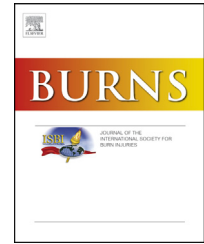


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Community partnership to promote home fire safety in children with special needs

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ARTICLE INFO

Article history:

Accepted 20 December 2013

Keywords:

Home fire safety

Community partnerships

Children with special needs

ABSTRACT

Background: Parents of children with special needs are vigilant as their child may have difficulty independently escaping a burning home. The purpose of this study was to evaluate if providing home fire safety information via a digital video disc (DVD) increases families' knowledge, behavior and ability regarding home fire safety.

Methods: A school based classroom intervention (using a home fire safety DVD) was provided to parents ($n = 40$) of children with and without special needs to improve home fire safety knowledge, behavior and ability. In addition, parents seen at the Kentucky Commission for Children with Special Health Care Needs clinics ($n = 47$) received the same intervention in cohorts of 1–2 children. For both groups, knowledge, and behavior were measured before and after intervention. Repeated measures ANOVA were used to test for differences between groups and over time. Significance was set at $p < 0.05$.

Results: No difference in scores between pre- and post-test scores existed between groups (with special needs vs. without special needs, or classroom vs. individualized instruction). However, some differences were noted for some individual survey questions during post-hoc comparisons. Having a smoke alarm in the home (90% vs. 95%, $p = 0.029$) and having a smoke alarm outside of where everyone sleeps (75% vs. 95%, $p = 0.005$) increased over time and was retained. Having a fire escape plan increased at post intervention (58% vs. 79%, $p = 0.033$), but returned to pre levels at follow-up (58%). Perceived knowledge (7.7 vs. 9.3, $p < 0.001$) and ability (8.7 vs. 9.1, $p = 0.069$) increased over time.

Implication for practice: Parents of children with special needs had a significant increase in knowledge and behavior over those parents of children without special needs. They also perceived having a high fire safety ability. Many of the post-test questions/behaviors

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<http://dx.doi.org/10.1016/j.burns.2013.12.019>

(e.g., capable of exiting home during a fire, etc.) were reported at 100%. The intervention was well received, but may not necessarily be needed. Focus for home fire safety may need to look at younger children and smaller families. Parents of special needs children may have had frequent interaction with health care professionals.

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1. Introduction

During the last two years, 300 children with burns per year were treated at one north central Kentucky children's hospital [1]. Top injuries were from contact [(e.g., appliances, objects or steam pipes ($n = 212$)), hot vapor including steam ($n = 124$), hot tap water ($n = 43$), clothing catching on fire ($n = 17$), and unspecified hot substances, caustic substances, objects ($n = 16$)]. The remaining burns were spread across multiple categories and between the two years. Information was not available as to whether the children had special needs. Within this county wide district of 99,775 students, from pre-kindergarten through high school, 2672 are children with special needs in self-contained classrooms; the remaining group of children are mainstreamed [2].

2. Previous research

In a previous pilot study the current authors identified the burn prevention needs, preferred method of parent education and the action responses of individuals caring for children with and without special needs [3]. An author developed instrument measuring fire safety education needs, priorities, preferred method of education, and burn prevention actions was administered to parents and professionals ($n = 150$) caring for children with physical limitations ($n = 41$), vision impairment ($n = 80$) and no special needs ($n = 29$). There was no difference in ranking between parents and professionals or between groups (disability, vision impaired, and control) in preferred burn prevention safety areas ($p > 0.05$); however there was a difference in their preferred method for education ($p < 0.001$) [3]. Parents preferred classroom education, DVDs, and home inspections when compared to receiving the same information from professionals [3].

The purpose of this study was to improve home fire safety knowledge of scald, contact, electrical burn prevention behavior and ability to exit a home safely during a fire in families of children with and without special needs (i.e., children with physical, vision, hearing, or autistic special needs) in two different settings [School-based (SB) vs. Waiting-Room (WR)]. The aim is to determine the acceptability, feasibility, and efficacy of one intervention (home fire safety DVD) presented in two different ways to improve home fire safety. If results support that the DVD modality (which examines kitchen, bathroom, electrical burn prevention, smoke alarm use, home exit plans and practice, and burn first aid) is effective in improving knowledge, behavior and ability, this may indicate a much more cost-effective and far reaching way in which to improve home fire safety. DVD was previously shown to be preferred by parents [3].

3. Research design and methods

A group randomization scheme was used in the current study. That is, all individuals in the SB group (families having a child with and without special needs) was randomly assigned to receive the home fire safety DVD intervention via group setting, while the individuals in the WR group was assigned to receive the home fire safety DVD intervention in the traditional face-to-face manner in one to two parent-child cohorts. The DVD examines kitchen, bathroom, electrical burn prevention, smoke alarm use, home exit plans and practice, and burn first aid and takes five to six minutes to watch. Outcomes were measured at baseline and post-intervention to measure recall and retention of information provided. We then tested for differences between groups and over time using Repeated Measures ANOVA techniques; subsequent to a descriptive analysis. In addition, we evaluated whether having a child with special needs impacted outcomes. From the anticipated sample size ($n = 80$) the study had 82% power to detect a 10% main effect of each treatment using a RM ANOVA model. In addition, this study had 80% power to detect a small-to-medium increase in proportions over time, if/when samples were pooled. The analytic sample size was $n = 87$, so the study was adequately powered.

3.1. Setting

A school (Churchill Park) located in the city of Louisville which has both children with special needs in self-contained classrooms and children without special needs. This school system has a program serving 12,909 students (ages 5–21 years) who have moderate to severe disabilities who need a special program; in which Churchill Park had more than what was available at other schools [2]. In addition, 88,296 children without special needs attend this school system. Students at this school are 49.4% Caucasian, 37% African American, and 13.5% other. Sixty-three percent of the students receive free lunches.

The second setting was the *Kentucky Commission for Children with Special Health Care Needs* clinic, in Louisville, Kentucky. The commissions' mission is to enhance the quality of life for Kentucky's children with special health care needs (e.g., cerebral palsy, Spina Bifida, craniofacial, neurology, orthopedic, or otology) less than 21 years of age, who are state residents having a condition that usually responds to medical treatment, and meet financial guidelines [4]. Services provided include medical services (e.g., office visits, surgery, hospitalization, dental, orthodontia, and care coordination), therapy services (e.g., physical, occupational, audiology, and speech therapy), and related laboratory and follow-up [4].

Demographic information regarding gender of parent, age(s) of child(ren); if the child has special needs, child's special need

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