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Trauma-Informed Care: Needs Assessment in a Pediatric Intensive Care Unit

Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing
Practice at the University of Kentucky

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Louisville, Ky

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Abstract

It is estimated that over 60 percent of children and adolescents in the United States have experienced one or more traumatic event (Saunders & Adams, 2014) resulting in increased psychosocial needs. Trauma-Informed Care (TIC) involves recognizing and validating the effects of trauma and promotes for effective treatment. The purpose of this Doctor of Nursing Practice (DNP) project was to describe the frequency of neglect and trauma, including abuse and accidental events, among patients admitted to a pediatric intensive care unit and identify types of interventions and referrals documented by providers in the medical record. This project was based on a descriptive, cross-sectional design for a retrospective chart review. The sample consisted of electronic medical records (EMR) of children and adolescents admitted to the Pediatric Intensive Care Unit (PICU) with a diagnosis of trauma over a 12-month period. Findings suggested there was minimal implementation of TIC in the PICU among healthcare providers, indicating a gap in practice. This may be related to a lack of provider knowledge and training, suggesting the importance of educational approaches for improving interventions supported by the organization. In conclusion, pediatric healthcare providers need education and training to incorporate TIC into their practice, thereby improving healthcare outcomes.

Acknowledgements

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Dedication

This research project is dedicated to my mother, Barbara. Without her unwavering love and support this achievement would not have come to fruition.

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Background and Significance

Problem Identification

Trauma occurs when an individual is subjected to an event that is perceived to be harmful to his or her life and emotional state of mind. Approximately 60-70% of children and adolescents in the United States have experienced one or more traumatic events (Saunders & Adams, 2014), which include but are not limited to, neglect, physical or sexual abuse, school or community violence, accidental injury, or medical trauma. Pediatric Medical Trauma is physiological or psychological reactions to medical procedures, invasive treatments, injury, pain, or serious illness (National Child Traumatic Stress Network [NCTSN], n.d.). The U.S. Department of Health and Human Services (USDHHS, 2019) reported that in 2017 an estimated 4.1 million referrals were made to Child Protective Services (CPS), which involved over 2.4 million children receiving protective services who were victims of childhood abuse and neglect. These traumatic events may be an isolated occurrence, a series of adverse situations or events or ongoing abuse. Unfortunately, children are often not able to psychologically process a traumatic event after exposure (Meszaros, 2010), often resulting in lasting mental and physical complications. When a child is exposed to a traumatic event, they are vulnerable to development of multiple health risk factors and long-term consequences as they grow older, as evidenced by the Adverse Childhood Experiences (ACE) study (Felitti et al., 1998).

Context of the Problem

A significant number of children have experienced a traumatic event, either intentional or accidental. When considering intentional trauma, in 2017 an estimated 674,000 children in the U.S. were victims of abuse and neglect (USDHHS, 2019). However, the actual number may have been higher, as abuse and neglect are likely to be underreported. In addition, the types of injuries

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varied. The 2019 USDHHS report indicated that of the nearly 674,000 child victims, three-quarters suffered neglect, 18.3% were physically abused, and 8.6% were sexually abused.

Nationally, the number of children estimated to receive CPS assistance increased 12.2% from 2013 to 2017 (USDHHS, 2019). Kentucky and Indiana, the two states involved in this study, both have high rates of child abuse. For example, the number of children who have been maltreated in Kentucky increased 27.5% between 2013 and 2017, with 22.2 out of every 1,000 children being maltreated, ranking this state 1st in the nation. Furthermore, in Indiana, there were 29,198 cases of child maltreatment or 18.6 out of every 1,000 children, ranking Indiana 2nd in the nation for child abuse (USDHHS, 2019).

With regard to accidental trauma, in 2016, there were 27,845 injuries in children and adolescents less than 18 years of age involved in a motor vehicle accident (MVA) (NTDB, 2016). In addition, in 2014 there were 812,000 children under the age of 17 that were admitted to the ED for a Traumatic Brain Injury (TBI), and of those injuries, 48% were caused by fall (CDC, 2019). The Children's Hospital of Philadelphia reported in 2015, greater than 13,000 children were injured by gun- shot wounds (CHOP, 2018) and in 2013, approximately 126,000 children aged 19 and younger were treated for fire and burn injuries (CDC, 2015).

Scope and Consequences of the Problem

Childhood trauma is associated with long-term health risks, detriments to health status, and diseases (Felitti et al., 1998). For example, trauma can cause neurobiological changes in certain brain structures, such as the hippocampus, responsible for learning, memory, and mood; the pre-frontal cortex, needed for executive functioning and impulse control; and the amygdala, which is necessary for regulating fear and emotion (Smith & Vale, 2006; Esden, 2018). In

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addition, trauma is associated with remodeling of the hypopituitary-adrenal (HPA) axis, the area of the brain that regulates the stress response (DeBellis & Zisk, 2014). As the traumatized child grows older, these neurobiological changes can cause multiple problems, including dysfunctional behavior, impaired learning, lack of emotional stability, increased behavioral and mental disorders, and poor physical health (Glaser, 2014; Mersky & Topitzes, 2010; Schonkoff & Garner, 2012).

The experience of trauma has long lasting implications, for example, research suggests that up to 98% of females involved in the justice system are victims of abuse and childhood trauma. In addition, reports suggest up to 96% of adolescents admitted to psychiatric facilities, and 70% of children living in foster care, may be victims of abuse (American Institute for Research, 2016). It is crucial for healthcare providers to have the knowledge and understanding of appropriate interventions for reducing the long-term negative consequences of trauma. One approach is the establishment of trauma-specific services within healthcare organizations. Ideally, organizations that implement Trauma-Informed Care (TIC) use a framework that provides information and tools for assessment and intervention of patients.

TIC is a framework that involves understanding, recognizing, and responding to the effects of all forms of trauma and seeks to employ practices that do not traumatize or inadvertently cause re-traumatization to an individual. According to Kassam-Adams et al. (2015), pediatric health care providers are in key positions to implement trauma-informed approaches given the high prevalence of trauma exposure in children and adolescents, yet TIC is not routinely incorporated in the training and education of healthcare providers. When TIC is implemented, there are several benefits for the patients, including increased patient engagement, improved adherence to treatment plans, and decreased use of emergency services (Yatchmenoff,

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Sundborg, & Davis, 2017). Moreover, being trauma-informed improves awareness of trauma and its effects and increases knowledge of evidence-based interventions for treatment (DeCandia, Guarino & Clervil, 2014; Marsac et al., 2015, Moss et al., 2019a, Williams & Smith, 2017). Therefore, it is important to identify the degree to which TIC guides the care of children and adolescents within healthcare organizations and elucidate factors that interfere with implementation of interventions based on TIC in the treatment of children/adolescents and their caregivers.

Evidence-Based Interventions

TIC involves recognizing and validating the effects of trauma and strives for effective treatment by implementing evidence-based screening, assessment, and trauma-treatment services (Oral et al., 2016). The NCTSN identifies several evidence-based interventions that are supported by the literature. For example, Child Parent Psychotherapy (CPP) is recommended for children from birth to age 5 who have suffered at least one traumatic experience and are demonstrating signs of emotional and behavioral problems, including symptoms of post-traumatic stress disorder (PTSD) (DeCandia et al., 2014). For children aged two to seven, Parent-Child Interaction Therapy (PCIT) focuses on relationship enhancement and improved management of the child's behaviors (Thomas et al., 2017).

The Attachment, Regulation, and Competency Model (ARC) is another recommended therapy approach for individuals from birth to young adults who have experienced complex trauma. This framework is designed to build safe and caring systems that support youth regulation across domains, as well as enhancing other factors associated with resilient outcomes (NCTSN, n.d.). Lastly, Trauma-Informed Cognitive Behavioral Therapy (TF-CBT) is used to

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treat children aged three to eighteen. TF-CBT incorporates elements of cognitive-behavioral, attachment and exposure therapy to address the needs of a child who has experienced trauma (Bartlett et al., 2018). These are examples of evidence-based interventions providers may use or recommend within the context of the TIC framework in their treatment plans.

Purpose and Objectives

The purpose of this DNP project was to describe the frequency of neglect and trauma, including abuse and accidental events, among patients admitted to a pediatric intensive care unit and identify types of interventions and referrals documented by providers in the medical record. In this project, accidental events refer to but are not limited to incidents like falls, motor vehicle accidents, or bicycle injuries. The project was conducted in an acute-care children's hospital that is part of a multi-system healthcare organization located in the south-central United States (U.S.). Objectives (aims) of the project were to conduct a retrospective chart review to measure frequency of trauma, including abuse and accidental events, among children from birth to 18 years of age admitted to the PICU; describe the demographic characteristics and medical and psychiatric co-morbidities of the study sample; determine the frequency and types of interventions used by providers to address trauma, including abuse and accidental events, among the study sample; and to identify types of referrals made by providers to address trauma among the study sample.

Conceptual Framework

The conceptual framework that guided this DNP project was the Substance Abuse and Mental Health Services Administration's (SAMHSA) Concept of Trauma and Guidance for a Trauma-Informed Approach (SAMHSA, 2014a). According to SAMHSA, individual trauma:

“results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individuals' functioning and mental and physical, social, emotional, or spiritual well-being” (p. 2).

SAMHSA further emphasizes that the six key principles of a trauma-informed system are organized around the concepts of safety, trustworthiness, peer support, collaboration, empowerment, and culture. In the TIC model, safety involves creating space that is emotionally, physically, and culturally harmless for individuals. In addition to establishing a safe environment, it is critical for healthcare providers to develop a trustworthy, transparent environment by establishing and maintaining professional boundaries with accurate sharing of information about the intervention so that the patient understands what they may expect in the future. Encouraging the availability of peer support for individuals who have experienced trauma also contributes to the patient's recovery.

Recognition of and commitment to shared decision-making and collaborating in treatment approaches, doing “with” rather than “to”, is vital in the healing. When an individual is empowered, their strengths are validated and hope for the future is instilled. The final principle is to minimize and/or eliminate stereotypes and biases when implementing policies and

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procedures to address the cultural needs of the community (SAMHSA, 2014b). In addition, a trauma-informed approach is multi-faceted, consisting of: 1.) *realization* of how trauma affects the individual, families, and the community; 2.) *recognition* of trauma by using screening and assessment tools; 3.) *responding* appropriately to a victim of trauma; and 4.) prevention of *re-traumatization* by decreasing inadvertent stressors that may occur during the healing phase (SAMHSA, 2014b).

For this project, SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach (2014) was used because unidentified trauma greatly escalates the risk of chronic physical diseases, substance use disorders and mental illness (SAMHSA, 2014a). Also, service systems, including healthcare, can incorporate practices based on the conceptual framework to minimize the impact of trauma and stress-related symptoms. Recognition of trauma and providing appropriate support and interventions, fosters an ability to surmount traumatic experiences (SAMHSA, 2014a).

Another reason for selecting this framework was due to its potential to serve as a guide for an organization to develop care delivery systems that focus on understanding the connections among and between trauma, behavioral health issues, and physical complications, as well as promote trauma-informed approaches with populations who have been, or who are at risk for victimization. Others describe TIC as a framework for services and care based on an understanding of the effects of trauma that incorporate appropriate services needed for treatment (Harris & Fallot, 2001; Oral et al., 2016). This concept also highlights the importance of safety for both psychological and physical levels, seeking to help patients achieve a sense of control and self-efficacy.

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In summary, when addressing the negative consequences of trauma, it is important to use evidence-based interventions that focus on prevention and treatment of those who have experienced traumatic stress (DeCandia et al., 2014); TIC promotes this approach. In addition, research suggests that individuals can overcome traumatic experiences with appropriate treatment. For example, the results from a randomized control trial (RCT) by Jensen et al. (2014) found that TF-CBT was more effective in reducing many symptoms, such as post-traumatic stress symptoms and depression, due in part to cognitive and affect regulation components included in therapy.

Finally, fostering individual strengths is a key step when working with a victim of trauma. There is a need to encourage the development of resilience, thus enabling the survivor to acknowledge their trauma, engage in personal efforts that help them persevere in the face of difficulties, and develop positive coping behaviors that will allow them to flourish (SAMHSA, 2014a).

Literature Review

Trauma-informed care represents an understanding of experiences that a child and family have encountered, either past, present and/or current, that are perceived to be traumatic (Marsac et al., 2016). Several studies have explored ways to address traumatic experiences. For instance, the ACE collaborative study conducted by Felitti and Anda (1998) at Kaiser Permanente's Department of Preventative Medicine in San Diego with the CDC, explored the relationship between adverse childhood experiences among adults and subsequent health risk behaviors, chronic illness, and mental illness. The ten-year longitudinal study (n=17,000) measured

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correlations between ACE score, health and behaviors occurring over a participant's lifetime.

Ten types of ACE's were identified: 1.) abuse- either physical, verbal, or sexual; 2.) neglect- physical or emotional; 3.) household dysfunction- including mental illness, incarcerated relative, mother treated violently, substance abuse, and spousal abuse and/or divorce (Felitti et al., 1998).

These researchers found a correlation between the ACE's experienced in childhood with an increase in conditions such as depression, suicide attempts, severe obesity, substance use disorder, cancer, heart disease, and chronic lung disease (Esden, 2018; Felitti et al., 1998).

To help mitigate the effects of trauma, conceptual frameworks such as Trauma-Informed Care (TIC) must be incorporated into pediatric healthcare. TIC is grounded in an understanding of and responsiveness to the impact of trauma, with an emphasis on physical, psychological and emotional safety. This emphasis on safety creates opportunities for patients to regain a sense of control and empowerment (Hopper, Bassuk, & Olivet, 2009). Policies and procedures that incorporate TIC measures may decrease triggering or re-traumatizing the patient and can also lead to changes in how a healthcare organization functions (Marsc et al., 2015; Hopper et al., 2009). These changes may include increased awareness and sensitivity to victims of trauma, asking about trauma in an intake assessment, and forming collaborative relationships with trauma-informed colleagues in other specialties (Hopper et al., 2009; Raja, 2015).

TIC is considered a paradigm shift for addressing organizational culture and practice to facilitate awareness of trauma at every level of care, and thereby promote, healing and recovery of the patient (Bowen & Murshid, 2016; SAMHSA, 2014b). It is important to note that organizations that recognize the impact of trauma and implement protective factors are able to make changes to develop a healthcare system that better supports patients, caregivers and staff (Earls, 2018). In addition, according to Bartlett and Steber (2019), when a service

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system is integrated with effective policies and practices that address trauma, children are more likely to exhibit the resilience needed for recovery and subsequent well-being.

Organizational awareness of trauma is important because despite the importance of recognizing trauma in pediatric patients and adverse effects on a child's development, pediatric healthcare providers often lack the knowledge and skills necessary addressing these issues (Bunting et al., 2019; Purtle, 2018). Unfortunately, trauma-informed training may not be routinely implemented in healthcare education, and as a result, providers have varying degrees of knowledge and comfort with treating patients who have experienced trauma (Kassam-Adam et al., 2015). For example, Brown et al. (2017) found that some healthcare providers expressed hesitancy discussing trauma with their patients, while other providers stated that they were unprepared to start the conversation or concerned that they might re-traumatize their patients. Literature findings also suggest that many healthcare providers report skill deficits providing care to children and their family members who are in psychological distress related to a traumatic event (Moss et al., 2019a).

Several studies highlighted the consequences of unidentified and untreated trauma. In particular, Goldstein et al. (2018) found that when providers do not ask about, or recognize a patient's trauma, it might reinforce societal avoidance resulting in detrimental effects on both patient and caregiver. Furthermore, Zeigler and colleagues, (2005) found that emergency room providers reported they believed that less than 25 percent of pediatric patients who had suffered trauma would develop at least one symptom of an acute stress reaction, a significant underestimate given the actual percentage of greater than 80 percent. The same study revealed that if not treated appropriately after a motor vehicle accident, up to 33 percent of children would develop PTSD six months after the trauma. Furthermore, if this stress is not properly identified

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and not properly treated, the symptoms may persist into adulthood (Scheeringa, Zeanah, & Cohen, 2011). In addition, PTSD is more common than healthcare providers may realize and therefore, it may be misdiagnosed as attention deficit hyperactivity disorder (ADHD) in children, resulting in treatment for behavior problems instead of the root cause of trauma (Steele & Malchiodi, 2012).

The literature underscores the importance of education and training for healthcare providers regarding trauma and associated adverse reactions in order for them to provide interventions or referrals for evidence-based treatments (Green et al., 2015; Dueweke et al., 2019; Marsac et al., 2016). Literature findings also suggest that education and training increases a provider's level of comfort with recognition of the need for TIC and the provision of TIC-based care for children and their families, in addition to promoting a more positive attitude and behaviors towards trauma (Schiff et al., 2017; Purtle, 2018). Positive attitudes and enhanced understanding among healthcare providers can promote an ability to form collaborative relationships with colleagues specializing in TIC to optimize health outcomes (Raja, 2015).

Lack of education is only one barrier preventing providers from properly recognizing and screening for trauma. A review of literature also revealed other common barriers including underestimation of the impact of trauma on a patient, along with time in a clinical setting to conduct a comprehensive trauma assessment (SAMHSA, 2014b; Dueweke et al., 2019). In addition, Williams and Smith (2017) found that system-level barriers that may affect healthcare providers use of TIC-based care included low levels of support for TIC among organizations and limited opportunities for staff training. Kassam-Adams et al. (2015) reported that lack of awareness and/or availability of resources had an adverse effect on the psychological aspects of trauma, which may result in increased post-traumatic stress symptoms and poorer health and

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functional outcomes. Decreasing barriers will enable healthcare providers to apply a trauma-informed approach to care, thereby improving adherence to treatment regimens, positive engagement with caregivers, quality of medical care, and the well-being of healthcare providers (Marsac et al., 2016; Green et al., 2015).

The PICU setting is highly appropriate for addressing psychological interventions for trauma, yet barriers for care in the use of TIC exist (Moss et al., 2019b). Although no literature was found specifically on the use of TIC in the PICU, this literature review supports the assumption that TIC utilized in the pediatric setting is effective for reducing emotional and psychological responses to a traumatic event (Moss et al., 2019a). The review also supports the need for appropriate screening for patients (Price et al., 2019) and eliciting a thorough history (Briggs et al., 2013) as strategies to identify and provide appropriate interventions for those who have suffered a traumatic event (Bartlett et al., 2018; DeCandia et al., 2014).

Agency Description

Setting

This DNP project was implemented at a large children's hospital that is part of a multi-system healthcare organization located in a metropolitan area of the south-central United States. The hospital has 267 beds and is the region's only full-service, free standing pediatric hospital and the metropolitan area's only Level 1 pediatric trauma center. This facility admits approximately 118,000 patients annually to inpatients settings. ED visits are approximately 60,000 on an annual basis. The hospital is predominantly a pediatric teaching facility for several

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affiliated academic programs for a variety of healthcare disciplines including, but not limited to, nursing and medicine.

Target Population

The target population for this DNP project was healthcare providers in the PICU, including attending physicians, advanced practice nurse practitioners, bedside RNs, social workers, case managers, chaplains and students of various disciplines. These providers had direct contact with the patients and/or caregivers.

Congruence of DNP project and Mission of the Project Setting

The mission of the hospital and healthcare system is to provide quality healthcare to all those served in a manner that meets the needs of the metropolitan area and surrounding communities that it serves. The purpose of this mission is to provide compassionate healthcare with integrity to all, including children. This project contributed to the hospital mission by addressing the impacts of trauma in children. In addition, it could also address the needs of the community by increasing awareness to improve the overall wellbeing of childhood trauma victims, their families, and the community.

Description of Stakeholders

The stakeholders of this project include children who have been exposed to a trauma or have the potential to experience a trauma in the future, along with their families, and the community. Other pediatric healthcare providers included APRN's, MD's, and RN's as well as social workers, case managers and administrators. It is also important to include ancillary staff in the organization as most have direct contact with the patients and therefore, need to be included in any proposed TIC training that results from this study.

Site-Specific Facilitators and Barriers to Implementation

Facilitators for the DNP project include the PICU nurse manager who supported this project to be conducted; the data analyst who assisted in identification of medical records meeting the inclusion criteria for the retrospective chart review of childhood trauma victims; and the chief nursing officer who was invested in the study. There were no identified barriers.

Project Design

A descriptive, cross-sectional study was conducted using a retrospective review of the electronic medical record (EMR) to obtain data on the study variables. Records of patients admitted between January 1, 2017-December 31, 2017 were reviewed. These EMR records were obtained from the PICU at the study site.

Project Methods

Procedure

A university medical Institutional Review Board (IRB) approved the application for this DNP project as well the healthcare organization's research administration office. Final approval was obtained in May 2019. Data collection was initiated following the IRB approval.

Sample

The sample consisted of EMR records of children and adolescents admitted to the PICU with a diagnosis of trauma over a 12-month period. In this study, diagnosis of trauma was the same as that used at the hospital study site. A total of 75 EMRs were included in the sample, which were randomly selected from 166 EMRs that were eligible for inclusion in the study.

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Inclusion criteria were: medical records for children admitted to the Pediatric Intensive Care Unit (PICU) between January 1, 2017 and December 31, 2017, and medical record documentation of neglect and trauma, including abuse and accidental events. Exclusion criteria: were children over the age of 18, no diagnosis of trauma, and patients that expired during hospitalization. Once the random sample was selected, each medical record was assigned a unique identification number known only to the Principle Investigator (PI).

Measures and Instruments

A data collection sheet was developed by the PI to record information obtained from the medical record review. Data included information on demographics, admitting diagnosis, medical and psychiatric co-morbidities, source of trauma, custody arrangement of the child, insurance, and other information pertinent to the admission. Data were also collected on documentation in the EMR trauma, approaches to trauma, and interventions that were applied to address trauma (See Appendix A).

Data Collection

EMR's were reviewed to obtain information related to the project variables. Data were initially recorded on the data collection tool, and then entered into an Excel spreadsheet for the purpose of data analysis. Data were collected during the period May 2019-June 2019. The location of data collections was in the private office of the PICU data analyst using a computer and h-drive for security precautions. All medical information was kept in a secure locked box in a locked office approved for storing study documents.

Data Analysis

Descriptive statistics, including frequency distributions or median and interquartile ranges, were used to summarize study variables as well as measure the frequency in which TIC interventions were used. Kruskal-Wallis test was used to identify significant associations between the study variables. Data analysis was conducted on the program Statistical Package for the Social Sciences (SPSS), version 23.

Results

The age of the patients admitted with a trauma diagnosis varied. The most frequent category was children from birth to age 2 (35%; see Table 1), followed by those 6 to 10 (23%) years of age and those ages 11 to 14 (20%). Over half of the patients were male (61%). In addition, 67% of the sample were Caucasian, 21.3% were African American, and 10% were Hispanic. Almost 60 percent of the patients had private insurance, 36 percent were insured by Medicaid, and 2.7 percent had charity care. The majority of patients were in the custody of their biological parents, either as a married couple or as a single parent. The median length of hospital admission was 4 days.

The analysis revealed that the most common sources of trauma were blunt trauma (28%), traumatic brain injury with intracranial hemorrhage (28%) and traumatic brain injury without intracranial hemorrhage (10.7%). The vast majority of patients did not have a co-morbid psychiatric diagnosis and only 5% had a psychiatric diagnosis (see Table 2). Three-quarters (76%) of the patient population did not have a medical comorbidity.

The greater number of trauma patients (73.3%) admitted to the PICU did have a suicide assessment (See Table 3). TIC was recorded in only four (5%) of the 75 medical records

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included in the sample. Of these four, ages and diagnoses were: 15-year old victim with history of depression and suicidal ideation; 6-year-old ATV rollover; 4-year-old self-inflicted gunshot wound; and 13-year-old self-inflicted gunshot wound. Documentation from providers on lasting effects of trauma in children in the treatment plan was identified in five of the charts (6.7%) while only two patients' family members (2.7%) were provided information on TIC which included evidence-based practices.

There was no association between race/ethnicity or payment method and source of the trauma (see Table 4.). However, there was significant association between gender and trauma, ($p=0.47$), in that females, compared to males, were significantly more likely to experience an MVA/bicycle accident compared to all other sources of trauma. Age was also significant, in that younger patients (versus those in older age categories) were significantly more likely to experience abuse or neglect than all other sources of trauma (all p 's $<.001$; see Table 4).

Discussion

The most important findings of the project were that medical records indicated only 5% of the sample received any intervention to mitigate the lasting effects of trauma; 6% had recorded documentation on the long-lasting effects of trauma in their treatment plan; and less than 3% were provided information on trauma and resulting lasting effects on children. Based on results from literature searches conducted for this project, CINAHL, PubMed, and PsycInfo no studies were found that measured the variables of this DNP project. However, studies have addressed approaches of TIC among children (Moss et al., 2019a; Bartlett et al., 2015; Marsac et al., 2016). For example, Moss and colleagues (2019a) reported on use of psychosocial care

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practices among staff in a large urban pediatric hospital. Their findings indicated that approaches differ in application of psychosocial care. In addition, they emphasized the importance of staff to receive ongoing support in use of psychosocial care because of emotional fatigue experienced by staff in working with children of trauma. These findings are supported by those of Weiss and colleagues (2017) about the sequelae of emotional and psychological trauma in individuals within a system of care. Other barriers, like insufficient resources, time constraints, and the concern of re-traumatization of patients have been identified in the literature (Bruce et al., 2018; Duewke et al., 2019; Williams & Smith, 2017), may also have contributed to providers not delivering trauma-informed care to the sample.

Education and training in TIC for all providers and support staff are essential to optimize outcomes for the child who has experienced trauma. Study findings of Moss and colleagues (2019a) indicated, that approximately 72 percent of providers had not received TIC training and were not providing appropriate recommendations for their patients. Some findings of this DNP project might suggest a lack of education and training in the study setting as well. For example, one medical record reviewed in this project involved a child in a motor vehicle accident and a death of a sibling in which there were no interventions or referrals for TIC documented. In addition, children are at high risk to develop PTSD after the loss or injury of a loved one (Price et al., 2019; Ziegler et al., 2005). Responding adequately to all forms of trauma is equally important to decrease chances of stress symptoms developing in the hospitalized child (Marsac et al., 2016). When providers are trained in TIC, there are positive results, including improved communication skills, which enhance medical and emotional outcomes (Green et al., 2015).

Trauma also results from adverse childhood experiences (ACEs) and the effects from ACEs are especially relevant to this project. The medical records reviewed for this project

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indicated that 12% of the study sample may have had documentation about physical abuse. Physical abuse is one of the determinants in the ACE study by Felitti and colleagues in 1998. Nationally, one in eight children will experience two or more ACEs, but in Kentucky, the average is one in five children, - one of the highest in the country (KyBRFSS, 2015). Similarly, the National Survey of Children's Health (NSCH, 2016), reports that poverty is a contributing factor for ACEs and is of concern as Kentucky ranks as the sixth poorest state in the United States.

According to Pachter et al. (2017), ACEs are more prevalent, lead to worse health outcomes and require increased need for services in poverty-stricken neighborhoods. This is important to note, as there is a correlation between ACEs and increase in conditions such as depression, suicide attempts, obesity, substance use disorder, cancer, heart disease, and chronic lung disease (Felitti et al., 1998; Esden, 2018). Determining an ACE score can be completed with the ACE questionnaire (see Appendix B).

Based on medical records reviewed for this DNP project, less than 3% were provided information on trauma and lasting effects on children. Although this finding is not significantly significant, it is important because it is an indication that some children and adolescents did not receive TIC. Several studies have reported on the importance of interventions that are evidence-based (DeCandia & Clervil, 2014; Bartlett et al., 2018). DeCandia and colleagues (2014) identified the value of interventions in practice that are evidence-based for prevention, intervention and treatment when addressing negative consequences of trauma. In addition, Bartlett et al. (2018) found that evidence-based TF-CBT can reduce PTSD in children and this DNP project identified one recommendation for TF-CBT for an adolescent who suffered a self-inflicted gun -shot wound (GSW). Other types of interventions include a web-based training program for parents to help with trauma-related symptoms in adopted children (Razuri et al.,

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2016) and a pilot program, Life Improvement for Teens (LIFT), an online stress and trauma curriculum for adolescents, had promising results (Jacox et al., 2019). Lastly, fostering individual strengths is a key step when working with a victim of trauma. There is a need to build survivors resilience, thus enabling them to acknowledge their trauma, appreciate their perseverance, and build on behaviors that will allow them to flourish (SAMHSA, 2014b).

Overall, the findings of this DNP project revealed a lack of documentation about TIC in the medical record review. However, Matchinger and colleagues (2015) noted that providers who understand the link between health care and trauma have the ability to “create clinical environments that are less triggering for both patients and staff and develop more effective therapeutic alliances and treatment plans with patients” (p. 193). Furthermore, organizations need to have administrative and leadership support integrating TIC into the healthcare culture (Butler, Critelli, & Rinfrette, 2011; Hopper et al., 2009; Yatchmenoff et al., 2017). Once established, training can be implemented, thus improving awareness of trauma and its effects (Williams & Smith, 2017). The hospital that was the setting for this project also advocates for policies that support trauma-informed services and it is developing an interactive training program to increase understanding about ACEs, trauma and related stress, TIC, and resilience. Findings of this DNP project support the current effort of the organization in implementing this program that is designed for all healthcare workers in the organization. Furthermore, it is an example of community coalitions working together to address the prevalence of trauma.

Implications for Future Doctoral Nursing Practice and Research

Screening of Children and Adolescents

One recommendation resulting from this DNP project is to incorporate screening tools into routine care. An essential component of TIC is screening for trauma-related stress, as early identification is key in decreasing the adverse effects of trauma. Routine screening is the least observed practice (Moss, et al., 2019b; SAMHSA, 2014b) and was substantiated in this project as there were no screening tools being used by providers were identified. The consistent use of screening tools can assist healthcare providers to identify children experiencing traumatic stress (including medical stress), which will increase the use of psychosocial services and mitigate stress related symptoms (Moss et al., 2019b; Price et al., 2019). For example, the UCLA Brief Screening for Trauma and PTSD is a psychometrically sound brief screening tool used to identify children and adolescents at risk for developing PTSD and it can be applied in varying types of clinical settings (Rolon-Arroyo et al., 2019).

Implications Using DNP Essentials

There are several implications for advance practice nurses (APN) with DNP preparation. (The American Association of Colleges of Nursing (AACN), 2006)). The results of this DNP project suggest implementing the Essentials of Doctoral Education for Advanced Nursing Practice (AACN, 2006) for policy, leadership, education, practice scholarship and evidence-based care. The DNP essential address these characteristics in practice and can be applied to

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implementation of evidence-based practices (Essential III) with TIC in the healthcare organization and the community.

To incorporate TIC into routine care, education is essential to increase insight and understanding, thus increasing early identification for those at risk for developing stress related symptoms (Hoysted, Jobson, & Alisic, 2019). As certified Psychiatric Mental Health Nurse Practitioner (PMHNP), DNP graduates are prepared to incorporate DNP Essential VIII into practice to develop and sustain therapeutic partnerships with clients and work collaboratively with other providers to facilitate the best possible care for the well-being of patients and caregivers. This can be accomplished by educating and guiding healthcare providers through the transition of incorporating TIC into routine practice. Equally important, establishing training and education for a specific team in the organization after initiation of TIC is recommended (Yatchmenoff et al., 2017). This specialized team has several purposes: first, documenting progress and outcomes of TIC training; secondly, troubleshooting and making necessary adjustments as needed; and lastly, providing support to staff and offering resources. Continued application of Essential VIII also affords the DNP graduate an opportunity to mentor and support other healthcare providers to achieve excellence in practice and to guide others to lead in the future.

The DNP graduate is also prepared to synthesize concepts related to population health to address health promotion, disease prevention, and to address gaps in care in the community. Essential VII is foundational in endeavors designed to promote health equity organized around social determinants of health. Social determinants are conditions in which people are born, grow, live, work, and grow older and include socioeconomic status, education, neighborhood and

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physical environment, employment, social networks, and access to care (Artiga & Hinton, 2018; Bowen & Murchid, 2016). There is increased risk for emotional and behavioral disorders for those who have experienced violence, neglect and social deprivation (Barto et al., 2018). By understanding the effects that social determinants have in precipitating traumatic events in childhood, the DNP leader realizes the importance to reduce health disparities to decrease trauma for improved health outcomes (Essentials VII and VIII). Prevention is a key component of the equation. For instance, Teicher and colleagues (2016) suggested that childhood maltreatment is the leading preventable risk factor for mental illness. Encouraging the use of community resources is crucial for off-setting maltreatment as well as improving parenting skills and giving families support, thereby decreasing chances of a child sustaining a preventable injury.

Menschner and Maul (2016) have stated that for an organization to become trauma-aware, there must be widespread policy changes. The DNP graduate has the skills to design and implement health care policies addressed in Essential V. Health care policies influence issues of equity in the healthcare delivery system and creating a policy of properly addressing trauma is a crucial component of bringing TIC into routine care in the pediatric healthcare organization. These can be achieved from leadership from a doctoral prepared nurse. Essentials II is critical for the doctoral prepared nurse to improve patient care, thus improving health outcomes. This component prepares the DNP leader to “facilitate organization-wide changes in practice delivery” (AACN, 2006, p. 10).

The recommendation is to deliver TIC, but there are no clear guidelines for a trauma-informed approach within pediatric healthcare organizations (Marsac et al., 2016). This could be addressed by forming a coalition within not only the healthcare organization but the local

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medical board as well. DNP Essential VI prepares the graduate to effectively establish interprofessional teams for collaboration within the organization. An approach like this would not only increase TIC awareness among providers but would also allow monitoring and tracking of TIC training and implementation in the hospital and community. At the system level, the DNP leader can work toward removing barriers and creating incentives to build relationships among varying disciplines at different agencies (Brown et al., 2017). The DNP leader can increase communication between city health officials and healthcare organizations encouraging cross-disciplinary training on TIC by promoting attendance at trainings provided in the community. In addition, the DNP leader can improve, or initiate, screening policies that are provided in the healthcare organization for greater recognition of trauma and stress related effects.

The DNP has the educational background to incorporate varying departments within the healthcare organization, including Information Systems/Technology, the component of Essential IV. The doctoral prepared nurse is prepared to apply new knowledge to improve health outcomes and can be utilized to develop educational tools for staff members. This includes integrating TIC and generating interest by “starting the conversation” in preparation of training opportunities. As TIC is being transitioned into routine care, there will be a need to develop automatic prompts for providers in the EMR, thereby providing easy access for in-house and community referrals for TIC and sending referrals to in-house social workers and case managers. This will enable more resources to be provided to the family/caregivers, such as printable fact sheets on trauma and stress-related symptoms. Also, instituting user-friendly and efficient documentation for providers will also enable tracking identification for outcomes of care in the organization.

Future Research

The evidence found in the literature and findings in this DNP project highlights the need to incorporate TIC in healthcare. There is little evidence of longitudinal studies monitoring patient results related to TIC implementation. However, a study conducted by Bartlett et al. (2015) found that six months after TIC intervention, there was a decrease in PTSD symptoms and a decrease in arousal symptoms in children and adolescents. Promising results like these reinforce the importance of further studies to determine how TIC may impact health outcomes. Another recommendation is for a randomized controlled trial to determine the outcomes and correlations for patients who received care from those who used TIC approaches and those who did not. And yet another study could be designed to evaluate follow-up care by primary care providers in relation to TIC and the correlation to a child's well-being.

Limitations

A limitation of this study was omission of personal interviews with providers in the setting where that data were collected. Interviews would have included physicians, advance practice registered nurses, staff registered nurses, social workers, case managers, and nurse managers. Data from interviews might have provided insight not possible in this project, about their knowledge of TIC as well as gauge receptiveness to its potential integration into the organization. Also, a comparison chart review and personal interview in the ED might have provided additional information for this project. This information could have identified specific barriers to TIC implementation that could have guided suggestions for further research.

Conclusion

Trauma-Informed Care is an organizational change process based on the concept of promoting healing and decreasing the risk of re-traumatization (Wolf et al., 2014). Even though healthcare providers subconsciously provide compassionate care with empathy, as discussed by Moss et al. (2019b), there is a need for formalized training in TIC. This training will increase understanding of the “why” it is important and the relevance to children and their caregivers. There will also be an appreciation to the relevance of changing the question “What is wrong with you?” to “What has happened to you?” when interacting with children. The results of this DNP project based on medical record findings indicated the possibility that healthcare providers lacked use of TIC approaches in treatment of children and adolescents. Therefore, it is important to integrate TIC into healthcare organizations to better care for those in need.

Appendix A

Trauma-Informed Care: The Importance of a Needs Assessment for Children in the Pediatric Intensive Care Unit

1. Unique study number: _____
2. Age: _____
3. Gender: _____ Male _____ Female
4. Date of Hospitalization: _____
5. Duration of Hospitalization: _____ Days _____ Months
6. Admitting Diagnosis: _____
7. Medical co-morbidities: _____
8. Psychiatric co-morbidities: _____
9. Source of Trauma:
 - Accidental: Source of accident:
 - _____ Motor Vehicle
 - _____ Bicycles
 - _____ Falls
 - _____ Dropped
 - _____ Other
 - _____ Physical Abuse
 - _____ Sexual Abuse
 - _____ Neglect
 - _____ Other
10. Custody of Child upon admission:
 - _____ Parent
 - _____ Extended Family Member
 - _____ Foster Care
 - _____ Institution
 - _____ Other
11. Medical Record Information
 - Suicide Assessment _____ Yes _____ No
 - Functional Status Score _____ Yes _____ No
 - Methods of Payment
 - _____ Charity Care
 - _____ Commercial/ Indemnity Insurance
 - _____ Foreign Payers
 - _____ Government
 - _____ Managed Care

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- ☐ Medicaid
- ☐ Medicare
- ☐ Medicaid/ Managed Care
- ☐ Military
- ☐ National Health Service
- ☐ No Fault
- ☐ Other
- ☐ Self-pay

Other assessment tools used: ☐ No ☐ Yes (Type: _____)

12. Qualitative information found in medical record:

- Documentation of lasting effects of trauma in treatment plan ☐ Yes
☐ No
- Provider approaches to trauma:

- Provider interventions for follow-up related to trauma:

- Information provided for Trauma-Informed Care:

- _____
- Other

13. Ethnicity

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Other
- ☐ White or Caucasian

Appendix B

Adverse Childhood Experience (ACE) Questionnaire

Prior to your 18th birthday:

1. Did a parent or other adult in the household often or very often... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?
No__If Yes, enter 1 __
2. Did a parent or other adult in the household often or very often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?
No__If Yes, enter 1 __
3. Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Attempt or actually have oral, anal, or vaginal intercourse with you?
No__If Yes, enter 1 __
4. Did you often or very often feel that ... No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?
No__If Yes, enter 1 __
5. Did you often or very often feel that ... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
No__If Yes, enter 1 __
6. Were your parents ever separated or divorced?
No__If Yes, enter 1 __
7. Was your mother or stepmother:
Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
No__If Yes, enter 1 __
8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?
No__If Yes, enter 1 __
9. Was a household member depressed or mentally ill, or did a household member attempt suicide? No__If Yes, enter 1 __
10. Did a household member go to prison?
No__If Yes, enter 1 __

Now add up your "Yes" answers: _ This is your ACE Score (Stevens, J. 2017)

Table 1

Table 1. Demographic characteristics of the sample (N=75)

Characteristic	N (%) or median (IQR)
Age	
0-2	26 (34.7%)
3-5	9 (12.0%)
6-10	17 (22.7%)
11-14	16 (21.4%)
15-19	7 (9.3%)
Gender	
Male	46 (61.3%)
Female	29 (38.7%)
Race/Ethnicity	
White	50 (66.7%)
Black	16 (21.3%)
Hispanic/Latino	8 (10.7%)
Other	1 (1.3%)
Method of Payment	
Charity Care	2 (2.7%)
Community/Indemnity	44 (58.7%)
Medicaid	27 (36.0%)
Other	1 (1.3%)
Custody	
Parent	73 (97.3%)
Extended family member	2 (2.7%)
Length of Admission (days)	4 (2-6)

Table 2

Table 2. Admitting characteristics of the sample (N=75)

Characteristic	n (%)
Psychiatric Comorbidity	
Yes	4 (5.3%)
No	71 (94.7%)
Admitting Diagnosis	
Blunt trauma	21 (28.0%)
Other	4 (5.3%)
Burn	3 (4.0%)
Gunshot wound	4 (5.3%)
TBI with intracranial bleed	21 (28.0%)
TBI without intracranial bleed	8 (10.7%)
Skull fracture with intracranial bleed	7 (9.3%)
Skull fracture without intracranial bleed	4 (5.3%)
Near Drowning	3 (4.0%)
Medical Comorbidity	
None	57 (76.0%)
Asthma	2 (2.7%)
Failure to thrive	1 (1.3%)
Head injury	2 (2.7%)
Heart condition	2 (2.7%)
Seizure/congenital brain disorder	5 (6.7%)
Skin condition	1 (1.3%)
Surgical procedure	1 (1.3%)
Tumor/Cancer	2 (2.7%)
Other	2 (2.7%)
Source of Trauma	
Bicycle	3 (4.0%)
Dropped by Caregiver	3 (4.0%)
Fall	24 (32.0%)
MVA	13 (17.3%)
Neglect/physical abuse	1 (1.3%)
Physical abuse	9 (12.0%)

Table 3

Table 3. Intervention characteristics for safety, health outcomes, and approaches to Trauma-Informed Care of the sample) N=75

Characteristic	n (%)
Suicide Assessment	
Yes	20 (26.7%)
No	55 (73.3%)
Other Assessment tools used	
Yes	8 (10.7%)
No	67 (89.3%)
Provider Approaches to TIC	
Yes	4 (5.3%)
No	71 (94.7%)
Documentation of lasting effects of trauma in treatment plan	
Yes	5 (6.7%)
No	70 (93.3%)
TIC information provided to pt/caregiver	
Yes	2 (2.7%)
No	73 (93.3%)
Provider Interventions to TIC	
Yes	4 (5.3%)
No	71 (94.7%)

Table 4

Table 4. Descriptive demographics of the study (n=75)

Demographic	Source of trauma				<i>P</i>
	MVA/bicycle n (%)	Abuse or neglect n (%)	Fall n (%)	Other N (%)	
Gender					
Male	5(31.3%)	9(75.0%)	17(70.8%)	14(63.6%)	0.047
Female	11(68.8%)	3(25.0%)	7(29.2%)	8(36.4%)	
Ethnicity					
Black	4(25.0%)	1(8.3%)	6(25.0%)	5(22.7%)	0.71
Hispanic	1(6.3%)	2(16.7%)	1(4.2%)	4(18.2%)	
Other	1(6.3%)	0(0.0%)	0(0.0%)	0(0.0%)	
White	10(62.5%)	9(75.0%)	17(70.8%)	13(59.1%)	
Payment					
Other	1(6.3%)	0(0.0%)	3(12.5%)	0(0.0%)	0.28
Community/ Indemnity	10(62.5%)	5(41.7%)	15(62.5%)	14(63.6%)	
Medicaid	5(31.3%)	7(58.3%)	6(25.0%)	8(36.4%)	
Age					
0-2	1(4.0%)	12(48.0%)	9(36.0%)	3(12.0%)	<0.001
3-5	3(33.0%)	0(0.0%)	1(11.1%)	5(55.6%)	
6-10	6(35.3%)	0(0.0%)	6(35.3%)	5(29.4%)	
11-14	4(25.0%)	0(0.0%)	6(37.5%)	6(37.5%)	
15-18	2(28.6%)	0(0.0%)	2(28.6%)	3(42.9%)	

Age is ordinal, source of trauma is nominal with more than 2 categories -> Kruskal-Wallis test (p<.001).

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