

Running head: SYMPTOMS OF PTSD FOLLOWING TRAUMATIC INCIDENTS

“MOMMY I’M SCARED:” CHILDREN EXPERIENCING SYMPTOMS OF TRAUMA
FOLLOWING A TRAUMATIC INCIDENT AND HOSPITALIZATION

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ABSTRACT

For years, Posttraumatic Stress Disorder (PTSD), Acute Stress Disorder (ASD), and other diagnoses after experiencing a traumatic event(s), has been researched to find probable causes and possible interventions. However, medical settings have been overlooked as a place where early identification of at-risk patients can be reached. Identifying appropriate interventions in hospital settings for children and adolescents who are experiencing symptoms of trauma following traumatic experiences is necessary in order to provide comprehensive services to patients. These traumatic experiences, or adverse childhood experiences, may include car accidents, loss of a loved one, emergency surgeries, natural disasters, and non-accidental trauma such as physical or sexual abuse. Therefore, this research aimed to better explore the connection between psychological and physical trauma and the overall importance of providing psychological care to primary care patients. The current retrospective study examined an existing data set of 30 patients, ages eight to fourteen, and a respective caregiver in a children's hospital located in an urban city. This study examined the association between parent and child reported predictors of PTSD using the STEPP (Screening Tool for Early Predictors of PTSD). This study also examined the association between STEPP scores and injury severity, as well as the child's age and gender. This prospective observational study used a Spearman Rho correlation analysis, which revealed no significant relationship between child and parent STEPP scores. Results also revealed no significant relationship between STEPP scores and Injury Severity Score (ISS). Implications for future research and practice are discussed.

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Introduction

Posttraumatic Stress Disorder (PTSD) is among many of the mental health illnesses individuals experience. It is defined as a common reaction to experiencing or witnessing traumatic events such as natural disaster, accidents, and assault (Ehlers & Clark, 2000). Some of the symptoms associated with PTSD include flashbacks, nightmares, hyperarousal, unwanted reexperiencing of the event, and avoidance of thoughts, people, places, or things that may remind the individual of the event (Ehlers & Clark, 2000). Many of these symptoms typically resolve on their own after a few weeks or months; however, symptoms may persist for years after the traumatic event (Ehlers & Clark, 2000). Although some individuals may not meet diagnostic criteria for a diagnosis of PTSD, posttraumatic stress, acute stress, or difficulty adjusting to the experience may cause significant distress in individuals across the lifespan. Many of those experiencing distress do not seek and/or have access to professional treatment.

Physical injuries due to accidents and medical illnesses are common experiences that could be traumatizing for many children. These children are more than likely to be identified in a primary care setting such as a hospital or clinic after an inpatient stay. With administration of early screening tools implemented as routine care, primary care physicians may identify patients at risk for developing PTSD and provide them with the resources needed.

Pediatric Traffic Injuries and Posttraumatic Stress Disorder

Studies have shown that physical injuries can lead to the development of psychological disorders (Vries et al., 2000). Traffic injuries, surgery, injuries due to abuse, and disfigurement post-injury are some of the many traumatic incidents that children and adolescents experience. Traffic crashes are one of the many major threats to children's lives. In 1996, 938,000 children less than 21 years of age were injured as vehicle occupants, 39,000 as pedestrians, and 33,000 as

bicyclists (Vries et al., 2000). Currently, traffic related injuries are treated primarily as physical injuries. Identification and treatment of PTSD is essential to treat the patient comprehensively. Some of these symptoms may include replaying the traumatic accident in one's mind, avoiding situations resembling the accident, and changes in arousal. According to Bisson et al. (2004) individuals may experience physical pain, making the event more traumatic as pain may be characterized as an index of psychological distress. Studies have shown pain to be associated with negative psychological consequences (Bisson et al., 2004). These studies suggest a connection between psychological and physical recovery.

Traumatic injuries do not only affect the child. Symptoms may develop in parents or guardians after experiencing the traumatic event and feeling helpless (Vries et al., 2000). Vries et al. (2000) assessed the prevalence of PTSD in traffic-injured children and their parents by using the PTSD Checklist for Children/Parent Report, additional survey questions, and measured injury severity in a level 1 Pediatric Trauma Center. According to this study, 25% of the children and 15% of their parents met criteria for PTSD based on the DSM-IV (Vries et al., 2000). Child and parent PTSD scores showed a strong correlation ($r = .65, p < .00$) (Vries et al., 2000). Unfortunately, only 46% of the parents of affected children sought help of any form (including from friends) for their child and only 20% of affected parents sought help for themselves (Vries et al., 2000). As noted in this study, there was a reported 35% prevalence of significant and chronic behavioral dysfunction in children who had traumatic, but relatively minor injuries (Vries et al., 2000). Additionally, this study finds a significant impact of pediatric injuries on families' work lives and economic status, including mothers of trauma patients reporting symptoms of anxiety and depression themselves (regardless of injury severity of the patient) (Vries et al., 2000).

A similar study conducted by Bryant et al. (2004), over one third of mothers of children who were involve in an accident were diagnosed with Acute Stress Disorder due to experiencing intrusive and arousal symptoms after being involved in the accident or being present at the scene. Although many of the children and parent were involved in the same accident, results revealed that mothers and children may have very different post-trauma responses (Bryant et al., 2004). Therefore, it is important to consider how the individual considers or adjusts to the life-threatening event rather than relying solely on objective measures of the severity of the injury (Bryant et al., 2004).

Although the results of the study conducted by Vries et al. (2000) and Bryant et al. (2004) indicate that the severity of the injury was found not to be predictive for PTSD, other studies indicate otherwise. According to Daviss et al. (2000), 48 children between the ages of 7 and 17, and their parents were assessed for prior traumatization, prior psychopathology, injury severity, parental acute distress, and child acute distress during hospitalization. One month later, 12.5% had met full criteria for PTSD at follow-up, and 16.7% had met some criteria for PTSD (Daviss et al., 2000). Higher levels of prior psychopathology, parental acute distress, and higher rates of prior sexual abuse, were all associated with those who met full criteria for PTSD (Daviss et al., 2000). Additionally, the injury severity, such as a brain injury, may be correlated with parent-rated PTSD symptoms; however more research is needed (Daviss et al., 2000).

Vries et al. (2000) present a case example that shows a mother and daughter's symptoms of trauma after a traffic injury. A nine-year-old female was struck by a van and was assessed in the emergency department. She had minimal injuries including contusions and abrasions. This child was required to use crutches for a few days and fully recovered after 8 months. However, the child continued to experience distress such as intrusive memories of the event and

hypervigilance. She continued to avoid the route from school to home. The child's mother was called to the scene where there were several ambulances and had trouble finding her child.

Afterwards, the mother experienced distressing intrusive memories and hypervigilance. Both mother and daughter met diagnostic criteria for PTSD but had not sought help for their ongoing distress (Vries et al., 2000). In this case example and many others, seeking help is needed to fully recover from a traffic injury. Many parents are ambivalent about seeking help because they want their child to forget about the traumatic event are usually afraid of making things worse Bryant et al. (2004). This highlights the need for psychological evaluation after a traumatic event and the need for treatment. Although her physical injuries were minimal, the psychological symptoms were apparent.

Furthermore, both Vries et al. (2000) and Daviss et al. (2000) bring to light the possible relationship between symptoms of PTSD and gender. The results of the study conducted by Daviss et al. (2000) show 3% to 15% of girls and 1% to 6% of boys met criteria for PTSD, suggesting female children may be at a greater risk for developing symptoms of PTSD after an accidental injury. On the other hand, Vries et al. (2000) did not find gender to be associated with PTSD in children. Therefore, more research is needed to investigate which population of children is more at-risk.

Traumatic Disfiguring Injuries

For children, disfiguring injuries such as face, upper extremity, and lower extremity mutilating injuries can result in symptoms of trauma. Medical literature and the media are more commonly realizing the effects of major traumatic events. However, injuries from less dramatic events may be extremely traumatic for children and may cause long-term effects. Rusch et al. (2000) suggest that parents do not always recognize injury-related psychological symptoms in

their children which can lead to further behavioral problems (Rusch et al., 2000). Additionally, surgeons and other physicians may not know how to respond properly with children during such events. Therefore, Rusch et al. (2000) assessed psychological adjustment in children after a boating, lawn mower, and home accidents or dog bites. Five days later, 98% of the children had symptoms of posttraumatic stress disorder, depression, or anxiety (Rusch et al., 2000). After one month, 82% of the victims were symptomatic. At a 12-month follow-up, forty four percent of the victims continued to report symptoms such as flashbacks, fear of re-injury, mood disorders, body-image changes, sleep disturbances, and anxiety (Rusch et al., 2000). Additionally, 21% of the children met the diagnostic criteria for posttraumatic stress disorder. According to these findings, it is evident that psychological evaluations and treatment of children who experience mutilating injuries is a necessity for proper psychological and physical healing.

However, the results did not reveal any discrimination related to the disorder and the type of injury or the severity (Rusch et al., 2000). For example, the same amount of children with arm, below-knee, forefoot, and finger amputations met diagnostic criteria for the disorder (Rusch et al., 2000). Although extremity fractures after a traumatic injury can be correlated with symptoms of PTSD in children and adolescents as suggested by Nugent and colleagues (2006), the study conducted by Rusch et al. (2000), suggests the severity of the injury as reflected by the type of injury does not predict the development of posttraumatic stress disorder. It should be noted that the study conducted by Rusch et al. (2000) fails to use a formal method or tool for assessing the severity of the injury. This highlights the need for psychological screening after all types of injuries, minor and severe with formal scales of injury severity.

Pediatric Surgery and Posttraumatic Stress Disorder

There are many different surgeries performed on children and adolescents. Of these many surgeries, studies have shown the connection between cardiac surgery and PTSD. An early study Connolly et al. (2004) described the responses of 67 children after cardiac surgery. Most of the subjects showed overt anxiety, fearful withdrawal, and restlessness. One of these cases was a 13-year-old boy who displayed all the manifestations of PTSD after being told he would require another open-heart surgery, having previously undergone four surgeries before aged 5 years (Connolly et al., 2004). Connolly et al. (2004) assessed symptoms pre-operatively and post-operatively. At the pre-operative visit (1 to 3 days before surgery), the cognitive assessment, temperament assessment, family support assessment, and PTSD screen were performed. Detailed medical, psychiatric, and social histories were also obtained. At the postoperative visit (four to eight weeks after discharge from the hospital), the PTSD screen was repeated (Connolly et al., 2004). Pre-operatively, no child had PTSD; however, post-operatively, 12% of the children met diagnostic criteria for PTSD, and 12% others had symptoms but did not meet criteria. The number of symptoms of PTSD increased in 10 children out of the 18, suggesting an association between pediatric cardiac surgery and post-operative symptoms of PTSD.

Additionally, the number of PTSD symptoms on the postoperative interview increased in those who spent 48 or more hours in the ICU (Connolly et al., 2004). Other than the connection between the manifestation of PTSD symptoms and cardiac surgery, this study mentions potential exacerbation of symptoms due to intense environments. The ICU length of stay was the only significant predictor of postoperative PTSD symptoms ($r^2 = 0.19$, $p = .001$), suggesting the longer the stay, the more symptoms of PTSD presented (Connolly et al., 2004). This suggests that medical environments may play a key role when assessing psychological symptoms post-

surgery. However, research is needed to assess the level of psychological trauma associated with a pediatric patient's arrival to other medical departments such as the trauma bay within a hospital.

Vital Signs and Posttraumatic Stress Disorder

In a pediatric trauma center, early signs of posttraumatic stress disorder can be identified. Nugent and colleagues conducted a study to investigate the extent to which heart rate levels soon after a traumatic event predicted posttraumatic stress disorder severity in child trauma victims (Nugent, Christopher, & Delahanty, 2006). This study was conducted in a Midwestern trauma center and data was collected from emergency medical services records. Heart rate was recorded upon arrival to the emergency department, 20 minutes later, and upon discharge. Posttraumatic stress disorder and depressive symptoms were assessed after the trauma (Nugent et. al., 2006). The results of this study indicated that the recorded heart rate during emergency medical service transportation was significantly correlated with PTSD symptoms six weeks and six months after the traumatic event. Furthermore, results of this study suggests that physiological arousal of child trauma victims soon after a traumatic event may be associated with increased risk for the development of PTSD symptoms. (Nugent et. al., 2006). This finding may provide support for the use of acute cardiovascular levels as markers of child trauma victims at higher risk of developing symptoms of PTSD (Nugent et. al., 2006). Although it is important to consider the association between heart rate and pediatric symptoms of PTSD, it is important to note that it may not apply to all trauma victims. Many victims who are transported to trauma centers could be experiencing health complications such as cardiac arrest, causing a weak or absent pulse. This study does not examine the relationship between decreased heart rate and symptoms of PTSD in

children. Nevertheless, medical settings provide a significant opportunity to identify early predictors of PTSD by examining a patient's medical status at the time of the traumatic event.

Persistence Posttraumatic Stress Disorder after Hospitalization

Previous studies have shown the necessity for screening for PTSD in hospital settings. A study conducted by Stallard, Velleman, and Baldwin (1999) examined the persistence of PTSD using a screening battery. Children between the ages of 7 and 18 were assessed 6 weeks after a traumatic accident or injury, which Stallard and colleagues deemed "everyday traumas." These injuries were due to car crashes, sporting injuries, pedestrian accidents. The results of the accidents consisted of fractured bones and head injuries. The assessment included a diagnostic interview (CAPS-C) and a self-completed screening battery (Impact of Events Scale, Birleson Depression Inventory, and Revised Children's Manifest Anxiety Scale; Stallard et. al., 1999). The assessment considered three core components of PTSD (personal distress arising from the trauma manifest by intrusive or avoidant behavior, depression, and anxiety; Stallard et. al., 1999). The results of the study indicate that 90% of children screened positive for PTSD and 73% had persistent symptoms of trauma 8 months later (Stallard et. al., 1999). This shows that children with PTSD or borderline conditions may be identified by using an assessment battery, including self-report screeners. Although not all children who have experienced a trauma develop PTSD, it is important to identify symptoms early due to potential long-lasting effects. Unfortunately, this study only assesses for symptoms and does not provide any psychological support for those who screened positive for PTSD, anxiety, or depression. Further research is needed to explore what barriers exist to providing psychological care for trauma post-injury.

Screening for Acute Posttraumatic Stress Symptoms

Screening instruments have been created and implemented to assess children who have

experienced acute traumatic events. Kassam and Marsac (2016) recognize that acute trauma is common among children and adolescents. The Acute Stress Checklist for Children (ASC-K; Kassam & Marsac) is a validated 29-item self-report measure of children's acute posttraumatic stress symptoms. In settings, such as hospitals, brevity can be a key factor to prioritize, but must be balanced with measures that reliably assess symptoms of trauma. Therefore, Kassam and Marsac's (2016) goal was to develop a brief screening instrument (6 items or less) to be validated and implemented based on the ASC-K. After analyzing these data, the six highest-loading items included two re-experiencing items, two avoidance items, and two hyperarousal items; no dissociation items were among the top six (Kassam & Marsac, 2016). The summed score from the ASC-6 was very strongly correlated with total ASC-Kids symptom severity. These items included the following: feeling scared something bad might happen; try to stop my feelings; when something reminds me I feel very upset; at times it feels like it is happening all over again; want to stay away from things that remind me; and harder time concentrating or paying attention (Kassam & Marsac, 2016). All items were rated on a 3-point likert scale (0=never/not true, 1=sometimes/somewhat, 2=often/very true; Kassam & Marsac, 2016). This study shows that a very brief measure may perform well as an initial screen to estimate current posttraumatic stress symptoms and to detect current Acute Stress Disorder status, across several samples of children and adolescents with recent trauma exposure (Kassam & Marsac, 2016). This short screener allows for a validated self-report measure in settings where time is limited, allowing for more focused trauma-informed care in pediatric settings.

The Screening Tool for Early Predictors of PTSD

The Screening Tool for Early Predictors of PTSD (STEPP), was created by Winston et al. (2003) as a brief PTSD screening instrument to present a new way clinicians may make

evidence-based decisions regarding psychological care in acute care settings. The STEPP was modified from a risk factor survey composed of 50 items, which was administered within 1 month of experiencing the injury (Winston et al., 2003). This study was conducted in an urban pediatric level I trauma center with a sample of 269 children ages 8 to 17 who were admitted due to traffic-related injuries. The final version of this tool contains four questions asked of the child, four asked of a parent, and four items that are obtained from the emergency medical record (Winston et al., 2003). Examples of items include: “Did you see the incident (accident) in which your child got hurt, was anyone else hurt or killed (when you got hurt), and is the child 12 years or older?” (Winston et al., 2003). Four or more positive items for the child section indicated a positive screen for the child, which is calculated by summing responses to questions 4 through 10 and 12. Three or more positive items for the parent section indicated a positive screen for the parent, which is calculated by summing responses to questions 1 through 4, 9, and 11 (See Appendix A).

Results of this study indicate that, 59% of the children and 56% of the parents had a positive STEPP screening test result (Winston et al., 2003). Thirty eight percent of families reported positive STEPP screeners for both parents and their children (Winston et. al., 2003). The test-retest reliability for the presence of a positive screen was ($k=0.86$; 95% CI, 0.68-1.0) for children and ($k=0.67$; 95% CI, 0.43-0.91) for the parents (Winston et al., 2003). Winston et al. (2003) describe this tool as a screening tool to predict risk of future and persistent posttraumatic distress for children and their parents, rather than a diagnostic measure of traumatic stress disorder. Including the STEPP in trauma management protocols could aid in triage for the delivery of psychological care, thereby reducing the unmet psychological needs of injured patients (Winston et. al., 2003).

Injury Severity Score

According to a study conducted by Deng et al. (2016), trauma has become increasingly evident with the increase of traffic and natural disasters such as earthquakes, tsunamis, and typhoons. The leading cause of morbidity and mortality among individuals aged <40 years is trauma and it is considered the third main cause for death worldwide (Deng et al., 2016). Furthermore, injuries occurring worldwide account for about 5 million deaths annually (Deng et al., 2016). Therefore, understanding the anatomical severity of injuries in trauma patients is important. The Injury Severity Scoring (ISS) system has long been universally used for research, quality improvement, and trauma center benchmarking since 1974. The ISS is calculated by summing of the squares of the highest Abbreviated Injury Scale (AIS) score for each of the three most severely injured body regions (Deng et al., 2016). For example, if the patient has a severe cerebral head contusion, the AIS score would be a three. If this score is one of the three highest scores out of the six body regions assessed, it would be included in calculating the overall ISS. This is used to evaluate the level of emergency care needed after a trauma.

Geiger, deRoos-Cassini, and Brasel (2011) suggest that from six months to five years after an injury, trauma patients may still struggle with physical and psychological disabilities. Additionally, rather than ISS score relating to health-related quality of life after an injury, Geiger et al. (2011) suggest considering the patient's perceived injury severity as it may differ from the calculated ISS. Although the ISS is important to provide the appropriate level of medical care in the event of a trauma, "health-related quality of life" could be related to the patient's perceived level of injury severity. Patients base their perceived injury severity on assessments of their injury, descriptions of their injury, or the amount of pain they were in because of their injury (Geiger et al., 2011). Some researchers have hypothesized that the higher the ISS score (greater

severity) would be associated with greater symptoms of PTSD (Geiger et al., 2011). However, an ISS score may overrepresent or underrepresent the psychological impact any category of injuries may have on a patient. It is important to consider an individual's perceived level of severity when examining the association between traumatic injuries and posttraumatic stress.

Summary of the Current Study

According to previous studies, psychological trauma has been seen to be a result of physical trauma in acute pediatric medical settings. One step toward effective intervention may include administering valid, reliable and brief psychological screening instruments. The current study addresses the association between a child's STEPP score and a parent's STEPP score, and the association between the medical injury and positive child and parent STEPP scores. It is hypothesized a positive parent screen will be strongly associated with a positive child screen and a more severe diagnosis will be strongly associated with a positive STEPP scores for both the child and parent. Additionally, the current study will include follow-up referral sources for those who need further psychological treatment for persisting symptoms post-discharge.

Research Questions and Predictions

Research Question 1. Is parent screening score (parent STEPP) correlated with child screening score (child STEPP) for PTSD symptoms after a physical trauma?

Prediction 1. According to Winston et al. (2003), 16% of the children and 15% of the parents in the study were screened using the STEPP and were positive for persistent traumatic stress. After a follow-up assessment, 5% of the parent-child dyads revealed continuous symptoms of traumatic stress for both the parent and child (Winston et al., 2003). Therefore, it was hypothesized that an elevated score on the STEPP for the child will be strongly associated

with an elevated score on the parent STEPP. Similarly, it was hypothesized that a lower STEPP score for the child will be strongly associated with a lower STEPP score for the parent.

Research Question 2. Is parent screening score (parent STEPP score) or child screening score (child STEPP score) associated with injury severity score (ISS)?

Prediction 2. Research has indicated that the higher the ISS score (greater severity of injury) is associated with more symptoms of PTSD (Geiger et al., 2011). Furthermore, head traumas often are associated with higher ISS scores (Deng et al., 2016). Therefore, it was hypothesized a higher ISS would be associated with a positive child and/or parent STEPP score.

Research Question 3. Is child age associated with parent or child STEPP score? Is the child's gender associated with the parent or child STEPP score?

Prediction 3. According to Vries et al. (2000), reported PTSD symptoms decrease as a child's age increases. In another study, 15% of girls and 1% to 6% of boys met criteria for PTSD, suggesting female children may be at a greater risk for developing symptoms of PTSD after an accidental injury (Daviss et al. 2000). Therefore, it was hypothesized that the child's gender and age would be associated with the child and/or parent's STEPP score.

Exploring these relationships may highlight the need for psychological interventions for children and their parents in the medical setting, where psychological distress is seen first-hand by physicians. Examining the use of psychological interventions and screeners in the medical setting may allow professionals in the medical field to link medical illnesses and injuries to psychological health and treat pediatric patients from a trauma-informed lens. Long-term, early intervention may lower the risk of chronic illnesses developed from traumatic childhood experiences as suggested in several studies.

Method

Setting and Participants

An existing data set includes 30 children and 30 caregivers (one caregiver per child) responses to the STEPP tool. Of the total number of children screened ($N = 30$), 53.3% identified as male, 46.7% identified as female (See Table 1). As noted in Table 1, 20% identified as African American, 50% identified as European American, and 30% identified as Other (i.e. Latinx, Middle Eastern, and Mixed Races). As noted in Table 2, at the time of admission 10% of the sample was eight years old, 10% were nine years old, 13.3% were 10, 20% were 11, 10% were 12, 16.6% were 13, and 20% were 14. The average age of child participants was 11 ($SD = 1.99$).

Parent-child dyads have all been admitted to a hospital located in an urban area with a predominantly Latinx population. To be eligible for screening, the patient was required to be admitted through the level 1 trauma department due to an accident related trauma and within the age of 8 to 14 years old. Patients who were not able to provide responses to the screening questions due to severe injuries impacting cognition or unconsciousness and children were excluded from this study. Responses to the STEPP tool, demographic information (e.g. age and gender), and injury type were collected from the electronic medical system. Along with the type of medical injury, an Injury Severity Score ranging from 0 (minor) to 75 (maximum severity) was provided (See Appendix D). This score was collected upon admission through the hospital trauma bay. The trauma bay is defined as a specialized area where a team of clinicians perform fast, intense, full-body exams and initiates treatment for the injury at hand. Due to the intensity of this medical environment, it is important to take into account the psychological impacts it may have on the child.

Table 1

<i>Child Gender and Race/Ethnicity</i>		
Variable	%	N
Gender		
Female	46.7	14
Male	53.3	16
Total	100	30
Race/Ethnicity		
African American	20	6
European American	50	15
Latinx	20	6
Middle Eastern	6.6	2
Mixed Races (Other)	3.3	1
Total	100	30

Note: N = 30 (child participants). Parent demographic information was not accessible.

Table 2

<i>Child Age at Admission</i>		
Age	%	<i>n</i>
8	10	3
9	10	3
10	13.3	4
11	20	6
12	10	3
13	16.6	5

Table 2 – Continued

14	20	6
Total		

Note: $N = 30$ (child participants).

Measures

Screeners. The Screening Tool for Early Predictors of Posttraumatic Stress Disorder (STEPP; Winston et al.) was the screening tool chosen based on feasibility and psychometric properties. Ward-Begnoche et al. (2006) used the STEPP in a study they conducted as the STEPP brief and simple enough to use in an acute trauma care setting. The set of items on the STEPP showed strong sensitivity (0.88, with 95 percent CI=0.69 to 0.96) and reasonable specificity (0.48, with 95 percent CI=0.39 to 0.57) in predicting persistent PTSD symptoms in parents and in children. The STEPP takes under two minutes to administer (Ward-Begnoche et al., 2006). Ward-Begnoche et al. (2006), took one step further by surveying the nurses who administered the screeners. Based on their results, the majority of the sample indicated that the STEPP length was appropriate for the emergency department setting, no one in the sample indicated it was too long, 84% indicated the length was “About Right”, and only 11% indicated that more questions could be added (Ward-Begnoche et al., 2006). Feasibility and acceptability were imperative to consider when choosing the most appropriate tool to ensure buy-in from medical professionals involved in the current study.

Demographic information. Age, gender, medical diagnosis/injury, and injury severity score (ISS) ranging from 0 (minor) to 75 (maximum severity; see Appendix D) were collected by the lead author from the electronic medical system.

Procedures

The current study included three phases before data collection from the electronic medical system occurred. The first phase included a training provided to medical staff, which included a total of 8 individuals (n = 3 pediatric trauma surgeons, n = 2 advanced nurse practitioners, n = 2 pediatric surgery residents, and n = 1 psychology practicum student) who attended a one hour training. The second phase included administering the STEPP as a part required hospital protocol. Responses to the STEPP were entered in the confidential electronic medical system by the administrator. The third phase included providing brief check-ins during hospital stay and external resources to guide patients seeking psychological care after discharge from the hospital. Although the third phase is not a part of the current study, it is important to note that the patients were not identified as at risk for developing PTSD and discharged without resources for psychological services.

Phase 1 Training. This screener was administered by either the psychology practicum student, medical pediatric resident, or the advanced nurse practitioners (APNs). Medical pediatric residents and APNs were trained by the psychology practicum student before administration of the screening instrument began. This training included psychoeducation regarding psychological signs and symptoms of trauma, how to administer the STEPP, and when a consult from the social worker or licensed psychologist is needed. This training included a video demonstration of how to access the electronic version of the STEPP in the medical record, how the form is completed, and the options provided for follow up when a screen was flagged as positive (See Appendix E).

Phase 2 Administration of STEPP. After a child was admitted into the inpatient pediatric department, the administrator assessed if the child met criteria to be screened based on

age (i.e., 8-14 years old), and if the child was admitted through the pediatric trauma bay. Both the child and the parent were administered the Screening Tool for Early Predictors of PTSD (See Appendix A). This screener was administered once the child was admitted as inpatient and deemed medically stabilized by the pediatric physician. To be considered medically stabilized, the patient must have controlled bleeding and must be conscious and aware of their current state. The parent was asked the following questions without the child being present:

1. Did you see the incident (accident) in which your child got hurt?
2. Were you with your child in an ambulance or helicopter on the way to the hospital?
3. When your child was hurt (or when you first heard it happened), did you feel really helpless, like you wanted to make it stop happening, but you couldn't?
4. Does your child have any behavior problems or problems paying attention?

The child was then asked the following questions without the parent being present:

1. Was anyone else hurt or killed (when you got hurt)?
2. Was there a time when you didn't know where your parents were?
3. When you got hurt or right afterwards, did you feel really afraid?
4. When you got hurt or right afterwards, did you think you might die?

From the medical record, the following information was collected:

1. Suspected extremity fracture?
2. Was pulse rate at emergency department triage $>104/\text{min}$. if the child is under 12 years or $>97/\text{min}$. if the child is 12 years or older?
3. Is the child 12 years or older?
4. Is this a girl?
5. Race

6. Medical Injury/ Injury Severity Score (ISS)

For each question, a 'yes' answer was scored as 1 point and a 'no' answer was scored as 0. This screening tool yielded a child score and a parent score. The child score was calculated by adding the scores of questions 4-10 and question 12. A score of four or higher indicated a positive child screen, meaning the child was at risk for developing PTSD. The parent score was calculated by adding the scores of questions 1-4, question 9, and question 11. A score of three or higher indicated a positive parent screen, meaning the parent was at risk for developing PTSD. The electronic medical system used automatically calculated the score. If there was a positive parent and/or child score, a window appeared, asking the administrator if a consult was needed by the social worker and/or the psychologist.

Phase 3 Linkage and Referral. This phase was important to include in order to provide resources for patients after they are identified as high risk for developing symptoms of PTSD. The patients and parents who screened negative were provided with psychoeducation about symptoms of trauma and when/how to seek help, what to expect after a serious injury or illness, and what a parent can do to help (See Appendix B). The patients who screened positive were given a brochure with a list of mental health resources for assessment, evaluation, and treatment (See Appendix C). Due to transportation difficulties, many of the families were referred to specialized center located inside the hospital. In addition to services such as evaluations and treatments of many disorders, this center provides treatment for children who may have experienced trauma or abuse and could be struggling with panic or anxiety disorder. In addition to the psychologist and psychology practicum student connecting the child to a mental health provider, the parents were asked whether or not they are seeking treatment for themselves. If the parent(s) did not have a private therapist, the hospital social worker connected them with a

mental health professional who accepts their insurance. These families were also provided with short-term counseling and check-ins by the hospital social worker and psychiatrist to provide further support during their stay, until discharge.

It is important to note that the hospital is currently working on creating a trauma clinic to allow patients to come in for a one-month follow-up after discharge to assess for persisting symptoms of trauma and offer trauma-informed therapeutic services. This assessment will include assessing depressive symptoms and symptoms of anxiety using standardized rating scales. Symptoms of trauma will be assessed by using a semi-structured interview. This will include questions regarding recurrent thoughts/memories, feelings of detachment, avoidance, nightmares, and hypervigilance. Treatment will include cognitive behavioral therapy and family therapy for the injured child and his or her family impacted. This will allow for more feasible access to care in a single setting where consultation and collaboration between medical and mental health professionals can occur.

Analyses

Data were analyzed using IBM SPSS Statistics Version 24. Non-parametric testing was utilized for analysis given the nature of variables involved as categorical/ordinal, measured at one time point, and demonstrating non-standard distribution of values. All screening data was included in analysis as no missing data or outliers were present. Given the small sample size of the study, all analyses are considered exploratory with non-parametric tests conducted.

Research Question 1. Is parent screening score (parent STEPP) correlated with child screening score (child STEPP) for PTSD symptoms after a physical trauma?

Spearman Rho, a parametric test of the relationship between two continuous variables, was run to evaluate the relationship between parent STEPP and child STEPP scores.

Research Question 2. Is parent STEPP score or child STEPP score associated with injury severity score (ISS)?

Spearman Rho, which tests the relationship between two continuous variables, was run to evaluate the relationship between parent STEPP and ISS score and child STEPP and ISS score.

Research Question 3. Is child age associated with parent or child STEPP score? Is the child's gender associated with the parent or child STEPP score?

For research question 3, Spearman Rho correlations assessed the association between child demographic variables (i.e. gender) and STEPP score for the child and parent. Gender was dummy coded due to being a categorical variable. Males were coded as 1 and females were coded as 0. Screening status was dummy coded as 0 for negative screener and 1 for positive screener for both child and parent. Due to the low cell counts, a Fischer's Exact Test was conducted to test association between child STEPP status and gender. Spearman Rho, which test the relationship between continuous variables, was run to evaluate the relationship between child and parent STEPP scores and the child's age.

Results

The STEPP scores were separated into two categories, child STEPP score and parent STEPP score. For each question, a 'yes' answer would be scored as 1 point and a 'no' answer would be scored as 0. Scores were summed together to reveal a total STEPP score for the child and for the parent. Table 3 illustrates descriptive statistics for the positive and negative scores. As noted, the reported child STEPP scores ranged from 0 to 5, and parent STEPP scores ranged from 1 to 5. In this sample of 30 children, the mean score on the child STEPP was 2.77, ($SD = 1.19$; Range = 0-5) which indicates that on average, the child STEPP score indicated a negative screen for PTSD in this small sample of 30 children. According to the sample of 30 respective

parents, the mean score on the parent STEPP was 2.50, ($SD = .94$; Range = 1 to 5). The lowest score of 1 on the parent STEPP screeners indicates that all participating parents had at least one predictor for PTSD, while some of the participating children may not have indicated any predictors of PTSD but on average Parent STEPP score indicated a negative screen for PTSD for parents.

Table 3

Descriptive Statistics for Child and Parent STEPP

Reporter	N	Min	Max	<i>M</i>	<i>SD</i>
Child STEPP Score	30	0	5	2.77	1.19
Parent STEPP Score	30	1	5	2.50	.94

Note. A score of four or higher indicates a positive child screen. A score of three or higher indicates a positive parent screen. Positive STEPP scores indicated the presence of early predictors of PTSD, while negative STEPP scores indicated the absence of early predictors of PTSD.

Table 4 illustrates the number of positive screens and negative screens for both the parent and the child. As illustrated in Table 4, 30% ($n = 9$) of the children STEPP screeners resulted in positive screens and 70% ($n = 21$) resulted in negative screens. Additionally, 50% ($n = 15$) of the parent STEPP screeners resulted in positive screens and 50% ($n = 15$) resulted in negative screens. There was a higher percentage of positive parent screeners than positive child screeners. This indicates that a number of parents were at risk for developing symptoms PTSD even when their child did not indicate a high number of early predictors. Furthermore, there were more negative STEPP screeners for children than there were for their parents.

Table 4

Frequency of Positive and Negative STEPP scores

Positive and Negative STEPP Screeners	%	<i>n</i>
Positive Child STEPP Screeners	30	9
Negative Child STEPP Screeners	70	21
Positive Parent STEPP Screeners	50	15
Negative Parent STEPP Screeners	50	15

Note: $N = 30$. Child STEPP screeners and parent STEPP screeners result in positive or negative screeners. The number of positive and negative screeners for child participants and parent participants are noted as percentages and numbers out of the total number of STEPP screeners completed.

Injury severity scores (ISS) ranged from 0 to 27, with 0 indicating minor severity and 27 being severe based on the calculated ISS score obtained during the emergency triage in the trauma bay. Table 5 notes the descriptive statistics for the ISS scores reported for each participating child. Of the reported ISS scores, 10 scores fell in the minor range of severity, 14 fell in the moderate range, two fell in the serious range, and four fell in the severe range. The average ISS score reported was 11 ($SD = 7.56$), which was categorized as moderate severity (See Appendix D).

Table 5

Descriptive Statistics of Child ISS

Injury Severity Categories	N
Minor	10
Moderate	14
Serious	2

Table 5 – Continued

Severe	4
Total	30

Note. The ISS is the calculated by summing of the squares of the highest Abbreviated Injury Scale (AIS) score for each of the three most severely injured body regions. ISS scores range from 0 to 27. An ISS score of 27 indicates a severe injury while an ISS score of 0 indicates a minor injury.

Is Parent Screening Score Correlated with Child Screening Score for PTSD Symptoms?

Spearman Rho correlations examined the relationship between child and parent STEPP scores. Correlations among all variables are shown in Table 6. Parent and Child STEPP scores were not significantly correlated ($r = .20, p = .29$), indicating a weak, positive linear relationship.

Table 6

Correlations for Study Variables

Variable	ISS	CSTEPP	Age	Gender	PSTEPP
ISS	-	-.24	-.43*	-.06	.09
CSTEPP	.24	-	-.08	.12	.20
Age	-.43*	-.08	-	.09	.13
Gender	-.06	-.58**	.09	-	-.07
PSTEPP	.09	.20	.13	-.07	-

Note. $N = 30$. * $p < .05$, two tailed. ** $p < .01$, two tailed.

ISS = Injury Severity Score. CSTEPP = Child STEPP. PSTEPP = Parent STEPP.

Is Injury Severity Associated STEPP Score?

Based on a Spearman Rho correlation, child STEPP scores and Injury Severity Scores were not significantly correlated ($r = -.24, p = .06$), indicating a weak, negative linear

relationship. Similarly, parent STEPP scores and Injury Severity Scores were not significantly correlated ($r = .09$, $p = .63$), indicating a weak, positive relationship.

Is Age Associated with Child or Parent STEPP Score?

Child STEPP scores and age were not significantly correlated ($r = -.08$, $p = .69$), indicating a weak, negative relationship between a child's age and early predictors of PTSD. Parent STEPP scores and age were not significantly correlated ($r = .13$, $p = .50$), indicating a weak, positive linear relationship between parent predictors of PTSD and the child's age.

Is Gender Associated with Child or Parent STEPP Score?

A Spearman Rho correlation examined the relationship between child STEPP score and gender, revealing a significant correlation ($r = -.60$, $p < .01$; See Table 7), indicating a moderate, negative linear relationship. A Fischer Exact Test (parametric test) revealed that female children were associated with having a positive child STEPP score ($p = .004$). This result should be interpreted with some caution due to the low counts between how many females screened positive (8) versus how many males screened positive (1) (See Table 8). Parent STEPP score was not significantly correlated with child gender ($r = -.07$, $p = .70$), indicating a weak, negative relationship between a parent's early predictors of PTSD and the child's gender.

Table 7

Spearman Correlation: Child STEPP Score vs. Gender

Variable	Gender
Child STEPP	-.60**

Note. $N = 30$. ** $p < .01$, two tailed. This table illustrates correlations between the child STEPP screener and the child's gender.

Table 8

Crosstabulation for Child STEPP Screener and Gender

Child STEPP Screener Status	Female	Male	Total
Negative Screen	6	15	21
Positive Screen	8	1	9
Total	14	16	30

Note. $N = 30$. This illustrates the association between the child STEPP screener status and the child's gender (male vs. female)

Discussion

Historically, medical settings were known to be settings where patients are treated medically and surgically for physical illnesses and/or injuries. While that is still true, professionals in the field of healthcare are beginning to notice the negative impact physical injuries may have on a patient's mental health. The purpose of this current study was to screen both the parent and child individually for symptoms of a stress disorder after traumatic injuries and accidents. While research has developed and continues to support the connection between physical and mental illness, medical settings are continuing to lack identification and appropriate services needed by this population. This study not only analyzed the link between a child's potential symptoms of PTSD and a parent's potentially developed symptoms of PTSD after a physical injury or accident, but it also evaluated other demographic and medical factors that may contribute to a positive screen using the STEPP.

Is Parent Screening Score Correlated with Child Screening Score for PTSD Symptoms?

Research question 1 focused on whether child STEPP scores were correlated with parent STEPP scores. The results of this study indicate that there was no significant correlation between

the two groups. Therefore, a child's presence of early predictors of PTSD was not associated with the parent's presence of early predictors of PTSD. These findings are in some ways consistent with prior research which suggests a mixed connection between a child and parents symptoms of PTSD following a traumatic incident. Winston et al. (2003), for example, in a sample of parent-child dyads who were admitted to an urban, pediatric level I trauma center, 38% of the families revealed symptoms of PTSD for the child and corresponding parent. Other studies, however, have found similar results to those revealed in the current study. One explanation for this lack of relationship is that although a parent or caregiver may witness or be involved in an accident with the child, the caregiver could develop symptoms of a related but distinct mental health problem that was not measured in the current study, such as Acute Stress Disorder or Adjustment Disorder. Specifically, Bryant et al. (2004), in a study of 80 families, found that although some mothers of trauma victims continued to have some intrusive and arousal symptoms six months after the traumatic event, they did not meet full criteria for PTSD and the child did not experience any symptoms of PTSD following the incident. These mixed results regarding a parent and corresponding child's symptoms of PTSD following a traumatic incident may be due to differing post-trauma reactions. One would expect the two to be associated with one another, however, it is unclear due to the fact that distress may resolve on its own right after the incident or six months later or perhaps suggests that one cannot assume that exposure to accident related trauma leads to PTSD. Resilience is also an important factor to consider when examining post-trauma reactions.

Is Injury Severity (based on the ISS Score) Associated with STEPP Score?

Research question 2 focused on whether severity of the injury was associated with a STEPP screener score for either the child and/or the parent. The results indicated that the severity

of the injury (based on the Injury Severity Score) was not significantly associated with a child or parent's STEPP score.

Prior research conducted by Winston et al. (2002) suggests that child's ISS score is not associated with distressing symptoms following a traumatic event ($r = -.05$, $p = .64$). Additionally, the findings of the current study are congruent with prior research suggesting that ISS differs from perceived severity of the injury (Geiger et al., 2011). Furthermore, Geiger et al. (2011) suggests that the more distressing the traumatic event was for the patient, the more severely the injuries were perceived. Therefore, an injury could be minor according to the calculated ISS, but the patient could have experienced a severely traumatic event. Although ISS scores are commonly used in medical settings nationwide, it may not be as accurate of a measure as one would believe it to be. From a psychological framework, perceived severity would be a valuable construct to measure.

Is Age Associated with STEPP Score? Is Gender Associated with STEPP Status?

Research question 3 focused on whether child age or gender was associated with the STEPP screening results (parent and child). Further exploratory analyses examined variables such as age and gender and their relation to STEPP score. It revealed a significant correlation between a child's STEPP score and gender, with females significantly correlating with higher child STEPP scores. Results also revealed a statistically nonsignificant correlation between child STEPP scores and the child's age. Although most of the results are inconclusive, it may be of clinical value to recognize that providing the patients with a measure of symptoms of PTSD provided valuable information with regard to how a child and their parent may react to a traumatic event.

These findings are congruent with results of a study conducted by Winston et. al (2002), which looked at Acute Stress Disorder symptoms in children and their parents after pediatric traffic injuries. The results of this study indicated that there was no significant association between a child's broad distress (i.e. arousal, avoidance, reexperiencing, and dissociation), and the child's age ($r = -.12, p = .23$; Winston et. al., 2002). Additionally, the results of this study revealed no significant association between the parent's broad distress and the child's age ($r = -.06, p = .56$), the child's ISS ($r = .09, p = .44$), and the child's gender ($p = 1.0$) (Winston et. al., 2002). Furthermore, similar to the results of the current study, Winston et al. (2002) found that there is no significant association between parent and child reports of broad distress ($p = .57$). However, significant results of the study conducted by Winston and colleagues (2002) was congruent with the current study's significant results.

In regards to the significant correlation between positive child STEPP screeners and gender, previous literature supports this finding. In a study conducted by Garza and Jovanovic (2017), gender differences in PTSD in children and adolescents were examined. Results indicated that PTSD is more prevalent in women than men, which is observed as early as adolescents (Garza & Jovanovic, 2017). Furthermore, they found that biological factors such as estrogen, appear to play a significant role in increasing risk for PTSD in females, which emerges in adolescence (Garza & Jovanovic, 2017). Therefore, it is important to screen female children for symptoms of PTSD after a traumatic incident occurs.

Although many of the results of the study are statistically insignificant, it is important to recognize the overall takeaway from this study. Both parents (50%) and their children (30%) are likely to screen positive for early predictors of PTSD. It is important to identify patients in the medical setting who are struggling to adjust and who develop negative psychological symptoms

after traumatic incidents. Not only does this impact psychological health, but research has shown the longitudinal impacts adverse experiences (accident related traumas) have on a person's physical health. Thus, patients should be treated both medically and psychologically due to the impacts each factor has on the other.

Limitations and Future Research

While many of the results of this study were not statistically significant, it is important to note that this was a very small sample size with very limited power. While this hospital is one of only three Level 1 Trauma Centers in the state and attends to approximately 2,500 trauma patients annually, a total of 30 pediatric patients and respective parents participated in this study. This may be due to the age limitation of the measure used, refusal to participate in this study, and mortality. Although the principal investigator of this study did not have access to more than thirty participants, a future study with a greater number of participants could yield additional insights into the relationships between these variables. Additionally, it is important to note that other important variables were not included in the current study. For example, specific types of injuries were not included in the analysis. Including this data could provide further details regarding the correlation between different type of injuries related to early predictors of PTSD. Additionally, the gender of the parent in this study is unknown, therefore, conclusions cannot be made regarding how the gender of the parent may or may not correlate with a positive STEPP screener.

Another limitation in this study related to the STEPP measure used. This measure was validated for children and adolescents between the ages of eight and fourteen. Therefore, the results and identification of children with symptoms of PTSD have not typically included younger children who may be experiencing symptoms as well. Additionally, the STEPP measure

was created to measure the child's risk for developing PTSD and the respective parent's risk for developing PTSD. However, when calculating the parent's STEPP score, questions regarding the child's symptomology is included. This potentially skews the results of the parent screeners and blurs the lines between measuring the parent's risk for developing PTSD or the parent's report of the child's risk for developing symptoms. A final limitation to note in this study is the lack of qualitative data provided. A semi-structured interview with the child and the respective parent in future studies would provide more details regarding the symptoms and traumatic incident beyond the limited 12 question measure used. Measures which include broad symptomology would be beneficial in future studies in order to shed light on different types of psychological distress (i.e. anxiety and depression). Furthermore, it would be beneficial to use a measure that includes an assessment of prior trauma history to inform future reactions to traumatic events. Future work in the field of trauma to develop measures that extend downward and that capture a variety of outcomes that result from trauma would be a worthy endeavor.

Implications for Practice

If data collection continues, the impacts traumatic incident may have on a child could be examined longitudinally. Contact with the patients should continue and follow up appointments should be scheduled in order to reassess the patient for continuing symptoms of PTSD and constitutional factors involved. These factors may include academic performance, substance use, physical health implications, and development of other mental health disorders. This could provide more information regarding the impact accident related traumatic incidents may have long-term.

Future studies may also implement follow-up behavioral health treatment after a patient is discharged in order to improve patient care and analyze the impact psychological care would

have on a patient who experienced a traumatic injury. Not only does this treat the patient holistically, but it encourages medical physicians to treat patients with a trauma-informed lens. Taking this research one step further would be to evaluate the attitudes and barriers from a medical physician's perspective. This may include gathering data from anonymous surveys or conducting interviews. Including this perspective in future studies may inform future behavioral health practices, which is becoming the new gold standard for integrated primary care.

Additionally, research in this area may inform clinical practice for psychologists in the primary care setting. Typically, a psychologist may hold important roles in schools and private practices. However, in recent years, psychologists have been valued in the medical setting. The majority of primary care appointments are for problems stemming from psychosocial issues such as marital conflict, violence in the home, or bereavement (Nash et al., 2012). Having a psychologist present in a primary care setting has increased identification and management of behavioral health and overall psychological concerns (Nash et al., 2012).

Furthermore, early identification of psychological concerns in medical settings would lead to brief interventions provided by the psychologist in order to increase overall patient access to needed behavioral services (Nash et al., 2012). Not only can psychologists provide direct services to patients in trauma departments, but they can also serve as accessible consultants for primary care physicians. This provides answers to patient-specific questions physicians may have regarding a patient's somatic symptoms such as pain or fatigue, not better explained by medicine (Nash et al., 2012). Therefore, it is critical for psychologists to be recognized as an integral part of an interdisciplinary team.

The current study highlights the need for access to psychological care in low socioeconomic areas. Many patients in urban settings do not have access to transportation in

order to attend their medical appointments. Access to transportation impacts access to care, which most clinicians seem to overlook as a barrier to treatment. Including a psychological trauma clinic within a hospital setting would also increase patient access to comprehensive care and allow for opportunities to educate patients of different cultural backgrounds about psychological trauma. Not only should patients be treated from a trauma-informed lens, but also a culturally competent lens. It is the responsibility of psychologists and medical physicians to provide services to patients of all races and cultures. Therefore it is important to provide screeners and other documentation in the patient's native language and to take the time to explain to patients what they are experiencing, whether it is a medical condition or a psychological disorder.

Conclusions

Identification of pediatric patients at risk for developing symptoms of PTSD is important to consider when being treated in primary care settings. Unlike mental health settings, primary care settings provide an opportunity for medical physicians and mental health professionals to work together to order to treat a patient both physically and psychologically. Not only does this provide an opportunity for identification, but it also provides an opportunity for patients to be provided with evidence-based interventions. Adverse childhood experiences such as traumatic car accidents, loss of a loved one, emergency surgeries, natural disasters, and intentional abuse has been researched for years and shown to result in longitudinal impacts on physical health. Health professionals should recognize this area of research and practice as hope for preventing life-long illnesses for vulnerable children and their families.

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Appendix A

STEPP Tool

Ask Parent:	Yes	No		
1. Did you see the incident (accident) in which your child got hurt?	1	0		
2. Were you with your child in an ambulance or helicopter on the way to the hospital?	1	0		
3. When your child was hurt (or when you first heard it had happened), did you feel really helpless, like you wanted to make it stop happening, but you couldn't?	1	0		
4. Does your child have any behavior problems or problems paying attention?	1	0		
Ask Child:	Yes	No		
5. Was anyone else hurt or killed (when you got hurt)?	1	0		
6. Was there a time when you didn't know where your parents were?	1	0		
7. When you got hurt, or right afterwards, did you feel really afraid?	1	0		
8. When you got hurt, or right afterwards, did you think you might die?	1	0		
Record From Medical Record (Do Not Ask Child or Parent):	Yes	No		
9. Suspected extremity fracture?	1	0		
10. Was pulse rate at emergency department triage >104/min if child is under 12 years or >97/min if child is 12 years or older?	1	0		
11. Is child 12 years or older?	1	0		
12. Is this a girl?	1	0		
Add Total for Each Column:				
			Positive Child Screen ≥ 4	Positive Parent Screen ≥ 3


PTSD indicates posttraumatic stress disorder. Instructions for completion: Ask questions 1 through 4 of the parent and questions 5 through 8 of the child, and record answers to questions 9 through 12 from the acute care medical record. Circle 1 for yes and 0 for no. Instructions for scoring: The child STEPP score is the sum of responses to questions 4 through 10 and 12. A child score of 4 or higher indicates a positive screen. The parent STEPP score is the sum of responses to questions 1 through 4, 9, and 11. A parent score of 3 or higher indicates a positive screen. ©2003, The Children's Hospital of Philadelphia.

Appendix B

Parental Support

After the Trauma: Helping My Child Cope

THINGS PARENTS CAN DO AND SAY



Six things you can do to help your child after a trauma.

- 1 Let your children know they are safe.** Younger children may need extra hugs (as well as your teens).
- 2 Allow children to talk about their feelings and worries if they want to.** Let them know that being a little scared and upset is normal. If they don't want to talk, they could write a story or draw a picture.
- 3 Go back to everyday routines.** Help your child get enough sleep, eat regularly, keep up with school, and spend time with friends.
- 4 Increase time with family and friends.** Children who get extra support from family and friends seem to do better after upsetting events. Try reading, playing sports or games or watching a movie together.
- 5 Take time to deal with your own feelings.** It will be harder to help your child if you are worried or upset. Talk about your feelings with other adults, such as family, friends, clergy, your doctor, or a counselor.
- 6 Keep in mind that people in the same family can react in different ways.** Remember, your child's feelings and worries might be different from yours. Brothers and sisters can feel upset too.

What should I expect after a trauma? In the first few days after a trauma, your child might feel confused, upset, jumpy or worried. This is normal. Most children just need a little extra time to feel better.

What are common changes in my child? After a trauma, changes you might notice are:

- 👉 **Young children:** thumb sucking, bed wetting, clinging to parents, being afraid of the dark.
- 👉 **School age children:** getting easily upset or angry, clinging to parents, nightmares, not paying attention, not wanting to go to school or play with friends.
- 👉 **Teens:** changes in sleeping and eating, new problems in school, arguing with friends or family, complaining of feeling sick.

When and how should I get help for my child? If these changes do not clear up, seem to be getting worse, or there are other things that worry you, talk to your child's doctor or school counselor to find out the best way to help your child and family.



Things other parents have found helpful.

YOUNGER CHILDREN:



"You're safe now."



"Why don't you draw a picture about your time in the hospital."

OLDER CHILDREN:



"You can still spend time with your friends."



"When I'm upset, I find someone to talk to."

Do: Allow your child to talk about what happened, if he or she wants to.

Say: *"A lot has happened. Is there anything you're worried or confused about?"*

Do: If your child doesn't want to talk about what happened, encourage him or her to draw a picture or write a story about it.

Say: *(To younger children) "Can you draw a picture about what happened and tell me a story about it?" (To teenage children) "Can you write a story about what happened and how you're feeling?"*

Do: Keep in mind that brothers and sisters could also feel upset or worried.

Say: *"How are you doing? Is there anything you are worried about?"*

Do: Keep up with regular meal and bed times for your child. If sleep is a problem for your child, try a bedtime story and a favorite stuffed animal for younger children, some quiet time and relaxing music for teens.

Say: *(To younger children) "Let's read your favorite book before going to bed." (To teenage children) "How about listening to music that helps you relax?"*

Do: Talk to another adult if you are feeling upset about what happened to your child. Also, talk to your child's doctor if you are concerned about how he or she is dealing with the trauma.

Say: *"I'm feeling a little overwhelmed. It would help to have someone to talk to."*



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The National Child
Traumatic Stress Network

Developed by The Center for Pediatric Traumatic Stress at The Children's Hospital of Philadelphia and Nemours / Alfred I. duPont Hospital for Children

www.healthcaretoolbox.org

After the Injury: Helping My Child Cope

THINGS PARENTS CAN DO AND SAY



Six ways you can help your child after an injury.

- 1** Let your children know they are safe. Give them extra hugs (even your teens).
- 2** Allow children to talk about their feelings and worries, if they want to. Let them know that being a little scared and upset is normal. *If they don't want to talk*, they could write a story or draw a picture.
- 3** Go back to every day routines. Help your child get enough sleep, eat regularly, keep up with school, and—as much as the injury allows—go back to doing things with friends.
- 4** Increase time with family and friends. Children who get extra support from family and friends seem to do better after upsetting events. Try reading, playing games or watching a movie together.
- 5** Take time to deal with your own feelings. It will be harder to help your child if you are worried or upset. Talk about your feelings with other adults, such as family, friends, clergy, your doctor, or a counselor.
- 6** Keep in mind that people in the same family can react in different ways. Remember, your child's feelings and worries about the injury might be different from yours. Brothers and sisters can feel upset too, even if they were not involved.

What should I expect after an injury?

In the first few days after an injury, your child might feel confused, upset, jumpy or worried. This is normal. Most children just need a little extra time to feel better.

When and where should I get help for my child?

Your child might need extra help if he or she:

- ☞ is still upset, jumpy or worried a few weeks after the injury,
- ☞ is doing worse in school or not wanting to go to school at all,
- ☞ is dropping out of things he or she used to enjoy.

Talk to your child's doctor or school counselor to find out the best way to help your child and family if you are worried about your child's reactions.



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**CENTER FOR INJURY
RESEARCH AND PREVENTION**

Things other parents have found helpful.

YOUNGER CHILDREN:



"You're safe now."



"Why don't you draw a picture about your time in the hospital."

OLDER CHILDREN:



"You can still spend time with your friends."



"When I'm upset, I find someone to talk to."

Do: Allow your child to talk about what happened, if he or she wants to.

Say: *"A lot has happened. Is there anything you're worried or confused about?"*

Do: If your child doesn't want to talk about what happened, encourage him or her to draw a picture or write a story about it.

Say: *(To younger children) "Can you draw a picture about what happened and tell me a story about it?"*

(To teenage children) "Can you write a story about what happened and how you're feeling?"

Do: Keep in mind that brothers and sisters could also feel upset or worried.

Say: *"How are you doing? Is there anything you are worried about?"*

Do: Maintain your child's regular meal and bed times. If sleep is a problem for your child, try a bedtime story and a favorite stuffed animal for younger children, some quiet time and relaxing music for teens.

Say: *(To younger children) "Let's read your favorite book before going to bed."*

(To teenage children) "How about listening to music that helps you relax?"

Do: Talk to another adult if you are feeling upset about what happened to your child.

Say: *"I'm feeling a little overwhelmed. It would help to have someone to talk to."*



Appendix C

Resource Brochure

*"I can't change the direction
of the wind, but I can adjust
my sails to always reach my
destination."*

--Jimmy Dean



*"The greatest glory in living
lies not in never falling, but
in rising every time we fall."*

--Nelson Mandela

For more information or questions, please contact:
Stephanie Anismatta: stephanie.anismatta@gsapp.rutgers.edu or (929) 243-4076

Mental Health Resources

External psychological resources for
children, adolescents, and families



University Behavioral Health Care (UBHC)

❖ Services Offered

- Outpatient child and adolescent services
- Intensive Outpatient Services (Newark)
- Children's Mobile Response and Stabilization Services
- The Newark Child Partial Hospitalization Program
- Acute Child Intensive Outpatient Program
- Acute Psychiatric Services (Emergency APS)
- Adolescent Partial Hospitalization Program
- Family Therapy & Parenting Program
- Crisis Services
- Rutgers Day School
- Traumatic Loss Coalition

❖ Insurance Accepted

- Medicaid
- Medicare
- Horizon Blue Cross Blue Shield
- Aetna Healthcare

❖ **Website:** http://ubhc.rutgers.edu/services/children_family/index.html

❖ **Phone number:** 1-800-969-5300

❖ **Address:** 671 Hoes Lane West,
Piscataway Township, NJ 08854

Rutgers Psychological Services Clinic

❖ Services Offered

Assessment/Evaluation/Treatment of:

- Anxiety and panic disorders
- Depression and mood disorders
- Marital and relationship problems
- Chronic Pain, Headache, Stress-related medical illnesses
- Obsessive-compulsive disorder
- Trauma and traumatic stress
- Borderline personality disorder
- Substance abuse
- Tourette's disorder
- Developmental disorders
- Attention Deficit Hyperactivity Disorder (ADHD)
- School refusal
- Parenting problems and/or child behavior management
- Organization and study skills

❖ Insurance Accepted

- Rutgers student insurance
- Non-Rutgers insurance: sliding scale based on household income

❖ Website:

<http://psychologicalservices.rutgers.edu/>

❖ **Phone number:** 848-445-6111

❖ **Address:** 152 Frelinghuysen Road
Piscataway, New Jersey 08854

Children's Specialized Hospital

❖ Services Offered

Assessment/Evaluation/Treatment of:

- Behavioral difficulties
- Anxiety/Panic disorders
- Social skill deficits
- Peer and sibling problems
- Trauma/Abuse
- Adjustment problems
- Depression

❖ Insurance Accepted

- Aetna Healthcare, Aetna Signature Administrators, Amerigroup NJ Amerihealth & Amerihealth Administrators, Cigna Healthcare, Cigna Behavioral Health Consumer Health Network (CHN), CT Medicaid, Devon Healthcare, Great West, Empire Blue Cross Blue Shield, Horizon Blue Cross Blue Shield HMO/PPD Horizon Behavioral Health, Horizon NJ Health Intergroup, Magellan Behavioral Health Magnacare, MHN, Multiplan/ PHCS, NJ Manufacturers, NJ Medicaid, NY Medicaid (inpatient services), Oxford Freedom/Liberty Qualcare, United Healthcare UnitedHealth Community Care NJ, Value Options, Wellcare NJ (all affiliates nationally)

❖ **Website:** <https://www.childrens-specialized.org/programs-and-services/outpatient-programs/psychology>

❖ **Phone number:** 1-888-CHILDREN (244-5373)

❖ **Address:** 200 Somerset Street
New Brunswick, NJ 08901-1942 (Inpatient);
10 Plum Street - 6th Floor
New Brunswick, NJ 08901 (Outpatient)

Appendix D

Injury Severity Score

Injury Severity Score; ISS

Region	Injury Description	AIS	Square Top Three
Head & Neck	Cerebral Contusion	3	9
Face	No Injury	0	
Chest	Flail Chest	4	16
Abdomen	Minor Contusion of Liver	2	
	Complex Rupture Spleen	5	25
Extremity	Fractured femur	3	
External	No Injury	0	
Injury Severity Score:			50

AIS Score	Injury
1	Minor
2	Moderate
3	Serious
4	Severe
5	Critical
6	Survivable

ISS	
1-8	Minor
9-15	Moderate
16-24	Serious
25-49	Severe
50-74	Critical
75	Maximum

Appendix E

Training

Structured Notes Entry - TEST, ALLSCRIPTS 7RW2GCTPV07 - Screening Tool for Early Predictors of PTSD

CREATE Preview Date of Service: 11-02-2017 Time: 10:14

Copy Forward Refer to Note Preview Modify Template Acronym Expansion

Ask Child

5. Was anyone else hurt or killed (when you got hurt)?
☒ Yes ☐ No

6. Was there a time when you didn't know where your parents are?
☐ Yes ☒ No

7. When you got hurt, or right afterwards, did you feel really afraid?
☒ Yes ☐ No

8. When you got hurt, or right afterwards, did you think you might die?
☐ Yes ☒ No

Record From Medical Record (Do Not Ask Child)

9. Suspected extremity fracture?
☒ Yes ☐ No

10. Was pulse rate at emergency department triage?
☒ Yes ☐ No

11. Is child 12 years or older?
☒ Yes ☐ No

12. Is this a girl?
☒ Yes ☐ No

PTSD Warning
 The tabulated score indicates this patient is at high risk for PTSD and the following consult orders are recommended.
☒ Consult Social Work-Positive PTSD Screen (Trauma)
☒ Consult Psychology-Positive PTSD Screen (Trauma)

Child Score: 6 Parent Score: 4

STEPP: ChartText

Screening Tool for Early Predictors of PTSD

Need Help? Mark Note As: ☐ Results pending ☐ Priority ☐ Incomplete ☐ Locked ☐ E&M Calculation ☐ Charge Capture SuperBill

Save Save/Print Cancel

Allscripts Gateway | My Applications | Acute Care

My Applications Acute Care Orders

File Registration Pharmacy View GoTo Actions Preferences Tools

TEST, ALLSCRIPTS 7RW2GCTPV07 NBED Emergent Abdel-Megid, Ahmed M 007022598 / 880183122 18y (Jul-08-1999) F

Allergy: No Known Allergies Weight: Kg Date: Height: in cm BSA: Actual LOS: 148d

Patient List Orders Results Patient Info Documents Flowcharts Clinical Summary Vitals Fluid IO Detailed Clinical Data Med Summary Care Provider Community Record Vis

Options Panel

Chart Selection
☒ This chart ☐ All available charts

Date Range
☒ Based on date: ☐ Ordered ☐ Enter
 From: 06-07-2017
 To:
☐ Retain selections for next patient

Display Format
 By Department/Status

Filters
 Status/Priority: Active/Pending
 Order Selection: No Order Selection Filter
 Department: No Department Filter
 Dispense Type: No Dispense Type Filter
 Perfected: All Rx Verified: All

Display Styles
☒ Group/Sort Orders by: Department and Status

Show
☐ Visit details ☐ Health i
☐ Requested by ☐ Linked s
☐ Set/Path details ☐ Pharm:

Some orders may not be shown for this chart for order dates from 06-07-2017 : (0 of 2 selected) Clear All Selections

Display Format: By Department/Status: Filtered by: Status/Priority: Grouped/Sorted by: Department and Status

Order Summary

Order Summary	Order Date	Status	Stop Date	Entry Date
<input checked="" type="checkbox"/> Consult Psychology-Positive PTSD Screens - Evaluate and Treat, Priority: Routine, Reason for Consult: The patient is s/p traumatic event and has had a screening that suggest a high risk for PTSD. Please evaluate and treat.	11-02-2017 10:17	Active		11-02-2017 10:17
<input checked="" type="checkbox"/> Consult Social Work-Positive PTSD Screens - Evaluate and Treat, Priority: Routine, Reason for Consult: The patient is s/p traumatic event and has had a screening that suggest a high risk for PTSD. Please evaluate and treat.	11-02-2017 10:17	Active		11-02-2017 10:17

Sidebar LSCG5416GLW [Ctrl] RW2GCTPV02 (8.2.450.8113) RW2FHC1 Dobosh, Brian / (S Clinical) 11/02/2017 10:17 00008/12 Test153