



Results of a randomized controlled trial assessing the efficacy of the *Supervising for Home Safety* program: Impact on mothers' supervision practices

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ABSTRACT

Unintentional injury constitutes a major health risk for young children, with many injuries occurring in the home. Although active supervision by parents has been shown to be effective to prevent injuries, evidence indicates that parents do not consistently apply this strategy. To address this issue, a randomized controlled trial was conducted to evaluate the impact of the *Supervising for Home Safety* program on parent supervision practices in the home and when unobtrusively observed in a naturalistic laboratory setting. Using a participant-event monitoring procedure, parents of children aged 2 through 5 years completed supervision recording sheets weekly both before and after exposure to the intervention program; Control parents completed the same measures but received a program focusing on child nutrition and active lifestyles. Unobtrusive video recordings of parent supervision of their child in a room containing contrived hazards also were taken pre- and post-intervention. Results indicated that groups did not differ in demographic characteristics. Comparisons of post- with pre-intervention diary reported home supervision practices revealed a significant decrease in time that children were unsupervised, an increase in in-view supervision, and an increase in level of supervision when children were out of view, with all changes found only for the Intervention group. Similarly, only parents in the Intervention group showed a significant increase in attention to the child in the contrived hazards context, with these differences evident immediately after and 3 months after exposure to the intervention. These results provide the first evidence that an intervention program can positively impact caregiver supervision.

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1. Introduction

1.1. Childhood injury

In the United States and Canada, as in most developed countries, unintentional injury is the leading cause of death for children between 1 and 19 years of age (Canadian Institute of Child Health, 2002; Grossman, 2000; National Center for Injury Prevention and Control [NCIPC], 2007; World Health Organization [WHO], 2005). In fact, it has been predicted that by the year 2020 injury will be the leading single reason for loss of healthy years of human life (WHO, 1996). Not only is injury the leading cause of child mortality, but injury related visits to emergency departments and hospitalizations are commonplace, with estimates indicating that as many as one in four children in the United States are seen annually for medical treatment due to injury (Scheidt et al., 1995). For young children under six years of age, many injuries occur in the home (McDonald et al., 2003; Shanon et al., 1992). In addition to environmental modifications that reduce access to and eliminate hazards

in the home (Gielen et al., 2002; Watson et al., 2005), active supervision by caregivers also has emerged as an important risk-reducing strategy for young children (Morrongiello et al., 2009a).

1.2. Caregiver supervision: definition, measurement, and findings

Although there are challenges in defining *supervision* (see Morrongiello, 2005, for extensive discussion), three dimensions (proximity, attention, and continuity) have been shown to relate to children's risk of injury (Morrongiello et al., 2004a,b, 2006a,b, 2009a,b,c). Hence, a popular definition of supervision is that it refers to the extent to which caregivers provide sustained attention and proximity to children (Gitanjali et al., 2004; Morrongiello, 2005). Maximum active supervision and lowest risk of injury presumably occurs when a supervisor is attentively watching, the child is in close proximity (i.e., within reach), and these behaviors are sustained over time.

With regard to measuring supervision, developing methods that yield reliable and valid data can be quite challenging (Morrongiello, 2005). Observational indices can be very useful but parents' knowledge that they are being observed can lead to distortions in their behavior, producing results that represent *best* behavior rather than *typical* behavior. An innovative way to manage this issue is by

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unobtrusively video recording caregiver supervision and doing so when the child and parent are together in the presence of *contrived hazards* (i.e., presenting items that look like real injury hazards but that have been modified so that they pose no real threat of injury, such as placing blue dyed water in a Windex bottle, or providing scissors that look sharp but have been glued shut). This methodology has proved very useful for studying how caregivers supervise and react to children's hazard interaction attempts (Cataldo et al., 1992; Morrongiello and Dawber, 1998), but one limitation is that not all hazard contexts can be represented using this method.

A popular approach to measuring supervision in more diverse contexts involves utilizing self-report measures of caregiver behavior (Morrongiello, 2005). Checks of the validity of self-report data indicate good agreement between what caregivers report and how they behave. For example, research comparing self-reports with observations in a laboratory setting (Kochanska et al., 1989), as well as with observations in a supermarket (Holden et al., 1992), has found that maternal self-reports provide accurate and valid indications of numerous caregiver parenting behaviors. Similarly, a study comparing maternal self-reports about supervision with unobtrusively observed supervision in park settings also supports the validity of using self-reports about supervision (Morrongiello and House, 2004). Finally, there is very good agreement (89%) between periodic reports of supervision obtained via random telephone calls and diary entries completed in the 5 min preceding a call (Morrongiello et al., 2006a). Overall, these diverse results suggest that using a participant event-recording methodology in which parents complete diary records of supervision can provide accurate information about caregiver supervision in a variety of contexts.

The application of these methods has yielded important insights into how caregivers routinely supervise, and how these practices relate to childhood injury. Although greater continuity in attention and closer proximity are associated with fewer injuries for young children, studies examining how parents *routinely* supervise young children at home indicate that they are often unable or unwilling to provide sustained active supervision. For example, in a prospective study in which parents completed diaries to track home supervision over several weeks, it was found that young children regularly spend up to 8% of their awake time unsupervised (i.e., supervisor does not know where the child is or what s/he is doing, and has not checked on the child in over 5 min). Moreover, children are out-of-view of their supervisor an additional 20% of the time, and the level of supervision is much poorer for out-of-view than in-view times (Morrongiello et al., 2006a). Poorer supervision is associated with more frequent minor injuries (Morrongiello et al., 2004a,b, 2006a,b), as well as medically attended injuries (Morrongiello et al., 2009a). The pattern of these findings suggests, therefore, that parents routinely supervise in ways that can elevate young children's risk of injury. What is notably lacking, however, are evidence-based programs that are effective to promote active supervision. The current study addresses this gap in the literature.

1.3. Present study

The *Supervising for Home Safety* program was developed for parents of children 2 through 5 years (Morrongiello et al., 2009c). The program comprises a video presentation, structured follow-up discussion that is tailored to the individual, and a one-month series of activities that serve to change habitual patterns of supervision and promote more active strategies. Recent research confirms the efficacy of the program for positively impacting parent attitudes towards injury prevention, beliefs about the need to actively supervise young children, and commitment to actively supervising, with these effects persisting 1 year post-intervention (Morrongiello et al., in press). The aim of the present study was to extend this research by conducting a randomized controlled trial (RCT) and

evaluating the impact of the *Supervising for Home Safety* program on caregivers' actual supervision practices; the Control condition targeted healthy eating habits and physical activity (i.e., a healthy lifestyle).

The study was limited to mothers because they are often the primary supervisor of young children at home (Morrongiello et al., 2009a), past research has not found any supervision differences between mothers and fathers (Morrongiello and Dawber, 1998; Morrongiello et al., 2009b), and many supervision measures have been validated for mothers but not fathers. Both the Intervention and Control conditions utilized a video to present key material because past research indicates that parents favor this medium (Barone et al., 1986; Metchikian et al., 1999). To assess home supervision, a participant-event recording procedure was used in which parents were trained to record aspects of their own supervision behavior in real time and in real life situations (Ferguson, 2005; Morrongiello et al., 2004a,b; Peterson et al., 1991), both before and after exposure to the intervention. Unobtrusive video recordings of the parent and child in a contrived hazards room within a laboratory setting were completed at three time points (pre-intervention; post-immediate; post-3 months later). It was hypothesized that after intervention exposure, diary recordings of home-supervision practices would show a decrease in the time the child was left unsupervised (i.e., the parent does not know where child is and what s/he is doing for more than 5 min), an increase in the time the child is in-view, and improvement in the quality of supervision when the child is out-of-view. In the contrived hazards room, parents in the Intervention but not the Control group were expected to show an increase from pre- to post-intervention in attentiveness to their child.

2. Methods

2.1. Study overview

2.1.1. Design

In this efficacy RCT, parent volunteers were recruited from the community and then randomly assigned to either an Intervention or Control group (see flow diagram in Fig. 1; CONSORT, 2010). The aim was to recruit broadly and obtain a representative sample of parents of young children in the community. The same home supervision measures (i.e., diary records of home supervision practices) and unobtrusive supervision measures (i.e., video recordings of the parent and child in a contrived hazards room) were taken pre- and post-intervention in each group.

2.1.2. Intervention condition

The *Supervising for Home Safety* intervention program took 4 weeks to complete and began with presentation of the *Watchful Parents, Safe Children* video (20 min) and a Post-Video Structured Discussion (40 min) in a laboratory setting, followed by one month of the parent practicing solutions in the home that addressed self-identified barriers to actively supervising, as well as tracking their self-talk and strategies related to close supervision. The program was manualized and included extensive training materials to ensure consistent and rigorous program delivery, with random checks on fidelity of program delivery (e.g., checking audiotapes of program delivery sessions). The intervention was implemented within two weeks of parents completing the baseline pre-intervention diary based supervision recordings. Diary based recording of post-intervention supervision practices began once the mother completed the one-month intervention program. Observations of parent supervision in the contrived hazards room were completed pre-intervention, and at two time points post-intervention (immediately after, and three months later).

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