“I Think He Is in His Room Playing a Video Game”: Parental Supervision of Young Elementary-School Children at Home

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Objectives Using a prospective design, this research examined supervision of young elementary-school children at home and how this relates to child injury, parent permissiveness, and children’s risk-taking propensity. Methods Mothers reported children’s history of injuries and recorded home supervision over a 2-month interval on a weekly basis. Children independently completed diaries about daily events, including injuries. Results Children spent 24% of time alone, mostly supervised intermittently or not at all. Parent permissiveness was associated with increased time unsupervised, while children’s risk-taking propensity was associated with decreased time unsupervised. Greater direct supervision was associated with fewer injuries, while more indirect and non-supervision time emerged as risk factors and were associated with more frequent injury. Conclusions These results extend those from preschool-aged children and suggest that caregiver supervision influences risk of injury across a broad age range throughout childhood. Implications for children’s safety are discussed.

Key words accidents and injuries; children; parenting.

Introduction

In the United States, as in most developed countries, unintentional injury is the leading cause of death for children over one year of age (World Health Organization, WHO, 2005). In fact, more children die each year from unintentional injury than from all other childhood diseases combined (Wallis, Cody, & Mickalide, 2003). Unintentional injury also ranks as a leading cause of hospitalization for children, with approximately one of four children in the United States sustaining a medically attended injury annually (Scheidt et al., 1995). A staggering 14 million days of school are lost each year by students 6–16 years of age as a result of unintentional injury (National Safety Council, 1991). Given the scope of this problem, it is not surprising that research has sought to identify risk and compensatory factors (i.e., those associated with increased versus decreased frequency of injury, respectively) so that targeted interventions can be developed to address this pressing child health issue. Recent research reveals that caregiver supervision is a critical determinant of childhood injury (Morrongiello, Corbett, & Brison, 2009). In virtually all of this research, however, the focus has been limited to caregivers of preschool children (<6 years of age). Little is known about how caregivers supervise school-age children, what factors influence supervision practices, and how supervision relates to children’s risk of injury. The present study addressed these gaps in knowledge for children aged 7–10 years of age.

Although there is little consensus on how to define supervision (see Morrongiello, 2005 for discussion), or what constitutes ‘adequate’ supervision (Peterson, Ewigman, & Kivlahan, 1993), there is agreement that the behavioral dimensions of attention (e.g., watching), proximity (e.g., within versus beyond reach), and continuity (e.g., sustained versus intermittent attention) are important for determining extent of supervision (Gitanjali et al., 2004). Indeed, based on parental reports of these dimensions of their behavior, researchers have distinguished
several levels of supervision (Morrongiello, Ondejko, & Littlejohn, 2004a, b) and found that these differentially influence children’s risk of injury, at least for preschool children. Specifically, direct supervision in which a child is being watched continuously has been found to predict reduced frequency of injury for toddlers, whereas indirect supervision (e.g., supervising intermittently, such as periodic checking on a child who is in another room and out of view) and leaving children unsupervised (i.e., have not checked on child in at least 5 min and cannot say with certainty where the child is and/or what child the is doing) are associated with increased risk of childhood injury (Harrell, 2003; Morrongiello et al., 2004a, b; Pollack-Nelson & Drago, 2002; Schwebel & Bounds, 2003). Research also indicates that during the course of their day at home, young children are routinely unsupervised for some percentage of their awake time (Morrongiello, Corbett, McCourt, & Johnston, 2005a, b), which may contribute to explain why preschool-aged children are so often injured in the home despite the fact that caregivers are present (Shannon, Brashaw, Lewis, & Feldman, 1999). There is clear evidence, therefore, that caregivers provide a variety of different patterns of supervision for preschool children at home, and extent of supervision influences young children’s risk of injury (Morrongiello et al., 2009).

For elementary-school children, very little is known about how caregivers routinely supervise and if level of supervision relates to injury risk. It is known that by the time children reach adolescence, parental monitoring (i.e., general “tracking of the child’s whereabouts, activities, and adaptations”; Dishion & McMahon, 1998, p. 61) is commonplace, with the major focus on presumptive knowledge of the child’s whereabouts and activities (e.g., based on past experiences with the child or knowledge of the child’s likes and dislikes) and without direct observation or checking on the child (Crouter & Head, 2002; Stattin & Kerr, 2000). Thus, by adolescence, ‘supervision’ is defined in terms of indirect monitoring or knowledge of the child, more so than parental behaviors (i.e., attention, proximity, and continuity). Interestingly, just as low levels of supervision has been associated with greater risk taking and higher risk of injury in preschool children, there is evidence that reduced monitoring of teens is associated with greater frequency of a host of risk activities including antisocial behavior, illicit substance use, smoking, delinquency, and sexual risk activity (Reid & Patterson, 1989; Sampson & Laub, 1994; Snyder & Patterson, 1987). Thus, the pattern of these findings suggests that both early in childhood and during adolescence, caregiver supervision/monitoring impacts children’s risk activities and well being.

Building on these findings, in the present study, a short-term prospective design was used to examine links between maternal supervision and injuries to young elementary-school children 7–10 years of age. Specifically, mothers were trained to record (2-month interval) their child’s location and activities at home, as well as the nature and extent of supervision provided the child. Their children were trained to independently complete a daily diary form that included reporting on minor injuries. The data were then used to determine the nature and extent of supervision that children routinely experience when at home, the location and type of activities in which children engage at home, and how the extent of supervision related to children’s history of treated injuries (lifetime and 3 months preceding the study), as well as injuries experienced during the study. Because past research with young children suggests parents who are permissive engage in more lenient parenting practices that can elevate risk of injury (Morrongiello et al., 2006a, b) and children who are risk takers necessitate closer supervision (Morrongiello & Dawber, 1998, 1999), we explored if these factors related to the level of supervision caregivers provided to school-age children in this study. Generally, it was hypothesized that higher levels of supervision would be associated with reduced frequency of injury and more likely to occur among parents low in permissiveness and those having children they rated higher in propensity to risk take.

Materials and Methods
Participants

The final sample comprised 74 mothers of sons (n = 36) and daughters (n = 38) who were aged 7–10 years old (M = 8.49 years, SD = 1.52); an additional 5 mother–child pairs were recruited but dropped out after they started and did not complete any at-home recordings. Participants lived in a suburban setting and were randomly selected from an existing database of 13,000 families who previously expressed interest in research on child development; participation rate was 79% of the 100 families contacted. The criteria for inclusion were that they be 2-parent households, the family was fluent in English, the child was normally developing as reported by the parent, and that no family member had ever been hospitalized for injury. Mothers were predominantly Caucasian (96%), and generally well-educated, with 77% having completed at least one university or college degree, 18% having completed some university or college courses, and 5% having completed high school. Family income fell within the mid- to high-socioeconomic status range, with 66% earning $80,000
and above, 15% earning between $60,000 and $80,000, 11% earning between $40,000 and $60,000, and 8% earning under $40,000 per year.

**Measures**

Mothers completed the following questionnaires: (1) *Family Information Questionnaire* that asked mothers to provide demographic information about ethnicity, education, and family income; (2) *Injury History Questionnaire* that provided an index of the frequency with which the child had sustained an injury requiring treatment by the parent (e.g., ice pack) during the three months before initiation of the study, and the number of medically attended injuries including hospitalizations since birth; we limited our focus to treated injuries and these time frames because past research indicates that mothers are unlikely to accurately report on more minor (i.e., untreated) injuries for children at these ages (Morrongiello, 1997; Peterson, Harbeck, & Moreno, 1993), but mothers are accurate reporters of treated injuries over the time frames used (Cummings, Rivara, Thompson, & Reid, 2005; Pless & Pless, 1993); (3) *Risk Propensity Scale* (RPS, Meertens & Lion, 2008) provides a measure of the child’s propensity to take risks. For each of 8 items (e.g., My child usually views risks positively, that is, as a challenge and chance to try something new) mothers indicated, using a 5-point Likert Scale, their extent of agreement. Cronbach’s alpha indicated good internal reliability for this sample ($\alpha = .83$). Responses were summed to produce a single score (range 8–40), with higher numbers indicating greater propensity to take risks; and (4) *Parental Authority Questionnaire—Revised* (PAQ-R, Reitman, Rhode, Hupp, & Altobello, 2002) provides a measure of parenting style and was used to index permissiveness (10 items, e.g., *Most of the time I do what my children want when making family decisions*; $\alpha = .73$ for this sample).

In addition, mothers completed a *Supervision Diary Recording Sheet*, adapted from one used in earlier research with mothers of preschool children (Morrongiello et al., 2006a, b), on which mothers provided information about how they and their child spend time at home, with a focus on supervision; extensive pilot testing was conducted in developing the format for this sheet. Starting from the time when mother and child were both awake and continuing throughout the day until the child went to bed, mothers were asked to record the time whenever the child’s activity or room changed, supervisor or supervision changed, or if the mother or child left the house (at which point recordings stopped until they returned). For each entry, the mother also indicated what room the child was in, whether the child was alone in the room, and doing an activity alone. In addition to these questionnaires, mothers also completed a newly developed measure aimed at assessing parent supervision for which the currently reported supervision data will be used for establishing validation; questionnaire validation is not considered in this report.

Children completed a daily diary sheet in which they reported on any injury (i.e., event that resulted in any sort of tissue damage that persisted for at least 1 hr, such as a burn, scrape, bump, cut, or bruise) that occurred during that day or, if no injury had occurred, on aspects of their day (e.g., weather, what they wore, or if they attended school). Pilot testing confirmed these variations in sheets took the same length of time to complete, were easily understood, and could be completed independently by children; during the lab visit, each child practiced completing the sheets so parents would not need to help them. These were identical in format and easy to complete in about 5 min (e.g., check off boxes and circle responses); for the present study, our interest was limited to the number of injuries reported overall.

**Procedure**

During an initial home visit lasting approximately 1 hr, mothers were told that the aim of the research was to examine aspects of parenting and child behavior at home. After written consent was obtained, mothers completed the questionnaires in random order. Mothers were also provided with a binder containing copies of the supervision diary recording sheet and were trained to complete it properly. This training involved explaining to mothers the three types of supervision that were of interest: direct supervision (e.g., child is constantly watched by the parent, even from a distance without the child knowing); indirect supervision (e.g., supervisor is in a different location than the child and is intermittently attending to the child by listening or checking in); and self supervision (i.e., child is left on his/her own; this constitutes the no supervision condition). The binder also contained calendars covering the 8 weeks following the home visit, which the researcher and mother used to select one day per week (of which two were to be weekend days) over an 8-week time frame on which a diary recording form should be completed. Mothers were advised that each diary sheet should be completed continuously throughout the day, as opposed to doing retrospective recordings at the end of the day; in fact, from past research, we know that retrospective recordings are impossible to do given the scope of information to be recorded (Morrongiello et al., 2006a, b). Mothers received weekly phone calls to remind them of their supervision recording day for that week, and to address any questions and concerns they had; children also received weekly phone calls to answer questions they had and remind
them to continue completing their daily sheets. Upon completion of the eight recording weeks, a researcher returned to the participant’s home to collect the binder and provide a thank you gift certificate to the mother and child.

Data Reduction

Based on pilot data, there were six rooms identified that applied to all homes (eating area = kitchen and dining room; child’s bedroom; den/living room; play/computer game room; bathroom; and yard/deck) and four common activities that depicted how children typically spent their time at home (entertainment related, such as watching television or playing video games or being on the phone; chores; self care, such as bathing; and school-related activities). Three supervision patterns were defined: direct supervision (i.e., the parent has the child in view constantly whether or not the child is aware of this); indirect supervision (i.e., the parent is in a different location than the child and is monitoring intermittently such as by listening in or conducting a periodic check-in); and unsupervised (i.e., the parent reports not monitoring or checking on the child in any way).

Based on clock times recorded on the Supervision Diary Recording Sheets, calculations were made to determine the percentage of time children spent in each of six locations at home, doing four different activities, and under the three different supervision conditions. Entries were not included in the computation of supervision measures if mothers failed to provide complete information (e.g., did not indicate the type of supervision that was occurring during the given time period) or indicated that the entry in question lasted for less than 5 min (e.g., bathroom visit), in which case they were not required to provide any information regarding the child’s supervision status; applying these exclusionary criteria resulted in less than 1% of all entries being excluded. Based on number of recording days, a rate of injury (number of injuries divided by number of recording days) was computed for each child; these injuries could occur anywhere (i.e., they were not restricted to home injuries).

Results

Despite the demands of the study, most mothers and children completed the 8-week recording period sought (M = 7.99 weeks, SD = 1.24). Preliminary analyses of variance (ANOVAs) comparing summary data (i.e., all scores reported below) from the first half of the recording interval with that from the second half of the interval did not reveal any significant variation for any measure. Thus, participants’ commitment to and thoroughness in completing the recording sheets did not diminish as the study progressed; the complete data were averaged for the primary analyses reported below. Although many questions could be addressed with the data mothers recorded, we limited our focus to how children spend time at home (i.e., where they spend their time, what they spend their time doing, and how much of their time they are alone), the level of supervision routinely provided under various circumstances, and how supervision relates to injury risk (i.e., frequency of injury). Overall, the total number of hours that were subject to study in this research averaged 4.19 hr per recording day (SD = 1.23 hr).

Where Do Children Spend Their Time and What Are They Doing?

Table I shows the percentage of time children spent in various household rooms and engaging in various activities. Because some activities occurred extremely infrequently in some locations, the location and activities data were analyzed separately. A split-plot ANOVA, with Sex (2) × Room (6) as factors, revealed a significant effect of Room, F(5,360) = 66.74, p < .01, η²p = .48. Follow-up paired-comparison tests, with a Bonferroni correction

Table I. Percentage of Time Children (N = 74) Spent Doing Different Activities as a Function of Household Room

<table>
<thead>
<tr>
<th>Room</th>
<th>Percentage of Total Time</th>
<th>Entertainment</th>
<th>Self care</th>
<th>Chores</th>
<th>School-related</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating area</td>
<td>25.11</td>
<td>13.76</td>
<td>64.32</td>
<td>11.04</td>
<td>9.66</td>
<td>1.22</td>
</tr>
<tr>
<td>Bathroom</td>
<td>4.96</td>
<td>3.33</td>
<td>95.48</td>
<td>0.50</td>
<td>0.00</td>
<td>0.69</td>
</tr>
<tr>
<td>Bedroom</td>
<td>16.53</td>
<td>52.88</td>
<td>35.79</td>
<td>5.54</td>
<td>4.51</td>
<td>1.28</td>
</tr>
<tr>
<td>Living room/Den</td>
<td>37.67</td>
<td>86.08</td>
<td>6.27</td>
<td>1.37</td>
<td>4.38</td>
<td>1.90</td>
</tr>
<tr>
<td>Playroom</td>
<td>9.32</td>
<td>89.97</td>
<td>1.89</td>
<td>2.45</td>
<td>3.78</td>
<td>1.91</td>
</tr>
<tr>
<td>Yard/deck</td>
<td>6.41</td>
<td>90.17</td>
<td>4.15</td>
<td>3.55</td>
<td>0.42</td>
<td>1.18</td>
</tr>
<tr>
<td>Overall average</td>
<td>56.03</td>
<td>34.65</td>
<td>4.08</td>
<td>3.79</td>
<td>1.36</td>
<td></td>
</tr>
</tbody>
</table>
applied, revealed that children spent more time in the living room/den areas (38% of their awake at-home time) than in any other room \((p < .05)\) and more time in eating areas than in the bathroom, yard/deck, or playroom \((p < .05)\).

A split-plot ANOVA with Sex \((2) \times \) Activity \((4)\); Other was excluded due to low scores) as factors revealed significant variation in activity (as shown in Table I), \(F(3,216) = 362.71, p < .01, \eta^2_p = .83\). Follow-up paired-comparison tests, with a Bonferroni correction applied, revealed that entertainment occurred significantly more than any other type of activity \((p < .05)\), with self care exceeding chores and school-related activities \((p < .05)\).

**To What Extent Are Children Alone and What Type of Supervision Do They Receive When Alone?**

Table II shows the percentage of time children were alone (i.e., no one else present in the room) or not, and for what percentage of time alone and not alone each of the three types of supervision occurred. A split-plot ANOVA, with Sex \((2) \times \) Alone Status \((2) \times \) Type Supervision \((3)\) as factors revealed that level of supervision varied with alone status, \(F(2,144) = 195.63, p < .01, \eta^2_p = .73\).

Follow-up one-way ANOVAs with Type of Supervision \((3)\) as a within-participant factor were applied to the alone and not alone data separately and revealed a main effect of supervision for each condition, \(F(2,144) = 60.16\) and \(79.40, p < .01, \eta^2_p = .46\) and \(.52\), respectively. Follow-up paired comparison tests, with a Bonferroni correction applied, revealed that when children were alone in a room, they were as likely to be indirectly supervised from a distance as not supervised at all \((p > .05)\) and both of these significantly exceeded the level of direct supervision \((p < .05)\). On the other hand, when they were with others in a room, the parent used direct supervision more often than indirect or no supervision \((p < .05)\), and more often supervised indirectly than not at all \((p < .05)\).

In summary, when children were awake at home they spent the most time in the living room/den areas, spent more time doing entertainment-related activities than anything else, were alone about 24% of the time, and were predominantly unsupervised or indirectly supervised from a distance when they were alone. Interestingly, there were no differences between boys and girls in any aspects of these data (i.e., location, activities, and supervision).

**Do Child or Parent Behavioral Attributes Relate to Supervision?**

Bivariate correlations were conducted to examine if child risk-taking propensity related significantly to maternal supervision. Results revealed that mothers who rated their children high in risk-taking propensity left the child unsupervised less often \([r(74) = -.21, p < .05]\), but they did not directly supervise more \((p > .05)\).

Bivariate correlations also were conducted to assess relations between parent permissiveness and the percentage of time overall that children were directly supervised \((M = 29.71\%)\), indirectly supervised \((M = 34.54\%)\), and unsupervised \((M = 35.02\%)\). Results revealed that as parents reported higher levels of permissiveness, children were more frequently unsupervised \([r(74) = .29, p < .01]\) and indirectly supervised \([r(74) = .20, p < .05]\).

As reported above, the correlational analyses indicated that time left unsupervised was influenced both by child attributes (i.e., risk-taking propensity) and parenting style (i.e., permissiveness). To examine if child risk-taking propensity interacted with parental permissiveness to impact the time children were left unsupervised, a simultaneous multiple regression analysis was conducted, with risk-taking propensity, parent permissiveness, and their interaction entered as potential predictors; variables were centered and data were screened for outliers using Cook’s Distance Values, but no data points were removed. Results revealed that a significant percentage of variance \((9\%)\) in time unsupervised was accounted for by the model, \(F(3,70) = 3.43, p < .05\). This effect was driven both by child risk-taking propensity \([B = -5.41, SE = 2.80, \beta = -.22, t(73) = 1.96, p = .05]\) and parent permissiveness \([B = 10.86, SE = 4.37, \beta = .28, t(73) = 2.49, p < .05]\), which were both significant independent predictors of the time children were unsupervised.

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**Table II. Mean (SD) Percentage of Time Children (N = 74) Received Different Levels of Supervision (Direct Supervision, Indirectly Supervised from a Distance, Not Being Supervised) as a Function of Alone Status**

<table>
<thead>
<tr>
<th>Child status</th>
<th>Total time (%)</th>
<th>Direct supervision</th>
<th>Indirect supervision</th>
<th>No supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alone</td>
<td>24.02 (12.89)</td>
<td>3.21 (7.84)</td>
<td>41.67 (19.06)</td>
<td>54.17 (20.02)</td>
</tr>
<tr>
<td>Not Alone</td>
<td>75.98 (12.89)</td>
<td>56.21 (19.44)</td>
<td>27.40 (16.24)</td>
<td>15.86 (15.06)</td>
</tr>
<tr>
<td>Overall</td>
<td>29.71</td>
<td>34.54</td>
<td>35.02</td>
<td></td>
</tr>
</tbody>
</table>
These factors did not interact, however, to influence this outcome (p > .05).

**Does Parental Supervision Relate to Child Injury?**

Bivariate correlations were conducted to examine whether the percentage of time children received each type of supervision (Direct, Indirect, or No Supervision) during the 2 months of the study related to the frequency of home-treated injuries experienced 3 months prior to the study (M = 8.49, SD = 10.07), or hospitalizations/medically attended injuries during the child’s lifetime (M = 3.20, SD = .29), or to the rate of minor injuries children reported during the study (M = 0.31/day, SD = .25). Results suggest that direct supervision can serve a compensatory function: the more parents directly supervised their children the fewer hospitalizations/medically attended injuries the child had ever experienced [r(74) = −.21, p < .05], the fewer home-treated injuries the child had experienced in the 3 months preceding the study [r(74) = −.21, p < .05], and the fewer injuries the child reported during the study, r(71) = −.25, p < .05. On the other hand, both indirect supervision and not supervising were risk factors for injury. Indirect supervision was associated with increases in lifetime hospitalizations/medically attended injuries [r(74) = .17, p < .10 which is marginally significant] and home-treated injuries in the 3 months preceding the study [r(74) = .20, p < .05, respectively]. Not supervising was a risk factor associated with increases in lifetime hospitalizations/medically attended injuries [r(74) = .45, p < .05] and home-treated injuries in the 3 months preceding the study [r(74) = .38, p < .05], as well as with more frequent minor injuries reported by children during the study, r(71) = .24, p < .05. Thus, level of supervision is related to risk of injury in predictable and systematic ways for school-age children 7–10 years of age.

**Discussion**

Although caregiver supervision has been of interest to injury researchers for many years, identifying ways to measure supervision that are ecologically valid has been a challenge (Morrongiello, 2005; Petrass, Finch, & Blitvich, 2009). One promising method that addresses this issue is participant–event recording in which participants are trained to record aspects of their own or someone else’s behavior in real time and in real-life situations (Ferguson, 2004; Morrongiello et al., 2004a, b; Peterson, Cook, Little, & Schick, 1991). Applying this method in the current study, mothers were trained to complete diary records in which they tracked their own and their child’s behavior once a week for 8 weeks, and children were trained to independently complete a daily diary sheet in which they reported on injuries every day for the 8 weeks. Despite the recording demands of the study, compliance with completing these records was excellent and, importantly, there was no indication the quality of these records diminished over time. The fact that mothers felt comfortable to disclose leaving children unsupervised almost one-third of the time enhances confidence that the data provide an accurate indication of the range of supervisory practices school-age children routinely experience when at home. The data provide a number of unique insights into the nature of the supervision children routinely receive when at home and the factors that influence these supervision practices, as well as how these practices relate to children’s frequency of injury. Each of these topics will be discussed in turn.

**Caregiver Supervision**

Previous research examining caregivers’ routine supervision of preschool-aged children reported a steady increase in time left unsupervised, from about 1% of awake time for 2- to 3-year-olds to 8% of time for 4- to 5-year-olds (Morrongiello et al., 2006a,b). The present study extends this developmental trajectory to children 7–10 years of age and reveals that at these ages children were unsupervised about 35% of the time at home. Thus, the pattern of results reveals a steady decrease in supervision with increasing age throughout early and middle childhood. In fact, for approximately 24% of children’s time at home in the current study they were alone and nearly all of this time they were unsupervised or only intermittently checked on from a distance. Thus, mothers routinely used ‘distal monitoring’ practices in which they depended on past knowledge of the child to infer where s/he was and what s/he was likely doing (Crouter & Head, 2002). Interestingly, although mothers conceptualize these practices as ‘supervising’, such practices would constitute low or no supervision if one were to rate the parent’s actual behavior based on the three dimensions (attention, proximity, and continuity) that have been applied in previous research assessing supervision of preschool children (Gitanjali et al., 2004; Morrongiello, 2005).

Extent of supervision was influenced both by mothers’ parenting style and their judgments about their child’s propensity to risk take. The more permissive a mother’s parenting style the more time the child was unsupervised or supervised intermittently. Although very few studies have considered relations between parenting style and children’s risk of injury, permissive parenting has been linked to elevated injury risk via the kinds of strategies these parents
use to teach children about safety (Morrongiello et al., 2006b). Considered together, the findings from these few studies suggest a multi-dimensional risk process may be operating such that permissive parents elevate their children’s risk of injury based both on the strategies they use for teaching about safety and their patterns of supervising. Whether having a second parent with a different parenting style (e.g., authoritative or authoritarian) can moderate the negative impact permissive parenting seems to have on children’s risk of injury is an important question to address in future research.

With respect to children’s risk-taking, mothers who rated their children high in this attribute left their children unsupervised less often. However, this attribute was not associated with mothers’ extent of direct supervision. It appears, therefore, that mothers’ judge that a child who is likely to take risks necessitates some level of supervision, but they do not necessarily respond with the highest level of supervision possible, namely—direct supervision in which children are kept in view. Mothers may be unaware that closer and more continuous supervision is essential to moderate children’s risk-taking behaviors (Morrongiello & Dawber, 1998, 1999). Alternatively, mothers of children who are persistent in risk-taking may become desensitized to this behavior over time, accepting how difficult it is to restrict it even with direct supervision (Morrongiello & Hogg, 2004). A recent study of children who score high in pre-dispositional risk-taking, for example, revealed elevated risk of medically attended injury regardless of the level of supervision the mother provided (Morrongiello, Klemencic, & Corbett, 2008). Hence, although school-age children sometimes behave more cautiously when a supervisor is nearby (Barton & Schwabel, 2007; Schwabel & Bounds, 2003), children who are persistent risk takers appear not to respond this way and, over time, this may deter parents from expending the effort to directly supervise despite their recognition that these children should not be left completely unsupervised.

**Supervision and Children’s Injury Risk**

Several studies of preschool-aged children report an association between the level of supervision shown by caregivers and the frequency of children’s injuries. In a prospective study of children’s minor injuries in the home, for example, five levels of supervision were identified and as supervision level decreased there was an increase in the frequency of children’s injuries (Morrongiello et al., 2004a, b). Most recently, applying a case-control design and recruiting children through Emergency Departments, the supervision provided ‘injured children’ (cases) at time of injury was compared with that experienced by same age/sex matched ‘uninjured ill children’ (controls) the last time they did the play activity that resulted in injury to their matched case (Morrongiello, Corbett, & Brison, 2009). Results revealed significantly lower levels of supervision for injured than uninjured children, and this pattern emerged across several indices of supervision. The findings from the present study suggest similar associations between supervision and injury risk exist for school-age children, namely—that direct supervision serves a compensatory function and is associated with a reduction in injuries, whereas indirect or no supervision are both risk factors that are associated with increased frequency of treated injuries. Thus, although one may view the granting of independence and trust as normative for parents as their children age, the present findings suggest that concomitant increases in indirect and no supervision times create increased opportunity for children to engage in risk activities that can result in increased frequency of injuries. Parents’ inability to directly supervise school-age children when they go off to play at a distance from the home may contribute to explain the common finding that children at these ages are often injured when away from the home and with peers (Shannon et al., 1992; Wilson, Baker, Teret, Shock, & Garbarino, 1991).

**Limitations**

Although the current research extends our understanding of caregiver supervision and how this relates to injury for school-age children, there are some limitations of the study that merit attention in future research. First, the sample was relatively homogeneous (i.e., well-educated or upper-income), which limits generalizability of the findings. In particular, examining the differential impact of socioeconomic status has not yet been considered in research examining supervision × injury relations and is an essential gap to be addressed in future research. Second, the demands of study participation were high and compliance was excellent, which may indicate that participants represented a special or unique group and the conclusions, therefore, are not more broadly applicable. Third, the results are based on self-report measures and may be subject to problems related to social desirability in reporting. Although maternal reports that they do not supervise their children at all times would suggest they were comfortable reporting parenting practices that may be deemed undesirable, one cannot be certain this was true. In future research it would be useful to incorporate ways to validate the accuracy of these self reports (e.g., videotaping or an independent second respondent such as a spouse). A similar concern applies to the injury data reported by the children. The fact that children were expected to complete a
daily diary form regardless of whether or not an injury oc-
curred was intended to reduce any biases toward falsely
reporting injuries, but there is no way to confirm this
worked as expected. Fourth, because we did not want moth-
ers’ supervision to potentially be influenced by children’s
reporting of injuries, we did not involve them in collecting
the child data. Although the pattern of relations between
supervision and injury suggests mothers were unaware of
what their children were reporting, we cannot say with cer-
tainty this was true. Finally, although various patterns of
supervision were differentially associated with frequency
of injury, the magnitude of these correlations was modest,
which suggests that supervision is only one of several factors
that influence injury risk for school-age children. Applying a
broader framework of potential influences (e.g.,
extra-familial factors) in future research would be useful in
order to assess the relative impact of supervision on injury at
these older ages when children are becoming increasingly
independent and less likely to be directly supervised.

Conclusion
Past research reveals that caregiver supervision influences
risk of injury for preschool children. The current findings
extend this conclusion to school-age children of 7–10 years
of age. Direct supervision served a compensatory function
and was associated with reduced frequency of injury,
whereas both indirect and no supervision were risk factors
associated with increased frequency of injuries. When at
home, children at these ages were alone and out of sight of
anyone about 24% of the time, and most of this time they
were unsupervised or infrequently monitored from a dis-
tance. Maternal supervision patterns were influenced both
by parenting and child attributes, with permissive parent-
ing style associated with more lax supervision practices and
children who were high in risk-taking propensity experiencing less time unsupervised.

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