

**Applying a Parent-Child Relationship Framework to Explore Factors
Relevant to Safety During Pre-Adolescence**

by

Alexa L. Kane

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ABSTRACT

APPLYING A PARENT-CHILD RELATIONSHIP FRAMEWORK TO EXPLORE FACTORS RELEVANT TO SAFETY DURING PRE-ADOLESCENCE

Alexa L. Kane

University of Guelph, 2018

Advisor(s):

Dr. Barbara Morrongiello

Unintentional injury is the leading cause of death for children and adolescents, and while much research has examined how parents manage safety issues for young children, little is known about how they do so in the pre-adolescent years as demands for autonomy increase. The current study focused on youth in this transition stage (age 10 to 13 years), examining parent-child disagreements about safety, including how these are resolved and what factors impact these resolutions. Consistent with research in younger populations, sex differences emerged such that female children were more likely to spontaneously disclose safety issues to their parents than were males, and parents were more likely to attempt to discuss the issue and provide teaching to their female children. Relationship quality emerged as an important factor as well, particularly for male children, such that a positive parent-child relationship increased the likelihood of parental teaching in response to a safety event for boys only. Further, child characteristics (inhibitory control and risk taking propensity) were found to moderate the relationships between parental source of knowledge of safety-relevant events and subsequent methods of resolution. Implications for pre-adolescent safety and future research are discussed.

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Introduction

Historically, industrialized countries have made great advances to minimize child mortality due to infectious diseases, poor nutrition, and unsanitary conditions. Unintentional injury, however, has not declined to the same extent (World Health Organization, 2008). In Canada, as in most industrialized countries, injuries are the *leading* cause of death for children and adolescents beyond 1 year of age (Centers for Disease Control and Prevention, 2016), with an *injury* being a result of a behaviour x environment interaction that results in bodily harm, hurt or damage (Haddon & Baker, 1981). Interestingly, in recent years, the term *unintentional injury* has come to replace *accident* in the literature because the latter denotes a chance event that cannot be prevented, and research has shown that the majority of injuries to children *are* preventable (e.g., Bonilla-Escobar & Gutierrez, 2014; Canadian Paediatric Society, 2012). This realization has led to numerous calls for systematic study of the determinants of injury (e.g., Khambalia, Joshi, Brussoni, Raina, Morrongiello, and MacArthur, 2006; Pickett et al., 2005), including identification of relevant parenting strategies that impact children's safety (e.g., Ablewhite et al., 2015; Morrongiello, Klemencic, & Corbett, 2008; Schnitzer, Dowd, Kruse, & Morrongiello, 2015;).

Although most parents recognize that child safety is an important issue (e.g., Carver, Timperio, & Crawford, 2013; Little, 2014), maintaining children's safety poses some unique challenges for parents during pre-adolescence because during this developmental stage (grades 6 to 8, approximately 10 to 13 years) children demand, and it is appropriate to be granting, increased autonomy (i.e., allowing children more time without adult accompaniment and greater independence in decision making). Hence, parents must determine how to effectively balance granting increasing autonomy with maintaining children's safety. Although there is extensive knowledge about how parents become aware of safety issues and manage these for young children (e.g., Morrongiello, Ondejko, & Littlejohn, 2004b; Morrongiello, Widdifield, Munroe, & Zdzieborski, 2014;), for pre-adolescent children there is little known about these issues. The proposed research will address these gaps in knowledge.

This research takes a unique approach that involves studying child safety within a parent-child relationship framework, incorporating both child and parent perspectives, and examining the inter-relations between them. By exploring factors that influence parents' awareness of safety

issues affecting their pre-adolescent children and how they react to this awareness, this study addressed several **specific aims**:

Aim 1. Does the quality of the parent-child relationship (i.e., extent of trust, communication and warmth) predict parental awareness of parent-child disagreements on specific safety rules (hereafter referred to as “safety disagreements”), and/or parent reaction to these disagreements and/or how these are resolved?

Aim 2. Does the way that parents become aware of safety issues in the lives of their children predict how these issues are subsequently handled (i.e., parental reactions and resolutions)?

Aim 3. Do child characteristics (i.e., inhibitory control, risk taking propensity) predict the ways that parents become aware of, react to, and ultimately resolve safety relevant issues in the lives of their children? Further, do child characteristics moderate the relationships between how parents become aware of safety issues relevant to their children, and how these are subsequently handled?

The following section provides a review of the literature that is relevant to the current research with pre-adolescents. Specifically, research on child disclosure and the parent-child relationship will be considered, followed by literature on various safety-relevant parenting practices.

Child Disclosure and Parent-Child Relationship Quality

Child disclosure gains in importance as children age. In early childhood, children spend the majority of their time under the direct supervision of adults (Morrongiello, Corbett, McCourt, & Johnston, 2006). As a result, caregivers’ can relatively easily become aware of children’s actions (Morrongiello & Corbett, 2016; Morrongiello, Ondejko & Littlejohn, 2004a, b). As children age and develop, however, they are increasingly supervised from a distance (e.g., periodic checking in) and the amount of time they are completely unsupervised (i.e., caregiver has not checked on the child and is not certain of their location and/or activity for at least 10 minutes) increases throughout school, as children spend more time with peers and away from their parents during the typical course of the day (e.g., Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Shanon, Bashaw, Lewis, Feldman, 1992). Thus, increasingly as children develop parents must rely more heavily on their children’s willingness to disclose information about their activities and

behaviour. In fact, child disclosure has been found to be the most important source of parental knowledge in early adolescence (Stattin & Kerr, 2000); without such disclosure, parent beliefs about child safety practices have been found to be highly discrepant from actual child behaviour (e.g., Ehrlich, Longhi, Vaughan, & Rockwell, 2001; Reidler & Swenson, 2012). Further, greater parental knowledge has consistently been related to decreased adolescent delinquency and problem behaviours (e.g., Lahey, Van Hulle, D'Onofrio, Rodgers, & Waldman, 2008). Given this, understanding the reasons why youth choose to disclose is important.

While some research has considered youth disclosure and intentional non-disclosure to be extremes on a single continuum (e.g., Stattin & Kerr, 2000), increasingly it has become clear that these are two related but distinct constructs (e.g., Smetana, Metzger, Gettman, & Campione-Barr, 2006). Indeed, authors Frijns, Keijsers, Branje, and Meeus, (2010) speak about the difference between non-disclosure (presumably, the opposite of disclosure), which is unintentional and effortless, and secrecy, which requires conscious effort and a clear decision to conceal information. This research also suggests that it is secrecy, rather than non-disclosure, that is the important factor to consider in understanding the link between parental knowledge and adolescent delinquency. A similar link has been reported for pre-adolescent children as well, such that child secrecy, but not disclosure, was predictive of children's problem behaviours (Almas, Grusec, & Tackett, 2011). Importantly, most of the research examining secrecy as looked at secret-keeping generally, without examining the possible differential impact of keeping secrets about more routine issues versus health-risk behaviours. Thus, the current research aimed to examine the reasons why youth choose to intentionally keep secrets from their parents specific to safety.

Research suggests that the degree to which youth disclose to their parents is closely tied to parent-child relationship quality (e.g., Reidler & Swenson, 2012). Adolescents are reported to disclose more when they have a positive relationship with their parents, characterized by high levels of trust (e.g., Smetana, Metzger, Gettman, & Campione-Barr, 2006), warmth and acceptance (e.g., Hamza & Willoughby, 2009; Hunter, Barber, Olsen, McNeely, & Bose, 2011), and an open communication style in which parents allow their youth to have their own opinions and ideas (e.g., Darling, Cumsille, Caldwell, & Dowdy, 2006). Relatedly, a major contributor to

adolescent secrecy is fear of negative emotional or behavioural consequences (e.g., Darling, Hames, & Cumsille, 2000).

While these findings highlight the importance of the parent-child relationship, all of these data come from research with adolescents. Thus, very little is known about pre-adolescent youth disclosure, and the importance of the parent-child relationship at these younger ages. In addition, research specific to youth disclosure about *injury-risk* behaviours is extremely limited. One study noted the youth tendency to avoid discussing “dangerous behaviours” with their parents (Guerrero & Afifi, 1995), and Marshall and colleagues (2005) found that adolescents sometimes consider the likelihood of an activity resulting in injury when deciding whether or not to disclose. Specifically, this study found that some adolescents were more likely to disclose their whereabouts to parents so that their parents would know where they were if an injury occurred, whereas others chose not to disclose in instances that they suspected their parents would see as risky, in order to avoid undue parental worry. However, most research in this area has looked at disclosure related to feelings/concerns, school performance, and general delinquency (e.g., Kerr, Stattin, & Trost, 1999). Finally, there is very little research examining parents’ beliefs about child disclosure, and how this compares to child-reported disclosure, although some research suggests that parents may overestimate the degree to which adolescents (Smetana et al., 2006) and pre-adolescents disclose (Abar, Jackson, Colby, & Barnett, 2015; Lippold, Greenberg, & Feinberg, 2011).

The current research will address these gaps in the literature, examining youth disclosure specific to safety issues and whether the parent-child relationship impacts this disclosure.

Parent Awareness of Safety Issues (Disagreements, Reactions, Resolution)

There is surprisingly little research on parent-child disagreements about safety issues, and virtually no research on how parents react to safety disagreements and how these disagreements are resolved. A few studies have examined children’s knowledge of safety rules (see Teaching section below), but for older children the issue is not so much knowledge of parent safety rules but whether they agree with the parent’s perspective on the safety issue. Youth agree in principle that parents should set safety rules (e.g., Darling, Cumsille, & Martinez, 2007; Smetana, Crean, & Campione-Barr, 2005); however, the extent of youth agreement with specific rules is a critical predictor of compliance (e.g., Jackson, 2002). This is important, because safety rules are only

effective in protecting youth to the extent that they are followed. To complicate matters, for a variety of reasons youth may choose not to disclose incidences of non-compliance to their parents, thus making it difficult for parents to assess the actual prevalence of safety disagreements (e.g., Darling et al., 2006).

Hence, gathering information about parent-child disagreements about safety issues will provide much needed knowledge about what safety issues lead to disagreements during pre-adolescence. Examining how parents become aware that they and their child disagree about a particular safety issue or rule, or that their child has violated a safety rule, as well as how parents react to these disagreements and how these disagreements are resolved, can provide important information for understanding children's reasons for disclosure/secretcy, as well as factors that impact parent's safety practices. This focus on the nature and scope of parent-child disagreements will provide important new information on parent-child communications about safety during this developmental stage.

Monitoring/Supervision

'Supervision', characterized by level of attention (i.e., watching or listening), readiness to intervene (i.e., within vs. out of reach of child), and continuity (i.e., constant vs. intermittent; Morrongiello, 2005) has been found to be important in protecting young children from injury (Barton & Schwebel, 2007; Morrongiello et al., 2006a, b;). Consistently, children who receive higher levels of supervision tend to take fewer risks and sustain fewer injuries in a variety of settings including the family home (e.g., Morrongiello, Ondejko, & Littlejohn, 2004b), in grocery stores (e.g., Harrell, 2003), and around bodies of water (e.g., Jensen, Williams, Thurman, & Keller, 1992). Research has generally shown that parents seem to be aware of the importance of close supervision at these early ages, and tend to act accordingly, allowing their children very little unsupervised time (e.g., Morrongiello et al., 2006b). However, child factors appear to be important in understanding parents' supervision decisions as well. For instance, Morrongiello and colleagues (2006b) found that parents adjusted their supervision according to the risk-taking tendencies of their children. Specifically, children who scored high on measures of impulsivity and general risk-taking tendencies – both of which have been found to relate to increased risk of injury (e.g., Cooper, Wood, Orcutt, & Albino, 2003; Morrongiello & Dawber, 2000) -- had parents who supervised more closely. In contrast, high scores on measures of inhibitory control

(i.e., the ability to inhibit inappropriate behaviour) – which has been identified as protective and predictive of fewer injuries (e.g., Barton & Schwebel, 2007; Schwebel, 2004) – were related to lower levels of supervision. This suggests that parents consider their child’s temperament when deciding on appropriate levels of supervision. Indeed, research with young children has demonstrated that this strategic decision-making about supervision is effective in protecting children from injury who may otherwise be at higher risk based on temperament (Morrongiello, Klemencic, & Corbett, 2008). Thus, it appears that in some cases, when parents are aware of their child’s temperamental characteristics and alter their supervision practices based on this awareness, they are more able to protect their children from unintentional injury.

However, the research in this area is far from consistent. While the finding that parents supervise high-risk children more closely makes intuitive sense, there is also evidence to the contrary; that is, that parents watch these children *less* closely. For example, Hagan and Kuebli (2007) found that parents of young children monitored more closely if they perceived their child to be *less* of a risk-taker. Similar results have been reported for school-aged children, with child general risk-taking tendencies related to less parental intervention in injury-risk behaviour (Morrongiello & Dawber, 2000). Further, mothers reported being more likely to take no action to prevent injury recurrence for children scoring high on measures of temperamental risk-taking (Morrongiello & Hogg, 2004). It has been suggested that parents of children who are temperamentally inclined to frequently take risks become ‘desensitized’ to these injury-risk behaviours, believing that injuries to these children cannot be prevented (e.g., Morrongiello & Kiriakou, 2004), and ultimately leading them to decreased supervision. Similarly, one study found that parents who were highly aware of the risk-taking tendencies of their school-age children had children who experienced *more* frequent injuries (Wells, Morrongiello, & Kane, 2012), suggesting that parents were not adjusting supervision practices based on child temperament, or that these adjustments were not effective with some children. Taken together, this research highlights the lack of clarity regarding how child factors impact parental supervision practices in early and middle childhood.

Despite this lack of consensus regarding the impact of child characteristics on parent supervision practices, the importance of these child factors is evident, even if the exact mechanism is unclear. In contrast, there is little research about the contribution of child

personality factors to parental supervision practices as children enter adolescence, which may in part be due to the decreased role that direct supervision plays as children age. Although watchfulness is especially important for the safety of young children, as children approach adolescence they become more independent and spend less time under the direct supervision of their parents (e.g., Borawski et al., 2003). During middle childhood, therefore, direct supervision gives way to parental ‘monitoring’ (i.e., tracking of a child’s activities and location from a distance or based on past knowledge, Dishion & McMahon, 1998). Typically monitoring has been measured by examining parental knowledge of a child’s whereabouts and activities (e.g., DiClemente et al., 2001). While this provides information about *what* parents know, it says nothing about *how* they come to know it, and therefore makes it impossible to determine whether parents are *actively* tracking their children’s behaviours (e.g., by soliciting information from their children or setting limits) in order to manage safety (Stattin & Kerr, 2000). While the research in this area is not consistent, some research has found that these active monitoring efforts independently predict decreased adolescent delinquency, even after controlling for parental knowledge (Lahey et al., 2008). Thus, it is important to understand how parents make decisions about active monitoring of their pre-adolescent children, and what factors impact these decisions. The current research will examine whether awareness of safety-threat information (e.g., child sustains an injury; parent-child disagreement about a safety issue) predicts active parental monitoring practices, and if child personality characteristics moderate this relationship.

Autonomy Granting

Behavioural autonomy has been defined as the freedom with which youth make and manage decisions about their own behaviour in the course of developing independence, and is distinct from psychological autonomy which refers more to freedom in establishing and expressing one’s own values, attitudes and beliefs (Feldman & Wood, 1994). Behavioural autonomy granting can be manifest in a number of different parenting behaviours, but this typically involves allowing increased input by youth in decisions about issues that affect their daily lives (negotiating) and engaging in discussions on points of disagreement (e.g., Daddis & Smetana, 2005). We know that parents grant more autonomy as children age, beginning in middle childhood and continuing throughout adolescence (e.g., Smetana, Campione-Barr, & Daddis, 2004; Wray-Lake, Crouter, & McHale, 2010). However, little is known about how

parents make decisions about appropriate amounts of autonomy. Given that parental misjudgements about appropriate autonomy-granting have been related to frequency of problem behaviours (Reitz, Dekovic, & Meijer, 2006) and early onset of health risk behaviours (e.g., Lahey et al., 2008), at least in mid-to late-adolescence, it is important to understand how parents manage autonomy granting decisions during pre-adolescence as children are just beginning to be granted extended time away from parents and with peers.

There is very little research examining factors that impact parents' decisions about autonomy granting in adolescence. One consistent finding has been that parents allow greater autonomy at earlier ages for personal issues (e.g., clothing, hairstyle) compared to prudential issues (i.e., issues with negative health/safety consequences; e.g., Daddis & Smetana, 2005; Dornbusch, Ritter, Mont-Reynaud, & Chen, 1990). However, the relative impact of other factors is much less clear. Some research has found that parents allow varying levels of behavioural autonomy for male versus female children, although this evidence is quite mixed (e.g., Bumpus, Crouter, & McHale, 2001; Dornbusch et al., 1990;). One study reported a relationship between child disclosure and autonomy granting, such that parents allowed more decision-making when they perceived their children as more likely to disclose information about their whereabouts/activities (Wray-Lake et al., 2010). While this finding makes intuitive sense, much like the research on child temperament and supervision in the younger years, the opposite finding has also been reported. Specifically, Reitz, Dekovic, and Meijer (2006) found that parents allowed greater behavioural autonomy to children with higher rates of externalizing behaviours (i.e., aggression, disobedience, delinquency). Similarly, youth delinquency has been found to be related to greater autonomy granting by parents over time (Kerr & Stattin, 2003). Taken together, these findings suggest that, rather than decreasing autonomy granting in response to problem behaviours, parents may become desensitized to these behaviours over time, believing themselves to be powerless to intervene, ultimately leading to reductions in behavioural control. Overall, the findings are unclear, and there is a need for further research into the impact of child characteristics on parent decisions about autonomy granting.

Teaching About Safety

Despite how often parents report teaching their children about safety issues, there is very little research in this area. Most studies focus on younger children's compliance with safety rules

(e.g., Gralinski & Kopp, 1993; Morrongiello, Midgett, & Shields, 2001;) and whether young children know safety rules (Morrongiello et al., 2001; Peterson, Mori, & Scissors, 1986). This research has shown that parents expect pre-schoolers to know 30 safety rules, however, children know only about *half* of these (Morrongiello et al., 2001). Thus, parents who presume that having taught the child about safety is going to keep them injury free often have children with higher rates of injury (Morrongiello et al., 2004a,b).

In adolescence, the research on parental use of teaching strategies is also very limited, with most research focusing on driving. Parents of adolescents report intending to be very involved in teaching their children to drive safely, and to impose consequences for unsafe driving (Williams, Leaf, Simons-Morton, & Hartos, 2006), and this involvement has been found to be associated with lower frequencies of unsafe driving behaviours (Beck, Shattuck, & Raleigh, 2001). However, Hartos, Shattuck, Simons-Morton, and Beck (2004) found that parents and their adolescent children were not always clear about the exact nature of the driving rules and the consequences for noncompliance, and this lack of agreement is associated with more risky driving (Beck, Hartos, & Simons-Morton, 2006). Thus, while parents of teens make efforts to teach their children safety rules, these efforts do not always transfer to adolescent understanding and compliance.

Research on parental teaching of safety in pre-adolescence is even more limited. One study found that parents reported using teaching (i.e., explaining the possible consequences of a behaviour) most frequently in response to safety-related transgressions, compared to their use of punishment (Lopez, Schneider, & Dula, 2002). However, this was a prospective study examining parents' beliefs about how they would behave in a given situation. O'Neal and Plumert (2014) explored parent-child conversations about safety-related situations with 8- and 10-year-old children, in order to determine how parents may go about teaching about the causal links between behaviour and consequences. They found that mothers typically elicited their children's beliefs about the safety of a given situation, presumably in order to gain an understanding of their child's thinking so that they were more able to appropriately scaffold their teaching. Further, when parents and children disagreed about safety, the outcome of the negotiation conversations overwhelmingly favoured the mothers' view, regardless of whether this view was more or less conservative than that of the child. The researchers found that mothers tended to

point out dangerous features of a given situation to their children, perhaps in order to help children understand the reasons for the danger, rather than simply showing them what the danger is. While this study provides some initial information about how parents and children negotiate around safety disagreements, it is limited by its use of hypothetical situations, making it difficult to determine if the patterns would occur in real-world situations. The current study will expand on this research by asking parents to report about their teaching efforts in response to *actual* safety disagreements with their pre-adolescent children.

The Current Study

Pre-adolescence is a time of transition for families, as children spend increasing amounts of time away from their parents, and parents are forced to rely on means other than direct supervision to protect their children from injury. The current research addressed the gaps in the literature regarding the safety promotion practices used by parents of pre-adolescent children, examining what methods parents employ and the factors that influence these decisions. Specifically, the primary research questions addressed were as follows:

Aim 1. Does the quality of the parent-child relationship (i.e., extent of trust, communication and warmth) predict parental awareness of parent-child disagreements on specific safety rules (hereafter referred to as “safety disagreements”), and/or parent reaction to these disagreements and/or how these are resolved? Based on previous research, it was hypothesized that more positive parent-child relationship quality would be predictive of greater proportions of child disclosure, and more frequent use of teaching, compromising, and open discussions following safety disagreements.

Aim 2. Does the way that parents become aware of safety issues in the lives of their children predict how these issues are subsequently handled (i.e., parental reactions and resolutions)? It was hypothesized that more frequent child disclosure of safety issues would predict parental responses based on open communication and negotiation (e.g., teaching, compromising). In contrast, it was expected that parents who typically learn of safety issues by means other than child disclosure (i.e., direct observation, second-hand learning, child secretiveness) would subsequently respond in more authoritarian ways (e.g., direct commands, expressions of anger).

Aim 3. Do child characteristics (i.e., inhibitory control, risk taking propensity) predict the ways that parents become aware of, react to, and ultimately resolve safety relevant issues in the lives of their children? Further, do child characteristics moderate the relationships between how parents become aware of safety issues relevant to their children, and how these are subsequently handled? Given the inconsistencies in the literature with regard to how child temperamental characteristics impact parenting behaviours, no specific hypotheses with regard to the nature of these moderating relationships were developed. However, it was expected that temperamental characteristics *would* play a role in the ways in which safety disagreements unfolded.

In addition, some secondary research questions addressed were as follows:

- 1) What is the correspondence between parent-reported and child-reported safety issues?
- 2) What types of information do children choose to withhold and keep secret, and what are their reasons for doing so?
- 3) How do child- and parent- behaviours in the context of safety disagreements/issues relate to a child's risk of injury?

Method

Participants

The sample consisted of 130 parent-child dyads (66 male, 64 female), 10 to 13 years old ($M = 11.91$ years, $SD = 1.19$), living in Guelph and the surrounding area. Participants were randomly selected from an existing database of 13,000 families who previously expressed interest in research on child development. Parents were contacted by telephone and asked about their willingness to participate in the current research, with the only criteria for inclusion being that they have a normally developing child in the target age range living with them fulltime, and that both parent and child were fluent in English. In two-parent families, either parent was permitted to participate, with the understanding that only one parent could be selected to take part. Ultimately, the vast majority of parent participants were mothers (i.e., 97%). Families were predominantly Caucasian (97%), with only one participant self-identifying as Black/African/Caribbean and two participants as Latin American. Participating parents were also generally well-educated, with 29% having completed at least some graduate training (i.e., MA, PhD, post-graduate), 52% having completed one university or college degree, 13% having

completed some university or college courses, 5% having achieved a high school diploma, and 1% completing some high school. Annual family income ranged from under \$20,000 (1% of the sample) to over \$80,000 (73%), with 2% of families reporting income between \$20,000 and \$39,999, 9% of families with income between \$40,000 and \$59,999, and 15% of families with income between \$60,000 and \$79,999. The vast majority of participating parents reported being married or in common-law relationships (92%), with 6% reporting being separated or divorced, and only one participant each identifying as widowed and never married.

Measures

Parents and children were asked to provide information regarding: (a) family demographics; (b) parent-child relationship quality (i.e., trust, communication, warmth); (c) disagreements about safety issues, including the number, nature and scope of these disagreements (e.g., how parent became aware of these, reaction to these, how they were resolved); (d) parental monitoring of child location and activities; (e) behavioural autonomy-granting; (f) teaching about safety; (g) child risk-taking propensity and inhibitory control; and (h) children's history of injuries. (See Appendix A for full versions of all questionnaire measures.) Parents were also trained to complete the Safety Concerns & Actions-Taken Tracking Sheets, and children were trained to use the Secret Cards and complete the Injury/No Injury Diary Sheets. These were all independently completed by the parent and child over a 1 month interval. (See Appendix B for full versions of all diary measures.)

Family Information Sheet (FIS). The FIS asked parents to provide demographic information regarding ethnicity, education, family income, and number/ages of children in the home.

Relationship Quality Measures. Several aspects of parent-child relationship quality were assessed, based on previous research suggesting them as important dimensions (e.g., Armsden & Greenberg, 1987; Parker, Tupling, & Brown, 1979). For all aspects of relationship quality discussed below, higher scores correspond to more positive ratings of the relationship.

Warmth/Acceptance. The level of warmth/acceptance in the parent-child relationship was assessed with the Care subscale of the Parental Bonding Instrument (PBI). The PBI (Parker et al., 1979) was originally developed to examine adults' perceptions of their parents' behaviours retrospectively, in their first 16 years of life. This instrument has subsequently been used, with

minor wording changes, to assess current (rather than retrospective) views, with adolescent (Herz & Gullone, 1999) and child (Gullone & Robinson, 2005) participants. Gullone and Robinson (2005) reported adequate reliability for use of this revised measure with child and adolescent populations (Cronbach's $\alpha = .80$). Additional minor changes in wording were employed in this research in order to facilitate understanding and allow children to report on their views regarding perceived levels of warmth/acceptance in their current relationship with the participating parent (e.g., "my parent shows me that he/she loves me"). Children were asked to indicate how their parent usually behaves, using a 5-point scale to rate their agreement with each of 10 statements (1 = strongly disagree; 5 = strongly agree). The same questions, with minor wording changes, were presented to parents, allowing them to report on their own behaviour with their child. Cronbach's alpha demonstrated adequate reliability for both parent ($\alpha = .86$) and child ($\alpha = .79$) versions of this measure.

Communication. The quality of spoken communication in the parent-child relationship was assessed with the Communication subscale of the Inventory of Parent and Peer Attachment – Revised (IPPA-R). On the original version of the IPPA (Armsden & Greenberg, 1987), adolescents rate items assessing three aspects of attachment to parents and peers, including trust, communication, and alienation. This measure has been subsequently revised for use with younger children (Gullone & Robinson, 2005), and has demonstrated adequate reliability in these populations (Cronbach's $\alpha = .87$). The communication subscale assesses the extent and quality of spoken communication between parents and children (e.g., "I tell my parents about my problems and my troubles"). Children responded to each of nine items (two of which were added for the current research) using a 5-point scale (1 = strongly disagree; 5 = strongly agree). Parents responded to the same nine items, with minor wording changes to allow them to report on their views of the extent of communication in the relationship. Cronbach's alpha demonstrated adequate reliability for both parent ($\alpha = .85$) and child ($\alpha = .87$) versions of this measure.

Mutual Trust. The Trust subscale of the IPPA-R (see above) was used to assess perceived understanding, respect, and mutual trust in the parent-child relationship. Gullone and Robinson (2005) reported adequate reliability for use with children and adolescents (Cronbach's $\alpha = .86$). Ten items comprise this subscale, and children and parents responded in the same

manner as described above. For the current sample, Cronbach's alpha demonstrated adequate reliability for both parent ($\alpha = .87$) and child ($\alpha = .85$) versions of this measure.

Safety Disagreements. Parents and children were asked to work together to generate a list of as many safety issues about which they had disagreed in the previous year as they were able to recall. A one-year interval was selected in order to cover all seasons, because different issues might arise depending on the season. Based on previous research examining how children in this age group spend their free time (e.g., McHale, Crouter, & Tucker, 2001), participants were reminded to think about three categories in which disagreements often occur: sports and recreation (excluding organized sports), in-home activities, and peer/social activities not related to the previous two categories (e.g., "hanging out"). It was emphasized to parent-child dyads that these disagreements should be related to the physical safety and well-being of the child. Parent-child dyads were provided with 10 minutes for completion of this task. These safety disagreements were then used as the basis for the SDS (see next section).

Safety Disagreements Survey (SDS). This measure asked parents and children to independently provide information about how each of the safety disagreements identified above came to light, were reacted to by the parent, and were actually resolved, and to then provide a 'general' rating for these three features of safety disagreements. Asking them to first identify some specific exemplars was expected to help each of them formulate general ratings that are more evidence based. Parents and children were each asked to indicate how the disagreement first came to the awareness of the parent, selecting one option from the following categories: (a) the child said something to parent (e.g., "I don't want to wear my helmet") or questioned the safety practice ("Why do I need to wear a helmet?"); (b) parent observed the child doing something (e.g. jumped from a railing) or failing to do something (e.g., did not put a helmet on before getting on his/her bike); (c) parent felt child was being secretive; (d) someone else told parent about something the child said/did; or e) other. If the 'other' option was selected, respondents were provided the space to explain.

Parents and children were then asked to indicate for each disagreement how the parent reacted the most recent time it arose, selecting from: (a) parent imposed a consequence to reduce autonomy, like reducing time out with friends; (b) parent focused on teaching child about the safety implications of the disagreement; (c) parent monitored child's activities/whereabouts more

closely; or (d) other. Finally, parents and children reported on how each disagreement was resolved the most recent time it came up, selecting from: (a) parent told child what to do; (b) discussion led to a compromise; (c) both perspectives discussed with either parent's or child's perspective prevailing; (d) parent allowed child to do as they wished without discussion; or (e) other. Once again, individuals were asked to select only one option for each of these items, reflecting the parents' primary reaction to the safety disagreement being considered, and its subsequent resolution. The categories for each question were identified based on pilot interviews with parent-child dyads.

Following discussion of each individual disagreement, parents and children were asked to independently provide information about safety disagreements more 'generally'. They were asked to distribute 100 tokens to reflect the relative frequency of each category occurring, in terms of parental awareness, parental reaction, and resolution strategy for safety disagreements in general. For instance, parents and children each divided the 100 tokens among the six options listed above (i.e., parent tells child; compromise; discussion with parent's view prevailing; discussion with child's view prevailing; no discussion; other), to indicate how often each of the resolution strategies typically occurs in response to a disagreement. They repeated this procedure for the questions of parental awareness and parental reaction to safety disagreements, in terms of what usually occurs (i.e., not specific to any given safety disagreement).

Parent Safety-Promotion Strategies. To examine the strategies parents use to protect their children from injury, questionnaires to assess monitoring, teaching, and behavioural autonomy granting were administered.

Parental Monitoring. For the current research, the term "monitoring" was used to refer to active information-seeking efforts on the part of the parent. Parents responded to 18 items assessing monitoring (e.g., "How often do you initiate general conversations with your child about their free time?") using a 5-point scale (1 = almost never; 5 = very often), with higher numbers indicative of more frequent monitoring. While several of these items were designed for the current study, the majority came from existing measures, including the Parental Solicitation and Parental Control scales used by Stattin and Kerr (2000; cronbach's $\alpha = .77$), as well as the Alabama Parenting Questionnaire (Shelton, Frick, & Wootton, 1996; cronbach's $\alpha = .67$). This

measure was pilot tested before using in this study. Cronbach's alpha demonstrated adequate reliability for this measure ($\alpha = .79$).

Behavioural Autonomy Granting. In order to get an index of behavioural autonomy granting, parents were asked to rate the freedom with which their child is allowed to make decisions related to 15 different issues based on methods outlined by Daddis and Smetana (2005). Individual items reflected personal (e.g., what time child gets up in the morning), peer (e.g., who he/she spends time with), and activity-related issues (e.g., how to spend his/her free time). Eleven of these items were taken directly from the original measure (Daddis & Smetana, 2005), and four additional items were created to provide more detailed information relevant to children's free time activities and whereabouts. Parents responded to each item using a scale ranging from 1 (child decides independently) to 5 (parent decides independently), with higher numbers indicating less autonomy granted to the child. The measure was pilot tested before using in this study. Cronbach's alpha demonstrated adequate reliability for this measure ($\alpha = .81$).

Parental Teaching. In order to obtain a measure of parental teaching generally, parents were asked to respond to 12 items assessing the extent to which they teach their children about safety (e.g., "Teaching about safety is necessary for kids at this age"). Parents rated their agreement with each item on 5-point Likert scale (1 = strongly disagree; 5 = strongly agree), with higher numbers indicating more teaching. Cronbach's alpha demonstrated adequate reliability for this measure ($\alpha = .82$).

Child Temperament Measures. Two aspects of child temperament were assessed: risk taking propensity, and inhibitory control.

Risk Taking Propensity (RTP). The Risk Propensity Scale (RPS), which provides information about an individual's propensity to take risks, was originally developed for use with adults (Meertens & Lion, 2008), but has subsequently be revised and used with pre-adolescent children (e.g., Morrongiello, Kane, McArthur, & Bell, 2012; cronbach's $\alpha = .79$). The measure asked parents to rate their agreement with each of eight items (e.g., My child takes risks regularly) on a 5-point scale (1 = not true at all; 5 = almost always true), with higher numbers indicating more frequent risk-taking behaviours. Cronbach's alpha demonstrated adequate reliability for this measure ($\alpha = .87$).

Inhibitory Control (IC). The Early Adolescent Temperament Questionnaire (EATQ) was originally developed by Capaldi and Rothbart (1992) to assess several aspects of temperament in the pre-adolescent years. It was subsequently revised to better assess self-regulation aspects of temperament, including several facets of effortful control (EATQ-R; Ellis & Rothbart, 2001; cronbach's $\alpha = .64 - .80$). The Inhibitory Control subscale of the EATQ-R was used herein, to assess parent perceptions of their child's ability to appropriately inhibit impulses. Parents responded to five items (e.g., My child is able to stop himself from laughing at inappropriate times) using a 5-point scale (1 = almost never true; 5 = almost always true), with higher numbers indicating greater levels of inhibitory control. Cronbach's alpha for this measure was adequate ($\alpha = .59$).

Injury History Questionnaire (IHQ). The IHQ provides an index of the frequency with which the child has sustained minor (i.e., no treatment needed) and medically-attended injuries, both within the last three months (i.e., before initiation of the study) and since birth. This measure also lists 17 specific types of moderate injuries (e.g., fall from height) and asks parents to indicate how many times their child has experienced each of these since birth. Prior research indicates that mothers are accurate reporters of injuries over these time periods (Pless & Pless, 1995).

Diary Measures. Both parents and children were asked to complete diary measures over the course of a one-month recording period. All diary measures can be found in Appendix B.

Safety Concerns and Actions Taken Tracking Sheets. On each tracking sheet, parents were asked to provide information about safety concerns that arose over a one-month period. At the end of each day, they were asked to indicate whether or not they had a safety concern about their child that day, including: (a) they became aware of a disagreement between they and their child regarding a safety issue (i.e., they realize that their view is different from that of their child, or that the child behaved in an unsafe way that the parent had not anticipated); (b) the occurrence of safety-specific rule violations (e.g., child failed to call home, despite knowing they were supposed to); or (c) any general sense that something relevant to their child's safety happened on that day (e.g., "just a feeling", a sense that child is keeping something from them). For each identified concern, parents were instructed to describe the situation in their own words. For each concern, parents were also asked to indicate: (a) how the issue came to their attention (i.e., child

said something to parent, parent observed child doing something, parent observed child failing to do something, child appeared secretive, someone else told parent about child behaviour/comment, other); (b) how the issue was resolved (i.e., told child what to do, compromise, discussion with parent perspective prevailing, discussion with child perspective prevailing, child allowed to do as they wish with little discussion, other); and (c) whether they did anything else to address the safety concern (e.g., increased monitoring efforts, aimed to teach them further by imposing a consequence and/or discussing the issue further with child, restrict autonomy).

Injury Diary Sheets. The child Injury Diary Sheets asked children to provide information about any injuries they sustained over the course of the study. At the end of each day, children indicated whether or not they got hurt, and if so they were asked about the nature of the injury. They were also asked whether or not their parent knew about the injury, and to indicate how the parent became aware (i.e., parent saw it happen; child told parent; someone else told parent; parent saw mark on child's body; some other way) or why they were not aware (i.e., child did not want parent to know; child forgot to tell them; severity did not warrant mentioning; did not come up in discussion; something else). An extended version of this measure has been used in previous research with school-age children, with respondents showing appropriate understanding of the items, and good compliance with daily completion (Wells et al., 2012).

No-Injury Diary Sheets. In order to ensure that children were not failing to report on injuries sustained simply to avoid completing a nightly Injury Diary Sheet, they were asked to complete a No-Injury Diary Sheet each injury-free day. This sheet asked questions about their day (e.g., weather, most fun part of the day), and was designed to be equivalent in length and difficulty to the Injury Diary Sheets. Thus, every night the child was to complete one diary form.

Secret Cards Task. The aim of this task was to gather information on safety-relevant secrecy by the children. Children were asked to use Secret Cards to document any times that they intentionally kept safety-related information from their parents (e.g., do not tell parent that they biked without a helmet). These cards included space for children to record the date, as well as several options which children could check off related to: (a) what type of information they were keeping from their parent (i.e., risky behaviour, injury sustained, near-injury incident, something not related to safety); and (b) their reasons for wanting to keep the information from their parent

(i.e., avoid discussion, parent would restrict child's decision-making input, parent would get mad, avoid punishment, parent would yell, parent would not let them do that activity again, parent would not trust them anymore, parent would watch child more closely in future, child feels guilty/regrets behaviour. other); response options were developed based on pilot testing.

Procedure

A home visit lasting approximately 90 minutes was conducted, during which time written consent was obtained from each participating parent and child. Parent and child dyads were then provided 10 minutes to work together to identify as many safety issues about which they have disagreed in the past year as they were able to think of, being reminded to think about three particular categories of behaviour (i.e., sports/recreation, in-home activities, peer/social activities). Once these issues had been identified, parents and children were separated to complete their respective measures, each working with the aid of a researcher. Parents completed the SDS, as well as measures of parent-child relationship quality, parental monitoring, behavioural autonomy-granting, teaching, child risk-taking propensity, and child inhibitory control. They were also provided with a binder containing Safety Concerns and Actions Taken Tracking Sheets, and were trained to complete them properly over the course of one month. The binder also contained the researcher's contact information should any questions arise, and parents received weekly phone calls from a researcher to confirm that tracking sheets were being completed.

In a separate area of the home, children simultaneously worked with a researcher to complete the SDS and a measure of parent-child relationship quality. Children were also provided with a binder containing Injury Diary Sheets and No-Injury Diary Sheets, and were trained to complete them properly over the course of one month. In addition, children received a small, sealed box containing a narrow slit in the lid, as well as sheets of Secret Cards that could be individually torn loose. Children were asked to record the date on a card anytime they purposefully kept safety-related information from their parent (e.g., fail to tell parent about an injury they sustained; only tell parent part of an incident; intentionally mislead parent about where they have been/who they have been with). They were also encouraged to check the appropriate boxes to indicate *what type* of information they were keeping secret, and *why* they chose to keep this information from their parent; however, it was made clear that this step is

optional, and should only be completed if they were comfortable sharing their reasoning. These cards would then be placed in the box. Children were informed that the box already contained several blank cards, so if their parent were to pick it up they would not know that the child was keeping secrets. Children also received weekly phone calls to ensure that they were remembering to track this information and address any questions that had arisen.

At the conclusion of the one month recording period, a researcher returned to participants' homes to collect the tracking materials. Parents and children were provided gift cards of their choice in return for their participation.

Results – Primary Aims

Safety Disagreements in Pre-Adolescence

Prior to examining the ways in which safety disagreements arise and are resolved in pre-adolescent parent-child relationships, it is necessary to understand what type of issues lead to these disagreements. To this end, the incidents of disagreement produced collaboratively by each parent-child dyad on the SDS were coded into 12 separate categories. These categories were determined through careful examination of parent-child responses, and discussion between researchers on points of disagreement. Across participants, a total of 404 safety disagreements were reported on the SDS. Table 1 shows the frequency with which each type of issue was reported as a source of disagreement, and the proportion of the total sample that each issue represents.

Nature of Safety Disagreements. After collaboratively producing a list of safety issues about which they had disagreed within the past year, parents and children each independently reported on the nature of these disagreements. Specifically, they provided information about how each issue first came to light (i.e., Source of Knowledge: child disclosure, parent observation, child secretiveness, second-hand learning), how the parent reacted (i.e., Safety-Relevant Parenting Practices: teaching about danger, increasing monitoring, limiting child autonomy), and how the disagreement was resolved (i.e., Nature of the Resolution: parent command, compromise, discussion leading to parent/child view prevailing, no parental input). Proportion scores for each category were then computed for parent- and child-reported disagreements separately, by dividing, for example, the total number of disagreements that came about as a result of child disclosure by the total number of disagreements reported. This information is

located in Table 2. With regard to how parents became aware of safety issues, both parents and children agreed that child disclosure and parent observation were overwhelmingly the most common means of awareness. In terms of subsequent safety-relevant practices employed by parents, the distributions were more even, although teaching was reported to occur most frequently by both parents and children. Finally, although the specific numbers differed, the relative frequencies of occurrence for each of the Resolution categories was fairly consistent across reporters, with parent command, compromising, and discussion with one view prevailing occurring in fairly even proportions.

Parent-Child Agreement

Because the current study aimed to examine both parent and child perspectives, correlations between parent- and child- reports were calculated for all variables for which both parties provided information. Table 3 shows the correlations between parent and child reports of safety disagreements, including how parents become *aware* of the issue (i.e., Source of Knowledge), how parents *react* once the issue comes to light (i.e., Safety-Relevant Parenting Practices), and how the issue is *resolved* (i.e., Nature of Resolution). As can be seen, parent and child reports were highly correlated in most cases. Similarly, the correlation between parent- and child-reported relationship quality was strong and significant, $r = .311$, $p < .000$. Given these correlations, and because our primary interest was on examining parents' viewpoints, the decision was made to use parent-reported scores only in all subsequent analyses using these variables. When an analysis involved any of the three non-correlated variables (i.e., child secretiveness, monitoring, discussion with one view prevailing), the plan was to complete separate analyses with both parent and child data. However, two of these child-reported variables (i.e., child secretiveness and monitoring) could not be used in subsequent analyses due to insufficient data (i.e., reported extremely infrequently by children). Thus, only analyses involving the variable 'discussion with one view prevailing' were completed separately for parents and children.

Data Reduction and Controls for Child Age and Sex

As a group parents reported very few safety concerns over the course of the one-month period on the Safety Concerns and Actions Taken tracking sheets. Indeed, 14% of parents did not report any safety disagreements at all, 74% reported between 1 and 5, and only 12% reported

between 6 and 10 disagreements. Because of these low numbers, parent-reported data from the tracking sheets was combined with their responses from the SDS for all subsequent analyses. Child-reported data came from responses on the SDS alone.

Prior to conducting regression analyses to address the primary study aims, data were examined using box plots in SPSS. Data points were considered as potential outliers if they fell more than three inter-quartiles above the upper quartile or below the lower quartile. No outliers were identified for: the parent-reported Source of Knowledge categories of *child disclosure* or *parent observed*; parent-reported Safety-Relevant Parenting Practices categories of *teaching* and *anger/disappointment*; parent-reported Nature of Resolution categories of *parent command*, *compromise*, or *discuss with one view prevailing*; questionnaire reports of *autonomy granting* and *teaching*; or the child-reported Nature of Resolution category of *discuss with one view prevailing*. The Source of Knowledge categories of *child secretiveness* and *second-hand knowledge* were reported too infrequently by parents (i.e., only 5% and 11% of parents, respectively, identified these as sources of knowledge some of the time), and were therefore excluded from subsequent analyses. The Safety-Relevant Parenting Practices categories of *monitoring* and *limiting autonomy* each had two potential outlying values; however, these variables also displayed significant positive skew in the direction of these outliers, which was corrected by transforming the data. This was also true for the Nature of Resolution category of *no parental input*, and for the parental monitoring questionnaire. Indeed, all data were examined for degree of skew and kurtosis, and violations of the assumption of normality were corrected with transformations if skew and kurtosis values were greater than four times the standard error of the variable in question. Transformations that were conducted are indicated in the following sections.

In all following regression analyses, the child's age was categorized as either Young (10-11 years) or Old (12-13 years). ANOVAS with Age and Sex were then conducted to determine whether reports of safety disagreements (Source of Knowledge, Safety-Relevant Parenting Practices, Nature of Resolution) differed depending on the sex and/or age of the child. If the ANOVAs were non-significant, these variables were not included in the subsequent analyses. However, if the results were significant at the level of $p < .05$ then the Age and/or Sex variable

was included in subsequent regression analyses in order to control for their effects, when the variable in question was an outcome variable.

Table 4 shows the results of these ANOVAS with Age and Sex. While there were no significant age differences with regard to parental Source of Knowledge of safety issues, a significant sex difference did emerge. Specifically, parents reported being significantly more likely to learn about safety disagreements as a result of *child disclosure* for female children as compared to males. Conversely, parents were significantly more likely to learn about these issues by *observing* their male children engage in an unsafe behaviour, as compared to female children. With regard to Safety-Relevant Parenting Practices following disagreements, there were no significant sex or age differences in terms of the degree of parental monitoring or limiting autonomy. However, parents were significantly more likely to *teach* their female children about a safety issue in response to a disagreement, whereas they reported reacting with *anger and/or disappointment* significantly more often with male children. Finally, in examining age and sex differences in the Nature of Resolutions, parents were significantly more likely to use *parental commands* (i.e., no discussion) with their male children as compared to female, and conversely they reported *discussing safety issues* (i.e., discuss with one view prevailing) significantly more with their female children. There were no sex or age differences with regard to compromising or proceeding with no parental input.

Aim 1: Relationship Quality in the Context of Safety Disagreements

The three aspects of relationship quality (Warmth, Communication, and Mutual Trust) were ultimately collapsed into one measure of Relationship Quality, as the correlations between the various aspects were found to be highly significant, based on both parent and child reports (See Table 5). Further, parent and child reports of relationship quality were found to be modestly correlated with one another. Thus, as with other variables, subsequent analyses were conducted with parent-reported relationship quality (RQ). This RQ variable was transformed prior to conducting regression analyses in order to correct for violations to normality [$\text{Log}_{10}(6-X)$].

While previous research has shown relationship quality to be predictive of the degree to which children disclose to their parents (e.g., Smetana et al., 2006; Hunter et al., 2011; Darling et al., 2006), much of this research has been based on self-report measures asking parents and children to report on the degree to which they/their children generally disclose. The current study

aimed to extend this research by asking parents and children to report on disclosure and other variables in the context of specific safety disagreements that had arisen in recent history within their relationship. In asking parent-child dyads to think about specific instances of disagreement, it was expected that they would be more able to accurately reflect on the nature and outcome of each disagreement, rather than having to think in a more general sense as is required on typical self-report measures.

Does the nature of the parent-child relationship in pre-adolescence have an impact on how parents become aware of safety-relevant issues in their child's lives, and how these are subsequently dealt with? The answer appears to be yes. In separate multiple regression models, parent-reported sources of knowledge, safety-relevant practices, and resolutions were predicted by their appraisal of relationship quality. As mentioned previously, child Age and/or Sex were included as control variables in Step 1 if the ANOVA with the outcome variable in question was significant (refer to Table 4). With regard to sources of parental knowledge, relationship quality increased the prediction of both child disclosure (R^2 change = .066, p =.002, β =.257) and parental observation (R^2 change = .099, p <.001, β =-.315) over and above that predicted by child sex. Specifically, a more positive parent-child relationship predicted *more* parental awareness as a result of child disclosure, and *less* awareness as a result of parental observation. A test of whether sex was a moderator did not reveal significant results.

With regard to parental reactions to safety disagreements with their children (i.e., safety-relevant parenting practices), relationship quality was not found to be a significant predictor of any type of parental reaction, over and above the contribution of child sex. That is, relationship quality did not emerge as a significant unique predictor of the degree to which parents use teaching (R^2 change = .007, *ns*), increased monitoring (transformed with SQRT(X); R^2 change = .001, *ns*), or limiting child autonomy (transformed with SQRT(X); R^2 change = .000, *ns*) in response to safety disagreements. Similarly, relationship quality did not predict the degree to which parents reacted primarily by expressing anger and/or disappointment (transformed with SQRT(X); R^2 change = .004, *ns*). Consistent with these findings, relationship quality did not predict parent reports of their use of teaching (R^2 change = .01, *ns*) and behavioural autonomy granting (R^2 change = .001, *ns*) more generally, based on questionnaire measures. Tests of whether sex was a moderator did not reveal significant results. However, when child sex was

included in the analysis as a potential moderating variable for the relationship between RQ and teaching, the moderation was significant, $b = -2.63$, $t(124) = -2.37$, $p = .02$. Simple slopes for this relationship were tested separately for males and females. For females, the relationship was non-significant, $b = -.60$, $t(124) = -.76$, *ns*. However, for males, more positive RQ was predictive of increased levels of teaching in response to safety disagreements, $b = 2.02$, $t(124) = 2.62$, $p = .01$. Thus, consistent with previous research (e.g., Morrongiello & Hogg, 2004), the current results suggest that at least in some cases, parents respond differently to male versus female children with regard to safety-promotion strategies.

Interestingly, although relationship quality was not found to be a significant predictor of parental monitoring based on data from the SDS and tracked safety concerns, RQ did emerge as a significant unique predictor of parents' self-reported active monitoring efforts more generally, based on questionnaire responses ($R^2 = .11$, $p < .001$, $\beta = .33$). This difference may be due in part to the wording of the questionnaire items, which were designed specifically to reflect *active* monitoring efforts by parents (e.g., *initiate* conversations with child about their plans; *check to see* what your child is doing when they are alone). One could imagine that parents who endorse more positive relationships with their children might be more likely to monitor in this more active manner which is based on open communication (e.g., the child would be aware of these monitoring efforts by parents), while those with less positive relationships may rely on less active monitoring measures. Although parents were verbally encouraged to think about this type of active monitoring when completing the Safety Disagreement Questionnaire and their tracking sheets, the wording of the items was less detailed and therefore possibly more ambiguous. As a result, they may have been thinking about both active and passive monitoring efforts when responding to these items, leading to the lack of correspondence between the two variables noted above. A test of whether sex was a moderator did not reveal significant results.

Finally, in looking at how parents and children came to resolutions following safety disagreements, relationship quality was not a significant unique predictor of the use of parent commands (R^2 change = .000, *ns*), discussions with one view prevailing (R^2 change = .008, *ns*), or no parental input (transformed with $\text{SQRT}(X)$; R^2 change = .019, *ns*), based on parent reports. However, given the lack of a significant correlation between parent- and child- reported resolution by 'discussion with one view prevailing', a separate analysis was conducted with

child-reported data. In this latter case, child-reported relationship quality was found to be a significant predictor of the proportion of resolutions involving discussion with one view prevailing ($R^2 = .042, p=.021, \beta = -.205$), such that more positive relationships were associated with less frequent use of this type of resolution. With regard to the use of compromising, parent-reported relationship quality did predict a significant amount of the variance in resolution by compromise, $R^2 = .035, p = .04, \beta = .187$). Specifically, relationships characterized by higher degrees of warmth, communication, and mutual trust predicted a higher proportion of resolutions involving reaching a compromise between parent and child views. A test of whether sex was a moderator, did not reveal significant results.

Aim 2: Sources of Knowledge and Subsequent Reactions and Resolutions

Another question to be addressed by the current research was whether the way in which a parent becomes aware of a safety issue relevant to their child (i.e., what is the source of knowledge) predicts their subsequent use of safety-relevant parenting practices and the nature of the resolution. The answer to this question appears to be yes, at least in some cases. In separate multiple regression models, parent-reported reactions and resolutions were predicted with their reported sources of knowledge. As above, child age and/or sex were included as control variables in Step 1 if the ANOVA with the outcome variable in question was significant (refer to Table 4). The proportion of parental awareness resulting from child disclosure predicted a significant amount of unique variance in the proportional use of parent commands in resolving safety issues (R^2 change = .083, $p<.001, \beta = -.298$), such that more child disclosure was associated with less use of parent commands. Conversely, higher proportions of parental awareness as a result of observation predicted greater use of parental commands (R^2 change = .084, $p<.001, \beta = .301$). A similar result emerged with regard to the use of compromise. Specifically, higher proportions of child disclosure predicted more compromising ($R^2 = .11, p<.001, \beta = .333$), while the opposite was true for higher proportions of awareness resulting from parental observation ($R^2 = .04, p=.02, \beta = -.202$). Proportion of parental awareness resulting from child disclosure was not a significant predictor of any other parental reactions (teaching: R^2 change = .001, *ns*; monitoring: $R^2 = .004, ns$; limit autonomy: $R^2 = .012, ns$; anger/disappointment: R^2 change = .021, *ns*) or resolutions (discuss with one view prevailing: R^2 change = .000, *ns*; no parental input (transformed with $\text{SQRT}(X)$): $R^2 = .002, ns$). The same was true for parental awareness resulting

from observation (teaching: R^2 change = .000, *ns*; monitoring: $R^2 = .013$, *ns*; limit autonomy: $R^2 = .016$, *ns*; discuss with one view prevailing: R^2 change = .000, *ns*; no parental input: $R^2 = .002$, *ns*). Finally, child-reported sources of knowledge also failed to predict a significant amount of the variance in resolution by discussion with one view prevailing (disclosure: $R^2 = .003$, *ns*; observation: $R^2 = .005$, *ns*).

Given the finding that RQ predicts both the degree to which children disclose to their parents, as well as the degree to which parents and children resolve safety disagreements by compromising, a logical follow-up question is whether child disclosure mediates the relationship between RQ and proportion of compromising. That is, it may be that more positive parent-child relationships lead to greater amounts of child disclosure, and this disclosure in turn leads to the use of compromising in resolving safety disputes. After controlling for child age and sex in step 1 of a multiple regression analysis, RQ and proportion of disclosure were included together in step 2. With the inclusion of disclosure in the model, RQ was no longer a significant unique predictor of compromising, $t(126) = 1.30$, *ns*. Thus, it appears that the degree of child disclosure mediates the relationship between RQ and the proportion of resolution by compromising.

Aim 3: The Role of Child Characteristics

Because previous research has shown that child characteristics impact parents' decisions about appropriate parenting practices (e.g., Hagan & Kuebli, 2007; Morrongiello et al., 2006b; Wells et al., 2012), it was important to also consider the impact of these in the current research. Thus, a first step was to examine whether the child characteristics inhibitory control (IC) and risk taking propensity (RTP) predicted parental sources of knowledge of safety-relevant events (i.e., *Source of Knowledge*), parental reactions (i.e., *Safety-Relevant Parenting Practices*), and subsequent resolutions. Once again, child age and/or sex were included in step 1 of the multiple regression analyses if the ANOVA with the outcome variable in question was significant (refer to Table 4). RTP failed to emerge as a significant unique predictor of any categories of Source of Knowledge (i.e., *disclosure, parental observation*), Safety-Relevant Parenting Practices (i.e., *teaching, increase monitoring, limit child autonomy, anger/disappointment*), or Resolution (i.e., *parent command, compromise, discuss with one view prevailing, no parental input*). However, the ability of child IC to predict two categories of parental reaction approached significance. Specifically, higher levels of child inhibitory control were associated with *less* limiting of

autonomy in response to safety disagreements ($R^2 = .024$, $p = .079$, $\beta = -.155$), as well as fewer expressions of anger/disappointment (R^2 change = $.022$, $p = .084$, $\beta = -.149$). All other regressions with IC as a predictor were non-significant. In addition, neither RTP nor IC were found to be significant predictors of parent-child RQ.

While child characteristics on their own did not emerge as significant predictors of all aspects of parent-child safety disagreements, this does not mean that they are not important to consider. Indeed, previous research in older and younger populations has shown that child characteristics often act as moderators between other variables (e.g., Van Leeuwen, Mervielde, Braet, & Bosmans, 2004). Thus, multiple regression analyses were conducted to determine whether inhibitory control and/or RTP moderate the relationship between how parents become aware of safety issues relevant to their children, and how these are subsequently resolved. RQ was included as a covariate in the analyses, in order to ensure that any significant moderation effects could be said to be working on unique variance between the predictor and outcome variables, rather than possible shared variance between RQ and the predictor. Once again child sex was also included in the moderation analyses as a covariate if necessary (refer to Table 4). Moderation analyses were conducted using the PROCESS Macro (Hayes, 2013). Independent variables were mean centered prior to analysis, and an interaction term was computed by multiplying the two mean-centered variables.

Inhibitory control and RTP were not found to be significant moderators of the relationships between parental sources of knowledge and subsequent safety-relevant parenting practices. However, the relationships between sources of knowledge and subsequent resolutions did differ depending on child characteristics in some cases. In investigating whether the association between child disclosure and resolution by compromise depends on the child's level of inhibitory control, the interaction between child disclosure and IC was significant ($b = -1.01$, $t(123) = -2.75$, $p = .007$). Simple slopes for the association between disclosure and compromising were tested for low (i.e., 1 SD below the mean), moderate (i.e., mean), and high (1 SD above the mean) levels of IC. For high levels of IC, the association between disclosure and compromising was non-significant ($b = .06$, $t(123) = .52$, $p = .60$). In contrast, for children with moderate ($b = .26$, $t(123) = 3.08$, $p = .003$) and low levels of IC ($b = .46$, $t(123) = 4.41$, $p < .001$), greater proportions of parental awareness resulting from child disclosure were associated with

more compromising. The opposite pattern emerged when examining the association between parental awareness resulting from observation and resolution by compromising. The interaction between parental observation and child IC was significant, $b = 1.13$, $t(123) = 3.10$, $p = .002$. Follow-up analyses revealed that for children with high ($b = .08$, $t(123) = .71$, *ns*) and moderate levels of IC ($b = -.14$, $t(123) = -1.68$, *ns*) the association between observation and compromising was non-significant. In contrast, for children with low levels of IC ($b = -.36$, $t(123) = -3.48$, $p < .001$), greater proportions of parental awareness resulting from observation were associated with less compromising. Thus, it seems that at least in some cases, parents consider their child's ability to inhibit impulses when making decisions about how to resolve safety disagreements. Specifically, for children who have historically demonstrated low inhibitory control (which past research indicates places them at greater risk of injury, Cooper et al., 2003), parents are more likely to respond to child disclosure of safety events with attempts to compromise. In contrast, if they became aware of a safety issue by observing the child's behaviours, parents are less likely to try to compromise with children low in inhibitory control.

Inhibitory Control also emerged as a marginally significant moderator of the relationship between child disclosure and resolution by discussion with one view prevailing, $b = .86$, $t(122) = 1.98$, $p = .05$. In examining the simple slopes for the association between disclosure and discussion with one view prevailing, the association was non-significant for children with low ($b = -.10$, $t(122) = -.81$, *ns*) and moderate levels of IC ($b = .07$, $t(122) = .66$, *ns*). For children with high levels of IC, the association approached significance ($b = .24$, $t(122) = 1.66$, $p = .10$), such that parents who reported greater proportions of awareness resulting from child disclosure also reported more frequent resolutions involving discussion with one view prevailing. Once again, the opposite pattern emerged when examining the association between parental awareness as a result of observation and resolution by discussion with one view prevailing. The interaction between parental observation and IC was also significant, $b = -.89$, $t(122) = -2.10$, $p = .04$, but in this case greater proportions of awareness resulting from observation were associated with *fewer* resolutions involving discussion with one view prevailing for children with high levels of IC ($b = -.29$, $t(122) = -2.10$, $p = .04$). The association was non-significant for children with low ($b = .06$, $t(122) = .49$, *ns*) and moderate levels of IC ($b = -.11$, $t(122) = -1.14$, *ns*).

In investigating whether the association between child disclosure and resolution by parent command depends on the child's RTP, the interaction between disclosure and RTP was significant, $b = -.26$, $t(122) = -2.21$, $p = .03$. Simple slopes were again tested for low, moderate, and high levels of RTP. For children with low levels of RTP, the association between disclosure and parent command was non-significant, $b = -.09$, $t(122) = -.10$, *ns*. However, for children with moderate ($b = -.28$, $t(122) = -3.45$, $p < .001$) and high levels of RTP ($b = -.47$, $t(122) = -4.22$, $p < .001$), greater proportions of parental awareness resulting from child disclosure were associated with *less* frequent resolutions by parent command. In contrast, exploring the interaction between parental awareness as a result of observation and child RTP ($b = .23$, $t(122) = 2.17$, $p = .03$) revealed that, for children with moderate ($b = .31$, $t(122) = 3.99$, $p < .001$) and high levels of RTP ($b = .48$, $t(122) = 4.28$, $p < .001$), greater proportions of parental awareness resulting from observation were associated with *more* frequent parent commands. This association was non-significant for children with low levels of RTP, $b = .15$, $t(122) = 1.38$, *ns*. Taken together, these results suggest that the manner in which safety disagreements are resolved by parents and children depends not only on the way in which the issue comes to light, but also on the child's perceived levels of inhibitory control and risk taking propensity.

Results – Secondary Aims

In addition to the goal of learning about the ways in which parents and children negotiate their way through safety disagreements in pre-adolescence, the current study also had several other aims. Firstly, we wished to explore the relationships between parent- and child-reported safety-relevant experiences that arise in day-to-day life, in order to determine the degree to which parents are aware of these experiences in their children's lives. Secondly, the current study explored the nature of the information that children choose to withhold from their parents, and their reasons for doing so.

Prior to addressing these research aims, descriptive statistics for child-reported injury events over the one month recording period were examined for age and sex differences. There were no significant differences: child sex, $F(1, 117) = 3.23$, $p = .08$, child age, $F(1, 117) = .30$, $p = .58$. The overall mean number of injuries was 9.15 (SD = 6.49).

Parental Awareness of Injury-Relevant Child Experiences

As an initial estimate of the degree to which parents are aware of injury-relevant experiences in their children's lives, the number of safety concerns they reported over the course of the one-month tracking period ($M = 2.50$, $SD = 2.37$) was correlated with the number of injuries reported by their child over the same period ($M = 9.15$, $SD = 6.50$). There was a marginally significant positive association ($r = .18$, $p = .05$), suggesting that children reporting more injuries have parents who also report a greater number of safety concerns. Consistent with this, based on their responses on the Injury History Questionnaire (IHQ), children who reported experiencing more injuries over the one-month tracking period had parents who reported higher numbers of minor ($r = .21$, $p = .02$) and home-treated injuries ($r = .31$, $p = .001$) both in the past 3 months. Thus, it appears that parents are at least minimally aware of the frequency with which their children experience potentially injurious events.

In order to explore this relationship further, a new variable ('injury awareness') was created by examining the injury sheets completed by children over the course of the recording period. The number of injuries of which children indicated their parents were aware was divided by the total number of injuries reported to create this variable ($M = .61$, $SD = .29$). There were no significant sex ($F(1, 116) = .88$, $p = .35$) or age differences ($F(1, 116) = .04$, $p = .84$) in parental injury awareness. However, child-reported RQ was found to be a significant predictor of parental injury awareness ($R^2 = .062$, $p = .007$, $\beta = .249$), such that relationships characterized by higher degrees of warmth, communication, and mutual trust predicted greater degrees of parental injury awareness, according to child report.

While this association between RQ and parental injury awareness is significant, the conclusions to be made from this association are limited given the nature of the injury awareness variable. Specifically, this variable is based only on children's self-reports of parental awareness, and therefore may not accurately capture parents' actual awareness. Thus, in order to try to incorporate parents' own knowledge of injury-relevant experiences in the lives of their children, child-reported safety events were compared to parent-reported safety concerns over the course of one month. Child-reported safety events included the total number of injury-tracking sheets completed over the recording period, as well as the total number of safety-related secrets reported by children on the Secret Cards ($M = 9.39$, $SD = 6.61$). The number of parent-reported

safety concerns was then subtracted from this new variable. Because six participants had negative values for this parental accuracy variable (i.e., parent reported *more* concerns than child-reported safety events), the absolute value of this variable was taken, with resulting values closer to zero indicative of greater levels of parental awareness of safety-related events. The variable was then transformed using $\text{SQRT}(X)$ in order to correct for positive skew. ANOVAS with child sex and age revealed no differences in parental accuracy based on child age, $F(1, 117) = .29, p = .59$, but a significant difference based on child sex, $F(1,117) = 4.83, p = .03$. Specifically, parents tended to be *less* aware of injury-relevant experiences in the lives of their female, as opposed to male, children. Interestingly, the relationship between RQ and parental accuracy was non-significant for both parent ($r = .02, p = .79$) and child-reported RQ ($r = .002, p = .98$). While this suggests that a more positive parent-child relationship is not associated with parental knowledge of safety-relevant events in their children's lives, this non-significant finding may also be a product of differences in parent and child reporting tendencies. Specifically, minor injury events reported by children may not have been a source of concern for parents, even if they were aware of these events. Thus, parents may not have completed a safety concerns tracking sheet for these injuries, resulting in larger difference scores between parent- and child-reported injury-relevant events than may actually reflect parental awareness.

What do Children Choose to Withhold, and Why?

Information from the Secret Cards completed by children over the one-month recording period was used to determine what type of information children choose to withhold from their parents, and their reasons for doing so. Importantly, very few secret cards were completed over the recording period, and only about half of all the children ($N = 61, 51\%$) reported at least one secret. Thus, only data for those children who completed at least one secret card were included in the following analyses.

In examining what type of information children chose to withhold from their parents, the data were divided into two groups based on whether the secret referred to a safety-relevant event (e.g., child did get injured or could have been injured), or a non-safety related event. Approximately 78% ($M = .777, SD = .344$) of the secrets reported referred to non-safety events, with the remaining 22% ($M = .223, SD = .344$) described as relevant to the child's safety. Thus,

among children who reported at least one secret, issues that are *not* related to physical safety appear to be more commonly withheld than safety-relevant issues.

With regard to understanding WHY children choose to withhold information from their parents, children were able to choose multiple reasons for each secret recorded. Overall, for children who reported at least one secret, concerns about the possibility of reduced behavioural autonomy (e.g., my parent will give me less say in this matter in the future; my parent will not let me do this activity again) emerged as the most frequently endorsed reason for withholding, coming up for about two-thirds of all secrets reported (70.54%). Close behind, cited only slightly less frequently, were concerns about potential harm to the parent-child relationship (e.g., my parent would be disappointed in me; my parent would not trust me anymore; 63.57%), and a desire to avoid parental teachings/lectures (e.g., I wanted to avoid too many questions/lectures; 63.57%). Other reasons cited included a belief that the secret was not important enough to discuss (e.g., it just wasn't a big deal; 40.31%), concerns about potential increases in parental monitoring (e.g., my parents would watch me more closely if they knew; 30.23%), feelings of embarrassment and/or shame (e.g., I feel bad that I did this and I just don't want to talk about it; 14.73%), and concerns about potential social consequences (e.g., my parent would think this friend is a 'bad example'; my friend would be mad if I told).

In order to determine whether children differentially withhold based on their perception of relationship quality and temperamental characteristics, correlations between these variables and total number of secrets tracked over the recording period were calculated. There were no significant associations between secret-keeping and children's RTP ($r = .06$, *ns*) or IC ($r = -.14$, *ns*). However, a significant correlation between secret-keeping and child-reported relationship quality emerged, such that more positive parent-child RQ was associated with fewer secrets, $r = -.25$, $p = .007$. This suggests that children are less likely to intentionally keep secrets from their parents if they perceive the parent-child relationship to be characterized by higher degrees of warmth, communication, and trust.

Associations with Injury Risk

To this point, the data reported has provided information regarding how parents and children resolve safety-relevant disagreements in pre-adolescence, what factors have an impact on these negotiations (e.g., child characteristics, parental source of knowledge), and how

accurate parents are in their awareness of safety-relevant events in the lives of their pre-adolescent children. However, another important consideration is how this information relates to children's risk of injury. Thus, the following section explores the relationships between a number of variables and a child's injury history, as well as their reported number of injuries during the one-month recording period.

As discussed previously, researchers have found child disclosure to be the most important source of parental knowledge of their youth's activities in early adolescence (Stattin & Kerr, 2000), and this knowledge has consistently been related to less potentially injurious behaviour by their child (e.g., Lahey et al., 2008). One might expect, therefore, that youth who intentionally withhold more information from their parents may be *more* likely to engage in risky behaviour, and therefore more likely to experience injury. Indeed, this link has been reported in some studies (e.g., Frijns et al., 2010). The results of the current study also support this hypothesis. The total number of events withheld by children over the course of the tracking period (i.e., a combination of secret cards and tracked injuries which child indicated they intentionally kept from their parent) was positively correlated with the total number of tracked injuries, $r = .278$, $p = .002$. Thus, it appears that children's active withholding of information from parents may be a risk factor for injury in pre-adolescence. With regard to parent safety-promotion practices, in the current study there was a positive correlation between children's tracked injuries and parents' use of active monitoring strategies in response to safety concerns/disagreements ($r = .19$, $p = .04$). This is consistent with some research with adolescents, which suggests that active monitoring efforts by parents are actually associated with *increases* in delinquency (e.g., Kerr, Stattin, & Burk, 2010). However, an alternative explanation for the current finding is that parents may be adjusting their parenting practices in response to their children's behaviour; that is, they may be using monitoring in a reactive, rather than proactive, fashion. Importantly, the lack of longitudinal data in the current study limits the ability to draw more conclusive inferences.

With regard to children's injury history, as reported by parents, children with lifetime histories of more home-treated injuries tended to have parents who reported more frequent use of compromise ($r = .19$, $p = .04$) and parent-child discussion ($r = .21$, $p = .02$) in resolving disagreements about safety issues. Similarly, there was a positive correlation between number of hospitalizations children had experienced since birth and the frequency of parent-child

discussions as a means of resolving safety issues ($r = .19, p = .04$). Some possible explanations for these correlations are considered in the discussion. With regard to safety-relevant parenting practices, a positive correlation emerged between a child's lifetime number of hospitalizations and parents' proportional use of limiting behavioural autonomy in response to safety issues that arise ($r = .23, p = .01$). Finally, parental teaching (based on general ratings from the parent teaching questionnaire) was positively correlated with children's frequency of minor ($r = .23, p = .01$) and home-treated injuries ($r = .21, p = .02$) in the previous 3 months ($r = .23, p = .01$), as well as minor ($r = .22, p = .01$) and home-treated injuries ($r = .18, p = .04$) since birth. As with the link noted above (i.e., between injury frequency and parental monitoring efforts), this suggests that parents are adjusting their safety-promotion practices based on their experiences with their child.

One final area of inquiry had to do with possible correlations between children's history of injury and the quality of the parent-child relationship. Given the documented links between relationship quality, child disclosure, parental knowledge, and adolescent delinquency (e.g., Lahey et al., 2008; Stattin & Kerr, 2000), one might expect relationship quality to be negatively associated with injury history. However, results of the current study suggest the opposite pattern; that is, parent-child relationship quality was positively correlated with the frequency with which children have experienced home-treated injuries in the past 3 months ($r = .20, p = .03$), and in their lifetime ($r = .20, p = .02$). Once again, some possible reasons for this association are discussed below.

Discussion

While industrialized countries have made notable advances with regard to minimizing child mortality, unintentional injury has remained as the leading cause of death for children beyond one year of age (CDC, 2016). Further, while there has been extensive research into learning the ways in which parents manage safety issues in the lives of their young children (e.g., Morongiello et al., 2004b), similar research in pre-adolescent children is missing. Indeed, managing the safety of pre-adolescent children poses unique challenges for parents, as this developmental stage brings with it a great demand for autonomy and less direct parent involvement (e.g., Borawski et al., 2003). Thus, the current study examined the ways in which parents manage safety issues that arise in the lives of their pre-adolescent children, and factors

that influence their decisions with regard to safety promotion strategies. The research herein provides a starting point for understanding what types of safety issues arise for parent-child dyads at these ages, how these safety issues are responded to and resolved and what factors impact these outcomes, the degree to which parents are aware of safety issues relevant to their children, and the types of information children choose to withhold from their parents. Each of these topics will be discussed in turn.

Safety Issues Relevant to Pre-Adolescent Children

During early childhood, children spend the vast majority of their time under the direct supervision of adults (e.g., Morrongiello et al., 2006) and, as such, caregivers tend to be quite aware of the safety issues that pose a risk for their children (e.g., Morrongiello et al., 2004a) and are more able to intervene to protect children. However, as children age and spend more of their time away from caregivers, it becomes more difficult for parents to keep track of the specific situations/issues that pose a safety risk, and a great deal depends on children's compliance with safety rules. Given that youth agreement with specific rules has been found to be an important predictor of compliance (e.g., Jackson, 2002), understanding the types of safety-related *disagreements* that occur in these ages is paramount. The current study provides a starting point in this regard. The disagreements described by families suggest that children are indeed in a period of transition at this age, moving from more direct supervision to greater autonomy. Specifically, while parent-child dyads endorsed a number of disagreements related to safety issues commonly endorsed in younger children (e.g., falls resulting from running/jumping/climbing), dyads also frequently mentioned issues reflecting greater child autonomy which would likely not have been concerns in the younger ages (e.g., staying home alone; staying out after dark). These results provide initial evidence that parents are aware of the changing nature of safety-relevant issues as their children develop, and that concerns with regard to peer relationships and unsupervised time are beginning to emerge in pre-adolescence.

With regard to how parents become aware of safety issues relevant to their children, the current study suggests that there is indeed a transition period between childhood and adolescence. While safety issues come to the attention of parents largely by direct observation in early childhood (e.g., Morrongiello et al, 2004a, b), child disclosure is known to be the most important source of parental knowledge of these issues in adolescence (e.g., Stattin & Kerr,

2000). The research herein indicates that *both* of these sources of knowledge are almost equally important in the pre-adolescent period. Interestingly, however, a sex difference emerged such that parents were more likely to become aware of safety issues by child disclosure for female children, and direct observation for male children. This is consistent with other research showing that girls report more spontaneous disclosure than boys in early adolescence (e.g., Keijsers & Poulin, 2013). This finding could be expected to have differential implications for male and female children's risk of injury, as one could reasonably assume that youth disclosure (and therefore parental knowledge) would lead parents' to adjust their safety practices in order to protect their child from possible injury, as has sometimes been demonstrated with parents of young children (e.g., Morrongiello et al., 2008). Further, combining the current finding that male children's injury-risk behaviour is most likely to come to parents' attention via direct observation, with the well-documented knowledge that direct observation becomes less possible with age (e.g., Dishion & McMahon, 1998), the implication is that male pre-adolescent youth are at greater risk of injury than their female counterparts. However, this conclusion is based on a number of assumptions, including that parent safety practices *are* effective in protecting children, and that parents *do* respond to injury-risk information by increasing their safety promotion efforts. In fact, a number of research studies with children of various ages do not support these assumptions (e.g., Hagan & Kuebli, 2007; Wells et al., 2012). Thus, while research has shown males to be at greater risk of injury across the lifespan compared to females (CDC, 2016), the reasons for this difference are more complicated than simply a difference in disclosure tendencies.

In examining what happens *after* a safety disagreement comes to light, teaching emerged as the primary practice parents employed in order to mitigate risk. This finding extends previous prospective research examining parents' beliefs about what they *would* do in a given situation (Lopez et al., 2002), by demonstrating that teaching remains parents' go-to safety strategy in response to actual, real-life safety disagreements. Once again, a sex difference emerged such that parents reported being more likely to teach their *female* children about a safety issue following a disagreement, while they were more likely to react primarily with anger and/or disappointment with their *male* children. This makes sense given the differences in disclosure noted above. That is, if female children spontaneously disclose safety issues more frequently, it makes sense that a

parental response to this disclosure may involve discussion and teaching as the discussion would already be underway. Female children's disclosure, therefore, creates opportunities for teachable moments that males do not experience. If parents are learning about male children's injury-risk behaviours by direct observation, it is understandable that their primary response would be to stop the risky behaviour and express their disagreement and anger prior to, or perhaps instead of, engaging in teaching conversations. Previous research also has noted that parents more typically react to young males' risk behaviours with anger, whereas they do not do so for females (e.g., Morrongiello, Zdzieborski, & Normand, 2010). Thus, this seems to be a common reaction across a broad age range

Finally, both parent- and child-reports of safety disagreements in the current study suggest that these issues are resolved in a number of different ways of relatively equal frequency, including parent commands (i.e., parent tells child what to do/not do, no discussion), reaching a mutually agreeable compromise that is a blend of the individuals' wishes, and having a discussion with the view of one party ultimately prevailing, most frequently that of the parent, which is consistent with the results of O'Neal and Plumert's (2014) hypothetical study. Not surprisingly, a sex difference emerged again such that parents were more likely to use commands with their male children, which is consistent with the increased likelihood of direct observation of injury-risk behaviours for male children. Also consistent with the sex differences noted above, parents were more likely to discuss safety issues with their female children, which typically led to the child complying with the parents' wishes. Once again, this sex difference suggests that while parents attempt to teach and discuss safety issues with female pre-adolescent children, their tendency to use direct commands and expressions of anger means that boys will have fewer opportunities to learn about safety than females at these ages, potentially placing them at increased future risk of further injury.

Relationship Quality and Safety Issues in Pre-Adolescence

While previous research has consistently shown parent-child relationship quality to be predictive of child disclosure (e.g., Hunter et al., 2011), the majority of this research has been based on self-report measures examining general disclosure. The current study expanded this research by gathering information on disclosure, parent safety practices, and resolutions of disagreements in the context of specific safety issues that the parent-child dyad had actually

experienced in the recent past. As such, one could expect that the data herein were less influenced by response bias associated with having to guess at one's actions in a prospective situation.

Relationship quality was found to predict child disclosure, even after controlling for child sex. Thus, as has been found in previous research (e.g., Reidler & Swenson, 2012), pre-adolescent children appear to be more likely to spontaneously speak to their parents about safety-relevant information when they perceive their relationship to be characterized by high degrees of warmth, trust, and open communication. Further, child disclosure was found to mediate the relationship between relationship quality and the degree to which parent-child dyads resolve disagreements by reaching a compromise. Indeed, it makes intuitive sense that a positive parent-child relationship might make compromising more probable and easier to achieve, as compromise requires both parties to be open to the view point of the other, to remain respectful, and to trust that the other person will stick to their word, all of which are characteristics of relationship quality as measured herein. However, the current results indicate that relationship quality has its impact on compromising *through* child disclosure; that is, children are more likely to disclose in the context of positive parent-child relationships, and in turn, compromises are more likely when a safety issue comes to parent attention via spontaneous child disclosure. This finding has important implications for promoting child safety and reducing risky youth behaviours. If parents and youth are able to reach a compromise about safety-related issues, then it follows that the ultimate outcome will be agreeable to the youth. Given research showing that youth are significantly more likely to comply with parental rules and limitations if they agree with the spirit of those rules (e.g., Jackson, 2002), finding ways to increase the frequency with which parents and their youth are able to negotiate and reach compromises could reduce the risk-taking behaviours, and subsequent injuries, of those youth. The current research provides one possible route to achieving this; namely, by finding ways to target and improve parent-child relationship quality, so that youth feel safe disclosing to their parents, and parents are then more likely to attempt a compromise (rather than issue a command, as they tend to do if they have to learn about a safety issue by direct observation).

With regard to the role of RQ in understanding parental responses to safety issues that arise, the findings herein are somewhat mixed. RQ on its own was not a significant predictor of

parental limiting of autonomy, increasing monitoring efforts, or teaching about safety based on actual disagreements that had occurred between the dyads. However, a significant sex difference emerged such that for males only, more positive relationship quality was predictive of more frequent use of teaching in response to safety transgressions. This is consistent with a body of research showing that parents respond differently to male versus female children (e.g., Barnett & Scaramella, 2013; Morrongiello & Hogg, 2004). While there are a number of potential explanations for this difference, one possible interpretation has to do with temperamental differences between males and females. The current study supported the frequently cited finding that males tend to display more risk-taking behaviour than do their female counterparts, both through analysis of parent-report questionnaires (RPS) and more indirectly through the finding that parents more frequently learn of safety-relevant issues for their male children through direct observation of unsafe behaviour. As noted above, it is this tendency for males to be “caught in the act” that may be contributing to the more frequent parental expressions of anger and disappointment as opposed to calm discussions. However, the current study suggests that relationship quality may act as a “buffer” for male children, such that when parents see their relationship with their male child as positive, they are more likely to try to discuss and teach about a safety issue rather than simply responding with negative affect. Once again, one could reasonably assume that the latter strategy may be more likely to result in a mutually-agreeable outcome, making it more probable that youth will comply with the safety teachings in the future.

Finally, despite the lack of a relationship between RQ and subsequent parental monitoring efforts based on tracked/past safety disagreements, more positive RQ was found to predict increases in parental monitoring efforts based on questionnaire responses assessing these efforts more generally. Because the monitoring questionnaire was specifically designed to assess *active* monitoring efforts, as these have been linked to decreased risk-taking behaviour in adolescents (Lahey et al., 2008), this differential finding may indicate that more positive RQ is associated with these more active monitoring efforts. This finding makes sense, as active monitoring requires parents to maintain open lines of communication with their children, which is an important aspect of parent-child relationship quality. Once again, this highlights the importance of the parent-child relationship as a protective factor against child risk-taking and subsequent injury in the pre-adolescent stages.

The Importance of Child Characteristics

A large body of research has shown the parents consider child characteristics when they are making decisions about appropriate parenting practices (e.g., Cooper et al., 2003; Hagan & Kuebli, 2007; Wells et al., 2012). The current study builds on this body of research, extending it into pre-adolescent populations and looking at the impact of child characteristics in the context of actual safety issues that have arisen for parent-child dyads. On their own, child temperamental characteristics, risk-taking propensity (RTP) and inhibitory control (IC), were not found to predict any aspects of the safety disagreement process in these age groups (i.e., how parents become aware of the safety issue, how they respond, and how the issue is resolved). However, when included as moderators in the analyses some interesting findings emerged. Specifically, the relationship between how parents first become aware of a safety issue (i.e., through child disclosure or direct observation of safety-risk behaviour) and how the issue is subsequently resolved was found to differ depending on a child's perceived level of IC and RTP. Parents who perceived their child as having lower levels of IC (i.e., *more* likely to behave impulsively) were *more* likely to attempt to compromise with their child following spontaneous disclosure of a safety issue, and *less* likely to compromise following direct observation of a safety-risk behaviour, while these links were not significant for children with high levels of IC. Similarly, when parents rated children as temperamentally high in RTP, they were *less* likely to issue direct commands following spontaneous disclosure, and *more* likely to do so in response to direct observation. These results seem to indicate that parents are considering the temperamental leanings of their child in deciding how to respond to safety transgressions, and essentially “rewarding” temperamentally risky children for behaving in a way that may be out-of-character (i.e., showing inhibition by disclosing, which could come in the form of asking to engage in a particular behaviour rather than just doing it impulsively). These “rewards” come in the form of allowing the child some negotiating power in the form of compromising, rather than simply telling the child what to do/not do without discussion. This makes sense because if spontaneous disclosure of safety-relevant information is more unusual for these children, its occurrence would be surprising to parents, leading them to be more likely to behave in a novel way rather than falling back on habitual patterns. In contrast, parents observing these children engaging in safety-risk behaviours would likely be a common experience, leading them to respond in a more

automatic, practiced way (i.e., commands). Combined with research demonstrating that youth are more likely to follow parents' rules if they agree with them (e.g., Jackson, 2002), this finding has implications for keeping temperamentally at-risk children safe from injury. Specifically, if we can find ways to increase the likelihood that these children will speak to their parents about safety-relevant experiences, parents are more likely to try to compromise with them, and children will in turn be less likely to go against the agreed-upon resolution. Once again, the findings noted above suggest that the way to do this is to promote the parent-child relationship, as this seems to be important for increasing child disclosure.

In contrast to the findings for temperamentally at-risk children, for those perceived as having high levels of IC by their parents, spontaneous disclosure was *more* likely to lead to subsequent discussion with one view prevailing (i.e., no compromise), while direct observation of safety-risk behaviours was associated with *less* frequent such discussions. There are several facets of this result that merit discussion. Firstly, while the “discussion with one view prevailing” variable combined cases in which the parent view prevailed with those in which the child's did, when examined separately the parent's view was overwhelmingly more likely to be the one that ultimately “won out”. This is consistent with research by O'Neal and Plumert (2014) which found that during safety-related discussions parents were adept at convincing their children to come around to their way of thinking, even in situations involving initial disagreement. Further, research has consistently found behavioural inhibition to be associated with higher levels of compliance with parents and other authority figures (e.g., Chen, Chen, Li, & Wang, 2009; Lanza & Drabick, 2011). With this information in mind, it may be the case that parents of more behaviourally inhibited children in the current study felt less of a need to compromise or negotiate with their child following a disclosure, because they were more confident (based on past behaviour) that their child would comply with their wishes. Thus, while they still discussed the issue with their child, they more frequently ended the disagreement by insisting that their child comply with their point of view. Further, behaviourally inhibited children may be less likely to argue with their parents about safety issues, making parents less likely to be “convinced” to compromise. Clearly, further research is needed to clarify the exact meaning of these negotiation tactics, but it is evident that parents are considering the nature of their individual child when making decisions about safety.

Links with Child Injury

In order for parents to be able to effectively prevent injury to their pre-adolescent children, they must first be aware of safety-relevant events and risks in their child's lives. The current study provides some initial evidence that parents have this awareness in the pre-adolescent years, based on the finding that children who tracked more injury events over the 1-month study period had parents who also reported a greater number of safety concerns. Further, relationship quality was found to predict the degree to which parents are aware of safety-relevant issues in their child's lives, at least based on child-report. Once again, this speaks to the importance of the quality of the parent-child relationship in these age groups.

One surprising finding was the sex difference in parental awareness, such that parents were less aware of injury events occurring in the lives of their female children, compared to males. This finding is surprising, given the afore mentioned finding that female children are actually more likely to disclose safety-relevant experiences to their parents, which should lead to greater parental awareness. However, a number of factors must be considered in interpreting this result. Firstly, although there were no sex differences in the frequency of reported injury events in this study, *what* the children interpret to be an injury might vary and contribute to the fact that parents were less aware of female than male children's injuries. Past research indicates that females treat more minor experiences as injuries whereas males treat more substantive events as injuries (Morrongiello, 1997). If females are sharing these minor events with parents it is possible that parents become de-sensitized and do not record these events as safety concerns, leading to the observed sex difference in awareness of injuries.

A second possibility also has to do with children's history of injury, although this time from the parents' perspective. Specifically, if female children have experienced few injuries historically, parents may be less concerned about them experiencing injuries currently. This could lead them to *underestimate* the degree of risk in the lives of their female children and to truly lack an awareness of injury events in the lives of their female children.

In examining parental responses to child injury events, the current study found that children who reported more frequent injuries over the study period had parents who reported more frequent use of active monitoring efforts in response to safety disagreements. This is consistent with some adolescent research suggesting that active monitoring may be associated

with *increases* in delinquency (Stattin & Burk, 2010). While seemingly counterintuitive at first glance, it may be that in some cases active monitoring efforts (involving directly asking questions, insisting on checking-in and reporting activities and whereabouts) are experienced by youth as invasive and controlling, leading them to rebel against these efforts in the form of increased risk behaviours. Indeed, a number of researchers have found links between parental control and increased delinquency as children enter adolescence (e.g., Keijsers et al., 2009; Kerr & Stattin, 2000). Gathering longitudinal data in the future may help in interpreting this finding.

While also limited by the lack of longitudinal data, some interesting linkages between injury history and safety discussions emerged in the current study. Firstly, for families including children who had experienced more frequent home-treated injuries historically, safety disagreements were more frequently resolved through compromise and discussion. Similarly, lifetime histories of hospitalizations due to injuries were associated with more frequent resolutions by parent-child discussion. It could be that more significant injury histories have led to more frequent opportunities for parents and children to have discussions about safety, and to problem-solve collaboratively around limiting risk. Further, it may be that parent reports of more frequent home-treated injuries is indirectly measuring child disclosure, as children would presumably have to tell their parents about these injuries in order to receive treatment (i.e., ice pack, band-aid), and the results herein suggest that disclosure is predictive of more frequent compromising. Relatedly, frequency of home-treated injuries historically was positively associated with parent-child relationship quality. Rather than indicating that more positive relationships fail to protect children from injury, this finding may suggest that children feel more safe disclosing injury events in the context of positive relationships, and therefore parents are more aware of these events. Thus, rather than suggesting that these children experience more injuries, it may be that parents are simply more aware of these injuries.

With regards to children's active withholding of information from their parents, one of the goals of the current study was to explore children's reasons for withholding and the outcomes of this secrecy. A growing body of research has demonstrated the difference between child non-disclosure and secrecy, with the latter increasingly being shown to be the important factor to consider in understanding the link between parental knowledge and youth risk-taking behaviour (e.g., Almas et al., 2011; Frijns et al., 2010). Not surprisingly, secrecy was negatively associated

with parent-child relationship quality, such that children were more likely to keep secrets if they felt less comfortable in their relationship with their parent. Consistent with this, one of the primary reasons children cited for keeping secrets from their parents was concern over harming the parent-child relationship. It may be that children reporting lower RQ have had experiences of parental anger, disappointment, shaming, or harsh consequences in response to perceived misbehaviour, and these experiences have made children fearful of opening up in the future. Thus, a future area of research should focus on how to foster open communication in the parent-child relationship in such a way that children can feel safe to share experiences, even when they know parents may be upset. This is especially important in light of the current finding that secrecy was positively correlated with the number of injuries children reported over the study period, making the issue of improving parent-child RQ one of protecting children.

Limitations and Future Directions

While the current study provides important new knowledge about parent-child interactions and safety during the transition between childhood and adolescence, some limitations of the research require note. Firstly, the sample was quite homogenous, representing mostly Caucasian, well-educated, and middle-class families, and it is therefore difficult to determine how the results herein would generalize to the broader population. Further, data collected relied on parent and child self-report measures, which were subject to social desirability bias, particularly for children being asked to record secrets kept from parents. Despite this potential for bias, efforts were made to ensure that children felt safe disclosing to the researchers, by putting safeguards in place (e.g., “secret box” that parents could not access) to encourage openness. Indeed, the secrets reported by children were in some cases quite significant in the sense that they had the potential to land the child in trouble with the parent if the secret were to be revealed. Further, by asking parents and children to report on events as they happened, rather than only retrospectively or hypothetically, increases the likelihood that they were describing true events as they actually happened, and decreasing the chances of misremembering leading to biased data.

Another limitation to the current research is the lack of pre- and post- measures to assess for change. Had these measures been used, it would have been possible to examine if parents were actively changing their parenting practices based on the degree of concern they had for

their child. For instance, analyses examining change in parental monitoring, teaching, or compromising based on the number of concerns reported by parents, or number of injuries reported by children, would have allowed for a better understanding of how parents shift “in the moment” in response to risk situations. Future research would benefit from this type of pre-post measurement. Following families for longer periods of time would also have been helpful, allowing for collection of more information so as to allow for more power in analyses.

As mentioned repeatedly above, the current study is limited by its lack of longitudinal data. In particular, such data would provide a clearer picture of the associations between child injury frequency and other factors, such as parent safety-promotion strategies. In the current study, parents reported retrospectively on injury history, and this was then related to current parenting practices. While one can hypothesize on these links, it is difficult to make any clear conclusions in the absence of longitudinal data.

With regard to future directions for research, the current study provides initial data regarding how parents and children manage the difficult transition between childhood and adolescence, and suggests that an area for intervention is the quality of the parent-child relationship. While temperamental characteristics of children are generally stable, future research could examine possible methods of promoting the parent-child relationship, to determine whether doing so has an impact on important factors such as child disclosure, compromising, and reduced frequency of injuries. Greene and colleagues (2003) have developed a promising approach intended to provide parents with new ways of responding to child misbehaviour, which has the potential to foster more positive parent-child interactions around risk behaviour. Collaborative Problem Solving (CPS) encourages parents to understand all of the factors contributing to children’s behaviour, to be aware of all possible ways of responding, and to ultimately see the benefit of resolving conflict collaboratively rather than with impulsive discipline or commands. Given the current findings related to outcomes when parents respond with anger and disappointment rather than teaching and compromising, it would be helpful for future research to examine CPS as an intervention strategy particularly with regard to parent-child conflict around safety-risk behaviour.

Conclusion

Unintentional injury is a major health problem in most industrialized countries (CDC, 2016), and numerous efforts have been made to understand the determinants of childhood injury in the interest of prevention. Parents play an important role in keeping children safe, however, they face some unique challenges with regard to balancing an increasing need for autonomy with ongoing safety as children age and approach adolescence. The current study provides a foundation for future research into how parents manage this period of transition, particularly with regard to responding to and resolving safety disagreements in such a way as to increase the likelihood of future compliance with safety rules. The importance of the parent-child relationship highlighted herein supports a broad body of research documenting the positive impact of supportive relationships between parents and their children throughout development. Finding ways to target and improve aspects of these relationships will be essential moving forward, particularly in the pre-adolescent period when parents and youth alike may find the nature of their relationship changing.

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Tables

Table 1.

Frequency with which parent-child dyads reported safety disagreements, by category, over the past year

Safety Disagreement Category	N	Proportion
Running/Jumping/Flipping (<i>e.g., trampoline, jumping on couch</i>)	73	.18
Dressing for the weather (<i>e.g., warm clothes, sunscreen</i>)	63	.16
Wearing proper sports equipment (<i>e.g., helmet</i>)	62	.15
Unsupervised time (<i>e.g., staying home alone/“hanging out” with friends alone</i>)	50	.12
Car/Street safety (<i>e.g., looking both ways, wearing seatbelt</i>)	35	.09
Climbing (<i>e.g., trees/on furniture</i>)	29	.07
Water safety (<i>e.g., fooling around in pool</i>)	26	.06
Curfew (<i>e.g., staying out after dark</i>)	17	.04
Fire and cooking (<i>e.g., using the stove</i>)	15	.04
Putting others in danger (<i>e.g., throwing snowballs</i>)	6	.02
Other	28	.07

Table 2.

Proportion of total safety disagreements reported for which parents and children endorsed each category of Source of Knowledge, Safety-Relevant Parenting Practices, and Nature of Resolution

	Parent Report		Child Report	
	Mean (SD)	Range	Mean (SD)	Range
<i>Source of Knowledge</i>				
Child Disclosure	.37 (.24)	.00-.90	.41 (.24)	.00-1.00
Parent Observation	.54 (.24)	.00-.95	.43 (.23)	.00-.94
Second-Hand Learning	.06 (.07)	.00-.32	.09 (.10)	.00-.42
Child Secretiveness	.03 (.06)	.00-.44	.07 (.09)	.00-.44
<i>Safety-Relevant Parenting Practices</i>				
Teaching	.64 (.19)	.14-1.00	.58 (.25)	.00-1.00
Increase Monitoring	.13 (.10)	.00-.53	.11 (.12)	.00-.53
Limit Autonomy	.23 (.17)	.00-.69	.31 (.22)	.00-1.00
<i>Nature of Resolution</i>				
Parent Command	.29 (.31)	.00-.85	.38 (.22)	.00-.95
Compromise	.30 (.31)	.00-1.00	.27 (.21)	.00-1.00
Discuss, One View Prevails	.34 (.32)	.00-1.00	.27 (.30)	.00-1.00
No Parental Input	.07 (.18)	.00-.25	.07 (.10)	.00-.75

Table 3.

Correlations between parent- and child-reported proportions of safety disagreements which involved each category of Source of Knowledge, Safety-Relevant Parenting Practices, and Nature of Resolution

	<i>r</i>
<i>Source of Knowledge</i>	
Child Disclosure	.550***
Parent Observed	.562***
Child Secretiveness	.098
Second-Hand Learning	.225*
<i>Safety-Relevant Parenting Practices</i>	
Teaching	.323***
Increase Monitoring	.030
Limit Autonomy	.320***
Anger/Disappointment	.362***
<i>Nature of Resolution</i>	
Parent Command	.198*
Compromise	.224*
Discuss, One Prevails	.017
No Parental Input	.346***

Note. *** $p < .001$; * $p < .05$

Table 4.

ANOVAS with child age (Young vs. Old) and sex (Male vs. Female) for each category of parent-reported Source of Knowledge, Safety-Relevant Parenting Practices, and Nature of Resolution

	Child Age		Child Sex	
	<i>df</i>	<i>F</i>	<i>df</i>	<i>F</i>
<i>Source of Knowledge</i>				
Child Disclosure	1, 127	2.787	1, 127	9.206**
Parent Observation	1, 127	0.554	1, 127	9.941**
<i>Safety-Relevant Parenting Practices</i>				
Teaching	1, 127	0.102	1, 127	5.531*
Monitoring	1, 127	0.184	1, 127	0.319
Limit Autonomy	1, 127	1.723	1, 127	0.816
Anger/Disappointment	1, 125	1.346	1, 125	10.146**
<i>Nature of Resolution</i>				
Parent Command	1, 127	0.733	1, 127	17.613***
Compromise	1, 127	3.400	1, 127	0.591
Discuss, One Prevails	1, 127	1.586	1, 127	5.819*
No Parental Input	1, 127	1.372	1, 127	0.002

Note. *** $p < .001$; ** $p < .01$; * $p < .05$

Table 5.

Correlations between parent- and child-reported subscales of Relationship Quality

	Child Report			Parent Report		
	<i>Warmth</i>	<i>Comm.</i>	<i>MT</i>	<i>Warmth</i>	<i>Comm.</i>	<i>MT</i>
<i>Child Report</i>						
Warmth	--	.752***	.740***	.257**	--	--
Communication	--	--	.710***	--	.309***	--
Mutual Trust	--	--	--	--	--	.320***
<i>Parent Report</i>						
Warmth				--	.660***	.619***
Communication				--	--	.565***
Mutual Trust				--	--	--

Note. Comm. = Communication; MT = Mutual Trust; ***p<.001; **p<.01

Appendix A – Questionnaire Measures

Family Information Sheet

Education - Please check the HIGHEST level of education that applies.

Parent 1 (YOU)		Parent 2
	Some high school	
	High school diploma	
	Some college	
	College degree	
	Some university	
	University degree	
	Some graduate training	
	Graduate degree (MA, PhD)	
	Post-graduate training	

Income - Please check your family’s annual take-home income.

	Below \$20, 000
	\$20, 000 - \$39, 999
	\$40, 000 - \$59, 999
	\$60, 000 - \$79, 999
	Above \$80, 000

Current Marital Status (check one):

Married
 Divorced
 Separated
 Widowed
 Never-Married
 Common-Law

Employment: Do *you* work outside the home on a regular basis?

No Yes: About how many hours per week?

Does *your partner* work outside the home on a regular basis (if applicable)?

No Yes: About how many hours per week?

(Family Information Sheet – Continued)

Who looks after your child while you and/or your partner are at work? _____

Where does this occur: _____ In your home _____ Not in your home

Housing - Please check whether you rent or own you current place of residence.

_____ Rent _____ Own

Ethnicity - Please indicate how you would best describe yourself.

_____	White/European
_____	Southeast Asian (e.g., Chinese, Japanese, Korean, Vietnamese, Filipino, etc.) o
_____	Black/African/Caribbean
_____	Latin American (Costa Rican, Guatamalan, Brazilian, Columbian, etc.)
_____	Aboriginal/First Nations/Metis
_____	Arab (Saudi Arabian, Palestinian, Iraqi, etc.)
_____	South Asian (East Indian, Sri Lankan, etc.)
_____	West Asian (Iranian, Afghani, etc.)
_____	Other (Please Specify)

Children's Dates of Birth

Please indicate the sex and date of birth for the child we talked to you about today.

Child in study: ___ / ___ (MM/YY) Sex: _____ Male _____ Female _____ Other

Please list any siblings of the above named child:

SEX	AGE	LIVES AT HOME?

Relationship Quality

We would like to know more about your relationship with your child. Specifically, think about *the child that is participating in this study with you* when you answer the questions below. Please read each question and circle the appropriate number to tell us HOW MUCH you agree with each statement. Please answer all of the questions.

	Strongly Disagree	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Strongly Agree
I speak to my child in a warm and friendly voice.	1	2	3	4	5
I help my child as much as he/she needs.	1	2	3	4	5
I understand my child's problems and worries.	1	2	3	4	5
I show my child that I love him/her.	1	2	3	4	5
I like to talk things over with my child.	1	2	3	4	5
I smile at my child often.	1	2	3	4	5
I understand what my child needs and wants.					
I sometimes make my child feel like he/she is not wanted. (R)	1	2	3	4	5
I can make my child feel better when he/she is upset.	1	2	3	4	5
I tell my child when he/she does something well.	1	2	3	4	5
My child likes to get my view on things he/she is worried about.	1	2	3	4	5
My child likes to get my view when he/she is not sure what to do in a situation.	1	2	3	4	5
I can tell when my child is upset about something.	1	2	3	4	5
I help my child to understand him/herself better.	1	2	3	4	5
My child tells me about his/her problems and troubles.	1	2	3	4	5
My child tells me about his/her worries.	1	2	3	4	5
I support my child to talk about his/her worries.	1	2	3	4	5

	Strongly Disagree	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Strongly Agree
If I know that my child is upset about something, I ask him/her about it.	1	2	3	4	5
I respect my child's feelings.	1	2	3	4	5
My child thinks I am a good parent.	1	2	3	4	5
I accept my child as he/she is.	1	2	3	4	5
When my child talks about things with me, I listen to what he/she thinks.	1	2	3	4	5
I care about my child's opinion and how he/she feels, even if we are having a disagreement.	1	2	3	4	5
I listen to my child's opinions.	1	2	3	4	5
I understand my child.	1	2	3	4	5
When my child is angry about something, I try to understand.	1	2	3	4	5
My child trusts me.	1	2	3	4	5
I trust my child.	1	2	3	4	5

* (R) = Reverse Scored

List of Safety Disagreements

At these ages, when kids are starting to want more freedom from their parents, it's normal for parents and kids to disagree about things. For example, a parent might want their child to wear a helmet when they ride their bike, but the child doesn't want to; or a parent might want the child to cross at the corner on a busy street, but the child might not want to.

We are interested in knowing more about what kind of SAFETY issues parents and children disagree about at these ages. By DISAGREEMENT, we mean that your child has a different perspective than you or your partner about the safety issue (e.g., your son did not want to wear a seatbelt while wearing his football uniform but you wanted him to; your daughter wanted to jump from a height but you did not want her to).

Working with your child, please try to come up with as many safety issues that you can think of that the two of you have disagreed about in the past year. We are interested in hearing about ANY safety related issue at all, **but it has to be something you disagreed about** (e.g., something your child wanted to do and you said no, or s/he did not want to do that you insisted on), and it **has to be related to their physical safety of your child**.

If you have trouble coming up with anything, think about safety issues in these categories, which other parents and children have told us are common sources of disagreement:

- a) *sports and recreation (NOT including organized sports) – e.g., riding bike without helmet*
- b) *in-home activities – e.g., sliding down the banister*
- c) *peer/social activities not related to previous categories – e.g., “hanging out” with friends*

If you continue to have difficulty coming up with ideas, think about each season of the year separately, as this may help you to generate examples.

Safety Disagreement Survey - PARENT

Please transfer all of the safety disagreements you and your child just came up with to this sheet using the spaces provided; then answer the questions about each safety disagreement.

1. _____
Now circle ONE letter to indicate HOW you *first* came to realize there was a disagreement about the safety issue (choose one only):

- A = Child said something to me (e.g., I don't want to take my helmet), or brought the issue up to me directly for discussion
- B = I observed my child doing something (e.g., jumped from the railing)
- C = I observed my child failing to do something (e.g., did not have a helmet on when she got on her bike)
- D = Child behaved in a way that made me feel he/she was keeping something from me
- E = Someone else told me about something my child did/didn't do/said
- F = Other: **Please Explain:** _____

Now circle ONE letter to indicate how you mostly reacted the MOST RECENT TIME it came up:

- A = I imposed a consequence on my child (e.g., removed privileges; grounded my child)
- B = I expressed anger, disappointment, or upset to my child so he/she knew that I was not happy and I disapproved
- C = I focused on teaching my child about the danger associated with the activity/why this is a safety issue
- D = I monitored my child more closely after this (e.g., asked more questions about activities/whereabouts)
- E = I increased the emphasis on his/her following the rules (e.g., allowed less negotiation around rules and expectations)
- F = I didn't punish him/her, but I limited his/her freedom (e.g., he/she couldn't go off with friends as readily)
- G = Other: **Please Explain:** _____

Now circle ONE letter to indicate how it was resolved THE MOST RECENT TIME it came up:

- A = I told my child what to do/not do (i.e., very little discussion)
- B = We had a discussion and came to a compromise that was a blend of what we each wanted (e.g., you can do it this time, but not again; you can do it but under these terms)
- C = We discussed the matter from each perspective, and then my perspective prevailed
- D = We discussed the matter from each perspective, and then my child's perspective prevailed
- E = I let my child do what he/she wanted to do with little/no discussion (e.g. it wasn't a major safety concern; it wasn't worth the battle)
- F = Other: **Please Explain:** _____

Parental Monitoring

Please answer the following questions about the child who is participating with you in this study. For each question, circle a number to indicate how often you engage in each of the following behaviours:

HOW OFTEN DO YOU....	Almost Never	Not Very Often	Sometimes	Pretty Often	Very Often
Talk with your child's friends when they come to your house?	1	2	3	4	5
Ask your child about what happened or what they did during their free time?	1	2	3	4	5
Initiate general conversations with your child about their free time?	1	2	3	4	5
Initiate conversations with your child about their friends?	1	2	3	4	5
Insist that your child be in contact with you (e.g., call you/you phone him/her) when he/she is out and plans have changed in some way?	1	2	3	4	5
Ask your child to talk with you about what happened at school on a regular school day?	1	2	3	4	5
Ask your child to talk with you about how things are going with their friends?	1	2	3	4	5
Insist that your child ask your permission before going out on weeknights?	1	2	3	4	5
Insist that your child ask your permission before going out on a Friday or Saturday night?	1	2	3	4	5
Require that your child inform you about where they will be before they go out?	1	2	3	4	5
Require that your child inform you about who they will be with before they go out?	1	2	3	4	5
Require that your child inform you about what they plan to do before they go out?	1	2	3	4	5
Check to make sure your child comes home from school when he/she is supposed to?	1	2	3	4	5

Allow your child to be home alone without an adult home? (R)	1	2	3	4	5
Allow your child to be home with friends without an adult home? (R)	1	2	3	4	5
Allow your child to go out with friends who you do not know? (R)	1	2	3	4	5
Check to see what your child is doing when they are alone in their bedroom?	1	2	3	4	5
Insist that your child be in contact with you (e.g., call you/you phone him/her) to “check in” when he/she is out with friends?	1	2	3	4	5

*(R) = Reverse Scored

Behavioural Autonomy Granting

Please answer the following questions to tell us how decisions are made for your child (the one participating in this study). For each question, circle a number to indicate how decisions about each issue are made for your child:

	Child Decides Independently	Child decides with some input from parent	Child and parent decide together – 50/50 compromise	Parent decides with some input from child	Parent decides independently
What time he/she gets up in the morning	1	2	3	4	5
What clothes he/she wears	1	2	3	4	5
How to spend his/her free time	1	2	3	4	5
How to spend his/her money	1	2	3	4	5
Keeping his/her room clean	1	2	3	4	5
What TV shows to watch	1	2	3	4	5
What music to listen to	1	2	3	4	5
What movies to see	1	2	3	4	5
How much he/she tells you about where he/she will be	1	2	3	4	5
How much he/she tells you about what he/she will be doing	1	2	3	4	5
How late to stay out at night	1	2	3	4	5
How often he/she checks in with you when not home	1	2	3	4	5
Who he/she is friends with	1	2	3	4	5
How much time he/she spends with friends	1	2	3	4	5
Who he/she spends time with	1	2	3	4	5

Parental Teaching

Please answer the following questions, thinking about the child who is participating with you in this study. For each question, circle a number to indicate how much you agree with each item.

	Strongly Disagree	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Strongly Agree
Before making up any safety rules or guidelines, it is important that I spend a lot of time explaining to my child what the safety issue/concern is.	1	2	3	4	5
As long as my child knows the safety rules, I don't need to spend a lot of time teaching these over and over (R)	1	2	3	4	5
For my child, teaching about safety is necessary for him/her at this age	1	2	3	4	5
By this age, my child knows about safety so he/she doesn't need a lot of explanations about things (R)	1	2	3	4	5
I need to teach my child about safety – it isn't something that comes naturally to him/her	1	2	3	4	5
My child is smart enough to figure things out – I don't need to spend a lot of time teaching him/her about safety issues or explaining things over and over (R)	1	2	3	4	5
It's not enough to just make rules about safety – I need to spend time teaching my child about <i>why</i> the rules are important.	1	2	3	4	5
Teaching about safety is not really necessary for my child at this age – he/she can figure it out (R)	1	2	3	4	5
When my child behaves in a risky way, I always use the opportunity to teach him/her about safety.	1	2	3	4	5
I spend time making sure my child understands <i>why</i> behaving safely is important.	1	2	3	4	5
Teaching about safety is something I did when he/she was younger, but I don't need to do it so much at his/her age now (R)	1	2	3	4	5
My child knows the rules about safety, regardless of whether or not he/she follows them (R)	1	2	3	4	5

* (R) = Reverse Scored

Risk Propensity Scale (RPS)

Think about how your child behaves when not being directly supervised by an adult (i.e., when making a decision on their own). Indicate the extent to which each of the following statements is true of your child.

	Not true at all	A little true	Somewhat true	Mostly true	Almost always true
In deciding on what fun things to do, my child believes: Safety comes first. (R)	1	2	3	4	5
My child does not take risks with his/her health. (R)	1	2	3	4	5
My child prefers to avoid risks if he/she can. (R)	1	2	3	4	5
My child dislikes when he/she does not know what is going to happen. (R)	1	2	3	4	5
My child takes risks regularly.	1	2	3	4	5
My child usually views risks positively, that is, as a challenge and a chance to try something new.	1	2	3	4	5
My child doesn't like taking any chances. (R)	1	2	3	4	5
Generally, I would say that my child is a 'risk taker'.	1	2	3	4	5

* (R) = Reverse Scored

EATQ-R – Inhibitory Control Subscale

Below you will find a series of statements that people might use to describe their child. For each statement, please circle the answer that best describes how true each statement is for YOUR child (the one participating in this study). There are no best answers; people are very different in how they feel about these statements. Please circle the first answer that comes to you.

	Almost never true	Usually not true	Sometimes true, sometimes not true	Usually true	Almost always true
My child has a hard time waiting his/her turn to speak when excited. (R)	1	2	3	4	5
My child opens presents before he/she is supposed to. (R)	1	2	3	4	5
My child is more likely to do something he/she shouldn't do the more he/she tries to stop him/herself. (R)	1	2	3	4	5
My child is able to stop him/herself from laughing at inappropriate times.	1	2	3	4	5
My child is usually able to stick with his/her plans and goals.	1	2	3	4	5

*(R) = Reverse Scored

Injury History Questionnaire (IHQ)

Count as an “injury” only those times when there was visible sign of tissue damage (e.g., red mark, bump, scrape, etc) and this lasted for at least 1 hour.

1. How many injuries has your child had that were minor (i.e., no treatment was needed or only minor treatment, like a band aid was needed):

In the last 3 months, _____ **Since birth,** _____

2. How many injuries has your child had, that **required** you to give treatment (e.g., you needed to apply an ice pack or clean a wound)? The types of injuries listed in question 4 on the next page may help you to remember these.

In the last 3 months _____ **Since birth,** _____

3. How many injuries had your child had that required a doctor’s attention (e.g., a trip to the doctor’s office, or hospital emergency room) or a visit to a dentist? The types of injuries listed in question 3 may help you to remember these events.

In the last 3 months, my child has had _____ injuries that required a doctor’s or dentist’s attention

Since birth, my child has had _____ injuries that required a doctor’s or dentist’s attention 4. Please indicate which of the following types of injuries your child has **ever** had, regardless of whether or not you sought medical attention. Write in how many times the injury has occurred.

	How Many Times?
Motor vehicle accident - injury as a passenger.....	___
Motor vehicle accident - injury as a pedestrian.....	___
Water-related (e.g., fall in tub).....	___
Burn - hot liquids or food.....	___
Burn - chemical or fire.....	___
Burn - hot object (e.g., stove, heater).....	___
Fall - from heights (e.g., down stairs).....	___
Fall - from moving object (e.g., bike, swing).....	___
Cut of any kind (e.g., scrape, puncture).....	___
Crushing injury (e.g., slamming door on hand).....	___
Electrical injury (e.g., electric shock).....	___
Poisoning - chemical/drugs.....	___
Poisoning - food.....	___
Poisoning - plants.....	___
Choking or suffocation.....	___
Injury to mouth, teeth, or tongue.....	___
Sports-related injury of any kind.....	___

5. Has your child ever been hospitalized because of an injury? _____ YES _____ NO

If YES, how many times has your child been hospitalized because of injuries? _____

Appendix B – Diary measures

Safety Concerns and Actions Taken Tracking Sheet

Today's Date (dd/mm/yy): ____/____/____

DID YOU HAVE A CONCERN ABOUT YOUR CHILD'S SAFETY TODAY?

For example:

- Did you and your child disagree about a safety issue today?
- Did your child do something risky/dangerous/unsafe today?
- Did your child break a rule about a safety issue today?
- Did you have to remind your child about a safety rule/issue today?
- Did you just "have a feeling" that something was going on with your child that might have impacted his/her safety, perhaps something you felt he/she was not telling you?
- Did your child just tell you about a safety issue today? (e.g., came home and said THIS happened)

NO (STOP HERE)

YES (Answer the following questions)

1) Explain the disagreement/rule violation/safety concern; please be as detailed as possible.

2) How did this concern come to your attention? (choose one):

- a. Child said something to me (e.g., "I don't want to wear my helmet."), or I overheard him/her saying something to my partner/someone else.
- b. I saw my child do something (e.g., jumped from climber)
- c. I saw my child fail to do something (e.g., did not have helmet on when she got on her bike)
- d. My child behaved in a way that made me feel he/she was keeping something from me
- e. Someone else told me about something my child did/didn't do/said
- f. Other: Please explain _____

(Continued from previous page)

3) How was the disagreement/safety concern resolved?

- a. I told my child what to do or not do (i.e., very little discussion)
- b. We discussed it and negotiated an outcome that was a blend of what we each wanted (e.g., can do it this time but not again; can only do it if the weather is good)
- c. We discussed the matter from each perspective, and then the parent’s perspective prevailed
- d. We discussed the matter from each perspective and then the child’s perspective prevailed
- e. I let my child do what he/she wanted to do with little/no discussion (it wasn’t a major safety concern; it wasn’t worth the battle)
- f. Other: Please explain _____

4) Did you do anything else to address the safety issue? Check the appropriate column to indicate things you have done in response to this concern, and explain in your own words what exactly has been done.

	HAVE DONE	EXPLAIN:
Monitor child more closely (e.g., ask more questions about activities/whereabouts; watch/listen more closely)		
Impose a consequence (e.g., no TV; grounding)		
Explain to your child why the safety issue is important (e.g., what could happen if they don’t follow the rules)		
Increase emphasis on rules/remind child of rules (e.g., allow less negotiation/ compromise around rules and expectations)		
Give child a warning (e.g., “if you do this again....”)		
Other		

Daily Injury Diary

What is the date today? **Month:** _____

Date (number) _____

Year _____ (you can ask your mom or dad)

Did you get hurt today? YES NO (*Stop here & complete the other sheet*)

What kind of hurt was it (circle)?

CUT OR SCRAPE

BURN

RED MARK

BUMP/BRUISE

PAIN INSIDE
BODY (HEAD/
STOMACH
ACHE)

SOMETHING ELSE: _____

What were you doing when you got hurt? _____

How badly did it hurt (circle one)?



Not at all



A little bit



Medium



A lot!

Does your parent know you got hurt? YES NO

If YES, how did they find out?

- They saw it happen
- I told them about it
- Someone else told them about it
- They saw the mark on my body
- Some other way _____

If NO, why don't they know?

- I did not want them to know – I wanted it to be a secret
- I forgot to tell them about it
- It wasn't a bad injury, so I didn't think it was important to tell them
- No particular reason – it just did not come up in discussion
- Something else _____

Daily No-Injury Diary

What is the date today?_ Month: _____

Date (number): _____

Year: _____ (ask your mom or dad if you're not sure)

Did you go to school today? YES NO

What was the weather like today (circle)?



Tell me about the most fun part of your day: _____

Does your parent know about the most fun part of your day? YES NO

If YES, how did they find out?

- They were there when it happened
- I told them about it
- Someone else told them about it
- They heard me talking to someone else about it
- Some other way _____

If NO, why don't they know?

- I did not want them to know – I wanted it to be a secret
- I forgot to tell them about it
- No particular reason – it just did not come up in discussion
- Something else _____

Secret Cards

1. WHAT type of thing did you not want your parent to know about?

Something that was NOT related to safety [**Go to #2**]

OR

Something that WAS related to safety
IF it was related to safety, please tell us about it.

Where? Home School Friend's place
 Other _____

Who was present? No one Friends
 Other: _____

DESCRIBE what happened that you did not want your parent to know:

Did any of these things happen? [If not, go on to #2]

- I got hurt
- I almost got hurt
- I did not get hurt or almost get hurt but I realize that I could have gotten hurt; I was lucky not to.
- I hurt someone else/someone else got hurt

2. Have you kept this SAME SECRET before? Yes No (first time)

3. WHY did you decide to keep this secret (check all that are true)?

- I don't think it's a big deal (e.g., not worth talking about it)
- I wanted to avoid lots of questions/a big lecture about it
- I knew my parent would give me less say about things in the future
- I didn't want my parent to get mad at me or be disappointed in me
- I didn't want to get punished (e.g., grounded, no TV or phone, etc)
- I knew my parent wouldn't let me do that activity again or go off with my friends so easily next time
- I didn't want them to not trust me anymore
- I didn't want my parent to start watching me a lot more closely
- I feel bad that I did this, and I just don't want to talk about it or for them to know about it.
- I was worried that my parent would think that friend was a "bad example", or I wouldn't be allowed to see that friend anymore
- My parent had already told me not to do this lots of times before
- A friend told me not to tell OR my friend would be upset if I told
- Other: Tell me why else you decided to keep this a secret: