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A Qualitative Analysis of Children's Emotional Reactions during Hospitalization following Injury

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Abstract

Children who sustain injuries are at-risk for experiencing traumatic stress reactions. Few studies have obtained detailed, qualitative information regarding children's and parents' own understanding of their experiences during the peri-trauma period. Understanding children's injury and early hospital experiences is crucial to inform the development of early interventions during the peri-trauma period, which speak to these concerns. The primary purpose of this study was to understand child and parent views of the stressors experienced by children hospitalized for an injury. A secondary aim was to identify children's feelings and thoughts about injury and hospital-related stressors. Ten children and their parents participated in semi-structured interviews. Interviews were audio-recorded, transcribed, and coded. Stressors were classified into five domains: procedural concerns, uncertainty, sleep and nutrition challenges, being confined to the hospital, and home preparation. Children and parents were more likely to articulate feelings about stressors than thoughts about stressors. Feelings reported by children and parents were predominantly negative. Children and parents may have an easier time expressing feelings than thoughts, which has implications for communicating with medical teams as well as for psychological treatment. Future research should examine how children's perceptions of their injury and hospital-related experiences relate to later outcomes such as traumatic stress reactions.

Keywords

pediatric injury; feelings; thoughts; medical traumatic stress; PTSS

Each year, a significant number of children incur physical injuries requiring medical attention. More than 225,000 of these children are hospitalized annually (Center for Disease Control, 2009). A significant number of children experience negative psychological sequelae, including posttraumatic stress disorder (PTSD), after injury (Kassam-Adams & Winston, 2004; Winston, Kassam-Adams, Garcia-España, Ittenbach, & Cnaan, 2003). PTSD is characterized by symptoms of re-experiencing, avoidance, negative cognitions and mood, and arousal (American Psychiatric Association, 2013), and is associated with poorer physical recovery and impaired family functioning after pediatric injury (Shudy et al., 2006). Understanding children's experiences during the peri-trauma period (i.e., immediately following their injury, including medical treatment) may help identify children who are most at-risk for negative reactions such as PTSD.

While little is known about children's views of stressors immediately following injury, children with chronic illness have identified stressors related to the anticipation of surgical procedures, lengthy and involved medical treatments, inadequate information about procedures, and disruption of daily routines (Coyne, 2006; Hildenbrand, Clawson, Alderfer, & Marsac, 2011; Kazak et al., 2005). Children experiencing acute pain episodes resulting from sickle cell disease report challenges such as changes in sleep, food intake and activity levels (Jacob et al., 2006). Parents identify concerns about communicating effectively with medical professionals, adequate social support, exhaustion, and emotional burden as challenges following a child's traumatic brain injury (Aitken, Mele, & Barrett, 2004).

It is also important to understand the ways in which children describe their emotional and cognitive reactions to peri-trauma stressors. Research suggests that children facing surgery feel upset, angry and depressed when they are not provided with sufficient information (Coyne, 2006). They have also expressed feelings of anxiety and worry related to the treatment process (Carney et al., 2003). Certain types of child cognitions (i.e., trauma-related cognitions that are biased toward threat, particularly those related to future vulnerability and harm) have been identified as predictors of concurrent and later distress in injured children (Meiser-Stedman, Dalgleish, Glucksman, Yule, & Smith, 2009). However, as research to date has primarily relied on questionnaires to assess children's feelings and/or cognitions, we may be missing a fuller and more nuanced description of trauma- and stressor-related feelings and thoughts from children's own frame of reference.

A richer understanding of children's experiences (i.e., stressors, feelings and thoughts) during the peri-trauma period following injury can facilitate our ability to promote full emotional and physical recovery. The aims of this study are to expand upon existing literature of children's peri-trauma experiences and gain a deeper appreciation of these factors by (a) gathering children's and parents' views of injury and treatment-related stressors, (b) describing children's feelings related to their injury and medical treatment, and (c) exploring children's thoughts about their injury and treatment. We hypothesized that children would report a wide-range of stressors about their injury and medical treatment and would express a range of negative emotions related to these stressors. We anticipated that children would describe thoughts that could be categorized as either threat or non-threat appraisals of the injury-related experiences. We also expected parents' perceptions of their children's stressors, feelings, and thoughts to be similar to children's reports.

Methods

Participants

Ten child-parent dyads participated in the study. All child participants were hospitalized at a Level 1 Pediatric Trauma Center for medical treatment related to their injury. Children (7 males) ranged in age from 8-16 years ($M=11.75$, $SD=2.70$). Half of children identified as African-American/Black and half identified as European American/White. No children identified as Hispanic. Children's injuries included broken bones and internal injuries. Please refer to Table 1 for specific information regarding basic demographic information and child injuries. Parents (8 mothers, 2 fathers) identified as the same racial and ethnic background as their children. Parental education ranged from completing high school to completing a graduate degree.

Procedures

As approved by the hospital's institutional review board, eligibility criteria for participation in the study required that children were between 8-17 years old and had experienced a potentially traumatic injury within the past 15 days. Children were ineligible if they lacked English proficiency, had physical or cognitive limitations precluding participation, or had an injury resulting from family violence. Parents provided consent and children provided assent for participation. Children and parents were offered \$10 each for their time. Detailed study methods have been reported elsewhere (Authors, 2011).

Measures

Semi-Structured Interviews—The purpose of the interview was to extract descriptive information from children and parents regarding their experiences during the peri-trauma period, including stressors, thoughts, and feelings. Interviews included prompts (for instance, “what else were you thinking?”, “tell me more”) to help facilitate participant responses. If a child or parent did not answer the question (e.g., “Tell me what were you thinking when you were injured”), the interviewer re-stated the question at least one time, but typically several times, modifying wording to ensure understanding. If they still did not provide an appropriate answer, the interviewer moved on to the next question. Thematic saturation was attained, suggesting that sampling was sufficient for addressing study aims (Morse, 1994). Children were asked: 1) Tell me about what happened when you got hurt, 2) What were you thinking?, and 3) How were you feeling? Parents were asked 1) Tell me about what happened when your child was injured, 2) What would you guess your child was thinking when he or she was injured?, and 3) How do you think your child was feeling?

Coding and Data Analysis

An inductive coding methodology was used to guide the data analysis (Thomas, 2006). All interviews were audio-recorded, transcribed, and imported into a standard software tool (NVivo). The transcripts were coded electronically using the codebook. The codebook was developed using an iterative process, initially created based on principles from cognitive theory, and revised to accommodate new themes based on the data. The data was coded by two independent coders. Following Strauss and Corbin's (1990) recommendation, coders

used memos to record reactions to the data, which were later discussed at team meetings. Residual discrepancies were resolved during meetings with both coders involved in the analysis of the transcript.

Child and parent statements related to injury and treatment were extracted and categorized into hierarchical schemes to identify themes. Consistent with the codebook, reactions were identified as feelings or thoughts regardless of which interview prompt they followed (e.g., if asked about thoughts and answered with a feeling, the response was coded as a feeling).

Results

Injury treatment-related stressors

Per children's and parents' reports, children experienced a variety of stressors related to their injury and hospital experience, which were classified into five domains: procedural concerns, uncertainty, negative impact on sleep and nutrition, being confined to the hospital, and home preparation. In the aggregate, children and parents were consistent in their identification of stressors that fell into each of the five domains. While supporting statements for each identified domain of stressors are provided in Table 2, following is a brief overview of these results.

Indeed, children and their parents reported that various procedures associated with treatment (e.g., surgery, IV's, needles, and scans) caused distress:

Parent participant, child age 13, child gender male: "At first, in the ER, when they talked about surgery, he broke down and cried. Uhm, they talked about...they were explaining what they found through the uhm x-rays but they wanted to do a CT scan. He did cry. He cried really hard."

Perhaps related to procedural concerns, children and their parents reported that general uncertainty was a source of distress for children, which is logical given their unfamiliarity with the treatment process. Challenges stemming from disruption in sleep cycles and nutritional habits were also identified as problematic. Given the unfamiliar environment and procedures children are required to endure while hospitalized following injury, it is understandable that children may be negatively affected by changes in basic daily activities, such as sleep and nutritional habits.

Children and parents also reported that children experienced difficulty related to their confinement to the hospital. Whereas children are accustomed to attending school, spending time with friends, and being active, they are typically unable to participate such normal activities due to the necessity of remaining in the hospital for treatment for their injuries:

Parent participant, child age 11, child gender male: "He hates staying still and then this is killing him because he's bed-bound."

Finally, children may have concerns about transitioning from the hospital to home environment related to readiness or caring for the injury at home.

Feelings & Thoughts

Children were asked separately to identify how they were feeling and what they were thinking during and after their injury. Children reported feeling nervous, scared, and annoyed (see Table 3). Parents reported that their children felt afraid, upset, and agitated (see Table 3).

We are unable to describe children's or parents' descriptions of what children were thinking during and after the injury, because nearly all child and parent responses described feelings, regardless of the question that the interviewer asked (i.e., even if the interviewer clearly asked about thoughts):

Interviewer: "What types of things were going on in your head...were there any types of thoughts that were going through your head at that time?"

Child participant, age 12, female: "I'm not exactly sure what I felt, honestly, I remember it going pretty quickly so maybe I didn't have any time to feel anything, just that after I was really freaked out, and I started screaming and...started crying so it was pretty weird."

Parent responses were similar:

Interviewer: "What do you think he was thinking...what do you think was going on in his head?"

Parent participant, child age 11, child gender male: "[after the injury] I just know he was afraid of...he's always been afraid of having to go to the hospital, like I said, he has a great fear of needles."

Discussion

The results of this study provide insight into children's experiences of stressors and concerns related to injuries and subsequent medical treatment. Child-reported stressors included: procedural concerns, uncertainty, sleep and nutrition challenges, being confined to the hospital, and concerns related to going home after the hospital. Children discussed their injury experience in terms of their feelings rather than thoughts, despite being asked specifically about both thoughts and feelings. This pattern was also true for parents.

These results extend the literature on children's experiences with chronic illness to include children with injury (Jacob et al., 2006; Klosky et al., 2007). Consistent with studies of ill children, results suggest children facing medical treatment for injury are concerned about procedures, such as surgery, stitches, and needle sticks (Hildenbrand et al., 2011; Klosky et al., 2007). Being away from home and not well-informed about procedures can exacerbate distress (Carney et al., 2003). In light of these challenges, empirically supported strategies to help children manage stressors (e.g. distraction, relaxation) are warranted (Carlson, Broome & Vessey, 2000). Medical personnel may reduce distress by offering information and coping support during treatment of pediatric injury (Harbeck-Weber & McKee, 1995).

In addition to procedural concerns, children in this study expressed a desire to return to school to see friends, similar to children with cancer (Klosky et al., 2007). The relationship

between social support and positive psychosocial adjustment has been empirically supported in the pediatric oncology literature (Hildenbrand et al., 2011), and may operate similarly for children with injury. Studies of children with chronic illness suggest that a lack of communication between family members negatively influences a child's appraisals of stressors (Jobe-Shields et al., 2009) and adversely affects coping strategies during hospital-related treatments (Hildenbrand et al., 2011). Conversely, family cohesiveness, playtime, and social support can act as protective factors and reduce the risk of PTSS (Kazak et al., 2005). The results suggest that promoting support from natural support systems during children's inpatient stay (e.g. encouraging preferred activities, permitting visits from friends) may help promote a positive recovery environment and prevent PTSS.

Children and parents reported concerns about discharge from the hospital, including using crutches and readiness to return home, suggesting a need for adequate preparation. Individuals who do not demonstrate adequate readiness for discharge are more likely to have symptoms in the acute aftermath of discharge (Chung, 1995) and have more post-discharge medical visits (Henderson & Zernike, 2001). Providing psychoeducational materials may be important for promoting discharge readiness (Weiss & Piacentine, 2006).

In the aggregate, children and parents were consistent in their identification of stressors faced by children during treatment for injury. Empirical evidence indicates that parent-child agreement is more similar for health-related quality of life domains that reflect physical functioning than for social and emotional domains (Baxt, Kassam-Adams, Vivarelli-O'Neill, & Winston, 2004; Kassam-Adams & Winston, 2004). It may be that children and parents were consistent in their reports of stressors in the present study because many stressors are observable and occur while children are with their parents. Perhaps spending long hours together in the inpatient unit offers children and parents the opportunity for a better joint understanding of stressors the child is experiencing (Speyer, Herbinet, Vuillemin, Chastagner, & Briancon, 2009).

Consistent with existing literature which indicates that children experience a variety of negative emotions while hospitalized, children in this study reported feeling nervous, scared, annoyed, "freaked out," and upset (Carney et al., 2003; Coyne, 2006). Unlike previous findings, this study highlighted feelings of annoyance experienced by children receiving treatment after injury. This is the first study to our knowledge to report parent perceptions of children's feelings while hospitalized for injury. As a whole, parents indicated that children felt worried, agitated, upset, and tired, which parallels children's reports of their own feelings. These findings suggest that parent perceptions of children's emotions could serve as accurate and important indicators of distress, which may later have implications for children's adjustment.

Contrary to our expectations, children did not identify cognitions related to their injury and treatment experiences, even when specifically asked and prompted to do so. While the developmental literature demonstrates that children as young as seven and eight years old have a good understanding of the difference between thoughts and feelings (Flavell, Flavell, & Green, 2001), other research suggests that other factors, such as anxiety, can confound children's ability to distinguish between cognitions and emotions (Alfano, Beidel, & Turner,

2002). Perhaps less surprisingly, parents did not describe children's thoughts, even when specifically asked to do so. Parents may be unaware of their children's thinking and better able to observe emotional responses. The association between maladaptive trauma-related appraisals and PTSS (Trickey, Siddaway, Meiser-Stedman, Serpell, & Field, 2012), suggests that determining how children recognize and express thoughts about stressful and potentially traumatic experiences is crucial. An integral component of many treatments for traumatic stress involves helping children to elaborate their cognitions and recognizing how cognitions influence emotions and behaviors (Foa & Jaycox, 1999). Thus, the ability to articulate and reflect upon one's thoughts may be a key component to recovery.

Implications for Practice

Children describe experiencing injury- and treatment-related stressors and negative emotions during the peri-trauma period. These findings suggest that medical professionals should pay attention to children's subjective experiences regarding injury treatment, in addition to the physical injury itself. Gathering information from children during the peri-trauma period where preventative interventions may be most useful can guide clinical intervention (Stover, Hahn, Im, & Berkowitz, 2010). The observation that children and parents may more readily articulate children's feelings than their cognitions in response to open-ended interview questions has implications for medical or psycho-social clinicians who ask about thoughts and feelings in the course of their care of injured children with an eye towards assessing for potential posttraumatic stress reactions. When crucial to elicit cognitions in order to identify children at-risk for PTSS, a more structured approach such as a questionnaire may be needed. Findings from the current study also provided insight into stressors that could lead to PTSS, such as concern about medical procedures and unfamiliarity with treatment process, which are important to consider given that factors other than the injury event itself can lead to posttraumatic stress reactions. Children noted distress resulting from disruption in their typical daily activities (e.g., spending time with friends, nutrition habits, sleep cycle); encouraging return to these familiar aspects of life to the extent possible following injury may help promote a positive recovery environment and minimize the risk of developing PTSS. Future studies should evaluate the relationships of peri-trauma stressors and feelings to subsequent traumatic stress symptoms or other psychological reactions.

Limitations and Future Directions

This study extends previous research by examining children's and parents' descriptions of injury and treatment-related stressors during the peri-trauma period as well as children's and parents' expression of feelings and thoughts. However, several limitations of this study should be mentioned. A small number of children and their parents participated in the study, representing a wide range of ages and injury experiences. A larger study could examine whether sub-groups emerge based on the type or mechanism of injury, as well as if family factors influence perceived stressors. Though research assistants probed for thoughts when children or parents did not provide them, it is possible that children and parents may not have understood the question.

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Key Points

1. The results of this study provide insight into children's emotional reactions during the hospitalization period following unintentional injury. Stressors were classified into five domains, which included procedural concerns (e.g., surgery, stitches, needle sticks), feelings of uncertainty, challenges related to sleep and nutrition, feeling confined within the hospital environment, and discharge-related concerns (e.g., readiness to return home).
2. Despite being prompted to share feelings and thoughts, children and their parents had significant difficulty articulating children's thoughts. Reporting of feelings appeared to be more salient in the peri-trauma period, which is an important consideration when implementing early interventions to promote psychosocial well-being.
3. Information gathered regarding stressors children and parents report in the peri-trauma period of child injury is useful to inform early intervention strategies. Based on the results of this study, medical providers may consider the following: provide coping strategies (e.g., distraction, relaxation) to assist children through stressful and unfamiliar procedures, encourage frequent contact with natural support systems (e.g., visits from friends and family, encouraging preferred activities), and offer psychoeducational materials to facilitate a smooth transition to the home environment.

Table 1

Participant characteristics

Child age	Child gender	Child race	Description of injury	Cause of injury
13	Male	Black	Mandible fracture	Assaulted
13	Male	White	Hip, leg, and pelvis fractures	Hit by a car
14	Female	White	Clavicle fracture	Fell while skiing
12	female	White	Monitoring for possible internal injury	Fell from horse
13	Male	Black	<i>Information not available</i>	Assaulted
9	Female	Black	Leg fracture	Hit by car
8	Male	White	Laceration of pancreas	Fell while riding bike
16	Male	Black	Leg fracture	Fell while playing basketball
8	Male	White	Mandible fracture	Fell while riding bike
11	Male	Black	Patella tear	Fell down stairs

Table 2

Children's hospital experiences after injury

	Reporter	Sample Responses
Procedural concerns	Child (male, age 13)	[in response to thoughts about upcoming surgery] "Well I'm not scared cause they said I'm not going to feel anything... They said they were gonna put anesthesia... and I was like 'alright'."
	Parent (female child, age 12)	"Yeah, I think... she felt the trauma of it and not as much the worry of it afterwards. You know, it was more the experience of coming to the hospital... and how long it took... and the discomfort of the IV's... she was really worried about needles and stuff like that, but she took it in stride."
Uncertainty	Child (male, age 16)	"Because I never had surgery before so I didn't know what the procedure was going to be like and once they told me they would put me asleep I calmed down a little..."
	Parent (female child, age 9)	"...this was the first time she got hurt so she didn't understand what they were doing. She was asking a whole bunch of questions and made sure of everything they were doing."
Sleep and nutrition challenges	Child (male, age 13)	"I've been having a lot of problems since I've been here at [the hospital]. I'm hardly sleeping, I'm not eating as much as I used to... I'm not drinking like I'm supposed to. I'm just like all messed up."
	Parent (male child, age 8)	"The only thing he's saying is he's extremely thirsty, so he's still understanding that he can't drink - he can't eat or drink anything for still a couple of days."
Confined to the hospital	Child (male, age 8)	"[in response to thoughts about being in hospital] "... when I can go back to school and see my friends again?"
	Parent (female child, age 14)	"I mean, she was totally bored too you know but as long as somebody was there to distract her, somebody different you know, she already got a lot of presents and she really liked that."
Concerns related to home preparation	Child (male, age 16)	[in response to question about current worries] "Just moving around with the crutches, cause after today it seems like it's going to be painful."
	Parent (male child, age 11)	"He said 'I just don't think I'm ready, mom. I don't think I'm ready.' I said, well they're going to make sure you're ready before they send you home, so he's afraid."

Table 3

Children's feelings about the hospital experience

Reporter	Sample Responses
Child (female, age 9)	[in response to what she was doing to cope in the ambulance] "I was just nervous and didn't know what to do."
Child (male, age 13)	[in response to thoughts about upcoming surgery] "Well I'm not scared cause they said I'm not going to feel anything. I was scared at first, but I'm not now."
Child (female, age 12)	"But yesterday [while waiting for medical treatment immediately following injury] I was annoyed that I was like sitting in a chair for a while and I couldn't move and I had that collar on..."
Child (male, age 13)	"I'm just really freaked out about all the fractures and stuff."
Child (male, age 13)	"Yeah but knowing, being stuck knowing that I am scared to go home is making me upset."
Parent (child male, age 8)	"Well, he was worried about the stitches because his brother has had stitches in his lip and he told him it burned. So, he was worried about that, and he kept saying 'Am I going to have surgery?'..."
Parent (child male, age 11)	"He's awake now, but I know he's a little more agitated. He couldn't sleep through the night once they told him he might be going home. He's just antsy. He didn't sleep pretty much at all last night."
Parent (child female, age 9)	"She's a little bit better now than she was. She was upset and she didn't know what was going on, but this was the first time she got hurt so she didn't understand what they were doing."
Parent (child female, age 14)	"She's been getting agitated and I don't know if that's because of the medication or if it's a combination you know but she has been getting very upset that she is dizzy or is nauseous."
Parent (child male, age 13)	"I think he wants to go home. I think he's tired, you know. But he's not. I mean I don't think he's putting any effort into the whole physical therapy thing. Although I did see him, he almost passed out in there, so it might just be that it's... the whole standing thing has really started to pain him, you know."