological Impacts** – *Broad overview of trauma and the brain*
- **Awareness of the Neurosequential Model of Therapeutics (NMT)** – *Introduction to a brain-based model that is an approach to understanding and meeting needs of individuals who have experienced trauma including a hierarchical organization of the human brain that supports processing of incoming information by traumatized individuals*
- **Social and Emotional Impacts** – *Trauma impacts on emotional response system and relationships with others*
- **OT Implications** – *Practical understanding of brain organization and application to client encounters*
    - **Regulate & Empower Strategies** – *Ways to improve client felt sense of safety*
    - **Relate & Connect Strategies** – *Ways to integrate therapeutic use of self in rapport building*
    - **Reason & Teach Strategies** – *Ways to promote therapeutic work including goals and meaningful activities*
- **Complex Trauma Domains** – *Definition of complex trauma and domains trauma may influence and associated observable impairments*
- **Trauma Signs and Symptoms Across the Lifespan** – *Considerations of how trauma common signs and symptoms may vary according to age with corresponding potential presentations for each age group*
    - **Children**
    - **Adolescents**
    - **Adults**
    - **Older Adults**

Case Study Prompt: Discuss strategies you will use to regulate, relate, and reason with your client. How will you help them understand their own behavior as related to their physiological and trauma experiences?

Objective 5. Recognize and reinforce universal TIC key concepts.

Lecture Content:

- **TIC definition** – *Definition and overview of key concepts*
- **6 SAMHSA Principles of TIC (across the lifespan)** – *Pillars of TIC with explanations for each corresponding principle*
    - **Safety**
    - **Trustworthiness & Transparency**
    - **Peer Support & Mutual Self-Help**
    - **Collaboration & Mutuality**

- **Empowerment, Voice, and Choice**
- **Awareness of Cultural, Historical, and Gender Issues**

- **TIC Pyramid** – *Universal and trauma specific domains of TIC with associated graphic*
- **TIC and the OT Process** – *Developing interventions using a TIC approach (with associated graphic)*

Case Study Prompt: Consider how you might increase your client's participation in valued occupations. How would you apply the principles of TIC to facilitate this?

Class Discussion

Objective 6. Understand OTs scope of practice in TIC.

Lecture Content:

- **OT Role** – *TIC within the OT scope of practice*
- **Vital Collaborations** – *Possible meaningful referrals and interdisciplinary collaboration opportunities in TIC approach*
- **Organizational TIC and 4 R's** – *Overview of organizational level TIC ideals including: Realize, Recognize, Respond, and Resist Retraumatizing*

Case Study Prompt: *Consider who else would be a part of your team in your setting. How would you work collaboratively with them to support your client?*

Class Discussion

Objective 7. Introduction to additional TIC resources.

- **Overview of Supplemental Digital TIC Resource Guide** – *Includes resources on trauma specific considerations across the OT process including: setting and age based resources, screening tools, aspects of interprofessional collaboration, and referrals*