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Original Research Article

Parent–Child Injury Prevention Conversations Following a Trip to the Emergency Department

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Abstract

Objectives The goal of the study was to examine how parents use conversation to promote the internalization of safety values after their child has been seriously injured. **Methods** Parent interviews detailing postinjury conversations were coded for strategies mentioned to prevent injuries in the future and information about circumstances surrounding the injury. **Results** Logistic regression analyses revealed that parents were more likely to discuss why an activity was dangerous with older than younger children, and were more likely to urge daughters than sons to be more careful in the future. Injuries resulting from the presence of environmental hazards predicted parents telling children to be more careful in the future. Having others involved predicted parents urging children not to engage in the behavior again. **Conclusions** Findings suggest that parents modulated strategies according to age, gender, and injury circumstances to maximize the likelihood that children would behave differently in the future.

Key words: injury prevention; parent–child communication; unintentional childhood injury.

Introduction

Unintentional childhood injuries are a major public health problem in the United States and around the world. Clearly, preventing unintentional childhood injuries is an important concern for researchers and practitioners alike. In 2010, nearly 3 million U.S. children aged ≤17 years sustained unintentional injuries, both fatal and nonfatal (National Center for Injury Prevention and Control [NCIPC], 2010). Unintentional childhood injuries also exact a heavy toll in medical costs. In 2005 alone, unintentional injuries in children aged 3–16 years totaled an estimated 3.8 billion dollars in emergency department medical costs (NCIPC, 2010). Much of the work thus far on preventing unintentional childhood injuries has focused on engineering safer environments or promoting safety education (Jones, Kazdin, & Haney, 1981; Retting, Ferguson, & McCartt, 2003). Parents can also play an important role in reducing the likelihood of injury through close supervision of children's activities (Morrongiello, 2005) or by providing rules for safe behavior (e.g., never play with matches; Gärling & Gärling, 1995; Morrongiello, Widdifield, Munroe, & Zdzieborski, 2014). Recent work suggests that parent–child conversations about safety may also play a role in preventing unintentional childhood injuries, serving as an important mechanism for socializing safety values in children (O'Neal & Plumert, 2014). These conversations can be either proactive (before the child engages in an unsafe activity) or reactive (after the child has engaged in an unsafe activity). Here, we assess reactive conversations about safety by examining how parents talk to their children about safety in the aftermath of a serious injury requiring a trip to the emergency department.

Parent–Child Conversations as a Mechanism of Internalization of Safety Values

Parental supervision is an important method for preventing childhood injuries (Peterson & Stern, 1997). Early in development, parents rely on direct supervision to minimize unintentional injury risk in children. Beginning at age 2 years, however, parental supervision begins to decline as children become more independent (Gärling & Gärling, 1995; Morrongiello, Corbett, McCourt, & Johnston, 2006). As a result, children must take on more responsibility for regulating their own behavior to avoid injury. This poses a unique problem for parents. They must devise a way to transfer responsibility for the regulation of safe behavior from themselves to their children.

According to Vygotsky's (1978) sociocultural theory of development, the internalization of shared social interactions paves the way to self-regulation of behavior and thinking. These interactions can be described as a transfer of knowledge and skills from older, more experienced individuals to younger, less experienced individuals. This transfer works best when targeted to a child's zone of proximal development, or the distance between what a child is able to do independently and what he or she is able to achieve with assistance from a more knowledgeable individual. According to Vygotsky, more experienced individuals use scaffolding (e.g., providing verbal guidance about problems or dividing the task into smaller parts) to help less experienced individuals acquire new knowledge and skills. Importantly, the back and forth of parent–child exchanges also involves input from the child, allowing parents to determine the child's current developmental level and tailor their message accordingly (Vygotsky, 1978; Rogoff, 1990). On achieving the desired goal, the guidance received through the social interaction becomes internalized and is available for future independent problem solving.

Arguably, the most important component of any social interaction is language. Vygotsky (1978) saw language as one of many psychological tools with which we are able to regulate behavior, structure thinking, and solve problems. As young children internalize parental guidance through social interactions, they often use private speech to regulate behavior and solve problems (e.g., saying to themselves, "Don't touch, hot!"). Further along in development, private speech is turned inward, transitioning from being spoken aloud to becoming an internal, silent monologue. In a context where parents are teaching children about safety, children likely internalize parent–child safety conversations about navigation of risky situations, ultimately becoming a guiding voice for future risky situations. For example, imagine that a child must cross the street to get to a friend's house. As a consequence of hearing his or her father point out many times that you should look both ways for cars when crossing streets, the child may approach the roadway and think, "OK, I should look both ways for cars in the road before crossing."

Research in other areas such as the socialization of moral values has shown that parent–child conversations are an important mechanism for internalizing parental values and enhancing social skills. In a classic study, Hoffman and Saltzstein (1967) studied how the type of discipline used by parents was related to the internalization of moral values in a group of 7th graders. They found that parents who linked children's negative actions (e.g., hitting another child) with their consequences (e.g., hurting the child's feelings, disappointing their parents) via inductive discipline had children who were ranked higher on moral judgments and guilt. In more recent work, Laible and Thompson (2002) found that disagreements arising during conversations were important for teaching 30-month-old children social values. They elicited disagreements between mothers and children in the context of performing everyday activities (e.g., cleanup and snack time) and in recollections of past misbehavior (e.g., taking another child's toy). They found that children displayed better emotional understanding and behavioral internalization 6 months later when their mothers justified their own position, were willing to compromise, and settled the disagreement in their favor. Together, this work indicates that parent–child conversations are an important mechanism for transferring responsibility for regulating behavior from parent to child.

Parent–child conversations about safety may also play an important role in the socialization of safety values in children. In particular, discussions about safety that occur either proactively or reactively can be internalized and may help children learn to identify dangers and anticipate consequences when they navigate the environment independently. Proactive parent–child conversations about safety include instances when parents talk with children before engagement in a potentially dangerous activity. Reactive parent–child conversations occur when parents talk to children about safety after engagement in an activity that has resulted in an actual injury or where the risk of injury was high. Although these conversations likely happen frequently in real life, little is known about the nature of these conversations because they are difficult to capture in real-world settings.

Recently, O'Neal and Plumert (2014) devised a laboratory task to elicit proactive parent–child conversations about safety. Mothers and their 8- and 10-year-old children discussed and rated the safety of a set of 12 photographs depicting a child engaged in various physical activities. They found that mothers justified their rating choices by referencing dangerous

features of the situation (e.g., "The eye of that stove is hot.") and the potential outcomes that might result (e.g., "He could burn himself."). They also found that dyads disagreed about the ratings on approximately a third of the trials. However, mothers brought children around to their way of thinking in almost all of these instances. These findings suggest that mothers may work to promote the internalization of safety values by making a causal connection between dangerous features and their potential consequences, particularly in cases of disagreement about safety.

Role of Age, Gender, and Injury Circumstances in Parent–Child Safety Conversations

To what extent do parents tailor safety conversations according to the child's age and gender, or the circumstances surrounding the injury? Over the course of development, children's cognitive abilities undergo substantial change. In fact, injury risk in younger children has often been tied to immature cognitive skills (Barton & Schwebel, 2007; Plumert, 1995). For example, Plumert (1995) and Plumert and Schwebel (1997) found that 6- and 8-year-olds overestimated their physical abilities relative to adults, and that 6-year-olds who exhibited greater overestimation of their physical abilities had experienced significantly more injuries requiring medical attention. Although O'Neal and Plumert (2014) found no differences in how mothers talked to their 8- and 10-year-old children about safety, a study by Morrongiello et al. (2014) of how parents teach their 2- and 3-year-old children about home safety rules showed that parents taught older children more rules than younger children. Based on these findings, we might expect that the age of the child impacts conversations about safety, particularly over early to late childhood. For example, parents may be more likely to provide older than younger children with causal explanations about why a particular activity is dangerous.

Analysis of gender differences in childhood unintentional injury consistently shows that males are at higher risk than females (Danseco, Miller, & Spicer, 2000: Matheny, 1988: Rivara, Bergman, LoGerfo, & Weiss, 1982). This is often attributed to boys' impulsive behavior, willingness to approach hazards, and their beliefs that injuries are due to bad luck, as well as societal expectations that boys should take more risks (Barton & Schwebel, 2007; Morrongiello, 1997; Morrongiello & Dawber, 1998; Morrongiello & Rennie, 1998). Studies also suggest that parents' teaching strategies differ for boys and girls. Morrongiello and Dawber (1999) found that when teaching their 2- and 4-year-old children to climb down a pole on a playground, mothers and fathers used more directives with sons and provided explanations to daughters three times more often, suggesting that parents thought girls needed more guidance about how to perform the activity than did boys. These studies suggest that parent–child conversations about safety may differ depending on the gender of the child.

To date, no research has examined how the circumstances that led to the injury might influence the focus of parent–child conversations about injury. The fact that parents almost always query children about how the injury happened suggests that they may be seeking information that will be helpful for preventing the injury in the future. Although such information may lead parents to make environmental modifications (e.g., removing dangerous objects from within reach), they may also use such information to modulate their conversations about preventing the injury in the future. For example, they may be more likely to tell children to use caution in cases where they felt that behavior change (e.g., slowing down) could have prevented the injury and less likely in instances where they felt there was little that could have been done to stop the injury from occurring (e.g., injuries caused by others).

The Present Investigation

The current study examined parents' recollections of conversations about safety after their child had sustained an injury that required a trip to the emergency department. As such, this study provided a rare glimpse into reactive parent–child conversations about safety after children had sustained a serious injury. Our goals were to (1) detail what strategies parents used to teach their children about preventing the injury in the future, and (2) examine whether age, gender, and the circumstances surrounding the injury were predictive of the prevention strategies parents discussed with their children. Parents were interviewed in their home after the trip to the emergency department. Coding schemes were developed to capture information about parent–child safety conversations from the interview transcripts. We expected that parents would report a variety of strategies for teaching children about preventing similar injuries in the future, such as telling children to stop engaging in the risky behaviors that lead to their injuries or teaching children alternative ways of navigating the same risky situations in the future. Additionally, we hypothesized that parents' use of particular prevention strategies would differ as a function of age and gender, with parents' being more likely to teach older children why a particular situation was dangerous and telling young children to stop the behavior altogether. Finally, we hypothesized that the circumstances surrounding the injury might also influence the prevention strategies parents used. For example, parents might tell children to be more careful in instances where an environmental hazard led to the injury.

Methods

Participants

As part of a larger study on children's episodic memory about salient events (Peterson, 2011), a convenience sample of 87 children and parents was recruited from a hospital emergency room (ER) following the child's injury event. A research assistant approached families in the ER if the child appeared to have sustained a non-life-threatening injury (most were lacerations and broken bones), describing the study and giving them a written description to take home. Of those approached for recruitment, 80% agreed to participate in the study. Interested families were contacted a few days after being approached in the ER to set up a home interview at a convenient time for the family. Interviews were conducted on average 17.85 days after initial contact in the ER ($SD = 12.97$). Informed consent was obtained at the home interview, which was conducted by trained research assistants. Families received no compensation for their participation. The institutional review board at the University of Iowa provided approval for the study.

The children were between 3 and 16 years of age ($M = 10.22$ years, $SD = 3.18$, 40 male) and drawn form a predominantly Caucasian population (98%) in Newfoundland, Canada. Injuries fell into the following categories based on Center for Disease Control and Prevention (CDC) coding (NCIPC, 2007): (1) falls (51.7%), (2) struck by/against (26.4%), (3) pedal cyclist (10.3%), (4) cut/pierce (6.9%), (5) motor vehicle pedestrian (1.1%), (6) dog bite (1.1%), and (7) other unspecified (2.3%).

Interview Procedure

Using a structured interview, a trained researcher interviewed parents and children in their homes. These interviews were conducted primarily with mothers ($N = 78$), but also included six fathers, two mother–father dyads, and one grandmother. During the in-home interview, which took approximately 45 min, the researcher asked parents to describe how the injury happened, what happened at the hospital, and to recall any conversation they had with the child about the injury. Children were separately asked to describe how the injury happened and what happened at the hospital. When asking parents to recall the conversations they had with their child about the injury, the researcher asked (1) "Did you have a 'discussion' or a 'talk' with (child's name) about the accident at some point after you left the Janeway and got home?" and (2) "Did you talk about how he/she might prevent it from happening in the future?"

Measures

Interviews were transcribed verbatim from the recorded interview for coding. Coding schemes were developed to provide information about the specifics of the injury and the injury discussion recollections.

Coding of the Circumstances Surrounding the Injury

Based on the information provided by both parents and children about how the injury happened, we developed a coding scheme to capture the proximal factors contributing to the injury. These included whether the injury involved excessive speed (i.e., greater than expected speed when performing a given activity, such as biking at top speed or running through the woods), heights, environmental hazards (e.g., tripping over a crack in the sidewalk), other people, and the use of mechanical devices (e.g., rollerblading or bike riding). Note that these categories were not mutually exclusive; circumstances surrounding the injury could fall into multiple categories (e.g., speed and the use of a mechanical device).

Coding of the Parent–Child Conversations

Our primary objective was to provide information about the content of parent–child conversations about the injury event, using parent responses to the two specific questions regarding parent–child discussions about the injury. First, we determined whether participants reported having a conversation with their child concerning the injury. Second, of the parents who reported having a conversation with their child, we coded the strategies they reported talking about with the child for preventing the injury in the future. These strategies fell into four basic categories: (1) telling the child not to engage in the injury-causing behavior again, (2) telling the child to be more careful in the future, (3) providing the child with an alternative strategy for safely performing the activity, and (4) explaining why the behavior was dangerous in the first place. Like circumstances surrounding the injury, parents' use of prevention strategies was not mutually exclusive. Table I provides examples of the prevention strategies.

Interrater Reliability

A primary coder coded all transcripts for the circumstances surrounding the injury and parent–child conversations about the injury. Interrater reliabilities between the primary coder and two other coders (one for each coding scheme) were calculated on 25 participants (30% of the sample) using Cohen's kappa. Kappas ranged between $K = .66$ and 1.00 ($M = .80$) for the coding categories detailing the circumstances surrounding the injury, and between $K = .60$ and 1.00 ($M = .92$) for the coding categories detailing strategies for preventing the injury in the future. Instances where coders disagreed were resolved in favor of the primary coder.

Statistical Analysis

Logistic regression analyses were conducted to predict parents' use of specific prevention strategies with their

Table I. Examples of Prevention Strategies Reported by Parents

Strategy	Activity	Example
Alternative strategy	Rollerblading	"Um, the main thing … was to slow down."
Be more careful	Throwing bricks in the air	"He needs to be more careful."
Stop engaging in activity	Jumping on the trampoline	"Well, we had that conversation when I was in the car. Also while she hurt her shoulder last year on the trampoline and now she hurt her thumb. So I said that's probably it for the trampoline. No more trampolines."
Why the activity was dangerous	Doing bike tricks on a ramp	"When it's raining or wet the boards are going to be slippery."

Note. Prevention strategies reported by parents were not mutually exclusive.

Table II. Logistic Regression Analyses of Age, Gender, and Injury Circumstances as Predictors of Parent Prevention Strategies ($N = 61$)

	Parent prevention strategies							
	Alternative strategy		Be more careful		Stop behavior		Why behavior is dangerous	
Predictors	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age	0.97	(0.83–1.13)	0.97	(0.82–1.14)	0.95	(0.81–1.11)	1.41**	(1.14–1.75)**
Gender[a]	0.61	(0.59–4.52)	0.25*	(0.08–0.79)*	1.48	(0.52–4.21)	0.31	(0.31–3.49)
Circumstances of injury								
Others involved	1.11	(0.36–3.87)	0.50	(0.15–1.69)	3.70*	(1.01–12.43)*	0.92	(0.29–2.89)
Mediated activity	4.50	(0.83–24.49)	0.17	(0.03–1.02)	4.68	(0.89–24.71)	1.41	(0.31–6.30)
Speed	0.82	(0.24–2.81)	2.32	(0.63–8.58)	0.33	(0.08–1.31)	1.68	(0.47–6.05)
Height	0.23	(0.05–1.02)	0.92	(0.20–4.17)	1.19	(0.31–4.63)	1.39	(0.36–5.31)
Environmental hazard	0.47	(0.14–1.63)	4.10**	(1.16–14.45)**	0.61	(0.16–2.37)	1.82	(0.53–6.23)

Note. Injury circumstances are reported after controlling for age and gender.
[a]Females = 0; males = 1.
**$p < .001$; *$p < .05$.

children (see Table II). For each prevention strategy, we constructed two models. The first model used age and gender as predictors, as our main hypotheses were focused on these two variables. A second, exploratory model was also constructed for each prevention strategy using the five injury circumstance variables, using age and gender as covariates. Below, we report the two sets of regression analyses for each of the four prevention strategies.

Results

Parental Strategies for Preventing the Injury in the Future

Seventy percent of parents (61 of 87) reported talking with the child about how he/she might prevent the injury from happening in the future. Among those parents who discussed prevention, providing the child with an alternative strategy (54%) was the most common prevention strategy, followed by telling children to be more careful (38%), urging them not to engage in the behavior again (38%), and explaining why the behavior was dangerous (33%). It should be noted that some parents reported using more than one of the above-mentioned strategies when discussing prevention with their child. Figure 1 depicts a Venn diagram showing the percentage of parents who used each strategy in isolation and in combination with another strategy. About half of parents reported using only a single strategy, whereas the other half used two or more strategies in combination.

Circumstances Surrounding the Injury

Descriptive statistics of the circumstances surrounding the injury showed that moving at an excessive speed and having another person involved in causing the injury were the most common contributing factors, followed by presence of an environmental hazard, heights, and the activity involving a mechanical device such as rollerblades or a skateboard. Detailed information about the prevalence of these contributing circumstances can be found in Table III.

Moderators of Parental Prevention Strategies

Providing an Alternative Strategy for the Future

As noted above, parents frequently reported talking with their children about using an alternative strategy in the future. The first model with age and gender as predictors was not significant, χ^2 (2) = 1.09, $p = .58$. The likelihood of parents providing an alternative strategy for safely performing the activity in the future did not vary significantly by age (odds ratio

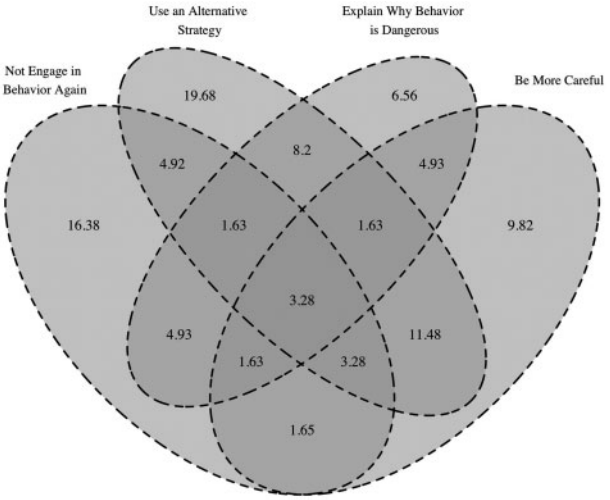

Figure 1. Venn diagram depicting the percentage of parents using each prevention strategy in isolation and in combination with other strategies. *Note.* Areas in diagram are not to scale.

[OR] = 0.97; 95% CI [confidence interval] = 0.83–1.13) or gender (OR = 1.63; 95% CI = 0.56–4.52). Likewise, the second model with the five circumstance variables as predictors failed to reach significance, χ^2 (5) = 7.47, p = .19.

Be More Careful in the Future

Parents also reported cautioning their children to be more careful in the future. The first model with age and gender as predictors was significant, χ^2 (2) = 6.19, p = .05. Age was not a significant predictor (OR = 0.97; 95% CI = 0.82–1.14) of this strategy. However, gender was a significant predictor, with parents being almost four times more likely to tell girls than boys to be more careful when performing the activity in the future (OR = 3.95[1]; 95% CI = 1.26–12.35). The second model with the injury circumstance variables as predictors was also significant, χ^2 (5) = 12.85, p = .03. Parents were four times more likely to tell children to be more careful in the future when an environmental hazard was involved in the injury (OR = 4.10; 95% CI = 1.16–14.45).

Not to Engage in the Activity Again

Another common parental prevention strategy was telling their child not to engage in the activity again. The first model with age and gender as predictors did not reach significance, χ^2 (2) = .99, p = .61. The likelihood of parents telling children not to engage in the activity again did not vary significantly with age (OR = 0.95; 95% CI = 0.81–1.11) or gender (OR = 1.48; 95% CI = 0.52–4.21). A second model with the injury circumstance variables as predictors trended toward significance, χ^2 (5) = 10.29, p = .07. Having others involved in causing the injury emerged as a significant predictor (OR = 3.70; 95% CI = 1.10–12.43), with parents being almost four times more likely to urge children to stop engaging in the behavior in the future if others were involved in causing the injury.

[1] The reported OR has been inverted to better reflect the relationship being reported.

Table III. Percentage of Cases Involving Each Type of Injury Circumstance (N = 61)

Circumstances of injury	% (N) of cases
Excessive speed	54 (33)
Others involved in causing injury	44 (27)
Environmental hazard present	27 (17)
Mediation by mechanical device	26 (16)
Heights	25 (15)

Note. Circumstances surrounding the injury were not mutually exclusive.

Why the Activity Was Dangerous

Finally, parents also reported talking with their children about why the activity was dangerous. The first model with child age and gender as predictors was significant, χ^2 (2) = 13.12, p = .001. Importantly, age was a significant predictor of whether parents discussed why the activity was dangerous, with parents using this strategy 1.5 times more often with each increasing year of age (OR = 1.41; 95% CI = 1.14–1.75). Child gender (OR = 1.05; 95% CI = 0.31–3.49) was not a significant predictor of this strategy. A second model with the injury circumstance variables as predictors was not significant, χ^2 (5) = 2.97, p = .70, indicating that explanations about why the activity was dangerous did not differ depending on the circumstances of the injury.

Discussion

The goal of this investigation was to better understand how parents use conversations about safety after a serious injury has occurred to promote the internalization of safety values in their children. To this end, we examined parents' recollections of conversations they had with their child about real-world injuries requiring medical treatment. Following the child's treatment in the emergency department, parents were interviewed about the injury and asked questions about any conversation they had pertaining to the injury. Seventy percent of parents in our sample reported having a conversation about preventing the injury from happening again. These parents frequently reported discussing using an alternative strategy in the future (54%) with their child, regardless of age or gender. Interestingly, parents were much more likely to discuss why an activity was dangerous as children grew older

and were significantly more likely to tell daughters than sons to be more careful in the future. We also found that some aspects of the circumstances surrounding the injury were predictive of the prevention strategies that parents used. These included telling children to be more careful in the future when the presence of environmental hazards contributed to the injury and telling children to stop engaging in the injury-causing behavior when others were involved in causing the injury.

We hypothesized that parents' use of prevention strategies would vary as a function of their child's age and gender. The fact that parents were much more likely to discuss why an activity was dangerous as children grew older suggests that parents may be making causal connections between actions and their outcomes only when they feel children are capable of understanding such information. For example, when a child in our sample required stitches after hitting himself in the leg with an axe, the mother explained why the activity was dangerous: "We talked about the heaviness of the axe head and how it wants to swing naturally in your hand so you can't carry it that way." Making causal connections between actions and outcomes has previously been identified as one way in which parents teach their children about science (Crowley Callanan, Tenenbaum, & Allen, 2001). For example, when visiting an exhibit about electricity, parents often made a causal connection by pointing out that turning a crank (action) resulted in an increased output of electricity (outcome). Making causal connections between actions and their outcomes is important for teaching children how to collect contextually important evidence and how to construct theories using that evidence (Crowley, Callanan, & Jipson, et al., 2001) in a scientific setting. Importantly, pointing out causal connections has been shown to be predictive of children's use of causal language when judging probable and improbable events (Nolan-Reyes, Callanan, & Haigh, 2015) and could be beneficial in socializing safety values in children because they help children understand the mechanisms that link behavior to injury.

Parents also differed in their suggestions for children to be more careful in the future, with parents being nearly four times more likely to convey this suggestion to daughters than to sons. The current findings on gender differences parallel those seen in the injury prevention literature. In particular, parents often expect and encourage boys to take more risks than girls (Morrongiello & Dawber, 1999). Frequently encouraging girls to be careful in the future may contribute to lesser injury risk in females. Conversely, the absence of this cautionary advice may contribute to increased injury risk in boys. The downside is that girls may be less likely than boys to try challenging physical activities, which are important for developing new skills (Plumert, 1995).

In addition to hypothesized age and gender differences in parent–child conversations, we also explored whether the circumstances surrounding the injury would influence parents' use of prevention strategies. We found that parents were more likely to tell children to be more careful in the future when environmental hazards were present. We speculate that telling children to be more careful could be valuable in that it may get children to survey their surroundings for potential environmental hazards, thereby allowing them to better identify what could lead to an injurious outcome. However, telling a child to be careful is vague and no guarantee that it will generalize to other situations. Finally, although the overall model was marginally significant, having others involved in causing the injury emerged as a significant predictor of parents' urging their child not to engage in the injury-causing behavior again. While not clear, this could be owing to the fact that children often engaged in ill-advised activities when they were with others. The following example from a child who was injured while riding down a hill in a shopping cart with a friend demonstrates a parent urging a child to not engage in an injury-causing behavior that involved another child:

> Interviewer: Okay, all right. Did you talk to her about how she might prevent it from happening in the future?
>
> Mother: Yes, I told her not to be in the shopping cart.

Past behavioral research has primarily focused on relating patterns of behavior to increased injury risk, citing temperament, parenting, and development as contributing factors (Morrongiello, Corbett, McCourt, & Johnston, 2006; Schwebel & Barton, 2005). However, behavioral studies have done little to detail the circumstances surrounding actual childhood injuries. By detailing the circumstances surrounding a wide range of childhood injuries, we can gain a better understanding of the typical behaviors that children engage in that are most likely to lead to injury. For example, excessive speed was involved in 55% of injuries and other people (typically peers or siblings) played a part in causing 45% of injuries. Armed with this knowledge, researchers can further examine the cognitive or social processes that lead children to engage in such high-risk behaviors. Additionally, detailed information about the circumstances surrounding the injuries in this sample proved useful in predicting the prevention strategies used by parents. This suggests that parents are tailoring their conversations based on the circumstances that led to the injury to maximize the likelihood that children will behave differently in the future.

There were several limitations to this study. First, parents' recall of injury conversations could be biased or simply inaccurate. Problems with recall of events has been widely documented in epidemiology, psychology, and research on specific injury types

(Coughlin, 1990; Landen & Hendricks, 1974; Schwebel, Binder, & Plumert, 2002). Specifically, parents may erroneously report elements of the conversation based on what they thought was socially desirable to say to their children, rather than what they said to their child. A related limitation is that the period between the injury and the interview was long for some of the participants. A longer period between the event and recall can lead to less accuracy in recollections about injury events. Third, our sample was 55% female, a percentage that does not reflect the typical gender distribution of unintentional injuries. This gender distribution could be owing to families with daughters being more likely to participate or to boys sustaining more serious and life-threatening injuries, which would have excluded them from the study. Fourth, interrater reliabilities were low for two of the coded variables (one each from the circumstances surrounding injury and prevention strategies discussed), and disagreements were resolved in favor of the primary coder, which could lead to bias. Finally, a larger sample would better capture the circumstances surrounding the injury in children. Although we were able to detail the main categories of injury circumstances, the frequencies for some of the individual categories were relatively low. More information about the circumstances surrounding actual injuries (rare or common) would be useful for better understanding behavioral factors contributing to childhood unintentional injuries.

In closing, this study represents a first step in understanding how parents talk to children about safety after an injury resulting in a trip to the emergency department. As such, this study offers a rare glimpse into how parents talk to children after a serious injury has occurred. Parents are often a first line of defense against childhood injury and the conversations they have with their children regarding injury may play an important role in reducing future injury risk through the internalization of safety values. Ideally, parents will be able to have these conversations with their children before they have engaged in injury-causing behavior, but this is not always the case. Understanding the contribution of these postinjury conversations to the internalization of parental safety values and subsequent behavior change deserves further investigation. Future research should address the effectiveness and generalizability of these conversations in regard to changing injury risk behavior in children. Determining the effectiveness of the specific prevention strategies used in these conversations will allow researchers to tailor future interventions accordingly.

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