

Brief Report: Young Children's Risk of Unintentional Injury: A Comparison of Mothers' and Fathers' Supervision Beliefs and Reported Practices

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Objective There is increasing interest in understanding how parent supervision influences young children's risk of injury, but nearly all of this research has been conducted with mothers. The present study compared first-time mothers' and fathers' supervisory beliefs and reported practices, and related these scores to parental reports of their child's history of injuries. **Methods** Mothers and fathers of children 2–5 years each independently completed a telephone interview and previously validated questionnaires about their supervisory beliefs and practices and their child's history of injuries. **Results** Mothers and fathers provided similar reports of their child's injuries (minor, medically attended) and scored similarly on various supervision indices. Despite these similarities, the way mothers' and fathers' supervision indices related to children's injury history scores differed. Children's frequency of minor and medically attended injuries was predicted from maternal supervisory scores but not from paternal scores. **Conclusions** Maternal supervision has more impact on children's risk of injury than paternal supervision, possibly because mothers spend more time with children than fathers.

Key words children; mothers and fathers; supervision; unintentional injury.

Injuries are a leading cause of mortality and morbidity for young children (National Safety Council, 2001). Because toddlers and preschoolers are often injured in the home (Shanon, Bashaw, Lewis, & Feldman, 1992), there has been considerable interest in caregiver supervision. In recent research, mothers' beliefs about supervision and supervisory practices have been linked to children's differential risk of injury (Morrongiello, Corbett, McCourt, & Johnston, 2006; Morrongiello, Ondejko, & Littlejohn, 2004). Few studies, however, have explored whether and how paternal factors relate to childhood injury (for exception see Morrongiello & Dawber, 1999; Schwebel & Brezausek, 2004).

Research on parenting practices has revealed some differences between mothers and fathers. Fathers are often more boisterous and playful, whereas mothers are more calm and nurturant (Lamb, 1997; McBride & Mills, 1993). Interestingly, although comparisons of mothers' and fathers' supervisory behaviors have not been conducted, children expect differences in supervision

and believe that fathers are more lax and tolerant of risk behaviors than mothers (Morrongiello & Dawber, 2004).

The present study focused on parent supervision and had two aims: to determine if mothers and fathers differ in their beliefs and self-reports about supervision of their young child and if mothers' and fathers' supervision scores differentially relate to children's injury history scores.

Method

Participants

The sample comprised 107 mother–father pairs, including 56 pairs having a first-born child 2–3 years of age ($M = 2.79$ years, $SD = 5.86$ months) and 51 having a first-born child 4–5 years of age ($M = 4.78$ years, $SD = 6.04$ months), with 49% males per group and each having one younger sibling. Participants were selected randomly from a database of community families. Based on parental reports, the sample is best described as university

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educated (70%), with 80% of families earning more than \$50,000. The study was reviewed and approved by the university research ethics board.

Materials

Questionnaires. Both mothers and fathers independently completed three questionnaires and the mother completed an additional one about demographic information: (1) *Demographic Information Questionnaire* yielded information about each parent's education and family income level; (2) *Injury History Questionnaire* (IHQ) provided an index of the frequency with which the child had sustained minor injuries (i.e., required only parental attention) over the past 6 months and medically attended injuries (i.e., doctor or dentist treated) since birth; research has shown that parents are reliable reporters of children's medically attended injuries (Pless & Pless, 1995) and minor injuries (Cummings, Rivara, Thompson, & Reid, 2005); (3) *Injury Behavior Checklist* (IBC; Speltz, Gonzales, Sulzbacher, & Quan, 1990) provided a measure ($\alpha = .89$ in this sample) of a child's typical level of risk taking. Parents use a 5-point Likert scale to indicate for each of 24 items how frequently the child engages in the risk behavior, with higher scores indicating more risk taking; and (4) *Parent Supervision Attributes Profile Questionnaire* (PSAPQ) has strong psychometric properties and relates to actual supervision and children's injury history scores (Morrongiello & Corbett, 2006; Morrongiello & House, 2004). The PSAPQ comprises two parts. Part I ($\alpha = .75$ in this sample) comprises 25 items and assesses parental beliefs about supervisory needs of children at home; for each item the parent uses a 5-point Likert scale to indicate extent of agreement (1 = strongly disagree, 5 = strongly agree). Part II ($\alpha = .89$ in this sample) comprises 23 items and assesses parental supervision practices during play (e.g., child is watching TV), self care (e.g., child is washing hands in bathroom sink), and risky activities that are commonplace for children (e.g., child is kneeling on a chair to do something on a table top); for each item the parent uses a 5-point option scale to indicate extent of supervision (1 = I'm typically in another room and I go to my child when s/he calls for me, 5 = I'm typically in the same room and within arm's reach of my child). For both parts, higher scores indicate closer supervision; a total score can be determined by summing scores from Part I and Part II.

Structured Interview. In a separate 20 min phone interview, each parent completed the Beliefs About Supervision (BAS, Morrongiello & Hogg, 2004; Morrongiello et al., 2004) protocol, which involves presenting 30 scenarios about the home (randomly ordered) and asking two

questions after each scenario: the *youngest age* at which they would allow their child to be without continuous supervision in the situation described and their *frequency of checking* on the child when the child is not continuously supervised. The 30 scenarios described various locations in and around the home and comprised 15 risk and 15 parallel no-risk situations; the risk situations were similar to the no-risk ones but with the addition of a hazard (e.g., 'the child is playing with toys on the floor of his/her bedroom' was changed to 'the child is playing with toys on the floor of his/her bedroom and there is a medicine container with pills open on the top of the dresser'); these hazards were based on prior research in which mothers identified safety issues in their home for children at these ages (Morrongiello, Midgett, & Shields, 2001; Morrongiello & Kiriakou, 2004). The scenarios posed different potential child-safety risks related to falls (four items), burns (four items), cuts (four items), poisoning (four items), suffocation/strangulation/choking (four items), drowning (four items), and peer presence (six items, e.g., allow a child to watch TV with their friend).

Procedure

A telephone interview was scheduled for each parent at a time the other parent was not home. A Research Assistant presented the BAS protocol (stating each of the 30 scenarios, one at a time in random order followed by the questions about *youngest age* and *frequency of checking*). Once the telephone interviews with each parent were completed, each parent was mailed a questionnaire package to complete and return in a self-addressed, stamped envelope; to encourage independent completion of the questionnaires, these were staggered so one package was returned before sending one to the other parent.

Results

To assess for differences in risk taking, an Analysis of Variance (ANOVA) was conducted on IBC scores, with child age (2) \times child sex (2) \times parent (2) as between-participant factors. A main effect of child sex indicated that boys engaged in more risk taking than girls (see Table 1), $F(1, 206) = 17.97, p < .01, \eta_p^2 = 0.28$.

For the PSAPQ-Part I on beliefs about supervision, an ANOVA with child age (2) \times child sex (2) \times parent (2) as between-participant factors revealed a child age \times child sex interaction, $F(1, 204) = 4.64, p < .05, \eta_p^2 = 0.20$. Follow-up tests revealed (see Table 1) that mothers and fathers believed in more closely supervising girls than boys in the younger age group, $F(1, 109) = 7.52, p < .01$.

Table I. Mean (*SD*) Scores for IBC, PSAPQ—Part I (Supervisory Beliefs) and Part II (Supervisory Behavior) and Minor (Last 6 Months) and Medically Attended (Lifetime) Injuries for Boys and Girls in Each Age Group, Collapsed Across Mothers' and Fathers' Ratings

	Age group	Child	
		Boys	Girls
IBC	Younger	31.55 (12.01)	23.65 (10.56)
	Older	37.25 (11.20)	22.04 (10.95)
PSAPQ	Part I	Younger	3.13 (.35)
		Older	3.06 (.41)
	Part II	Younger	3.76 (.52)
		Older	3.10 (.54)
Injury	Minor	Younger	11.52 (18.72)
		Older	8.98 (15.29)
	Medically Attended	Younger	3.27 (4.29)
		Older	4.38 (4.21)

For boys, parents believed the level of supervision needed was low and did not differ across age. However, for girls, parents believed the level of supervision was significantly higher in the younger than the older age group, $F(1, 107) = 16.93$, $p < .01$, and this declined to the boys' level for 4- to 5-year-olds.

With respect to the PSAPQ-Part II on parental reports of their home supervision practices, parents reported providing closer supervision of younger than older children for boys and girls alike, $F(1, 102) = 40.40$, $p < .01$ and $F(1, 108) = 91.76$, $p < .01$, respectively. However, consistent with the previous patterns of findings, there also was a child age \times child sex interaction, $F(1, 206) = 7.11$, $p < .01$, $\eta_p^2 = 0.30$. Follow-up tests revealed (see Table I) that parents reported providing closer supervision for girls than boys in the younger age group, $F(1, 110) = 3.91$, $p < .05$; there was no difference between their supervision of boys and girls in the older age group.

Consistent with the PSAPQ results, analyses of the BAS data revealed no differences between mothers' and fathers' ratings for *youngest age*. However, an ANOVA with child age (2) \times child sex (2) \times parent (2) as between-participant factors and scenario condition (2) as a within-participant factor revealed an interaction of scenario \times child age \times child sex, $F(1, 205) = 4.60$, $p < .01$, $\eta_p^2 = 0.20$. Independent ANOVAs were therefore conducted on age scores for the risk and no-risk scenarios, with child age (2) \times child sex (2) as between-participant factors.

For *no risk situations*, the age at which parents would allow their child to be left unsupervised varied depending on their child's current age [$F(1, 205) = 3.87$, $p < .05$,

$\eta_p^2 = 0.20$] and sex, $F(1, 205) = 11.01$, $p < .01$, $\eta_p^2 = 0.15$. Parents of younger children anticipated that they would not leave their child alone until 4.34 years of age ($SD = 1.40$ years), whereas parents of children in the older age group reported leaving their child alone in no risk situations at about 3.97 years ($SD = 1.23$ years), $F(1, 205) = 3.87$, $p < .05$, $\eta_p^2 = 0.20$. Similarly, parents of daughters anticipated not leaving their child unsupervised in no-risk situations until 4.47 years ($SD = 1.39$), whereas parents of sons planned to do so at a significantly younger age [$M = 3.87$ years, $SD = 1.21$, $F(1, 205) = 11.01$, $p < .01$, $\eta_p^2 = 0.25$]. The exact same pattern was obtained for parents' estimates of the age at which they would leave their child unsupervised in *risk situations*: Younger versus older group [$M = 5.73$ and 5.15 years, $SD = 1.77$ and 1.50, respectively, $F(1, 205) = 6.40$, $p < .01$, $\eta_p^2 = .23$] and girls versus boys [$M = 5.79$ and 5.13, $SD = 1.68$ and 1.60, respectively, $F(1, 205) = 8.58$, $p < .01$, $\eta_p^2 = 0.24$]. In making decisions about supervision, therefore, parents consider their child's age and sex, and mothers and fathers draw similar inferences about the supervisory needs of their children.

With regard to *frequency of checking*, there was no significant variation except due to scenario condition, $F(1, 205) = 60.29$, $p < .01$, $\eta_p^2 = 0.23$. In no-risk situations, parents would check on the child about every 11.01 min ($SD = 6.83$) and in risk situations they would check every 9.30 min ($SD = 5.76$). Hence, parents anticipated providing closer supervision in risk situations.

With respect to injuries, ANOVAs revealed no differences between mothers and fathers in the number of minor ($p > .05$) or medically attended injuries reported ($p > .05$); hence, these data were averaged. As can be seen in Table I, for *minor injuries*, there was a significant child age \times child sex interaction, $F(1, 197) = 8.18$, $p < .01$, $\eta_p^2 = 0.24$. Follow-up ANOVAs revealed that younger children experienced more minor injuries than older ones for boys [$F(1, 104) = 4.55$, $p < .05$], but the incidence of minor injuries for girls was comparably low at both ages ($p > .05$). At both ages, boys experienced more minor injuries than girls, $F(1, 107) = 3.75$, $p < .05$ and $F(1, 94) = 4.81$, $p < .05$, respectively. Analysis of the frequency of *medically attended injuries* (see Table I) indicated that older children experienced more injuries than younger children, $F(1, 202) = 13.17$, $p < .01$, $\eta_p^2 = 0.16$; differences due to sex were in the expected direction but did not quite reach significance.

Separate hierarchical regressions were conducted to evaluate if mother and/or father supervision indices predicted *minor injuries* or *medically attended injuries* after

Table II. Summary of Hierarchical Multiple Regressions Predicting Minor and Medically Attended Injuries from Mothers' and Fathers' Supervision Scores After Controlling for Child Age, Sex, and Risk Taking (IBC)

Step	Variable	Minor				Medically Attended			
		<i>B</i>	<i>SE B</i>	β	<i>R</i> ² change	<i>B</i>	<i>SE B</i>	β	<i>R</i> ² change
1					.07				.10*
	Age	.01	.02	.16		.00	.00	.24*	
	Sex	.07	.05	.15		.02	.03	.06	
	IBC—mother	.01	.00	.26		.00	.00	.19	
	IBC—father	.00	.00	.01		.00	.00	.16	
2					.17*				.09*
	Age	.01	.03	.36		.00	.00	.25	
	Sex	.06	.05	.14		.04	.03	.13	
	IBC—mother	.01	.00	.25		.00	.00	.20	
	IBC—father	.00	.00	.13		.00	.00	.15	
	Mother supervision								
	PSAPQ—total	-.15	.07	-.26*		-.10	.05	-.24*	
	BAS—age	-.13	.06	-.32*		-.01	.01	-.07	
	BAS—checking	.10	.10	.11		.13	.07	.23*	
	Father supervision								
	PSAPQ—total	-.13	.07	-.20		-.05	.04	-.13	
	BAS—age	-.02	.02	-.12		-.01	.01	-.06	
	BAS—checking	.06	.09	.07		.08	.06	.14	

**p* < .05.

controlling for child variables. Child age (months), child sex, and risk-taking score on the IBC (see Table I) were entered in Step 1 to control for these variables, and separate supervision scores for both mothers and fathers were entered in Step 2 (PSAPQ-Total, BAS-Age, BAS-Checking Frequency); the inter-correlation table is available on request but no correlations exceeded .50 and multicollinearity was not evident. Results are shown in Table II. For minor injuries, Step 1 did not add significantly to the final model but Step 2 did, accounting for 17% of the variance, $F(8, 89) = 2.42$, $p < .05$. Interestingly, maternal supervision scores but not paternal scores predicted injuries. For mothers, high scores on the PSAPQ-Total and BAS-Age predicted fewer minor injuries. For medically attended injuries, a significant Step 1 [$F(4, 98) = 2.72$, $p < .05$] accounted for 10% of the variance and confirmed that increases in medically attended injuries occurred with age. Step 2 was also significant and accounted for an additional 9% of the variance, with maternal supervision indices but not paternal scores predicting injury. Specifically, having a mother who scored high on the PSAPQ-Total and frequently checked when the child was left unsupervised (BAS-Checking) predicted fewer medically attended injuries ($p < .05$). Thus, for both minor and medically attended injuries, maternal supervision indices but not paternal scores predicted childhood injuries.

Discussion

The present study compared mothers' and fathers' beliefs and self-reports about supervision, and the results revealed virtually no parent differences. Similarities between mothers' and fathers' behaviors when teaching a risky play activity to children at these young ages have been noted previously (Morrongiello & Dawber, 1999). Thus, although mothers' and fathers' parenting behaviors differ in some contexts (Lamb, 1997), their supervisory practices appear to be more similar than different, at least at these young ages. Possibly, concern about injury to young children evokes 'protective' parenting reactions that are highly constrained and therefore similar for mothers and fathers, whereas interactive parent-child play situations allow for the emergence of greater variation in and differences between mothers' and fathers' parenting behaviors. In future research, comparing mother-child and father-child interaction patterns and relating these to each parent's supervisory practices may provide useful information to address this hypothesis more thoroughly.

Interestingly, despite the fact that boys engaged in greater risk taking than girls in this sample, parents reported more closely supervising girls than boys (see also Morrongiello et al., 2004), which may explain why boys experienced more injuries than girls. The findings also revealed that mothers' supervisory beliefs and behaviors play a more critical role than those of fathers

in influencing children's risk of injury. Possibly, mothers spend more time than fathers with their young child at home, resulting in their supervisory practices having greater impact on injury risk than those of fathers. It may also be that children's risk behavior differs with each parent and this affects how supervision relates to injury risk. Children behave more playfully and show greater physical arousal and activity levels with fathers than mothers (McBride & Mills, 1993), and they expect fathers to allow them to engage in greater risky play than mothers (Morrongiello & Dawber, 2004). Possibly, this pattern of child behavior with fathers reduces the protective function of supervision, resulting in paternal supervision showing less relation to childhood injury than maternal supervision.

The protective function of supervision is evident by the fact that mothers who would not leave their child unsupervised until their child was older and mothers who frequently checked on their child both had children who had experienced fewer injuries. Extending this research to more systematically study the bases on which parents make decisions about leaving children unsupervised and frequency of checking on their child can provide important insight into potential targets for intervention programs that aim to reduce children's injury risk by improving parents' supervisory practices.

Importantly, mothers and fathers were highly similar in their reporting about the frequency of their children having experienced minor injuries during the past 6 months and medically attended injuries since birth. Prior research confirms that mothers are reliable reporters about children's frequency of injuries, and the present findings suggest that these conclusions extend to fathers. It may be, therefore, that researchers who seek to have parents report on children's injuries need not be concerned if the group is heterogeneous and comprises both mothers and fathers. Comparing maternal with paternal recall of *specific* injuries, and relating their recall of injuries to the extent of time they spend with their child, would be a logical next step to further explore this important issue.

In future research it would be useful to conduct naturalistic observations to fully examine children's behaviors and parent supervision and how these factors interact to influence injury risk. Limitations in the current study also should be addressed, including that the sample was fairly homogenous in education and income. In addition, the fact that mothers and fathers reported similarities in supervision leaves open the question of how this comes to occur. Does one parent 'tutor' the other in how to supervise, or set the 'family standards' regarding supervision in the home? Or does each parent independently

draw their own conclusions about their child's supervisory needs and these just happen to be comparable across parents within a family? Further research is needed to enhance our understanding of the bases on which mothers and fathers decide on the supervision needs of their individual children, and how these decisions influence a child's risk of unintentional injury.

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References

- Cummings, P., Rivara, F. P., Thompson, R. S., & Reid, R. J. (2005). Ability of parents to recall the injuries of their young children. *Injury Prevention, 11*, 43–47.
- Lamb, M. E. (1997). The development of father-infant relationships. In M. E. Lamb (Ed.), *The role of the father in child development* (pp. 104–120). New York: John Wiley & Sons.
- McBride, B. A., & Mills, G. (1993). A comparison of mother and father involvement with their preschool age children. *Early Childhood Research Quarterly, 8*, 457–477.
- Morrongiello, B. A., & Corbett, M. (2006). The parent supervision attributes profile questionnaire (PSAPQ): A measure of supervision that is relevant for understanding children's risk of unintentional injury. *Injury Prevention, 12*, 19–23.
- Morrongiello, B. A., Corbett, M., McCourt, M., & Johnston, N. (2006). Unintentional injuries in young children: II. The contribution of caregiver supervision, child attributes, and parent attributes. *Journal of Pediatric Psychology, 31*, 540–551.
- Morrongiello, B. A., & Dawber, T. (1999). Parental influences on toddler's injury-risk behaviours: Are sons and daughters socialized differently? *Journal of Applied Developmental Psychology, 20*, 227–251.

- Morrongiello, B. A., & Dawber, T. (2004). Identifying factors that relate to children's risk-taking decisions. *Canadian Journal of Behavioural Science, 36*, 255–266.
- Morrongiello, B. A., & Hogg, K. (2004). Mothers' reactions to children misbehaving in ways that can lead to injury: Mothers' feelings, orientation to safety, and attributions for resulting injuries. *Sex Roles, 50*, 103–118.
- Morrongiello, B. A., & House, K. (2004). Measuring parent attributes and supervision behaviors relevant to child injury risk: Examining the usefulness of questionnaire measures. *Injury Prevention, 10*, 114–118.
- Morrongiello, B. A., & Kiriakou, S. (2004). Mothers' home-safety practices for preventing six types of childhood injuries: What do they do and why? *Journal of Pediatric Psychology, 29*, 285–297.
- Morrongiello, B. A., Midgett, C., & Shields, R. (2001). Don't run with scissors: young children's knowledge of home safety rules. *Journal of Pediatric Psychology, 26*, 105–115.
- Morrongiello, B. A., Ondejko, L., & Littlejohn, A. (2004). Understanding toddlers' in-home injuries: II. Examining parental strategies, and their efficacy, for managing child injury risk. *Journal of Pediatric Psychology, 29*, 433–446.
- National Safety Council (2001). *Injury Facts: 2001 Edition*. Chicago: National Safety Council.
- Pless, C. E., & Pless, I. B. (1995). How well they remember. The accuracy of parent reports. *Archives of Pediatrics & Adolescent Medicine, 149*, 553–558.
- Schwebel, D. C., & Brezaussek, C. M. (2004). The role of fathers in toddler's unintentional injury risk. *Journal of Pediatric Psychology, 29*, 19–28.
- Shanon, A., Bashaw, B., Lewis, J., & Feldman, W. (1992). Nonfatal childhood injuries: a survey at the Children's Hospital of Eastern Ontario. *Canadian Medical Association Journal, 146*, 361–365.
- Speltz, M. L., Gonzales, N., Sulzbacher, S., & Quan, L. (1990). Assessment of injury risk in young children: a preliminary study of the injury behavior checklist. *Journal of Pediatric Psychology, 15*, 373–383.