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Trauma-informed care for the pediatric nurse

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Abstract

Background: Trauma is not limited to medical trauma and includes chronic stressors, toxic stress, adverse childhood events, abuse, and now the COVID-19 pandemic. Principles of trauma-informed care and resiliency guide pediatric nursing care across the life span from birth to adolescence. Trauma-informed care principles are pertinent to the nursing care needs of healthy and ill children from infancy to adolescence across care settings.

Methods: The purpose of this integrative literature review (IRL) is to elucidate evidence-based practices for pediatric nurses specific to trauma, trauma-informed principles, and the integration of these principles to care. Using Whittemore and Knaff’s (2005) methodology, this IRL presents empirical literature to operationalize trauma-informed care for the pediatric nurse through 1) identification of the problem; 2) literature search; 3) data evaluation; 4) data analysis; 5) result presentation.

Findings: Results are presented in a contemporary framework by the Substance Abuse and Mental Health Services Administration (2018) of trauma-awareness for the pediatric nurse, trauma-informed principles, and the integration of these principles to care. Pediatric nurses are in a unique position to offer trauma-informed care by recognizing and managing trauma to include chronic stressors, toxic stress, adverse childhood experiences, and abuse.

Discussion: Pediatric nurses today are caring for patients in a complex and diverse healthcare climate amid the world’s worst public health pandemic in living memory. Awareness of trauma, assessment of trauma in pediatrics, and health and resiliency promotion are critical in moving forward post-pandemic. The overview of trauma-informed care provides a guide for the pediatric nurse.

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Keywords: Trauma; Trauma-informed; Trauma-awareness; Trauma-informed care; Pediatric trauma; Trauma-informed care in nursing

Background

Worldwide trauma related to COVID-19 and dialogue related to racial-based trauma and political discord have renewed attention regarding the need for action from complicated grief, depression, anxiety, and secondary stress syndrome in youth and adolescents. The pediatric nurse must consider the role of trauma and chronic stress exposure on the body, mind, and physical health of individuals. While historically, “trauma” was often considered in terms of physical or medical trauma to the body, trauma is recognized in terms of chronic stressors, toxic stress, adverse childhood experiences (ACEs), abuse, and even the COVID-19 pandemic (Felitti et al., 1998; Goddard, 2021; Thomas et al., 2019). Trauma-informed care involves an empathetic, supportive recognition and awareness of trauma’s impact on oneself, including assessing for social connectedness, support systems, and encouragement of family, friends, spiritual, and community resources (SAMHSA, 2014, 2018). Trauma-informed care principles can guide pediatric nursing care across the lifespan from birth to adolescence, promoting resiliency and creating a framework for nursing care regardless of practice setting. Pediatric nurses care for patients in a complex and diverse healthcare climate where trauma awareness, assessment of trauma in pediatrics, and health and resiliency promotion are critical in moving forward post-COVID-19 pandemic (Goddard, 2021; Hornor, 2015; Hornor et al., 2018).

Conversations related to trauma-informed care in pediatrics are often tied to the 1998 Adverse Childhood Experiences (ACE) study, one of the most significant studies to date examining childhood experiences such as abuse, neglect, and other household environmental challenges in terms of current health behaviors and health status (Anda et al., 2006; Anda et al., 2010; Burke et al., 2011; Burke Harris, 2018;
With over 17,000 participants from a major health maintenance organization, the critical findings include that 2/3 of study participants had at least 1 ACE, with 1 in 5 reporting at least three or more (Feliti et al., 1998). While the original study was predominantly Caucasian, educated, employed, working adults, subsequent research has shown that black, indigenous and people of color, as well as individuals of lower socioeconomic status, experience more ACEs and have worse long term health outcomes (Anda et al., 2006; Hughes et al., 2017). Research around ACEs supports a cumulative dose-relationship where the more ACEs an individual experiences, for a longer amount of time, leads to higher odds of developing severe physical disease and early death (Anda et al., 2010; Burke et al., 2011; Burke Harris, 2018). One of the largest impacts of ACE research is that long-term outcomes impact more than behavioral and mental health outcomes to include short- and long-term health effects including pulmonary, gastrointestinal, hormonal, immune (e.g., cancer, autoimmune disease, etc.), and cardiovascular disease such as heart disease (Garner et al., 2012; Hughes et al., 2017; Shonkoff & Garner, 2012).

Cumulative and chronic trauma puts the body at risk for the toxic stress response, including the physiological pathophysiology involved in health outcomes related to ACEs. Referred to as the psychobiological effects of chronic, overwhelming stress on the developing child, or “toxic stress,” the field of developmental traumatology has further substantiated the long-term biological and physical effects trauma has on the body (De Bellis, 2001; De Bellis & Zisk, 2014; van der Vegt et al., 2009; van der Kolk, 2014). These physiological changes in the body include a chronic surge of epinephrine, norepinephrine, cortisol, and elevated cytokine response (De Bellis & Zisk, 2014; Perry et al., 2009; van der Kolk, 2014). This dysregulation of hormones leads to multiple organ system dysfunction from the body being in a chronic inflammatory state. Chronic inflammation from persistent epinephrine causes multisystem damage (e.g., the blood vessels and arteries, kidneys, lungs, etc.) and can cause neurobiological changes in the brain (De Bellis, 2001; McEwen, 2000; Miller et al., 2011; van der Vegt et al., 2009).

The Substance Abuse and Mental Health Services Administration (SAMHSA) (2014) describes being trauma-informed as:

A program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization.

Trauma-informed care requires a paradigm shift away from the traditional medical model for those who have not already embraced it. However, just as universal precautions in medicine calls for the assumption that all blood and body fluids are potentially contaminated, universal trauma precautions refer to creating a system where all patients served are presumed to have a history of traumatic stress or experience (AAP, 2014; Burke Harris, 2018; Goddard, 2021; Hodas, 2006; Hornor, 2015). Trauma-informed care is often referred to in terms of the “4-Rs” as a mnemonic for “realize, recognize, respond, and resist re-traumatization,” as noted in medical, nursing, and mental health-based literature (AAP, 2014; Goddard, 2021; Goddard et al., 2021; Hornor, 2015; SAMHSA, 2014, 2018).

Pediatric advocates and leaders have called for “universal precautions” in reference to providing trauma-informed care for youth where all individuals are presumed to have a history of traumatic stress or experience (AAP, 2014; Burke Harris, 2018; Hodas, 2006; Racine et al., 2020). Trauma-informed care is a strengths-based approach to care with trauma-awareness of universal precautions, to treat all individuals with a respected assumption of previous trauma while emphasizing resilience over pathology (Elliott et al., 2005). The premise around trauma-informed care is that supportive, nurturing relationships are critical to any type of healing. Pediatric nurses should be familiar with trauma and addressing trauma, regardless of whether adversity is known.

Trauma-informed care is the stepping stone required to build a framework for ACEs, especially regarding public health implications and pediatric nursing care delivery nationwide (Anda et al., 2010). The paradigm shift of blending mental health care as part of all health care training requires foundational work in nursing schools, physician assistant studies, and medical schools to include introduction of ACEs, chronic and toxic stress, and trauma-informed care as core concepts of nursing care and knowledge base (Goddard et al., 2021). Education and information on this paradigm shift also need to reach practicing pediatric nurses through continuing education initiatives and other trusted venues such as the pediatric nursing peer-reviewed literature. The purpose of this integrative literature review is to elucidate evidence-based practices for pediatric nurses specific to trauma, trauma-informed principles, and the integration of these principles to care.

**Methods**

An integrative literature review, as first proposed by Whittemore and Knaff (2005), was conducted following the methodology of 1) identification of the research problem, 2) search of the literature, 3) evaluation of the data, 4) analysis of the data and 5) presentation of the results. The third author then replicated the initial review conducted by the first and second authors with attention to the reliability of the search and evaluation of the strategies selected for inclusion in this review.

**Identification of the research problem**

No integrative literature review or systematic review has been conducted to summarize the literature and best practices for trauma-informed care for pediatric nurses. Exploration of the literature aimed at “what literature exists regarding trauma-informed care for the pediatric nurse.”

**Search of the literature**

The initial search of the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, Biomed Central, Academic Search Complete, PubMed, Educational Resources Information Center (ERIC), and PsychINFO databases were conducted using the keywords “trauma-informed care” “trauma-informed” “trauma-informed curriculum” and “trauma-informed education.” Additional key search terms included “pediatrics,” “children,” “child,” and “peds” as Boolean operators of and/or with “nursing.” Articles were limited to English, with no limit placed on publication year to capture the historical development of trauma-informed care in the literature.

Preliminary search results found a dearth of literature related to trauma-informed practices for behavioral health therapists, most often referencing trauma-focused cognitive-behavioral therapies. Literature that did not pertain to nurses (either as individual professionals or as part of the interprofessional health care team) was excluded. Articles that focused on best practice guidelines in a general healthcare context were included.

**Evaluation of the data**

Two reviewers familiar with trauma and trauma-informed education in nursing literature evaluated the articles. Discrepancies were assessed via discussion for inclusion with relevance to pediatric nursing. A third independent reviewer additionally screened titles and abstracts.
for adherence to inclusion criteria. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow chart summarizes the search strategy specifics. See Fig. 1.

Reference lists of retrieved studies were hand searched for relevant citations. Qualitative and quantitative research, evidence-based practice projects, quality improvement projects, literature reviews, and commentary pieces were reviewed to locate all forms of literature data on trauma-informed care for pediatric care. The literature was sorted, duplicates removed, and then checked for eligibility. A manual search was included using the American Academy of Pediatrics (AAP), Substance Abuse and Mental Health Services Administration (SAMHSA) websites. Grey literature for published and unpublished theses and dissertations was conducted. After sorting and review, the researchers determined the papers (n = 38) to be retained for the final analysis and synthesis.

Analysis of the data and presentation of the results

The data was extracted from the retained papers according to the Whittemore and Knaff (2005) process. Next, the data was organized for display, detailed examination, and analysis. The researchers reviewed and compared the data to draw conclusions and reach an agreement. The data was then synthesized and organized in a logical, meaningful way. These results are summarized in alignment with the study purpose in terms of 1) information for the pediatric nurse to respond to trauma or be trauma-aware; 2) trauma-informed principles of care; and 3) integration of these principles into care. These components fall into the broader framework of trauma-informed care put forth by the Substance Abuse and Mental Health Services Administration (SAMHSA) (2014) of realizing, recognize, respond, and resist re-traumatization (otherwise known as the “4-Rs”) in terms of the concept of trauma, guidance for the trauma-informed approach, and trauma-specific interventions.

Findings

This integrative review aimed to examine the literature to parse out and clarify the current evidence-based practice information for pediatric nurses specific to trauma, trauma-informed principles, and the integration of these principles to care. The findings are presented in a stepwise fashion using SAMHSA’s 4-Rs to understand trauma-informed care (2018, 2014). First, the results on trauma awareness (realize) and detection (recognize) are presented, including physiologic, behavioral, and red flag concerns. As part of Whittemore and Knaff’s (2005) RLE data display methodology, extracted data of these variables are presented in table form to make more useable practical assessment applications for pediatric nurses. Second, the findings on trauma screening are presented (respond), followed by health promotion findings (respond and resist re-traumatization).

Realize: Pediatric trauma-awareness

Understanding the widespread impact of trauma on pediatric development, including the profound neurological, physiologic, biological, psychological, and social effects of trauma, becomes the critical first step in trauma-informed care. The re-framing from “what is wrong with you?” to “what happened to you?” provides the framework for this trauma awareness (Burke Harris, 2018; Hornor et al., 2018; Perry & Winfrey, 2021; Racine et al., 2020). Symptoms of trauma often manifest as somatic complaints or are misinterpreted as other mental health diagnoses. Utilizing motivational interviewing with open-ended questions can provide a safe medium for discussion. The ability to realize and recognize trauma, to include physiological traumas experienced, whether collectively or independent of one another, are the first components of SAMHSA’s 4-Rs (2018; 2014).

Recognize physiological based concerns

Children often present first to providers with somatic complaints related to sleeping, eating, and toileting (American Academy of Pediatrics (AAP), 2014; AAP et al., 2012; Garner et al., 2012; Goddard, 2021; Hornor, 2015; SAMHSA, 2018; Wilson & Shashank, 2018). Symptoms from early exposure to chronic or toxic stress cause neurobiological changes in the body include pro-inflammatory responses, decreased sensitivity to inhibitory hormonal signals, autoimmune responses in the body (De Bellis, 2001; De Bellis & Zisk, 2014; McEwen, 2000; Miller et al., 2011; Shields et al., 2020; van der Vegt et al., 2009). Most providers who are treating complex trauma emphasize the importance of restorative sleep, as, during sleep, neurotoxic waste products are cleared from the brain (De Bellis & Zisk, 2014; Wilson & Shashank, 2018). Along with other biological effects of sleep dysfunction, behavioral issues can become amplified or worsen without adequate sleep (De Bellis & Zisk, 2014; Wilson & Shashank, 2018). Children who have experienced trauma will often have difficulty falling asleep, staying asleep, nightmares or night terrors, or some combination of sleep disorders (AAP, 2014; De Bellis & Zisk, 2014; Kovachy et al., 2013; Wilson & Shashank, 2018; Zarse et al., 2019). Other symptoms of trauma include rapid eating or lack of satiety, food hoarding, and loss of appetite (AAP, 2014; Hornor et al., 2018; Wilson & Shashank, 2018). Over-eating and resultant obesity are also common in children who have experienced trauma and thought to result from inhibition of the satiety center in the brain and/or from trauma-based anxiety (AAP, 2014; Hornor et al., 2018; SAMHSA, 2018). Neurobiological effects of trauma can include increased sympathetic tone, increased catecholamine production, and misinterpretation of body signals, all of which can lead to toileting and elimination issues such as constipation, encopresis, and enuresis (Anda et al., 2006; De Bellis & Zisk, 2014; Hornor et al., 2018; van der Kolk, 2014). See Table 1 for a summary of physiological-based symptoms.

Fig. 1. PRISMA diagram of literature search.
Table 1
Physiological symptoms from trauma and how the pediatric nurse can respond.

| Function   | Symptom                                      | How to respond                                |
|------------|----------------------------------------------|-----------------------------------------------|
| Sleeping   | Difficulty falling asleep                    | Consistent bedtime schedule                   |
|            | Difficulty staying asleep                    | Soothing bedtime routine                      |
|            | Night-light                                  |                                               |
|            | Nightmares                                   | Reassurance with child’s fears                |
| Eating     | Rapid eating                                 | Consistent eating schedule (every 2 h)       |
| Lack of satiety |                                      | Calm, pleasant meals                          |
|            | Food hoarding                                | Avoid “on-the-go” meals                       |
|            | Loss of appetite                             | Expect experimentation with food              |
| Other eating disorders |  | Daily chewable multivitamin with iron and zinc |
|            | Do not force-feed or reprimand children for not eating | Reward system for eating a new food |
|            | Offer 2 desired foods w/ 1 non-preferred food |                                               |
|            | High-calorie/high-protein diet (if underweight) |                                               |
|            | Follow growth weekly or monthly              |                                               |
| Toileting   | Constipation                                 | Bowel clean out as necessary (constipation)   |
| Encopresis | Eliminate negative associations around toileting |                                               |
|            | Rewards system for sitting on toilet         |                                               |
|            | Game or activity only used in bathroom       |                                               |
|            | Timed voiding (every 2 h)                    |                                               |
|            | Reward if dry (enuresis)                     |                                               |

(AAP, 2014; AAP et al., 2012; Ahmad et al., 2007; Anda et al., 2010; Anda et al., 2006; Bright Futures and American Academy of Pediatrics, 2020; Elliott et al., 2005; Felitti & Anda, 2010; Garner et al., 2012; Glowa et al., 2016; Goddard, 2021; Burke Harris, 2018; Hodes, 2006; Hornor, 2015; Hornor et al., 2018; Kovachy et al., 2013; Spratling et al., 2019; Perry et al., 2009; Perry & Windey, 2021; Riddle, 2016; Shonkoff & Garner, 2012; SAMSHA, 2014, 2018)

Recognize behavioral concerns

Upon further assessment, behavioral symptoms are developmentally dependent and range from mimicking depression, anxiety, and hyperactivity to aggression and attachment symptoms (American Psychiatric Association (APA), 2013; AAP, 2014; Siegfried & Blackshear, 2016). Behavioral presentations of trauma may overlap between many mental health diagnoses (APA, 2013; Racine et al., 2020; Riddle, 2016). See Table 2 for a summary of behavioral and developmental concerns for trauma. Behaviors indicative of trauma shift throughout development from infancy to late adolescence and are often misdiagnosed as many other mental health challenges, highlighting the need for age-appropriate and thorough trauma screens in pediatric practice by providers aware of the impact of ACEs.

Pediatric trauma often manifests as excessive threat vigilance, mistrust of others, poor social relationships, impaired self-regulation, and unhealthy lifestyle choices (Miller et al., 2011). In toddlers and preschool-aged children, common behaviors include emotional outbursts (“temper tantrums”), difficulty attending to age-appropriate tasks, and a “clingingness” to safe caregivers (APA, 2013). As children develop, through school-aged and early adolescence, common behavioral symptoms are poor social relationships, angry outbursts, anxiety symptoms/difficulty concentrating, difficulty with authority, a sense of false bravado, high levels of vigilance, and feelings of inadequacy (AAP, 2014; APA, 2013; Hornor, 2015). Further development of these symptoms occurs in adolescence, including excessive worrying or anxiety, significant challenges with emotional dysregulation, conduct issues (unsafe sex, criminal activities, drugs), and withdrawal from activities (APA, 2013). It is important to note that children and teens may tend towards internalizing (e.g., withdrawn, disengaged) or externalizing (e.g., aggressive, false bravado) behaviors to manage their traumatic experiences. So, for example, some children may exhibit one behavior from Table 2, which creates distress and pathology, while others may exhibit several behaviors over the developmental span. Trauma awareness challenges providers and highlights the need for providers to let go of preconceived assumptions that certain behaviors equate to specific diagnoses. For example, difficulty concentrating, fidgeting, and impulsive behaviors do not always equate to attention deficit hyperactivity disorder (ADHD), as these behaviors are also all indicators of trauma (Siegfried & Blackshear, 2016; Wilson & Shashank, 2018).

Recognize red flags

Pediatric nurses should additionally be aware of red flags for severe depression and self-injurious behaviors, including written or verbal
expressions of suicidality or hopelessness. Any plans to hurt oneself or others must be attended to before the end of the visit or encounter with the child. Appropriate screening tools and partnerships with mental health professionals are the most helpful tools for managing these disclosures. Notifying the parent or guardian is required, specifically if practicing in a setting such as a school nurse’s office where parents are not present for care. As mandated reporters, the nurse must also report any physical, emotional, or sexual abuse revealed during screening or assessment to child protective services (AAP, 2014; APA, 2013; Chen et al., 2014; Goddard, 2021; Hornor, 2015; Lang et al., 2021).

Respond with trauma screening

Screening, anticipatory guidance, and setting up referral systems are foundational steps in trauma-informed care. As part of “responding,” trauma screening builds on recognizing trauma and taking action in care. Mental health screenings have become commonplace and part of core metrics in most pediatric care settings (AAP, 2019; Bright Futures & AAP, 2020; Agency for Healthcare Research and Quality (AHRQ), 2021; Mangione-Smith, Schiff, & Dougherty, 2011; United States Preventative Services Taskforce (USPSTF), 2016; Zima et al., 2013). However, specifically screening for trauma varies widely depending on the healthcare setting. Recommendations for universal and explicit trauma exposure assessment aim to decrease stigma around trauma screens, akin to the implementation of other now routine mental health screens in primary care (AAP, 2019; Bryant & Van Graafeiland, 2019; Glowa et al., 2016; Spratling et al., 2019). The nurse should familiarize oneself with trauma screens in the pediatric healthcare setting. Trauma screens evaluate both past exposures to potentially traumatic events as well as any current or ongoing traumatic stress symptoms.

As the importance of trauma screens is recognized in both medical and mental health treatment, experts and researchers look to create screens that capture the necessary information, have the potential to guide as referral to treatment moving forward, and do not re-traumatize the patient in the process (AAP, 2019, 2014; Bright Futures and American Academy of Pediatrics, 2020; Zima et al., 2013). Some screens currently being utilized in pediatric care settings, such as School-Based Health Centers (SBHCs) and outpatient pediatric and mental health settings, in which the pediatric nurse serves as the first line screening provider, are the Adverse Childhood Experiences Questionnaire (ACE-Q), the Pediatric Symptom Checklist (PSC), and the Child Trauma Screen (CTS) (Bryant & Van Graafeiland, 2019; Glowa et al., 2016; Jellinek, 2020; Lang et al., 2021; Zarse et al., 2019). While these screens are neither diagnostic nor constitute a full assessment of trauma, they serve as a starting point to determine which patients may benefit from follow-up care and a referral for mental health treatment.

The ACE-Q is a one-page screener, free and accessible in several languages, and offers a 17-question child version (0–12 years of age) and a 19-question teen self-report version (13–19 years of age). These have been successfully used in family and pediatric medicine settings; outpatient primary health settings, and school-health settings. (Glowa et al., 2016; Zarse et al., 2019). Initially developed by Felitti and colleagues, the ACE-Q started as ten items to assess ten types of childhood adversity in the areas of emotional and physical abuse, physical neglect, and abuse associated with a dysfunctional household. Available in English, Spanish, French, German, Norwegian, and Swedish, the ACE-Q is considered a reliable, valid, and economical screen for retrospective assessment of ACEs, with an internal consistency Cronbach’s alpha, $\alpha = 0.88$ (Felitti et al., 1998; Murphy et al., 2014).

Another trauma screening includes the Pediatric ACEs Screening and Related Life-events Screener (PEARLS), available in 17 languages, free for use, and currently being implemented in several pediatric practices across the country (ACEs Aware, 2020). The PEARLS also has a child tool (ages 0–11), an adolescent tool (ages 12–19) to be completed by a caregiver, and an adolescent self-report tool (ages 12–19). The PEARLS comprises two parts: part one is 10-questions and screens for abuse, neglect, and household dysfunction, while part two focuses on Social Determinants of Health (SDOH), such as food/housing insecurity, bullying, or discrimination. For adolescents, best practice includes completing both the caregiver screen and the adolescent self-report (ACES Aware, 2020). The PEARLS offers a de-identified screening where respondents count the number of ACE categories indicating a total score while not identifying which ACEs were experienced. Pilots of the PEARLS in large pediatric settings found randomization via the de-identified format versus the identified version facilitates higher rates of disclosure and patient comfort during screening (ACES Aware, 2020; Duke & Borowsky, 2018). While the PEARLS has been found to have face validity, available psychometrics have not been published as this tool continues to be part of ongoing, randomized control trials (Koita et al., 2018). Further reliability and construct validity of this instrument is warranted, specifically across a variety of clinical settings.

The Pediatric Symptom Checklist (PSC) is a psychosocial screener used to identify emotional and behavioral concerns for youth between 4 and 16 years of age, often implemented in the outpatient setting (Jellinek, 2020; Jellinek et al., 1988). There is a long version (35 items), a short version (17 items), a youth self-report (ages 11 and up) version, and a pictorial version of the PSC, making operationalizing this screen developmentally savvy across pediatric growth surveillance. The PSC has been endorsed by the AAP and the National Quality Forum, both for comprehensive screening and screening adolescents for depression using its internalizing scale (Jellinek, 2020). With good validity and reliability of the scales demonstrated across multiple pediatric populations, test re-test reliability ranges from $r = 0.84$ to $r = 0.91$ (Jellinek et al., 1988; Murphy et al., 1992). Inter-item internal consistency found strong Cronbach alphas ($\alpha\geq0.91$) with highly significant relationships between PSC items and positive screening scores (Murphy & Jellinek, 1988; Murphy et al., 1992). The PCS-17 specifically has a range of 0.67 to 0.89 internal consistency and a significant correlation with other instruments for assessing psychological impairment (Stoppelbein et al., 2012).

Finally, the Child Trauma Screen is brief (10 items), additionally available in Spanish, Portuguese, and Chinese, free to use, and aimed specifically at pediatric providers across all settings, including school personnel who screen children for trauma (Lang & Connell, 2017, 2018). Originally published through the Child Health Developmental Institute (CHDI), the CTS is not a comprehensive screening tool or a clinical assessment. It does not screen for all types of traumas or traumatic stress reactions (Lang & Connell, 2017). Still, the CTS can be used as a pre-screener for trauma symptom screening in children (Lang et al., 2021; Lang & Connell, 2017). Psychometrics for the CTS include initial validation studies across a diverse study sample with internal reliability of PTSD items (0.78, child report; 0.82, parent report) (Lang & Connell, 2017). Convergent validity studies with established PTSD measures demonstrated validity with other measures of general mental health, anxiety, depression, and ADHD ($r = 0.90$, child report; $r = 0.97$ caregiver report). Excellent predictive ability to identify children with a likely PTSD diagnosis has subsequently been found (0.93 sensitivity; 0.88 specificity), with additional studies in diverse populations of children (Lang et al., 2021; Lang & Connell, 2018). In study comparisons between the CTS and the UCLA PTSD Reaction Index for the DSM-5, half of the youth sampled from an urban pediatric primary care clinic reported at least one type of trauma with elevated PTSD symptoms (Lang et al., 2021).

It is important to note that at this time, current research does not support the use of one screen over another to assess ACEs and trauma, and many screens are evaluated for best practices. The trauma screens discussed above lend themselves to either a medical, nursing, or mental health professional completing the screens. Medical and nursing professionals may choose to use the de-identified version of screens when available (as in the PEARLS) (ACES Aware, 2020). The de-identified version of the PEARLS, for instance, allows the nurse to have the total score
of a positive screen to share with a mental health professional, but without the knowledge of the details of the traumas, which may best be managed in a mental health setting. This is an example of “resist re-traumatization” for the patient: a core component of trauma-informed care (Bloom, 2010; SAMHSA, 2014, 2018). Patients, especially patients new to their provider, may also prefer and feel safer with a de-identified screen, as it does not require them to provide the details of their trauma to the provider (ACES Aware, 2020). The pediatric nurse implementing trauma screens of any kind should be trained in trauma awareness, and screening, including managing disclosures and suspected child abuse and neglect mandated reporting (AAP, 2019; Jellinek, 2020; Lang et al., 2021; Lang & Connell, 2017).

Responding and resisting re-traumatization with health promotion

Responding with trauma-informed health promotion with children and their families revolves around presenting symptoms and awareness of resiliency strategies to build healing and repair from adversity (Elliott et al., 2005; Hornor et al., 2018; Hornor, 2015; Spratling et al., 2019). Teaching families on the impact of trauma, specifically on pediatric development, can include ACE-associated health disorders; including helping the family understand how chronic stress can cause bodily symptoms. Emphasize building hope with patients that healing is possible with evidence-based interventions (AAP, 2014; Bisson, Roberts, Andrew, Cooper, & Lewis, 2013; Bradley et al., 2005; Elliott et al., 2005; Hornor, 2015; Spratling et al., 2019). Furthermore, anticipatory guidance should aim at presenting symptoms or behaviors (AAP, 2014; Hornor, 2015; SAMHSA, 2014, 2018).

Sleep health

Sleep disturbances and bedtime issues are among the sequelae of trauma and include fear of the dark, enuresis, nightmares, night terrors, and insomnia (Burke et al., 2011; Goddard, 2021; Kovachy et al., 2013). For children who experience nightmares, night terrors, or other sleep disturbances (e.g., episodes of insomnia, sleepwalking, etc.), it is important to educate parents, follow-up with them on progress, and refer to a sleep specialist if symptoms worsen or begin to impact the child’s daytime activity (Burke et al., 2011; Goddard, 2021; Kovachy et al., 2013). Attention to curb evening intake of alerting foods (e.g., chocolate, high sugar content foods, etc.) and excess liquids can support normative transition to sleep and aide in reducing episodes of enuresis, nightmares, night terrors and nighttime wakefulness (Kovachy et al., 2013).

We know from the physiologic literature that trauma can result in alteration of the reticular activating system in the brain and result in sleep-wake pattern disruptions (Garcia-Rill, 1997). Promoting sleep hygiene and healthy sleep practices can support the normalization of sleep-wake rhythm diurnality (AAP, 2014). Sleep hygiene interventions include a consistent bedtime schedule with emphasis on a soothing, calming pre-bed routine such as a bath, reading books with a caregiver or on one’s own, keeping the lights dim or low in the room (or use of a night-light), or brief snuggling (AAP, 2019; Bright Futures, 2020). Transitional items (e.g., favorite blankets, pillow, or stuffed animal) have long been recognized as supportive props to help children fall asleep at night (Passman, 1977). The nurse can educate parents to accept the child’s nighttime fears and emphasize to caregivers that providing reassurance before bed is appropriate to support parents and guardians in their role (AAP, 2019; Bright Futures and American Academy of Pediatrics, 2020). Finally, avoidance of blue light-generating devices which are known to inhibit melatonin secretion, such as television, computer, or handheld electronic devices, can also support sleep onset (Shechter, Kim, St-Onge, Westwood, 2018).

Healthy eating & physical activity

Consistent eating schedules with sit-down, non-electronic-based family meals are critical in creating a routine around disordered eating (Bright Futures and American Academy of Pediatrics, 2020; Hornor, 2015). The importance of healthy eating and nutrition intake to repair the body can be highlighted. Like a calm, soothing bedtime routine, a calm mealtime assists with digestion and anxiety around eating. Recommendations for three meals and three snacks a day and to try not to eat meals “on-the-go” and instead sit down for consumption can assist with mealtime routine (Bright Futures and American Academy of Pediatrics, 2020; Hornor, 2015). Caregivers should expect experimentation and messiness in young children and avoid force-feeding or reprimands for not completing meals, both actions being negative reinforcement for healthy eating (AAP, 2014, 2019). A chewable multivitamin with iron and zinc is recommended for children who are not eating certain foods, or referral to a nutritionist may be needed. Underweight children healing from trauma may need high-calorie and high-protein diets depending on their medical provider’s recommendations, who should be following their growth monthly or even weekly (AAP, 2019).

Toileting & elimination

If symptom presentation involves elimination difficulties, recommend a reward system or eliminating any negative associations around toileting (AAP, 2019; Bright Futures and American Academy of Pediatrics, 2020; Goddard, 2021; Hornor, 2015). Nutritional recommendations should be made, such as increasing fiber and routinely eating fruits and vegetables (AAP, 2014). Referrals to a gastroenterologist are sometimes warranted with bowel cleanout for severe constipation (AAP, 2014). Pediatric nurses can offer anticipatory guidance and education around healthy toileting habits, such as eliminating negative associations around toileting (e.g., “go to the bathroom or else” or punishment around accidents). Suggest creating a positive feedback system such as a rewards system for sitting on the toilet or a game or activity that is only used in the bathroom (Bright Futures and American Academy of Pediatrics, 2020; Hornor, 2015). Other positive feedback to encourage healthy toileting are timed voiding (go to the bathroom every two hours to “try”), offering a reward if dry (for enuresis) (Bright Futures and American Academy of Pediatrics, 2020).

Behaviors

Part of trauma-aware nursing and subsequent health promotion in pediatrics includes recognizing potential trauma-based behavior and strategies to help support the family. Positive parenting techniques of consistent caregiving and non-physical discipline can help caregivers build resiliency-building strategies into the home environment (Hornor, 2015; Spratling et al., 2019). Educate parents around behaviors that can manifest trauma but become misinterpreted in the absence of proper education, such as misbehaving, aggression or over-reaction. This information alone may shift how the caregiver approaches the child’s behavior or willingness to seek further treatment as part of both responding and resisting re-traumatization (National Child Traumatic Stress Network (NCTSN), 2008; SAMHSA, 2014). When trauma is identified, the next best step for many patients is an evidence-based therapy model that focuses on decreasing symptoms of trauma and improving the patient’s functioning across environments (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013; Chen et al., 2014; De Roos, 2011; Elliott et al., 2005; Shields et al., 2020; Wilson & Shashank, 2018). This referral coordination is often the result of referral processes among the whole patient health care team. Many mental health clinicians attend specialized training to more effectively treat patients who have experienced trauma and practice evidence-based trauma models within their practice (Goddard, 2021). Mindfulness in the facilitation of referrals to an appropriate mental health clinician versed in trauma-focused cognitive behavioral therapy or as a recognized trauma therapist should be noted (Goddard, 2021).

There are many evidence-based trauma therapies available, and all utilize different approaches to help integrate the traumatic experience(s) into the person’s experience. Interventions should always include non-medication-based treatment such as evidence-based
psychotherapy (APA, 2013; Riddle, 2016; Shields et al., 2020). Evidence-based interventions include trauma-focused cognitive behavioral therapy and Eye Movement Desensitization and Reprocessing (EMDR) for PTSD and depression and multisystemic therapy for early trauma (Ahmad et al., 2007; De Bellis & Zisk, 2014; De Roos, 2011; Shields et al., 2020). Meta-analysis consistently shows CBT and EMDR therapy as superior to all other treatments for psychological symptoms of trauma and are efficacious in reducing PTSD symptoms (Ahmad et al., 2007; Bisson, Roberts, Andrew, Cooper, & Lewis, 2013; Bradley et al., 2005; Chen et al., 2014). More than 26 randomized control trials confirmed that EMDR reduces symptoms of PTSD, depression, anxiety, and subjective distress in patients (Chen et al., 2014).

Discussion

Recognizing trauma as complex and requiring a universal, informed approach across health care settings is vital. Just as traumatic experiences differ widely, so may the environments in which providers encounter individuals suffering the impacts of trauma. Therefore, it is crucial for providers across all settings, from health care clinics to school environments, to develop a comfort level around screening and asking questions related to trauma using compassion and nonjudgmental acknowledgment. Table 3 provides an overview of the impact of childhood trauma, which presents across all healthcare and academic settings, including primary and secondary school through higher education acquisition.

As the trauma-informed approach is relationship-based, recommendations for community connections both in and outside of school can reduce the long-term impacts of trauma. Building connections and mentorships become paramount as supportive and nurturing relationships provide healing. Trauma can have catastrophic effects on child development and milestone acquisition, which creates difficulty in the academic environment as well. The nurse should be mindful that trauma is often mistaken and misdiagnosed for other disorders such as ADHD, oppositional behavior, personality disorders, or even somatoform disorders. Mental health diagnosticians may reconsider previous diagnoses mistaken for or comorbid with PTSD (NCTSN, 2011; Saxe, 2001; Riddle, 2016). The nurse can offer education and support for caregivers by explaining that even if the child’s symptoms are linked to trauma, the impact on the child can be mitigated. This occurs through a supportive, responsive caregiver relationship, clear and fair expectations between the child and caregiver dyad, a safe and loving home environment, and professional help when symptoms persist: helping caregivers feel more empowered and less overwhelmed (AAP et al., 2012; Center on the Developing Child at Harvard University, 2021; NCTSN, 2008, 2011). If caregivers have difficulty managing the results of a trauma screen or believe that the behaviors are not tied to trauma, the nurse’s best course of action is to engage mental health services at that time.

The Administration on Children, Youth and Families (ACYF) Child Abuse and Neglect Cross-Walk, developed by the Center for Study of Social Policy, is an in-depth review of the literature on protective factors for in-risk youth connected to their Strengthening Families and Youth Thrive programs. While no publication date is available for the document, it provides a roughly formatted overview of the available literature from 1994 through 2012. The evidence on child trauma from the review is clustered within the following topical sections: concrete support in times of need, cognitive and social-emotional competence (parent and child), developmental knowledge (parent and child), resilience (parent and child). As a side note, the crosswalk includes dense information on treatment modalities and psychotherapeutics, including the strength of the evidence available. A review from 2012 (where this review left off) to current would extend knowledge and provide a valuable contribution to the literature.

Clinical therapists receive additional training and certifications in evidence-based modalities, including trauma-focused cognitive behavioral therapy (TF-CBT) and cognitive-behavioral intervention for trauma in schools (CBITS). If possible, referrals should be coordinated with this sub-specialty of trauma-based therapists in mind. Help facilitate information sharing between the nurse and medical providers to the mental health professional, including trauma screening scores, which can help with the referral process. Explaining to the family the purpose and efficacy around therapy, particularly for trauma, can help assure caregiver follow through to mental health treatment. Explaining mental health services to families in a way that allows destigmatization in caring for one’s mental health can also lead to more successful referrals (Hantzi et al., 2019).

Practice implications

Recognizing that trauma is complex, many types of traumatic experiences affect children and adolescents and have long-term effects into adulthood. As annual risk assessment and mental health screening are now national practice standards in pediatrics, pediatric nurses are often the frontline staff in the implementation of these screens (AAP, 2014, 2019; ACES Aware, 2020; Bright Futures and American Academy of Pediatrics, 2020; Horner, 2015). While the pediatric nurse may administer and collect the screening information, all health care providers should become comfortable with screening and asking questions related to trauma in a supportive, nonjudgmental manner. Scoring and interpretation of mental health and trauma screening are practice setting specific. However, awareness and implementation can be done by any trained health care provider (ACES Aware, 2020). In alignment with their role and scope of practice, Advanced Practice Registered Nurses (APRNs) and physicians are responsible for assuring intervention and addressing any disclosure for trauma or positive health screening to the caregiver. Recognizing trauma includes understanding that ACEs are not just limited to physical and sexual abuse. Responding to trauma requires familiarization with care coordination needed in the provider’s immediate community and resources available for families. The

### Table 3

| Brain development | Smaller brain size |
|-------------------|-------------------|
| Physical health   | Sleep disorders   |
| Emotions          | Difficulty controlling emotions |
| Relationships     | Attachment problems and disorders |
| Mental health     | Depression |

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**Practice implications**

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educational system must be included as part of this response. It is important to note that resisting the re-traumatization of pediatric patients requires self- and organizational-reflection on the clinical approach both to patient care and those providing patient care. For all healthcare clinicians to understand, respect, and respond to the effect of trauma at all levels, organizational procedure and policies must be put in place that supports clinical providers to engage in providing trauma-informed care on a routine basis fully.

Finally, trauma-informed care requires acknowledging that different settings, processes, and environments can act as triggering agents for previous traumas. The trauma-informed pediatric nurse recognizes these components and seeks to create an environment where the patient can feel safe and avoid triggering events and re-traumatization (Bloom, 2010).

Limitations

We acknowledge the inherent methodologic limits that affect rigor in integrative reviews (Whittomere & Knaff, 2005). The authors recognize that the historical footprint of literature related to “trauma” is largely based on physical and sexual abuse or medical trauma. However, in recent literature publications, the movement for health care professionals to become trauma-aware requires complex understanding around physiological and complex traumas, which in turn create mental health and physical illness. To that end, the researchers involved in this study employed and sustained methodologic standards as identified in the literature across the project (Whittomere & Knaff, 2005). As this work is an IRL versus a systematic (or meta-analysis), statistical analysis of literature resources and validity of findings based on the research design presented in the primary literature was not conducted. However, IRL allows for review of diverse theoretical and methodologic inclusion to this end (Whittomere & Knaff, 2005). The state of the science of “trauma-awareness” for pediatric nurses in the era of COVID-19 pandemic called for this level of literature review.

Conclusion

The impact of trauma across the developmental lifespan from infancy to adulthood is now well-substantiated in both the medical and behavioral health-based literature. The field of traumatology focuses on the short- and long-term impacts of childhood trauma across the lifespan. At the same time, health care governing bodies and professional organizations continue to recognize that the historical footprint of literature related to ACEs Awareness is an IRL versus a systematic (or meta-analysis), statistical analysis of literature resources and validity of findings based on the research design presented in the primary literature was not conducted. However, IRL allows for review of diverse theoretical and methodologic inclusion to this end (Whittomere & Knaff, 2005). The state of the science of “trauma-awareness” for pediatric nurses in the era of COVID-19 pandemic called for this level of literature review.

Declaration of Competing Interest

None.

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