Supervising Children During Parental Distractions

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Objective To examine the effects of parenting distractions on supervising behaviors in relation to child risky behaviors. **Methods** Forty preschool-aged children and their parents were randomly assigned to occupy a simulated home living room for 45 min with the parent involved in either (a) no planned distraction, (b) a telephone call distraction, (c) a TV show distraction, or (d) a computer assignment distraction. Parent and child behaviors were recorded and coded. **Results** Parent supervising behaviors were significantly intercorrelated but revealed no relation to risky child behavior. Children showed higher risky behavior during parental distractions and steadily over time when parent distractions occurred. Additionally, younger children were more likely to engage in risky behavior when compared to older children. **Conclusions** Parents showed significant reductions in their ability to supervise children during distractions, limiting the ability to provide education or to take immediate action necessary to prevent or minimize possible injuries.

Key words childhood injuries; observation; parent distractions; supervision.

Unintentional injuries are the most significant health challenge for children and adolescents from age 1 to 19 years with home injuries a major proportion of the problem (Guyer et al., 1999; National Center for Injury Prevention and Control, 2001, 2002). For preschool children, home injuries likely result from child, parent, and environmental variables interacting within family and cultural contexts. The extent to which these variables contribute to the occurrence of an injury, however, is still poorly understood. (National Center for Injury and Prevention and Control, 2002). One limitation to a multi-factorial understanding has been the limited empirical knowledge on child supervision, an often cited parent-related factor in injuries among young children (Cataldo, Finney, Richman, & Riley, 1992; Gärling & Gärling, 1993; Morrongiello & Dawber, 1998). Only recently have researchers begun to explore supervision in relation to pediatric injuries, providing conceptual models, assessment instruments, and methodological guidance for empirical investigations (Morrongiello, Corbett, McCourt, & Johnston, 2006; Morrongiello & House, 2004; Saluja et al., 2004).

The Relationship of Supervision to Child Injury

Currently a dearth of knowledge exists regarding the actual practices of caregivers during interactions with children in the home. Emerging evidence has shown that closer supervision provides a protective role and is linked with fewer child injuries (Morrongiello, Ondejko, & Littlejohn, 2004). Additionally, parents increase their supervision with children who are reported as risk takers, sensation seeking, and impulsive (Morrongiello et al., 2006). However, behavioral observations of parents supervising children on playgrounds have shown only limited relation to injury risk (Morrongiello & House, 2004), and much less is known about the relation of observed supervising behaviors within a home environment and child risk behaviors. For example, in a study conducted by researchers at Safe Kids from 2000–2001, it was shown that 88% of drowning victims were being supervised by caregivers (Cody, Quraishi, Dastur, & Mickalide, 2004). Among parents who supervise children during swimming, distractions were reported as common occurrences

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[e.g., talking to someone (38%), reading (18%), eating (17%), and using the phone (11%)]. Supervision investigations have not systematically explored how parents modify their supervision practices during typical home distractions. This is a key factor when considering most parents are at home when their children are becoming injured (Shannon, Brashaw, Lewis, & Feldman, 1992).

Saluja et al. (2004) provided a conceptual model of parent supervising behaviors in which a hierarchy of supervision strategies defines supervision in a way that can be systematically measured for a relation to injury risk. Three dimensions were described that included (a) attention, (b) proximity, and (c) continuity. *Attention* encompassed the level of engagement between the supervisor and child in addition to visual and auditory components, ranging from directly visually focused to no visual contact with the child. *Proximity* indicated the distance between the supervisor and child, ranging from touching ability to out of reach and beyond reach at large distances. *Continuity* described the extent to which the supervisor demonstrates the first two dimensions in a continuous, intermittent, or nonexistent (absent) approach. The present study attempts to test the critical elements of the Saluja et al. (2004) model of parent supervision by measuring multiple observable behavioral components: (a) attention (i.e., visual attention based on ability to make eye contact with the child), (b) engagement (i.e., verbal and/or physical interactions between the child and parent, and (c) proximity (i.e., how close the parent is to the child).

Primary Study Goals and Hypotheses

The primary purpose of the present study is to identify parenting behaviors associated with risky child behaviors within a simulated home setting, with consideration of the influence of parent distractions in order to understand potential changes in parenting behaviors when their attention shifts away from the child. Our goal was to address an existing gap in the literature regarding the link among parent supervision and child behaviors based on observations within a home setting. Previous studies utilizing observational methodologies to study injuries helped shape the present approach (Cataldo et al., 1992; Morrongiello & Dawber, 1998; Morrongiello & House, 2004). Due to the potential for participants to change their behavior after being asked to participate in an observational study (Haynes & Horn, 1982), we explored the effects of masking the study aims for half of the sample. Although the literature is not entirely consistent, most rigorous studies have shown limited reactivity effects (Jacob, Tennenbaum, Seilhamer, Bargiel, & Sharon, 1994).

We hypothesized that parenting behaviors would change during the distraction periods. Specifically, we expected engagement and eye contact to decrease between parents and children during the parent distractions while proximity would increase during distractions. Additionally, we hypothesized an inverse association between risky child behaviors and parental supervision behaviors. Finally, we expected minimal differences of reactivity between informed and uninformed groups.

Methods

Participants

Participants were 40 parent–child dyads aged 2 to 5 years ($M = 4.4$, $SD = 1.1$). Parents were primarily Caucasian (93%) and well educated with all having attended some college and 62.5% had obtained a bachelors degree or higher. Participating parents were most often the mother (85%) with an average age of 32.6 years ($SD = 5.7$). A power analysis determined that 40 participants were adequate to detect for possible effect sizes.

Procedure

Parents and their children were recruited from a midwestern preschool population. Criteria for study eligibility included that the child: (a) had to be aged 2–5 years, (b) spoke English as a first language, (c) did not have a parent reported developmental disability, and (d) had not participated in an injury related study within the past 12 months. Parents and children visited a University clinic and were provided a project description and signed a consent form (as approved by the Institutional Review Board). The researcher also collected verbal assent from each child. A random numbers table was generated by a computer program to develop four equal groups of 10 (i.e., four distractions) across two conditions (i.e., informed or misinformed). Half of the sample was randomly assigned to be told the study was about child supervision and informed that they would be videotaped while in the room. The remaining random sample half was informed the study was about child patience and they were not informed about being videotaped until after the observation.

The parent and child were then informed that they were to occupy another clinic room for 45 min. The parents were read a brief description of what to expect while in the room, depending on the condition they were randomly assigned. Specifically, parents in the Phone Distraction group were told that a cordless phone was

placed in the room (out of child reach) and would ring sometime during the time they are in the room. They were told to answer the phone to answer a series of questions by the researcher on child patience (e.g., ''describe your experiences going to grocery store with your child'') timed to last ~15 min. Parents in the TV Distraction group were told an electronic timer would sound after an unspecified period (i.e., 15 min) of time, which indicated they needed to turn on the TV and watch a VCR tape of a typical TV program (i.e., a 15 min segment on meal preparations). In an effort to increase parent adherence toward watching the TV program, parents were instructed to pay close attention to the program in order to answer follow-up questions. Parents in the Computer Distraction group waited until an electronic timer alarm sounded after 15 min, which indicated they needed to turn on the computer that revealed a program already up on the screen. The computer program was created by the author using PowerPoint®. Specifically, an automated presentation was provided to parents on the subject of child patience. The slide show was initiated by parents who pushed a marked button. The slides were timed to advance automatically, creating a 15 min presentation. Parents in the Computer Distraction group were also told to pay close attention to the computer program in order to answer follow-up questions by the researcher. After parents in each distracted condition completed the distraction, they remained in the room for a final 15 min. Finally, parents in the condition with no planned distractions were told to remain in the room for 45 min, in which follow-up questions would be administered. At the end, the parents and their children entered a separate room and completed the structured interview on room hazards and the demographic questionnaire.

Debriefing

Because this experimental method involved an alteration of informed consent, a debriefing period occurred directly after all study protocols had occurred for the entire sample. The actual purpose of obtaining information on supervision behaviors was explained to the uninformed sample half with clarifications of why it was necessary to refrain from revealing the study purpose until after the observations and information were collected. Participants in the previously uninformed group were also informed that they were videotaped and provided an explanation that it was necessary to reliably code each of the parent and child behaviors using a recording device. They were reminded of their right to withdraw from the study and remove their data from the project at this time without penalty before completing a second informed consent form. No participants in the uninformed group withdrew from the study after debriefing. Parents in the informed group were also debriefed on the study aims immediately after participation. Parents were given $25 for their time participating.

Materials

Simulated Home Environment

Observations took place in a university clinic room designed to replicate a typical home environment. The room contained furniture (i.e., a couch, end tables, a floor lamp, plants, padded chairs, a desktop computer, telephone, TV, and VCR) in addition to objects classified into two groups: (a) low injury risk (e.g., a pillow) and (b) high injury risk (e.g., a knife, medicine, a step ladder, 5-gallon bucket, a lighter, and a spray cleaner).[1] The furniture was arranged on the perimeter of the room walls, with the risky objects were placed in varied locations (e.g., a pill container was on an end table, the knife was on a table, and the lighter was in the seat portion of a padded chair at the side edge, similar to where a lighter might be if one had fallen out of a pocket. Objects were classified into group 1 or 2 based on a sorting task by two experts on child injury with 100% agreement. The selected risky objects were based on developmentally related injuries to this particular age group (National Center for Injury and Prevention and Control, 2001, 2002).

Measures

Demographic Form

Demographic information was collected from parents via a self-report questionnaire. Information collected included: (a) parent education, (b) occupation, (c) housing condition, (d) child health and past injury history, and (e) amount of time spent on a computer, watching TV, and talking on the phone.

Structured Interview on Room Hazards

A brief structured interview on parent recall of conditions was conducted in order to assess the parent's level of awareness of risky and nonrisky items in the simulated

[1]Each risky object had been modified to be relatively safe and many had been utilized in our prior studies. The knife was a folding type with a dulled blade, the medicine was candy placed in a 7-day medicine organizer without safety locking lids, the bucket did not contain any water and had a large warning label attached to the side, the lighter (which did not have a safety feature) was drained of the fluid and the flint was removed to prevent spark, the spray cleaner was water mixed with food coloring, and a step stool utilized one step and multiple safety labels were attached to its surface.

home room, the interaction their child had with such items, and the potential level of risk for injury for their child if they interacted with a risky item. Specifically, parents were asked to consider how likely they thought an injury could occur when their child interacted with an identified home hazard by providing a rating from 1 to 5, where 1 indicated that a parent did not think any injury would likely happen and 5 meant an injury would absolutely happen.

Design

The study utilized comparisons of multi-phase conditions, in which the 45 min period of time in the room is divided into three phases: (a) no planned distractions, (b) a planned distraction period, and (c) no planned distractions. Each phase lasted 15 min that was monitored by the researcher or parent using digital stopwatches. Ten parent–child dyads were randomly assigned to one of four conditions: (a) Phone Distraction, (b) TV Distraction, (c) Computer Distraction, or (d) No Distraction.

Data Analysis

Observational Data Processing

Observational data were obtained by recording 45 min segments of parent–child interaction on to VHS tapes, using a video camera permanently mounted in the upper corner of the observation room. A VCR was affixed to a shelf beneath the camera and hidden by a plant. The VHS tape was later converted to DVD format in order to be analyzed by observational software. The observational software used to code and analyze behavior was The Observer® and The Observer Video Pro® (Noldus, version 5.0.25, The Netherlands).

Coding Scheme

In order to reliably code behavioral data, a behavioral coding scheme was developed based on the model proposed by Saluja et al. (2004), although not all components of the model could be examined given that the parent and child dyads remained in the room together and in relatively close proximity (i.e., auditory attention and far proximity beyond a single room were not coded). Three parent behaviors (proximity, visual attention, and engagement) and one child behavior (risky behavior) were coded as the primary behaviors for analyses using the following operational definitions. *Close Proximity* was coded when the parent was touching or within an arm's reach of their child; *Close Visual Attention* was coded when a parent positioned her/his head in a direct line of vision or within peripheral view of their child; *Engagement* was coded during activity in which the parent and child are both simultaneously involved. Involvement may have been verbal (e.g., communicating with each other), nonverbal (e.g., actively listening to story telling or to a direction with parental eye contact), and active (e.g., following a request to retrieve an item). Examples include: a parent reading a book to their child who has occasional eye contact with the book or parent, the parent and child throwing a ball back and forth, or sitting together talking. *Risk Taking* behavior was coded when the child physically touched a predetermined risky object.

Four conceptually similar behaviors were also coded during each interval. For example, *Far Proximity* was coded when a child was beyond the reach of parent; *No Visual Attention* was coded when a parent was turned away from a child; *No Engagement* was coded during any activity performed *by the parent*, in which the child has no involvement or interaction. This behavior was defined as when a parent provides no verbal and physical attention during an activity (e.g., visual focal or peripheral attention is withheld and no interaction is made with the child). Examples include the parent watching the TV but the child is *NOT* watching the TV and the parent is not talking to the child (even though the child may still be in the view of the parent). Finally, *No Risk Taking* was coded when no interaction with hazards occurred during the interval. Preliminary data analyses of the four primary study variables revealed significant negatively correlated findings with their opposite behavior (e.g., *Close Proximity* and *Far Proximity*, $r = -.81$, $p = .005$). Therefore, only three supervision behavioral components representing potentially safer parenting behaviors and one child behavior were analyzed for this study (e.g., Close Proximity, Close Visual Attention, Engagement, and Risk Taking).

Behaviors were coded as events during 15 s intervals. That is, regardless of duration, a behavior was counted once and only once if it occurred during each 15 s interval. The available software enabled coders to rewind, pause, and fast forward observational data during coding, maximizing adequate assessment of all behaviors.

Reliability Training

All reported data were coded by the primary coder after training and an independent coder established interrater reliability. A Cohen's Kappa coefficient was calculated in order to evaluate the level of performance using randomly selected data. A minimum of .75 kappa values, suggesting strong agreement above chance, was used to indicate reliable coding has occurred (Fleiss, 1981). After being trained to reliability four randomly selected 45-min observations (representing 10% of the total data) were

Table I. Means (*SD*) for Parent and Child Behaviors During all Phases and Across Groups

Behavior	Baseline	Distraction	Post
Phone Distraction Group			
Parent			
Visual attention	59.9 (0.3)$_{a1}$	59.8 (0.4)$_{a1}$	59.6 (1.3)$_{a1}$
Close proximity	41.7 (6.9)$_{a1}$	26.3 (16.5)$_{a2}$	48.8 (12.1)$_{a3}$
Engagement	59.3 (1.1)$_{a1}$	23.5 (15.9)$_{a2}$	59.5 (1.3)$_{a1}$
Child risk taking	3.4 (5.4)$_{a1}$	2.2 (3.2)$_{a1}$	3.3 (7.7)$_{a1}$
TV Distraction Group			
Parent			
Visual attention	59.9 (0.3)$_{a1}$	59.5 (1.3)$_{a1}$	59.6 (0.8)$_{a1}$
Close proximity	29.7 (13.5)$_{a1}$	35.9 (20.6)$_{a1}$	41.7 (15.4)$_{a,b1}$
Engagement	59.9 (0.3)$_{a1}$	42.0 (12.6)$_{b2}$	58.5 (1.4)$_{a1}$
Child risk taking	3.7 (5.2)$_{a1}$	7.3 (10.2)$_{a1}$	1.7 (1.8)$_{a1}$
Computer Distraction Group			
Parent			
Visual attention	59.9 (0.3)$_{a1}$	41.5 (11.5)$_{b2}$	59.5 (1.0)$_{a1}$
Close proximity	40.6 (13.8)$_{a1}$	22.2 (16.1)$_{a1}$	28.5 (19.6)$_{b1}$
Engagement	60.0 (0.0)$_{a1}$	38.2 (14.4)$_{b2}$	59.1 (1.6)$_{a1}$
Child risk taking	4.1 (5.4)$_{a1}$	6.1 (7.4)$_{a1}$	3.4 (5.7)$_{a1}$
No Distraction Group			
Parent			
Visual attention	59.9 (0.3)$_{a1}$	59.8 (0.4)$_{a1}$	59.8 (0.4)$_{a1}$
Close proximity	42.3 (14.1)$_{a1}$	30.6 (20.0)$_{a1}$	36.7 (15.7)$_{a,b1}$
Engagement	59.9 (0.3)$_{a1}$	59.8 (0.4)$_{c1}$	60.0 (0.0)$_{a1}$
Child risk taking	1.2 (1.4)$_{a1}$	3.9 (9.0)$_{a1}$	6.8 (9.7)$_{a1}$

Subscripts that differ by letter are significant across groups ($p < .05$); different numerical subscripts significantly differ within groups ($p < .05$).

selected for coding by an individual who had limited knowledge of research objectives. Twelve Kappa coefficients (three parenting behaviors across four participants) for supervising behaviors showed an average value of .88 ($SD = 0.09$), ranging from .72 to 1.00. A separate analysis of agreement for Risk Taking behavior for all 12 observations indicated a 100% agreement for all observations, suggesting satisfactory interrater reliability.

Preliminary Data Screening

Examinations of standardized values for all variables revealed five values greater than ±3.29 ($p < .001$, two-tailed test). Affected variables included Risk Taking (one score from each phase for a total of 3, but not from the same individual), one score on Engagement during the first phase, and one score on Close Visual Attention from the postdistraction phase. These extreme values were across participants, indicating a univariate approach could be utilized to reduce the impact of such scores on other data. Specifically, these raw scores were assigned a value of 1 unit larger or smaller, depending on the direction of the outlier, than the next most extreme score in the distribution.

Results

Means and standard deviations for parent supervising behaviors and child risk taking behaviors across time periods and between distraction groups are displayed in Table I. The results for parent and child behaviors are presented separately in which four one-way repeated-measures analysis of variance (ANOVA) were conducted for each observed parent and child behavior (see Fig. 1, in which the *y*-axis represents the average number of times the target behavior occurred during intervals across participants).

Risky Child Behaviors

Overall, a marginally significant omnibus interaction effect for child Risk Taking across distraction groups was observed, $F(6, 72) = 1.9$, $p = .09$ (partial eta squared = .14; see Fig. 1A). As a result, no further follow-up tests were conducted.

Parent Supervising Behaviors

When examining parent behaviors (shown in Fig. 1B), Close Visual Attention observations showed a significant interaction effect by Group, $F(6, 72) = 6.43$, $p < .001$, (partial eta squared = .35). Specifically, during the Computer Distraction phase, a significant reduction ($p < .001$) in Close Visual Attention was revealed when compared with all other distraction groups. That is, parents showed a significant reduction in the number of times they made Close Visual Attention with their child while using the computer.

A significant interaction effect was also detected between Close Proximity X Group, $F(6, 72) = 2.56$, $p < .05$ (partial eta squared = .18). Specifically, a significant quadratic effect ($p < .001$) can be seen in Fig. 1C, in which parents in the Phone Distraction group significantly reduced their proximity to their child during the distraction phase and then significantly increased in proximity during the postphase when compared with both distraction and baseline phases. Additionally, significant differences were shown between distraction groups during only the post-phase in which parents in the Computer Distraction group showed significantly less proximity to their children when compared with all other groups ($p < .05$).

Parent and child Engagement also showed a significant interaction effect, $F(6, 72) = 5.80$, $p < .001$ (partial eta squared = .33). Specifically, with the exception of parents in the No Distraction Group, all parent and child dyads significantly reduced their Engagement with each other during the distraction phase (all $p < .05$). Additionally, as shown in Fig. 1D, parents and their children who were in

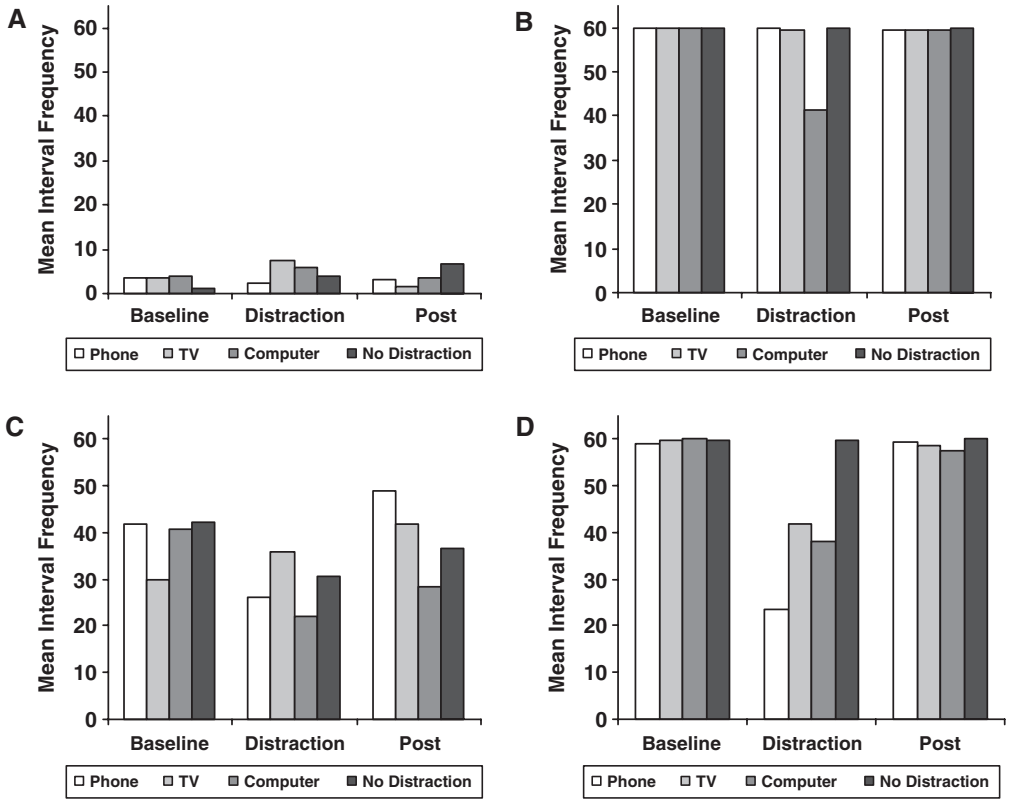

Figure 1. The average number of times the target behavior occurred during intervals across participants. (**A**) Mean number of Child Risk Taking behaviors by children during each experiment phase, by distraction group; (**B**) Mean number of parents' Close Visual Attention with children during each experiment phase, by distraction group; (**C**) Mean number of parents' Close Proximity with children during each experiment phase, by distraction group; and (**D**) Mean number of parents' Engagement with children during each experiment phase, by distraction group.

the Phone Distraction group showed significantly less Engagement compared with the TV and Computer Distraction groups who were all significantly lower on engagement behaviors compared with the No Distraction group.

In order to test the effects of whether knowing the study was about child supervision, multiple one-way MANOVAs across all three time periods were conducted which revealed no group differences between informed and misinformed parent–child dyads on all parent and child behaviors ($p > .05$). Parents who were not aware of being in a study on child supervision while being videotaped showed no significant differences in their parental behaviors related to supervision when compared with parents informed of the study aims.

Correlation Analyses

Intercorrelations were calculated among Parent age, Child age, Risk Taking, and three parenting behaviors: Close Visual Attention, Close Proximity, and Engagement. During the baseline phase a significant negative relation between Child Age and Risk Taking occurred in which risky behavior was less likely to occur as children neared age 5 ($r = -.53$, $p < .01$). Additionally, a significant positive relation was found between Parent Age and Close Proximity in which older parents showed greater Proximity ($r = .44$, $p < .01$). Finally, parents who demonstrated more Close Visual Attention were significantly more likely to also show Engagement during the baseline phase ($r = .34$, $p < .05$).

During the distraction phase, a significant negative relation between Child Age and Risk Taking remained from baseline phase ($r = -.49$, $p < .01$). Additionally, a significant positive relation between Close Visual Attention and Close Proximity occurred ($r = .39$, $p < .05$) as well as a significant positive relation between Close Proximity and Engagement ($r = .35$, $p < .05$). During the postphase, a significant negative relation between Child Age and Risk Taking remained from the previous phases ($r = -.44$, $p < .01$). Interestingly, no significant correlations were found among child gender, major injury history, and Risk Taking. Furthermore, analyses of parent report of room hazards after the observation revealed no significant relationships on child or parent behaviors or family demographic variables.

Discussion

Our findings are that parents show a shift in parental supervision during typical home distractions. Compared with parents who were not experimentally distracted, all distractions significantly reduced parental engagement and the parents' visual attention was reduced while the parents were engaged with the computer. Additionally, parents were significantly more likely to be farther away from their child during TV and phone distractions. These findings largely support our hypotheses that parents would reduce their supervision behaviors during common home distractions. The distractions in the current study were believed to have generalizibility to the real home world of families, given the common experiences of parents talking on the phone, watching TV, or using a computer while supervising their child. This study provides a number of important advancements in explicating the role of parental supervision of preschool children during typical home distractions. In addition, this study empirically addresses methodological concerns often raised during observational investigations, which can be useful when designing future supervision investigations.

Although not statistically reliable, children increased their risk taking behaviors during distractions, except when parents were on the phone, and showed a steady increase in risk taking over time when parents were not distracted. Additionally, there was a negative relation between the variables measuring child age and risky behavior during all three time periods. Even though not systematically evaluated for this study, children who interacted with risky objects most often attempted to bring the object to a parent. Such behavior may be the result of prior parental warnings regarding the dangerousness of similar objects. It remains unclear, how many children become injured by handling objects they have been told are dangerous and attempt to move it to a safer location or to an adult. The fact that children in the No Distraction group gradually increased their risky behavior over time may indicate boredom with the simulated environment and a tendency to explore items, including risky objects initially perceived as ''off limits.''

When combined across distraction groups, child risk taking behaviors during the baseline ($M = 3.1$; $SD = 4.6$), distraction phase ($M = 4.9$; $SD = 7.9$), and postphase ($M = 3.8$; $SD = 6.9$) indicates that children showed an average risky behavior about once every 5 min in an unfamiliar environment. Our prior observational investigations without a parent present showed a lower rate of contact with dangerous items (1.78 contacts every 15 min; Boles, Roberts, Brown, & Mayes, 2005), which may reflect the child's belief that the environment is safer with a parent present. Additional investigations may benefit from including more postobservational interviews with children to address these cognitions.

Contrary to our hypothesis, parents' eye contact, distance away from, and involvement with their children were not statistically related to child risk taking behaviors. This finding may be due, in part, to the belief that parents may not have considered their child's risky behaviors as actually being dangerous but rather typical child behavior, resulting in minimal systematic changes in parent behaviors. In previous research, for example, parents have reported that childhood injuries are expected during childhood and not likely to be preventable by parents (Morrongiello & Dayler, 1996). Additionally, parents' report of the room's risky objects and probability of their child becoming injured showed no significant association with actual supervision behaviors. This finding may show how noninjurious events, despite a danger being present, reinforces the belief that injury is unlikely and that parenting behaviors need to be modified for the environmental conditions.

After a distraction, parents made greater eye contact, were more often close to their child, and were more engaged with their child. Nonetheless, supervision behaviors were significantly intercorrelated during only the first 30 min, suggesting parents may change their supervision practices over time. Thus, the present study provides only limited support of the model of supervision behaviors from Saluja et al. (2004) for understanding risky behaviors. In particular, parents showed no significant changes in their supervising behaviors related to their child's risky behavior. This finding is particularly striking given the tendency for children to increase risky behaviors during most parent distractions as well as across time. Moreover, during distractions, parents showed significant reductions in their ability to supervise their children, limiting the ability to provide education or to take immediate action necessary to prevent or minimize a possible injury after risky behavior. This finding also provides evidence that the manipulation was effective (and simulated real life).

Additional investigations are needed to assess the impact of environmental modifications on not only risky child behavior but also parental supervision. That is, parents may be likely to modify their supervision behaviors in terms of how close they are, how often they make direct eye contact, and how often they engage in verbal or physical interactions based on how they perceive the environmental risk as well as beliefs about typical child behavior. Clearly, this is a complex model of reciprocal

interactions rather than a simple relationship of supervision → risky behavior → injuries.

Assessments regarding parents' perceptions of child behaviors during observations may also help identify possible reasons parents' supervision behaviors were not related to risky child behaviors. Further, additional variables such as verbal behavior and parental environmental modifications require analyses to explicate the relationship among supervising behaviors and risky child behaviors in the home environment. For instance, Morrongiello and Dawber (2000) found that when parents observed children playing on a playground, girls received more verbalizations of concern about their behavior, while boys were given encouragement for risky behavior. Our findings also revealed parents increased their level of engagement following a distraction which may also be a factor of general parenting practices. For instance, parents who show authoritative parenting styles (e.g., high levels of structure and warmth/involvement) may also have an association with positive supervision behaviors. Future supervision investigations may benefit from the inclusion of parental assessments of parenting behaviors that impact other child–parent interactions (e.g., compliance with directions), beyond risk taking behaviors.

The present study provided initial evidence that participant knowledge in fact does not change participant behaviors in regard to socially desirable behaviors. That is, parents who were aware they were being videotaped showed no greater positive supervision behaviors (e.g., using more direct/peripheral eye contact) than parents who were informed the study was about child patience. This finding may make future observational studies, which are potentially an important methodological procedure toward validating supervision as a construct and subsequent supervision questionnaires, more likely to be conducted. Deceptive practices do not appear necessary in order to minimize socially desirable behaviors.

The limitations of the present study should be considered when evaluating the present findings. Most importantly, the observations of parents and children took place in a *simulated* home environment. Although precautions were taken to help minimize this potential problem, the simulated environment might have altered some behaviors. For example, parents might have thought the room had been safety proofed before entering with their child. This potential limitation is countered, however, by the fact that 100% of parents identified dangerous items in the room, with an average of 4.75 items listed (ranging from 3 to 9). Parents in the current study were well educated and nearly all Caucasian. However, unintentional injuries remain the leading cause of death in America for individuals between the ages of 1 and 44 years, across gender, race, and economic status (Centers for Disease Control and Prevention, 2005). Developing the present methodology to obtain these initial findings provided a significant foundation to build on for future studies to determine generalizibility to different types of parents. In particular, there may be differential rates of supervision behaviors related to diverse backgrounds, including ethnic diversity and socioeconomic diversity. Understanding these differences is important to designing tailored interventions for at-risk populations and their associated risky behaviors.

In addition, our sample size may have limited our ability to detect some relationships, despite having adequate power for others. Although using a behavioral observation methodology can be time and labor intensive, which can limit the number of participants for feasibility reasons, additional observation-based research may benefit from using larger samples in order to test multiple numbers of hypotheses that deal with relationships that have varied effect sizes.

As supervision of children continues to be explored as a necessary construct toward identifying active-based injury prevention programs, investigations are still needed to explicate the role of not only nonverbal parent behaviors, but also the way parents interact with their environment to make supervising their children productive, manageable, and within their particular belief systems. In particular, parents potentially use a combination of parenting skills during supervision, including modifying the environment, providing verbal and physical redirections, and making continuous estimates of risk for their children for various contexts. However, given the current number of home injuries still sustained by preschool children each year, parents are likely not implementing such skills each day or recognizing the role they have in reducing the risk of injury for their child. In fact, parents still often report not being able to prevent injuries and ''accidents'' are merely the result of bad luck (Morrongiello & Dayler, 1996; Morrongiello & House, 2004). Therefore, supervision investigations must also consider how best to address such erroneous cognitive beliefs about environmental risk as well as limited knowledge on typical child development that likely impede behavioral interventions that focus only on changing behaviors. Although it is encouraging that supervision is increasingly being empirically investigated as a component of understanding unintentional injuries, much greater attention is needed on the development and assessment of comprehensive models that capture the complex nature of unintentional

injuries. Only until such investigations are conducted will the most effective interventions and prevention programs be realized.

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