



The Role of Paternal Supervision in Toddler's Unintentional Injury Risk and Severity

Jennifer Kuhn, M.S. and Amy Damashek, Ph.D
Western Michigan University
Department of Psychology

Terri Lewis, Ph.D.
University of Alabama-Birmingham
School of Public Health

Unintentional Injuries

- Unintentional injuries
 - Injuries that occur with no intent to harm child.
 - Termed “unintentional” rather than “accidental” to emphasize that they are predictable, controllable, and preventable

Negative Impact of Unintentional Injuries on Children

- Unintentional injuries are the leading cause of death among children in the U.S.
- Injuries account for 12,175 deaths among children between the ages of 0 and 19 each year (Borse et al., 2008).
- Non-fatal unintentional injuries account for approximately 9.2 million emergency room visits yearly and lead to many negative consequences, such as physical disabilities and trauma (Borse et al., 2008).
- In order to prevent these negative outcomes, more research is needed on factors relating to childhood injury.

Factors related to children's unintentional injury risk

- **Child Factors**
 - Male gender
 - Risky/externalizing behavior
- **Caregiver and Family Factors**
 - Caregiver psychopathology
 - Caregiver alcohol use
 - Low family socioeconomic status
 - Injury prevention behaviors (e.g., supervision)

Maternal Supervision

- Research indicates that maternal supervision may protect young children (ages 2-5) from unintentional injury
 - As supervision increases, unintentional injuries **decrease** (Damashek, Williams, Sher, & Peterson, 2009; Morrongiello, 2005; Morrongiello, Corbett, McCourt, & Johnson, 2006; Morrongiello, Walpole, & MacArthur, 2009).

Fathers' Role in Children's Unintentional Injuries

- Research suggests that children's development is significantly influenced by both mothers and fathers; however, fathers are not typically included in developmental research (Phares et al., 2005).
 - Few studies have examined the role of fathers on children's unintentional injuries.
- Fathers injury prevention behaviors (e.g., supervision) may also be important for preventing injuries.
 - Important to study the role of fathers' supervision on childhood unintentional injuries.

Findings on the Role of Fathers in Children's Unintentional Injuries

- Mothers and fathers have similar reactions (e.g., educating about risk and safety behaviors, providing aid and comfort) to children's (24-26 months) risky behavior (Morrongiello, Zdzieborski, & Normand, 2010).
- Fathers' reported gains in employment and participation in household chores increased toddlers' (6-36 months) risk for medically attended unintentional injuries (Schwebel & Brezausek, 2004).
- Positive father-child relationships resulted in decreased medically attended injury risk in middle childhood, especially for boys (Schwebel & Brezausek, 2010).
- Mothers and fathers of 2-3 year olds reported similar supervision practices (Morrongiello, Walpole, and McArthur, 2009)
 - Only maternal supervision predicted lower injury frequency
 - Possibly due to differences in parenting styles

Summary

- Research indicates:
 - Higher maternal supervision is related to lower child injury risk.
 - Fathers play an important role in children's risk for unintentional injury.
- Little research on the role of paternal supervision in children's injury risk.
 - Findings indicate mothers' supervision may be better predictor of children's injury risk
 - More research is needed.

Purpose of Current Study

- The present study examined whether:
 - (1) Fathers' levels of supervision of toddlers differed from mothers' levels of supervision.
 - (2) Toddlers' injury risk and severity differed when supervised by fathers versus mothers.
 - (3) Caregiver type (i.e., mother versus father) moderated the effect of supervision level on injury outcomes.
 - (4) Toddler activity level moderated the effect of caregiver type on injury outcomes.

Participants

- Mothers (n=170):
 - with singleton toddlers between 15-36 months
 - primarily married (83%)
 - college educated (80%)
 - earned greater than \$30,000 yearly (78%)
 - predominantly Caucasian (91%)
 - mid-to-late 20s (M=28.8, SD=4.43)
- Children:
 - Mean age = 24 months, SD = 7
 - 54% boys, 46% girls

Method: Procedures

- Prospective data were collected via biweekly in-person interviews with 170 mothers of toddlers in a mid-size Midwestern community for 6 months.
- Mothers recorded children's minor injuries along with the antecedents, consequences, and physical characteristics of injuries.
- A case crossover design was used to examine injury risk; thus, data were collected regarding circumstances preceding injury events and non-injury (control) events.
 - Injury events were matched to non-injury events by day of the week and time

Method: Measures

- Caregiver supervision
 - Mothers reported supervision levels for both themselves and fathers
 - Reported what the caregiver was doing prior to the injury, whether or not caregiver was engaged in an activity with the child, and how many feet the caregiver was from the child.
 - Supervision was scored using a 1-7 scale
 - 7= caregiver and child were less than 6 feet apart and not engaged in another activity
 - 1= caregiver had no visual or auditory contact and could not have reached the child within 30 seconds

Method: Measures

- Child activity level:
 - Mothers reported activities that children were engaged in prior to injury
 - Activities coded into 27 activity codes and then categorized as either high activity (e.g., walking, running) or low activity (e.g., eating, sleeping).
- Injury Severity:
 - The Minor Injury Severity Scale (MISS) used to code injury severity (Peterson, Heiblum, & Saldana, 1996).
 - coders used injury descriptions to code each injury based on size, shape, depth, amount of blood loss, and location on body
 - 0 = no tissue damage, 6 = a disabling injury or death

Descriptive Statistics

- Number of injuries for study period
 - Boys – $M=10.0$, $SD=5.7$
 - Girls – $M=10.51$, $SD=6.4$
- Injury severity: $M=1.6$, $SD=0.68$; range 1-5
- Caregiver supervision; $M = 5.9$, $SD = 1.2$; range 1-7
- Activity level:
 - Injury events: 69% high activity, 31% low activity
 - Non-injury events: 16% high activity, 84% low activity

Results: Comparing Maternal and Paternal Supervision Levels

Caregiver	Mothers <i>M</i> (<i>SD</i>)	Fathers <i>M</i> (<i>SD</i>)	<i>t</i> statistic
Supervision	5.79 (1.3)	6.10 (1.2)	-4.0***

*** $p < .0001$. *n* for supervision = 2,182 injury and control events.

Fathers' supervision was slightly higher than mothers' supervision.

Results: Conditional Logistic Regression Predicting Injury Risk

Variable	Odds Ratio	95% C.I.
Caregiver supervision	0.99	0.89, 1.11
Caregiver (mom versus dad)	10.38*	1.63, 66.19
Child activity level	14.36***	9.91, 20.80
Supervision * caregiver type	0.72*	0.54, 0.95
Caregiver type* activity level	1.06	0.49, 2.33

$n = 2,091$. * $p < .05$. ** $p < .01$. *** $p < .01$. For caregiver, 1 = father and 0 = mother. For activity level, 1 = high and 0 = low.

	Odds Ratio (95% CI) Moms only	Odds Ratio (95% CI) Dads only
Supervision	0.89 (0.83, 0.95)**	0.82 (0.68, 0.99)*

Injury Risk Results Summary

- Children were at higher risk for injury when they were being supervised by fathers.
- Caregiver type interacted with supervision level such that closer supervision was a slightly stronger predictor of decreased injury risk for mothers than for fathers.
- Higher child activity level predicted higher risk for injury but did not interact with caregiver type.
 - Fathers were more likely to engage in high level activities with their children than were mothers [$\chi^2 (1) = 16.5, p < .0001$].

Results: Multi-level Model Predicting Injury Severity

Variable	Estimate (SE)
Child gender	-.00 (.04)
Caregiver supervision	-0.09 (.04)*
Caregiver (mom versus dad)	-0.29 (0.22)
Child activity level	-0.10 (0.05)*
Supervision * caregiver type	0.05 (0.03)
Caregiver * activity level	0.04 (0.12)

$n = 1,915$. * $p < .05$. For caregiver, 1 = father and 0 = mother. For activity level, 1 = high and 0 = low. For child gender, 1 = male and 2 = female.

Injury Severity Results Summary

- Higher supervision predicted lower injury severity.
- Child activity level did predict injury severity, but in an unexpected direction.
- Caregiver type did not predict injury severity.
- There were no significant interactions.

Discussion

- Injury severity: Although higher supervision predicted lower injury severity, there were no significant interactions with caregiver type.
- Injury risk: Although fathers supervised at slightly higher levels, children were at a higher risk of injury when supervised by fathers.
- Mothers' supervision was a stronger predictor of decreased injury risk than was fathers' supervision.
- Although fathers were more likely to engage in higher level activities with their children, this did not result in an increased injury risk.

Discussion (cont'd.)

- Our findings suggest there is a need to examine specific aspects of paternal supervision (e.g., whether fathers intervene when they observe risky behavior) and how they are related to injury risk.
 - Fathers' perceptions of whether behavior is risky or not may influence their injury prevention practices.

Limitations

- Homogenous sample – mostly upper middle-class, Caucasian families.
- Predominantly minor injuries
- Relied on mother's reports of father's supervision.

Study Implications

- It is important to include fathers in injury prevention efforts in order to more effectively prevent future unintentional injuries.
- More research needed on fathers' role in preventing injuries:
 - Use paternal reports of supervision or observations
 - Examine specific supervisory behaviors that may lead to higher injury risk.