

University of Missouri, St. Louis

IRL @ UMSL

Dissertations

UMSL Graduate Works

6-19-2014

Safety Hazards Education for Mothers Who Are Homeless: Target Teaching to Improve Knowledge of Safety Hazards for Children Under Five Years of Age

Susan Halpern Fliesher

University of Missouri-St. Louis, sfliesher@aol.com

Follow this and additional works at: <https://irl.umsl.edu/dissertation>



Part of the [Nursing Commons](#)

Recommended Citation

Fliesher, Susan Halpern, "Safety Hazards Education for Mothers Who Are Homeless: Target Teaching to Improve Knowledge of Safety Hazards for Children Under Five Years of Age" (2014). *Dissertations*. 246. <https://irl.umsl.edu/dissertation/246>

This Dissertation is brought to you for free and open access by the UMSL Graduate Works at IRL @ UMSL. It has been accepted for inclusion in Dissertations by an authorized administrator of IRL @ UMSL. For more information, please contact marvinh@umsl.edu.

Safety Hazards Education for Mothers Who Are Homeless:
Target Teaching to Improve Knowledge of Safety Hazards
for Children Under Five Years of Age

Susan Fliesher

M.S.N., Nursing of Children, Saint Louis University, 1987

P.N.P. Certificate, Washington University, 1979

B.S.N., Nursing, Northern Illinois University, 1976

A Clinical Scholarship Project submitted to
The Graduate School at the University of Missouri-St. Louis in
Partial Fulfillment of the Requirements for the degree
Doctor of Nursing Practice
August 9, 2014

Advisory Committee

Susann Farberman, DNP, MEd, CPNP
Chairperson

Jean Bachman, PhD, RN
Co-Chairperson

Nancy Magnuson DSN, APRN-BC, FNP
Committee Member

Mary Curtis PhD, RN, ANP-C
Committee Member

Copyright, Susan Halpern Fliesher, 2014

Abstract

The leading cause of morbidity and mortality in children in the U. S. is unintentional injury (Center for Disease Control Child Injury Report, 2000 to 2006), but there is little information about homeless mothers with children and child unintentional injury. Frencher et al. (2010) compared lower socioeconomic families with children with housing to homeless families with children, and found that unintentional injury was 13% higher among homeless children. Mothers who are homeless often need to navigate a variety of temporary housing and may lack understanding of child safety hazards in strange environments, limiting their ability to ensure their children's safety (Tymchuk, Lang, Sowards, Lieberman, & Koo, 2003).

The purpose of the quasi-experimental project was to provide a child safety hazard education program in a shelter for mothers who are homeless by: (a) assessing homeless mother's baseline knowledge of child safety environmental hazards; (b) providing a hands-on child safety hazard education program; (c) evaluating the homeless mother's knowledge of child safety hazards following the safety hazard education program; and (d) determining what homeless mothers say about the child safety hazard education program.

Scores of the mothers ability to identify 34 possible safety hazards on the pretest ranged from five (14.7%) to 32 (94.1%) prior to the educational program. When mothers were asked if they had received previous safety hazard education, less than half (47.8%) of the homeless mothers indicated receiving some previous information. Overall, there was 23.9% improvement in the ability of women to identify safety hazards following completion of child safety hazard education class and t-test analysis revealed a significant improvement in applied knowledge ($t =$

5.99, $p < .001$). Interviews revealed that this program provided homeless mothers with increased awareness of home safety hazards, increased knowledge of the importance of home assessment, increased self-confidence, and the desire for more knowledge regarding home safety education. Results suggest advanced practice nurses should consider hands-on, targeted child safety hazard education with applied simulation for mothers in low income, high risk families in the primary care setting or in their communities. More research also needs to be done regarding unintentional injuries and children in families who are homeless.

Acknowledgements

My parents shared with me their beliefs that there was great value in helping others and that education and tenacity were important. I would like to remember my mother and father with gratitude for providing me with those values which have enabled me to become a community health nurse attaining this DNP degree.

I would like to thank Dr. Susann Farberman, chair of my DNP project, director of the DNP program, and my colleague/friend for many years for her continual support during my journey in the DNP program. Dr. Farberman's generous positive feedback and genuine kindness was greatly appreciated and will never be forgotten. She reminded me what encouragement and reassurance can mean to a student who is challenged with new skill sets. I would like to offer my sincere gratitude to Dr. Jean Bachman, co-chair of my DNP project and professor for nursing informatics and nursing science. I appreciated her positive attitude in classes and the time she spent editing and making recommendations (and multiple edits) of my writing for the DNP project. Although revising the manuscripts had its challenges, I believe I have learned a great deal about writing from the experience and am better for it. I would like to thank Dr. Debbie Kiel who provided me practical insights into epidemiology and program planning through her dedicated teaching. Dr. Kiel gave me a great deal of support and wisdom in choosing a doable project for which I had a passion and one that served a real need in the community. I will always be grateful for that. I can never thank Dr. Mary Curtis and Dr. Margaret Bultas enough for providing me with a project that I could use to replicate with some changes. Dr. Curtis is an

incredible mentor to me as an educator and as a research colleague. She represents everything good about an advance practice nurse who is able to use her clinical skills to change patient/student outcomes. Thanks to Dr. Nancy Magnuson for her thoughts and the valuable time she spent helping me to complete this project. Thank you to Dr. Werner for all of her wisdom and support with the statistical analysis. I appreciate her easy manner and encouragement.

On-line education has the potential to be very isolating but I was fortunate to have the encouragement and support from other students in this DNP program. I would like to thank Jill Rude, Carole Branch, Miriam Butler, Mary Schurk, Rebecca Light-Pearlman and Anne Borgmeyer for their encouragement during this academic journey.

Goldfarb School of Nursing administration and faculty provided a great deal of encouragement in this process. Mary Ann Jobe, Dr. Mary Curtis, Dr. Michael Bleich, Dr. Connie Koch, Dr. Gretchen Drinkard, Dr. Gail Rea, Dr. Rita Wunderlich, Dr. Sue McKee and Jennifer Daye were especially supportive. I am so grateful. Special thanks go to Margaret O'Connor who was a huge help in her multiple edits of this manuscript.

The time and energy required in the doctoral program meant that family and friends had to contend with a Susie who was often distracted, stressed and/or unavailable. I would like to thank Kathy Potts, Kathleen Guerrein, Pamela Dern, Jan Nykin, Lois Zuckerman, Robin Gutmann, Jenny Mitchell, Susan Lew, Jane Kadosh, Leslie Friedman, Eileen Homer, Ricky Kravitz, Donna Segal, Lynn Huss-Pazdral, Carol Ginger, Lynne and Mike Lippmann, Jeff and Dany Medintz,

Alan and Judy Halpern, Barbara Furey, Jerry and Lili Sachar, and Lenora Sachar for their listening ears and encouraging words during the years of the DNP program.

My children, David, Debbie, and Sarah, are the best and have cheered for me along the way and encouraged me when I whined about being an “older” student with limited IT skills. They graduated in May 2014 with MBA, Bachelors in Electrical Engineering and Law degrees. I am so proud of them!

My husband, Ed, has been a real hero in this endeavor as he has taken on more in the household in order to free me to spend more time on my studies. He has shown incredible understanding and patience as his life was impacted by me going back to school. I will always be so grateful for his amazing encouragement and support.

Table of Contents

Abstract.....2

Acknowledgements.....4

Table of Contents.....7

Introduction.....10

Significance of Early Childhood Prevention Programs.....10

Purpose of Project.....11

Project Plan.....12

 Project Outcomes.....12

 Stakeholders.....13

 Anticipated Barriers/Challenges to the Plan.....13

Health Belief Model.....14

The Epidemiology of Child Unintentional Injury.....15

Child Unintentional Injury Statistics.....16

Review of the Literature..... 20

 Homelessness and Child Unintentional Injury.....21

 Parents/Caregivers and Child Unintentional Injury.....22

 Parents/Caregivers Supervision and Child Unintentional Injury.....25

 Home Child Safety Education.....27

 Community-Based Child Safety Education.....30

Mobile Child Safety Injury Prevention Education.....	31
Primary Care Providers and Child Injury Prevention.....	32
Tailored Interventions in Child Safety Education.....	34
Homeless Mothers and Child Injury Prevention Education.....	35
Methodology.....	37
Project Design.....	37
Research Questions.....	37
Sample and Setting.....	38
Protection of Human Subjects.....	39
Data Collection.....	39
Instrumentation.....	40
Data Analysis Results.....	41
Population Description.....	41
Information Regarding Previous Safety Hazard Education.....	42
Information Regarding Previous Injuries in Their Older Children.....	42
Main Analyses Pertaining to Research Questions.....	42
Discussion/Conclusion.....	47
Strengths and Limitations.....	52
Implications for Future Practice and Research	
Health Legislation and the Advanced Practice.....	52
Child Unintentional Injury and the Advanced Practice Nurse.....	53

Accomplishment of DNP Essentials.....	54
References.....	56
Appendix A: Informed Consent Document to Participants.....	69
Appendix B: Demographic Information Form.....	73
Appendix C: Simulation Checklist-Van.....	74
Appendix D: Interview Questions.....	77

Introduction

C. Everett Koop, former United States Surgeon General and Chairman of The National SAFE KIDS Campaign, once said, “If a disease were killing our children at the rate that unintentional injuries are, the public would be outraged and demand that this killer be stopped” (American Medical Association [AMA], n. d., p.1.). Safe Kids (2013) reports that in the United States (U.S.), 9,000 families lose a child from a preventable injury every year. In that same year an additional 9 million children are seen in emergency rooms for injuries (Safe Kids, 2013). Unintentional injury is a public health issue because it is the leading cause of morbidity and mortality in children in the United States (U.S.) (Center for Disease Control Child Injury Report, 2000-2006; Forum on Child and Family Statistics, 2011). Phelan, Khoury, Kalkwarf, & Lanphear (2005) estimate that 1.48 million children aged 1 to 4 are seen annually in U.S. emergency rooms for unintentional injuries that occurred in the home. In 2005 it was reported that unintentional injuries annual cost was 5 billion dollars for children aged 14 years and younger (Safe Kids, 2013). Unintentional injuries create a huge burden to society; in addition to financial costs, there are emotional costs and long-term consequences due to the morbidity to be considered (AMA, n.d.).

Significance of Early Childhood Prevention Programs

Children in families with lower incomes are at increased risk for unintentional injuries. (Frencher et al., 2010; Sridharan & Crandall, 2011; Durkin, Davidson, Kuhn, O’Connor, & Barlow, 1994). Pritchard (1990) reported that little statistical data is available on injuries experienced by children in families with lower incomes who are in temporary accommodations

due to family homelessness although there has been anecdotal evidence of increased accident risks. If the demographics and socioeconomics of homeless mothers and children are considered, homeless families may seem to be like other low-income families who are not homeless (Kerker et al, 2011). When homeless families have to move in with others, overcrowding may occur. Overcrowded housing may increase the risk of pediatric unintentional injury (Fallat, Costich & Pollack, 2006; Safe Kids, 2013).

Crandall, Sridharan, and Schermer (2010) report that children who have been injured within the first year of life are at high risk for recurrent injuries and poor outcomes. Many of the homeless mothers in this study are expecting their first child at this shelter for pregnant homeless mothers. The Crandall et al. study provides evidence that suggests child injury prevention programs should be implemented during pregnancy and during that first year of life.

Lack of understanding of dangers in the environment may limit a mother's ability to ensure her child's safety (Tymchuk, Lang, Sowards, Lieberman, & Koo, 2003). Thus, homeless mothers have a need to learn about safety hazards that may exist in multiple living conditions so that they are able to provide safe environments for their children to avoid unintentional injury. Since little is known about homeless mothers and children related to unintentional injury, there is a need to provide a safety hazard identification program for homeless mothers and evaluate if these mothers are subsequently able to identify child safety hazards in a test environment.

Purpose of Project

The purpose of the project is to provide a child safety hazard education program in two homeless women's shelters (urban/city and rural/country) by: (a) assessing the homeless

mother's baseline knowledge of child safety environmental hazards; (b) providing a hands-on child safety hazard education program; (c) evaluating the homeless mother's knowledge of child safety hazards following the safety hazard education program; and (d) determining what homeless mothers say about the child safety educational program.

The results of the project will be used for future program development for this agency and outcomes will be shared publically to increase the body of knowledge for those working with women who are homeless. In the future this type of program could be used in multiple sites as a clinical experience for community health nursing students to provide safety hazard education for high risk, low income mothers.

Project Plan

Project Outcomes

The outcomes identified prior to beginning this project are:

1. Short term outcomes: Homeless mothers will show increased applied knowledge of child safety hazard identification.
2. Mid-term outcomes: A child safety hazard education program using a child safety simulation education van will be provided three times a year at the sites studied.
3. Long term outcomes: Multiple on-site child safety hazard education programs will be provided by community health nursing students as a clinical experience, using the van for other at-risk mothers.

Stakeholders

The children of homeless women are the key stakeholders of this project. Increasing maternal awareness of child safety hazards has the potential to decrease child injury thus preventing unintentional injuries to those children. Other stakeholders would include homeless women whose children would remain safer from unintentional injury. The agency being used is a stakeholder in the development of a program for their residents. The metropolitan community is a stakeholder as they stand to have fewer unintentional injuries which means there will be more people in good health and a decrease in taxpayer dollars that go toward health services and long term loss due to death or disability. The Medicaid program and local health care institutions can also benefit from decreased child unintentional injury costs if this program is effective. The school where the program originated is a stakeholder as it can provide community service with the van, as well as provide future clinical experience opportunities for community health nursing students. Sigma Theta Tau funded this research in order to cover expenses so they would also be considered stakeholders. There are numerous local agencies where this program could be developed in a partnership for the benefit of many at-risk mothers and children, not just those who are homeless.

Anticipated Barriers/Challenges to the Plan

The researcher does not anticipate problems regarding the data collection. It is possible that mothers would not want to participate in the program. It is also possible that mothers may be in the hospital delivering a baby during the time of one of the sessions. Data collection may take longer than anticipated. There are always equipment concerns regarding the van. Weather could

be a concern if the van were not able to get there. However, program dates can be changed and time can be added.

Health Belief Model

The seminal Health Promotion Theory proposed by Rosenstock in 1966 was used to guide this project. Rosenstock (1966) believed that underlying emotional aspects have great value in health behaviors. His health belief model proposed that health-related behaviors depended on the individual's perception of perceived susceptibility, perceived seriousness, perceived benefits of taking action, and perceived barriers to taking action. Rosenstock's (1966) proposed model looked at conditions surrounding decision making and why people take actions toward healthy behaviors in order to learn why people would use health services. In other words, this theory hypothesizes that people make their health behavior decisions based on their perceptions of risk. Garzon (2005) agreed, applied this health belief model to children, and noted that in order to provide an environment that has minimal safety hazards a parent or caregiver would make the decision to do so based on their perception of injury risk. Garzon says the parent or caregiver would have to believe the child was susceptible to injury, the injury would be serious, there would be a benefit to taking action, and the barriers to prevent injury would not be a problem in order to take action. Garzon adds that if the parent views injury as low risk and of mild consequence, it is less likely the parent would use injury prevention behaviors. Since there are usually associated financial, social, and psychological costs involved in preventive behaviors; parents also taken into account a risk-to-benefit decision-making process (Garzon, 2005). Applying the health belief model (Rosenstock, 1966) premise, parents who feel children have a

high risk of severe injury will use injury prevention behaviors to mitigate that risk and parents who do not perceive that the children have a high risk for injury will be less likely to engage in injury prevention behaviors. Additionally, researchers note that parents' belief that they may not be able to exercise control over their children's safety impacts their supervision of their children. (Saluja et al., 2003). Some parents may be concerned about being perceived as bad parents and may subconsciously blame injuries on factors not under their control (Murno et al., 2005).

Using the health belief model (Rosenstock, 1966) as guide for this project, an education program will be provided to homeless women that will demonstrate safety hazards having the potential to increase the risk of injury for children under the age of five. Additionally, we will teach educational strategies to remove safety hazards or use safety hazard equipment to decrease the risk of injury to children.

Applying the health belief model (Rosenstock, 1966) as a guide, the attempts to empower the homeless woman by teaching them to identify child safety hazards and then take safety preventive actions to reduce the risk of injury to their child. The safety hazard education and class discussions are intended to help homeless women be aware that although they may be in multiple environments while homeless, they may be able to take actions to prevent child injury. Further, the mothers may be able to acknowledge and feel empowered to have some control in a variety of environments.

The Epidemiology of Child Unintentional Injury

According to Grossman (2000) injuries used to be referred to as "accidents" until public health advocates realized that the word "accident" was a barrier to prevention. Accident is defined as

unexpected or unintended, as if by chance. However, researchers and public health workers knew that injuries were not all random and unpredictable. This paradigm shift was reflected in the replacement of the term accident by the term injury. Further study identified risk factors and protective factors that could increase or decrease the likelihood of sustaining an injury.

Surveillance has enabled scientists to identify many of those factors and research interventions that reduce the incidence and/or severity of many injuries. There are many causes of childhood injury and the incidence is quite varied amongst different groups of children (Grossman, 2000).

Songer (n.d.) states that in order to control injury, one must first identify the morbidity, mortality, and cost. Secondly, risk factors need to be identified. Thirdly, interventions need to be made. Finally, evaluation should be done to see if the interventions were effective. In a recent literature review on parenting interventions for the prevention of unintentional injuries in childhood, Kenrick et al. (2011) concluded that interventions provided to disadvantaged families are effective in reducing unintentional injuries in children and improve home safety.

Child Unintentional Injury Statistics

According to the National Coalition for Homelessness (n.d.), family homelessness represented 41 percent of the US homeless population in 2009. The number of homeless families continues to increase as the fastest-growing segment of this vulnerable population (Morris & Strong, 2004; National Coalition for Homelessness, n.d.). According to the National Center on Family Homelessness (n.d.), there are over 1.6 million homeless children in the US each year which means that 1 out of every 45 children may experience homelessness each year.

This researcher was unable to find exact numbers for unintentional injuries in children of homeless mothers. Due to the transitional nature of this population, accurate data is not easily obtained (Horizons for Homeless Children, n.d.). Homeless families are difficult to count. These families may be included in the statistics for people who are in the lower socioeconomic groups. If one looks at the demographics and socioeconomics of homeless mothers and children, homeless families can be seen to be like other low-income families (Kerker et al., 2011). While much data on unintentional injuries has relied on medically attended situations, it is unknown how many children are injured who do not seek medical help (Garzon, Lee, & Homan, 2007).

There seems to be universal agreement throughout the literature that unintentional injuries are the leading cause of morbidity and mortality in children in the U.S. (Center for Disease Control Child Injury Report, 2000-2006; Forum on Child and Family Statistics, 2011). The Centers for Disease Control and Prevention (CDC) Child Injury Report (2000-2006) reports unintentional injuries are the leading cause of morbidity and mortality among children in the U.S., 9.2 million children are treated in the emergency departments for nonfatal injuries, and over 12,000 children aged zero to 19 years die from unintentional injuries each year. The leading cause of death for children aged one to five was falls, and in children less than one year of age it was suffocation (CDC).

Unintentional injuries were estimated to be over 50 billion dollars in 2000 in total lifetime costs (medical expenses and productivity losses) among children aged zero to 14 (Center for Disease Control, 2012; Schwebel & Gaines, 2007). Katcher, Meister, Sorkness, Staresinic, Pierce, Goodman, Peterson, Hatfield, & Schirmer (2006) have estimated the costs to society to

be in excess of \$200 billion dollars annually due to unintentional injuries. The families of children who were severely injured are at high risk for work and financial problems; it is not uncommon for all or most of the family's financial resources to be used to pay bills associated with the injury of their child (Osberg, Kahn, Rowe, & Brooke, 1996).

Although death rates from injuries in children have declined over the past two decades, the leading cause of death in children aged one to 14 years remains unintentional injuries (Forum on Child and Family Statistics, 2011; Ingram & Emond, 2009). According to Fallat et al. (2006), although there has been progress in pre-hospital care, hospital care, and rehabilitation, there continue to be disparities with children from low-income household being at greater risk of serious injuries than children in more affluent families.

The majority of child unintentional injuries occur in the home (Phelan, 2005). Irving (2011) notes that home accidents in preschool children are a particular concern. Nansel et al. (2007) reported that over 90% of unintentional injuries in children under the age of five years of age happen at home. Phelan et al. (2005) and Phelan, Khoury, Xu, Liddy, Homung & Lanphear (2011) report that even though there was a 25% decrease in housing-related injuries over the past 2 decades, the home environment is still the most common location for injuries in children. Each year in the U.S., 2,800 children die from the home injuries; 4 million end up in the emergency room, 74,000 of whom are hospitalized; and 13 million require outpatient visits for home injuries (Phelan et al., 2005, Phelan et al., 2011).

In Missouri, for the period of 2000 to 2005, the child unintentional injury death rate was 21.2 per 100,000 population; this was higher than the national rate of 15 per 100,000 (CDC Child

Injury Report, 2011). According to Borse et al. (2013) the state of Missouri annualized potential years of life lost due to child unintentional injury during the years 2000-2009 was 1139-1350/100,000. If you compare this annualized potential years of life lost (YPLL) to other states in the U.S., Missouri has one of the higher rates. (It is divided into 5 groups and we are the next to highest.) The most tangible costs are medical costs. Less tangible is the value of the losses caused by changes in the quality of life due to impairment, or for survivors after death (Zaloshnja, E., Miller, T.R., Lawrence, B.A., & Romano, E., 2005).

Nonfatal childhood injuries often result in morbidities that create a reduced quality of life from disabilities (Center for Disease Control National Action Plan, 2013, Zaloshnja et al., 2005). According to Chandran, Hyder, & Peek-Asa (2010), the World Health Organization reported that nearly half of children who present to the emergency department with unintentional injury will have some form of disability. Data on nonfatal injuries is more difficult to obtain (Grossman, 2000). One of the problems with the data on minor nonfatal unintentional injuries in children are the fact children in low socioeconomic groups may have limited access to care. Sridharan and Crandall (2011) report that people of lower socioeconomic status and education are less likely to report injuries. Children who have serious injuries get access to care so they get counted (Cubbin & Smith, 2002). The statistics from mortality and clinical records for home injuries in infants may also be underestimated according to Drachler et al. (2007). Stone (2007) reports that long term data is unavailable regarding consequences of injury in regard to physical and/or emotional health or the impact on the community or families.

The public health community generally agrees that home injuries for the most part are preventable (Katcher et al., 2006). Many injury prevention groups estimate that 90% of unintentional injuries could be avoided if appropriate intervention strategies were used (National SAFE KIDS Campaign, 2004; NAPNAP, 2008). Intervention strategies that need to be used are those which work on improvements in education, children's environments, proper enforcement of legislation and regulations related to child safety, and the involvement of communities (Johns Hopkins, n.d.).

Reducing nonfatal unintentional injuries and reducing unintentional injury death are objectives of The United States Department of Health and Human Services Healthy People 2020: Improving the Health of Americans (U.S. Department of Health and Human Services, 2010). Decreasing childhood injury is of central importance in public health and has the potential to improve the quality of health and save health dollars (CDC National Action Plan, 2013).

Review of Literature

This section includes a comprehensive review of the literature related to mothers who are homeless and the prevention of unintentional child injury in these alternate environments where women must live with their children. This review focuses on homelessness and child unintentional injury, parents/caregivers and child injury prevention, home child safety education, mobile child safety injury prevention education, primary care providers and child injury prevention, tailored interventions in child safety education, and homeless mothers and child injury prevention education.

Homelessness and Child Unintentional Injury

Homelessness and poverty may place a child at risk for unintentional injury (Fallat et al., 2006). If the demographics and socioeconomics of homeless mothers and children are considered, homeless families may seem to be like other low-income families who are not homeless (Kerker et al., 2011). Only one article was found that addressed unintentional injury in homeless children. Frencher et al. (2010), compared lower socioeconomic families with children with housing with homeless families with children and found that unintentional injury was 13% higher among homeless children. Frencher et al. also reported that toddlers aged three and four from homeless families were at increased risk of hospitalization due to falls from furniture compared to similarly aged toddlers from lower socioeconomic status housed children, and suggested the possibility of a safety gap in sheltered toddler sleep facilities.

Calculating the true incidence of unintentional injury for the homeless population is limited because prevalence as the denominator is unreliable (Frencher et al., 2010). Health seeking behaviors and access to care can impact incidence of unintentional injuries (Corso, Finkelstein, Miller, Fiebelkorn & Zaloshno, 2006; Zaloshno, 2005). Pritchard (1990) agreed that there is little statistical data to support true numbers for injuries in homeless children, but reports that there is a great deal of anecdotal evidence of accidents to homeless children as well as maternal frustration with having little control over the environment in accommodation for homeless women and children.

There are a few articles that looked at the health of homeless children but did not mention injuries. (Horizons for Homeless Children, n.d.; Swick, 2009; the National Center on Family

Homelessness, 2008) Morris and Strong (2004) reviewed the literature about the impact of homelessness on family health but only mentioned injury in this review.

Fallat et al., (2006) reported an increased risk of childhood injury for single-parent family households, crowded households, and households that move frequently. Because homeless women are often single, may have frequent moves or live in crowded environments with other people, their children may be at increased risk for unintentional injuries. This increased risk is supported by a large number of studies that report childhood injury disproportionately affects the poor and disadvantaged which means there is a higher risk of injury for children in these vulnerable families (Crandall et al., 2010; Sridharan & Crandall, 2011; Kendrick et al., 2010; Russell & Champion, 1996).

Interestingly, Brandenburg et al. (2006) reported in the aftermath of a disaster such as Hurricane Katrina, the displacement of children, or in other words homelessness, was a variable that put them at increased risk for unintentional injuries. As part of the disaster response during Hurricane Katrina, volunteers went into action with Operation Child-Safe to identify and remove child injury safety hazards (chemicals, cleaning products, water in buckets, spills, items that could be choked on, etc.) to keep children safe who were at high risk to be exposed to numerous injury hazards. After Operation Child-Safe was initiated, there were no preventable injuries (Brandenburg et al., 2006).

Parents/Caregivers and Child Injury Prevention

Several studies report that parent/caregiver attitudes and perceptions of child injury prevention may contribute to unintentional injury (Munro et al., 2005; Morrongiello, Corbett & Brison,

2009; Greaves et al., 1994, Cubbin & Smith, 2002; Morrongiello, Midgett & Shields, 2001; Vladutiu, Nansel, Weaver, Jacobsen & Kewurwe, 2006; Morrongiello, Corbet, Lasenby, Johnston & McCourt, 2006; Morrongiello & Dayler, 1996; Garzon, 2005; Garzon, Lee & Homan, 2005; Ingram & Emond, 2009; Morrongiello & Schwebel, 2008). Parent/caretaker perceptions of injury risk can act as a predictor of child unintentional risk in the home (Munro et al., 2005; Cubbin & Smith, 2002; Morrongiello et al., 2001; Ingram & Emond, 2009; Morrongiello & Schwebel, 2008; Vladutiu et al., 2006; Schwebel & Gaines, 2007). If a parent or caregiver does not believe that an injury is preventable, they are less likely to use injury prevention measures (Cubbin & Smith, 2002). It is possible that a parent/caregiver knows that the home environment has a safety issue but perceives a decreased risk because of some characteristic in the child or child's potential for interacting with the safety hazard (Morrongiello et al., 2001).

Vladutiu et al. (2006) noted that parenting experiences provide increased knowledge of expected outcomes and may influence parent attitudes of later born children in regard to safety education and reported that "attitudes were more strongly predictive of injury prevention behavior among parents of first born than later born children" (p.38). Mothers who view a safety issue like falls as a normative event have fewer rules and their children are at increased risk for injury (Morrongiello et al., 2006; Morrongiello & Dayler, 1996). Parents who believe that child injuries are just a natural part of childhood may also believe that children will learn risk avoidance from getting injured (Ingram & Emond, 2009; Schwebel & Gaines, 2007). Parents often do not think about unintentional injury risk in the normal course of the day, especially if

they hold a strong belief that injuries are not preventable (Morrongiello & Kiriakou, 2004; Morrongiello & Dayler, 1996). Some parents believe that being careful is enough to protect their child from injury (Morrongiello & Dayler, 1996). Risk perceptions influence the decisions parents make regarding health behaviors and parents are more likely to adopt preventive behaviors to protect their child against injury when they perceive child vulnerability and severity of risk (Garzon, 2005; Russell & Champion, 1996). Parent's attitudes and appraisals of risk may override their knowledge of risk so one cannot predict health practices (Morrongiello & Schwebel, 2008).

According to Russell and Champion (1996) mothers who have increased safety knowledge and previous experience with injuries are more likely to childproof their homes to make them safer. Parents who have knowledge of safety hazards may make rules in the home to limit safety hazards. According to Alho, Piotrowski, & Briggs (2010) children in households where the mother had safety rules had fewer minor injuries; this was significant even though children only followed about 68% of the household rules about safety. Morrongiello et al. (2001) found in a study of preschoolers that children only recalled half of the safety rules set down by parents and the children's knowledge did not predict the number of injuries.

In contrast, parents may be overestimating their child's knowledge and ability to handle injury-risk situations (Morrongiello et al., 2001; Morrongiello, Ondejko & Littlejohn, 2004; Garzon et al., 2007). When parents have limited knowledge of potential hazards and/or do not have an awareness of their children's abilities, young children are vulnerable to home unintentional injury (Saluja et al., 2004). Education and poverty are related, and a mother who is poorly

educated may not be aware of appropriate steps to keep her child safe (Schwebel & Gaines, 2007).

Cubbin and Smith (2002) point out that parents who lack education may not understand injury prevention and may not view injury prevention as important. They may lack resources to buy safety devices to prevent unintentional injury, and often do not use safety devices or participate in injury prevention activities. Munro et al. (2006) agree and report some poor families may feel unable to provide a safe home for their children because of the lack of resources for safety devices and lack of knowledge related to child safety strategies. Swick (2008) points out that parents who are homeless may not understand child development and related safety issues, and may be focused on keeping the child quiet so as to not get in trouble with others where they are staying.

Parent/Caregiver Supervision and Child Unintentional Injury

Parent or caregiver supervision may be a factor in unintentional injury in children. Parent/caregiver perception of injury risk also has a relationship with child supervision (Garzon, 2005). Parents and caregivers by nature of their supervisory positions, have the ability to identify safety hazards to help children they care for avoid safety hazards and prevent injuries from occurring (Munro et al., 2005). According to Schnitzer, Covington, & Kruse (2002), most deaths from unintentional injury are the result of parent/caregivers not protecting children from safety hazards or from inadequate supervision.

Inadequate supervision is an important risk factor in child unintentional injury and has been shown to have a relationship with limited parenting experience and unrealistic expectations of

the child's developmental abilities (Ingram & Emond, 2009; Peterson et al., 1993). Some injuries, like falls, are believed to be normative during childhood and are seen as less of a risk (Morrongiello et al., 2006). Parents who believe that injuries are a normal consequence of life do not feel that they have to take responsibility to provide supervision to avoid the injury (Morrongiello & Dayler, 1996). If safety devices are used in the home, there may be a false sense of security making the parent/caregiver believe that less supervision is required (Greaves et al., 1994; Peterson et al., 1993; Saluja et al., 2004). When children begin to talk and have some knowledge of safety risks, parents may relax supervision of the child because of a false sense of security and not realizing cognitive development about safety risks is not the same as verbal ability (Greaves et al, 1994). It is important to note that there is no substitute for supervision because not all safety hazards can be removed, and some safety equipment is helpful at some ages and unsafe at other ages (Morongiello et al., 2009).

Glik et al. (1993) Morrongiello et al. (2009) investigated caregiver supervision of injured and uninjured children to determine if there was a link between parental supervision and the likelihood of young children experiencing injuries that could result in seeking medical treatment. They reported a five-fold increase of medically-attended injury for those mothers who demonstrated lower levels of supervision, and concluded although many safety hazards can be removed there is no substitute for parental supervision. Parental supervision functions as a protective factor with respect to childhood injury (Morrongiello et al., 2009; Eurosafe, 2006). Greaves et al. (1994) also reported that mothers who have a more protective supervisory style have a more risk-free environment. Parents who have a permissive style of parenting, fewer

rules, and more explanations are less inclined to closely supervise their children (Morrongiello et al., 2006).

The quality of supervision can affect the frequency of injury according to a prospective study of minor injuries (burns, cuts, falls, drowning, suffocation /strangling/ choking, poisoning) of young children in the home (Morrongiello et al., 2009; Morrongiello et al., 2004). There are no specific guidelines regarding appropriate child supervision by age of the child (Peterson et al., 1993). Tomlinson and Sainsbury (2004) noted that a survey of health professionals found no consensus regarding when a child should be supervised because all children are different and supervision needs to be individualized. This lack of consensus may be attributed to the fact that while there are many safety education guidelines, supervision is a somewhat gray area which requires some knowledge of development and judgment of the child's development and the environment. Eurosafe (2006) recommendations for parental supervision included the caretaker being continually in close proximity providing direct attention, but admitted that current research make it difficult to say what constitutes adequate supervision, making it difficult to prescribe a fixed set of guidelines.

Home Child Safety Education

The evidence has varied in regard to whether home safety practices impact child unintentional injury. Several studies have reported that although safety education seems to improve home safety practices, there is lack of evidence to be able to say that home safety education and the distribution of safety equipment are effective in reducing child injuries. On the other hand, they

do not conclude that these safety education programs are not effective (Kerr, 2007; Kendrick et al., 2010; Lyons et al., 2006; Turner et al., 2011; and Phelan et al., 2009).

Lyons et al. (2006) looked at randomized controlled trials focusing on child safety hazard reduction interventions (home visits with safety education) in the home. There appeared to be evidence that interventions (education, smoke detectors, proper water temperature, and plug covers) could decrease the number of home hazards, improve safety knowledge, and increase use of child safety equipment. There was a lack of evidence on whether to create policy or to determine cost effectiveness related to modification of the home environment towards the goal of reducing child injuries. License (2004) agrees and states that although programs have shown improved knowledge, few of these programs were designed to show outcomes in injury rates. Kendrick et al. (2007) reported from their findings that that families who received home child safety education (home visits, safety equipment provided) were much more likely to have fitted stair gates, socket covers, working smoke alarms, safety hot water temperatures, medications stored out of reach, sharp objects and cleaning products out of reach, and the poison control number available to call for help, but there was no evidence that improving safety practices impacted child injury rates.

Other studies have shown a positive relationship between child safety education and a decrease in childhood injuries. For example, Kendrick, Barlow, Hamshire, Polnay, and Stewart-Brown (2007) reviewed parent education programs and reported that there were fewer injuries in the children of families who had received safety education training programs (most were home visits with parent education). In a more recent literature update on parenting interventions for the

prevention of unintentional injuries in childhood, Kenrick et al. (2013) concluded that interventions largely associated with home visits provided to disadvantaged families are effective in reducing unintentional injuries in children and improve home safety in this population.

Hawkins et al. (2007) and Carman et al. (2006) described home child safety programs that provided education and distributed home safety equipment (smoke detectors, fire extinguisher vouchers, first aid kits). The Hawkins et al. study was retrospective; paramedics visited homes and reported that large numbers of safety hazards were identified (no smoke detector or smoke detector without batteries, no electrical outlet caps, no fire extinguishers, unsafe storage of medications and cleaning supplies, water temperature too high, improper gun storage), illuminating the need for child safety hazard education programs. Carman et al. (2006) reported a regional project that targeted low income areas and families with children under the age of five years. The projects' home visitors provided safety equipment (bath mats, harness and reins, cupboard locks, corner cushions, adhesive multi-purpose locks, and plug socket covers) to participating families. After the home visitors left, repair technicians were dispatched to install safety gates, fireguards, smoke alarms, kitchen cupboard locks, and safety film for glass door panels. The follow up of that project by Carman et al. (2006) reported the number of emergency room visits were significantly less for children under the age of five in families who had home safety consultation and obtained safety equipment than those children under five from families who had not participated in home safety consultation and obtained safety equipment. Kenrick et al. (2005) found that if a family had working smoke alarms, appropriate stair gates, and proper

storage of sharp objects, children from these families were less frequently admitted to a hospital than children from families who did not have the safety equipment in their homes.

Community-Based Child Safety Education

Towner and Dowswell (2002) reported increasing evidence that community-based child injury prevention education programs were effective, especially if there were multiple interventions implemented over time in order to develop a culture of safety within that community. Repeated injury prevention messages in different forms and contexts may work together to develop a culture of child safety and work towards the prevention of childhood injury in the community (Towner & Dowswell). Kendrick et al. (2005) reported that child safety interventions targeted at both families and neighborhoods are necessary in order to provide safer environments for low income children.

Spinks et al. (2004) conclude that there is a lack of evidence regarding the effectiveness community-based programs that teach about child injury prevention, and that evidence-based strategies related to child injury prevention need to be developed. It is difficult to demonstrate the effectiveness of complex educational or environmental child injury prevention interventions because community-based, multi-faceted interventions do not lend themselves to experimental evaluation approaches (Towner & Dowswell, 2002). Measures of non-fatal child injury in a community have been largely based on hospital admission or accident /emergency visits; data may be flawed, may not reflect injury rates, and may reflect changes in access to health care or use of health care facilities distorting non-fatal injury rates (Towner & Dowswell, 2002). The concern about flawed data is shared with Frencher et al. (2010) who noted that there was a

limitation in calculating the true incidence and prevalence as the denominator for the homeless population. True numbers regarding unintentional child injury in the homeless population may be unreliable due to families choosing not to use health services or not having access to health services (Frencher et al., 2010).

Mobile Child Safety Injury Prevention Education

There are several programs around the country that are using mobile vehicles to disseminate safety information with good success. Junglemobile is a retro-fitted ambulance in rural Colorado that partnered with Kiwanis, a children's hospital, and a general hospital to provide a traveling injury prevention program for young children. This classroom on wheels goes to events at health and safety fairs, shopping malls, rodeos, and school assemblies, and has shown to improve the knowledge of the participants (Emery et al., 2010). The Children ARE Safe (CARES) Mobile Safety Center is a 40 foot vehicle that is a replicated home environment and was designed to provide injury prevention education that is not restricted to one site; Johns Hopkins, the Baltimore Fire Department, the science center, and community physicians have partnered in the Baltimore, Maryland area to provide education to low-income families at community events and community health centers. This house on wheels provides some free products and services as well as safety education, and has been seen as an effective intervention bringing injury prevention information directly to families (Gielen et al., 2009).

Spivey and D'Amico (2011) reported that New Hanover Regional Medical Center in southeastern North Carolina partners with Kohl's Cares for Kids and has a Community Injury Prevention Collaborative to provide injury prevention information at community events and

school programs. Although there is no official vehicle, the program provides many community events and a safety camp that provides general and seasonal information with good success. Kohl's also has a partnership with St. Louis Children's Hospital and provides a community outreach classroom curriculum called Kohl's Safety Street for kindergarten through fifth grade students which has also shown good success (St. Louis Children's Hospital, n.d.).

Primary Care Providers and Child Injury Prevention

Burnes, Dunn, Brady, Starr, and Blosser (2013) reported in *Pediatric Primary Care* (a textbook used to educate advanced practice nurses) that the goal of anticipatory guidance is to help parents plan and cope with anticipated developmental changes in children by helping parents improve their competence in problem solving thus increasing their parenting skills to prevent childhood injuries. Burnes et al. (2013) noted that it is important to provide parents with clear information about normal development and what are considered best practices for managing ages and stages in order for parents to identify age and stage related risks for certain injuries. According to Burnes et al. (2013) anticipatory guidance practice about normal development used "scripted" topics at well child visits and is now seen as an ineffective way to teach parents about child injury prevention.

King (2001) reported that anticipatory guidance by physicians may decrease the risk of a home child injury. Naylor and Kurtzman (2010) examined the equivalence of physicians and advanced practice nurse practitioners in providing primary care and showed equivalence in patient outcomes when practicing within their areas of competence. Since advanced practice nurses are at the forefront of primary care practice they are positioned to provide anticipatory guidance to

parents. The anticipatory guidance provided by advanced practice nurses may decrease the risk of child unintentional injury in the home.

Not only do advanced practice nurse practitioners and physicians have access to parents, but parents seek them out as an important source of injury prevention information (Gielen et al., 2001). Woods (2006) reported that although health professionals have positive attitudes toward injury prevention, their knowledge of childhood injury prevention was variable. Gielen et al. (2001) agreed and developed a program at Johns Hopkins for pediatric residents to learn more about anticipatory guidance related to child injury prevention. Parents have a desire to get optimal guidance on unintentional injury but report that such information is inconsistently given (Nansel et al., 2008). In primary care pediatric settings, Woods (2006) found there were a number of barriers to providing anticipatory guidance to parents to prevent childhood injuries: lack of time, resources, confidence, and personal experiences of the primary care providers. Magar, Davova-Missova, and Gjerdingen (2006) reported on average, only 200 seconds of anticipatory guidance was provided to families of infants limiting the amount of information about childhood injury prevention. Nansel et al. (2008) agreed that clinicians may not provide injury prevention guidance due to time constraints, lack of knowledge, and competing demands. Magar et al. (2006) concluded after their study was done (to target educational needs with added written materials) that the low-income population preferred verbal instructions to written materials. Peterson (1988) reported the importance of feedback and rewards in program success. Primary care providers in office settings are positioned to provide variety of short, varied interventions that can occur in the office over time if time permits them to do so. Using different

methods and contexts of safety education regarding injury prevention, providers can encourage a culture of safety for young families (Towner & Dowswell, 2002). Because there is limited office time, child safety education may not be provided in depth in the primary care setting and may need to shift to community settings. If a variety of short, varied interventions can occur both in the office and community settings, such as the agency being used for this project, there is a greater chance of encouraging that culture of safety for the homeless families who receive the multiple interventions. Even if the homeless mothers show a good baseline of knowledge in child safety hazards, the redundancy could be beneficial toward creating that safety culture (Towner & Dowswell, 2002).

Tailored Interventions in Child Safety Education

Nansel et al. (2007) reported that providing individually tailored child injury prevention information may be more useful for parents with less education and may be more effective in changing that population's behavior. Towner (1995) reported that injury prevention information may need to be targeted not just to an individual but to an audience or community and if injury prevention strategies are specific, there may be better outcomes. Vladutiu et al. (2006) concur and adds that audience segmentation (identifying homogeneous population subgroups who may benefit from a tailored intervention) may encourage providers to spend more time with a homogeneous group such as first time parents of young children who may be more open to injury prevention strategies as they learn about varying stages of child and injury risk at different stages of development. Crandall et al. (2010) agree that targeting families at risk for child injury may

improve outcomes and decrease the child injury burden. Therefore, a program tailored for those who are less educated may be of particular value in safety education.

Families with poor health literacy skills might benefit from tailored education programs. Trifiletti et al. (2006) believes health literacy is crucial to child safety education and noted that there were no studies on how literacy is related to unintentional injury prevention even though many parents with limited education and low incomes have low literacy issues. There is increasing awareness of the connections between literacy, health, and development of injury prevention materials which should be considered for people who have low literacy skills (Trifiletti et al., 2006).

Homeless Mothers and Child Injury Prevention Education

No studies were found by the investigator that looked at safety hazard education for homeless mothers. A combination of mobile, tailored, hands-on-approach to injury prevention education programs may provide an avenue to reach homeless mothers.

Whenever possible, it is best to use real life-situations with a hands-on approach to teach child injury prevention (Schooley & Kelly, 2008). Towner (1995) noted that parents/caregivers are more likely to be influenced by the injury prevention information when the learning takes place in comfortable environment and using the above strategies.

Swick (2008) reported that often homeless parents have had not had good parenting role models and parent education classes may be key to their success as parents. When the family is living with friends, relatives, or in a shelter, the parent may feel loss of control in their parenting. Homeless families are dependent on others for their housing and may perceive limited control

over some environmental hazards (Pritchard, 1990). Homeless mothers may gain moral support from each other in a group situation as they learn from each other as well as from the teacher. Such a group may encourage mothers to speak up on behalf of their children. Homeless parents of young children have reported that the classes help them to have better parenting skills and feel better about themselves (Swick, 2008). Based on this review, a combination of mobile, tailored, and hands-on approach to injury prevention education with a group of homeless mothers may provide an avenue to reach homeless mothers.

With this in mind, child safety education should not be scripted but should be tailored to this audience of homeless mothers and provide problem-solving strategies for use in the variety of environments in which they may live. Burnes et al. (2013) believed that creative strategies need to be used to engage parents to address parenting issues and concerns in and out of practice settings because one size fits all answers do not facilitate parental growth. A hands-on safety education program based on a consistent framework of anticipatory guidance that: (a) teaches about child safety hazards; (b) promotes discussion about child development; (c) illuminates the consequences of a severe injury from safety hazards; and (d) encourages a discussion about the importance of maternal supervision is one of the creative approaches to be used in this project. Educating parents that young children may not understand the consequences of their actions because of changing developmental stages is a key to injury prevention (Bright Futures, n.d.).

Methodology

Project Design

This project used a quasi-experimental design using a test retest method with a convenience sample of homeless urban/city and small town/rural/country women residing in a homeless shelter to receive the child safety hazard education program. The aims of this project were to: (a) assess the baseline knowledge of homeless women regarding child safety environmental hazards; (b) provide a hands-on child safety education program; (c) evaluate homeless mother's knowledge of child safety hazards following the hands-on environmental safety education program; and (d) to determine what these women say about the child safety educational program.

Research Questions

This study sought to answer the following research questions:

1. What is the baseline knowledge of homeless mothers about child environmental safety hazards?
2. Does a hands-on child safety hazards program for homeless mothers improve their ability to identify child safety hazards in an applied situation?
3. Is there a difference between homeless mothers who live in an urban/city versus those who live in a rural/country area in their knowledge and acquisition of knowledge regarding child safety hazard education?
4. Is there a difference between homeless mothers who have had other children versus first time mothers in their knowledge and acquisition of knowledge regarding child safety hazard education?

5. What did mothers learn about child safety and how will the new knowledge be used in the future?

Sample and Setting

Study participants were recruited from an agency that supports homeless mothers in a large Midwestern metropolitan area. The two locations, urban/city and rural/country, supported by this agency were used. The two locations had separate rooms for the residents with a maximum capacity of 18 women in the urban/city setting and 12 women in the small town/rural/country setting. Women were either pregnant or had just delivered a baby. Some women were first time mothers and others had older children living with them in the shelter. It was estimated that there would be 25 to 30 participants from the two homeless shelters. Due to a normally fluctuating population and a currently lower agency census, conflicting school and work schedules and family responsibilities, there were 23 participants who filled out the demographics with questions regarding previous child safety hazard education (6 of these participants were not available on the second day of the study). Thus, there were 17 participants who completed all parts of the study.

In the urban/city location, mothers were seated around a long table in the lower level playroom for the safety hazard class. In the small town/country location, mothers were seated around a long table in a conference room area on the second floor for the safety hazard class. Both rooms were well lit and comfortable. The atmosphere was relaxed.

The van is divided into two sections. The front section has the driver and passenger seats and an open space. There is a door on the left to the back section, made to look like a family room

area with a kitchen area on one side. This room was set up with safety hazards (see Appendix C Van Safety Hazard Checklist pre- and posttest). The van was parked on the street in the urban/city area and at the front entrance in the /small town/country area.

Protection of Human Subjects

Permission to implement this project was obtained from the agency. The Institutional Review Board (IRB) at the University of Missouri-St. Louis approval was obtained prior to collecting data for the project. The investigator was aware that this is a vulnerable population and interacted with participants with honesty and respectfulness. All data was de-identified so that subject's identity will remain confidential. The data is being kept in a secured file cabinet by the researcher in her office and data on the computer is password protected.

Data Collection

Due to time constraints and activities at the homeless shelters, data was collected over a two week period at each site. The week prior to the safety education class, the investigator provided an informational session about the safety hazard education project for the homeless mothers. This information session was intended to give the women an opportunity to know about the program, how long it would take, and what they would do if they agree to participate. After the information session, the women were invited to participate and informed consent was obtained (see Appendix A, Informed Consent Document to Participants). After informed consent was obtained, the women completed the Demographic Information Form with selected demographic

variables (see Appendix B, Demographic Information Form). The investigator and other trained health care workers collected data.

On the second day of the project, each woman was escorted onto the van for the pretest whereby the participant walked around and identified visible safety hazards for the investigator or research assistant. The advance practice nurse investigator or other health care providers assisting in data collection wrote down the child safety hazards each woman identified. After the pretest on the van, the women attended the safety hazard education class at the homeless shelter. After the class, for the posttest, each of the women went back on the van, walked around, and identified safety hazards for the investigator or research assistants. The advance practice nurse and other health care providers assisting in data collection wrote down the child safety hazards each woman identified.

Following safety hazard identification, participants answered the interview questions that were asked of them by the investigator or health care provider assistants (see Appendix D Interview Questions). After completion of the interview using the instrument, each mother who participated received a 10 dollar gift card to a local store and a certificate of completion for the program.

Instrumentation

All of the instruments have been developed by the investigator. The Demographic Information Sheet was used to collect selected demographic variables including age, race, education, geographical area, parity, living children, source of previous safety hazard information, and history of children's injuries (see Appendix B, Demographic Information Form). The Van

Safety Hazard checklist was used for both the pretest and posttest and consists of a list of child safety environmental hazards that are displayed on the van (see Appendix C, Van Safety Hazard pre- and posttest). An Interview Guide was developed to solicit the homeless mothers' assessment of the safety hazard education class and perceived actions in the future regarding reducing safety hazards (see Appendix D, Interview Questions).

Data Analysis

The data were analyzed using SPSS version 21.0. Descriptive statistics were used to characterize the women and to answer the project questions. Independent samples t-test used a repeated measures t-test was used to compare pre- and posttest total scores.

Results

Demographic Characteristics of the Sample

There were 23 women from the two homeless shelters who agreed to participate in the project. Of the 23 women 17 completed both the pre- and posttests.

The women's ($N = 17$) ages ranged from 20 to 34 years ($M = 26$, $SD = 3.8$); and highest level of education ranged from 10 years (sophomore in high school) to 13 years (1 year of college) ($M = 11.9$, $SD = .9$ years). The majority of women were African American ($n = 11$, 64.7%). There were three Caucasian (17.6%), two biracial (11.8%), and one (5.9%) self-identified as Native American. Ten (58.8%) women identified themselves as "from the city" and six (35.3%) of the women identified themselves as "from small towns or country areas". One woman identified as from both areas was excluded for the analysis of project question 3. During the data collection, nine (52.9%) of women were currently pregnant and eight (47.1%) had recently delivered babies.

Fourteen (82.4%) of the women had 35 children ranging in age from 2.5 days to 11 years. Seven of the participants indicated their children were not with them at the shelter at this time.

When 23 mothers were asked if they had received previous safety hazard education, 11 (47.8%) responded that they had received some previous information from nurses, doctors, clinics, Head Start, Nurses for Newborns, friends or family. Only six (33.3%) of 18 homeless mothers who completed the demographics questionnaire reported that they had children who had had any injuries, six (33.3%) wrote no injuries or none, and six (33.3%) left that item blank. The minor injuries to their children the six mothers reported were: “falls”, “running into stuff,” “scrapes,” “a burn with an iron,” “keys in a socket,” and “a smashed finger in a dresser.”

Question 1

The women were asked their knowledge about environmental safety hazards on the pretest. There were 34 possible hazards on the pretest. The women’s a mean score was 19.7 (57.8%, SD = 8.9). Scores of the mothers ability to identify safety hazards on the pretest ranged from five (14.7%) to 32 (94.1%) prior to the educational program.

Additionally, an independent samples t-test was utilized to compare baseline knowledge scores across seven (41%) of women who reported having received previous safety hazard education to 10 (58%) of the women who reported no previous safety hazard education. The independent samples t-test revealed no significant differences between those who received previous safety hazard education and those who did not receive previous safety hazard education on baseline knowledge of health hazards ($t = .351, p = .54$).

Question 2

This project sought to determine if a hands-on child safety hazards program for homeless mothers improves their ability to identify safety hazards in an applied situation. A repeated measures t-test was used to compare pre- and posttest total scores. The mean for pretest scores was 19.7 (57.8%, $SD = 8.9$) identified safety hazards. The mean for the posttest scores was 27.8 (81.6%, $SD = 4.9$) identified hazards. Overall, an 8.11(23.9%) improvement was made in the ability of the mothers to identify safety hazards following the mothers completion of the child safety hazard education class, and t-test analysis revealed a significant improvement in applied knowledge after the class ($t = 5.99, p < .001$).

When considering safety hazards arranged room by room, mothers identified a greater percentage of child safety hazards in the kitchen on the pretest (66%, $M = 5.3$ of 8, range = 1 to 8) than the other rooms. In the bedroom area women had the lowest baseline scores identifying safety hazards on the pretest but the posttest showed a marked improvement (28%) after the class (47% pretest ($M = 2.8$ of 6, range = 1 to 6), 75% posttest ($M = 4.5$ of 6, range = 3 to 6)). Table 1 presents the minimum and maximum pre and posttest scores, mean, standard deviation and the percent of safety hazards that were correctly identified by the women in each of the rooms.

Table 1.

Women's Pretest and Posttest Scores by Room (N = 17)

Room Pre and Posttest	Minimum	Maximum	Mean	SD	Percent Identified
Living area Pretest	3	13	8.29	3.39	60%
Living area Posttest	6	14	11.65	2.37	83%
Kitchen area Pretest	1	8	5.29	2.62	66%
Kitchen are Posttest	4	8	6.65	1.50	83%
Dining area Pretest	0	6	3.29	2.05	55%
Dining area Posttest	3	6	5.00	0.94	83%
Bedroom area Pretest	1	6	2.76	1.52	47%
Bedroom area Posttest	3	6	4.47	1.28	75%

Question 3

This project sought to determine if there was a difference between homeless mothers who live in an urban/city area versus those who live in a small town/country area in their knowledge and acquisition of knowledge regarding child safety hazard education. Two independent samples t-tests were utilized to compare baseline knowledge and change in knowledge scores between women who identified as “living in a small town/country” and women “living in an urban/city area”. The independent samples t-test revealed no significant differences between urban/city and small town/country participants on baseline knowledge of health hazards ($t = .632, p = .54$) or acquisition of knowledge following safety hazard class intervention ($t = .00, p = 1.00$).

Question 4

Additionally, this project sought to determine if there was a difference between homeless mothers who have had other children versus first time mothers in their knowledge and acquisition of knowledge regarding child safety hazard education. Two independent samples t-

tests were utilized to compare baseline knowledge and change in knowledge scores between participants currently with or without children. Groups were not equal in size (only three women did not currently have children) and Levene's test for equal variance was violated. Therefore the t-test reported does not assume equal variance between groups. The independent samples t-test revealed no significant differences between homeless mothers with children and homeless mothers without children on baseline knowledge (identification) of child safety hazards ($t = .07$, $p = .949$) or acquisition of knowledge following child safety hazards education interventions ($t = .631$, $p = .538$).

Question 5

Finally, this project sought to determine what mothers learned about child safety hazards and how the mothers will use the new child safety knowledge in the future. The mothers were asked to respond to five questions and their responses were recorded verbatim. Transcripts were recorded by this researcher and a research assistant colleague. A colleague read and discussed the themes of unidentified responses in order to verify consistency. After reviewing participant responses, the themes identified were: increased awareness, importance of home assessment, need for more knowledge, and increased self confidence.

In the theme of increased awareness, one mother stated, "Anything and everything can potentially hurt a child." Other comments included "a lot of things we think are OK are a safety hazard," "there is a lot I didn't know about safety," "lots of things can be unsafe to the naked eye," and "how to situate your home so it will be safe." The role of putting things out of reach was voiced by a few moms: "make sure cords and small items are out of reach," "keep small

items put up,” “have nothing smaller around for him to choke on,” and “pill bottles and chemicals-lock away.” One of the mothers commented she had a new awareness that “pill bottles were easy to open.” A few mothers specifically spoke of better awareness of TV safety when they said things like, “where you sit the TV it is all important,” and “some things I did not know like mounting a TV to the wall.” Participating mothers seemed surprised about the dangers of button batteries and reported “the thing about batteries (how dangerous they are)”, and “I learned that button batteries can burn the esophagus”, and “button batteries can burn your throat if swallowed”. Other specific safety hazards mentioned by mothers in this study were “child proof sockets,” “fixing sharp corners,” “look for smoke detectors,” and “watch for loose cords.”

The awareness of the sleep related child safety hazards was noted by a few mothers who said they learned of “dangers of sleeping with a baby,” “making sure there is not too much stuff in the crib,” “put a baby in own bed,” and “sleeping in a bed by a window, careful with blind.” The importance of supervision was noted by one mother as she noted that she needed to “pay attention to the baby.” One mother’s comment, “I learned things that I didn’t know,” speaks to the gap in knowledge that can increase awareness.

The importance of home assessment was another theme that was noted. Several mothers shared their thoughts like “yes, it’s my child’s life and safety depends on it,” “yes, because it risk dangers or hazards to my child,” “yeah, especially if it is for my family,” and “basically make sure they can’t get hurt.”

Another theme that surfaced was the need for more knowledge. In regard to more knowledge of safety hazard education, one mother said “I’d like to know more about surveillance outside of the house”. Another mother shared that she “enjoyed the challenge and would like to do something else”. All participants felt the class was useful.

The theme of increased self confidence was noted in the responses to the question: Would they feel comfortable asking others to make environmental changes in regards to safety hazards? Sixteen out of seventeen mothers (94%) said they would feel comfortable asking for environmental changes to be made. Two mothers responded “yes, definitely, I’d make sure they got the message”, and “yes, I would feel comfortable talking to them”. One mother who said “I wouldn’t feel comfortable because it is not my place,” went on to say that “I’d watch out more,” which demonstrates that she feels she has the power to check out the environment. Increased self-confidence was also noted in the responses to the question about making changes in order to keep their children safe. Responses such as “be prepared and make a list of what to check before setting up house,” “baby proofing the house,” “I’ll focus on hidden hazards and look for them,” “I will be more aware of my surroundings even when I think it is safe,” and “pay attention to small details,” reflect the confidence of the mother to exert control over the home environment to keep the child(ren) safe.

Discussion/Conclusion

The pretest data showed that there was a large variation in baseline knowledge of home safety hazards among the women studied and that there is a need for education regarding home safety

hazards. Although there was no significant difference in the baseline knowledge of mothers who had previous children versus those who did not have children, the small number ($n = 3$) of women with no children limited interpretation of the results. It was also noted that there was no difference in baseline knowledge for women living in an urban/city or living in a small town/country setting.

It is important to report that less than half of the women had any previous child safety hazard education. This may be due to time constraints in a busy advanced practice nursing setting but clearly demonstrates a need for advanced practice nurses to educate homeless women about child safety hazards. Woods (2006), Magar et al.(2006) & Nansel et al.(2008) share the opinion that a large barrier to providing anticipatory guidance in a primary care setting is lack of time to do so. That short time may account for limited knowledge of child safety hazards by the women in this project. Although there was no difference in women who had previous child safety hazard education and women who did not have previous education, it cannot be assumed that safety hazard education is not effective in improving knowledge of safety hazards. There are many unknowns regarding the previous safety hazard education: the women's baseline knowledge of safety hazards prior to that educational experience, the number or content of items covered previously, the quality of the previous education, and the ability of the women to process the previous safety hazard education (decreased attention due to stress in life, baby crying, personal illness, etc.). The previous education was received through a variety of sources including medical personnel, family, and friends. This researcher agrees with Towner & Dowswell (2002)

that it may be necessary to provide the information at multiple times in different ways in order to impact knowledge and encourage behavioral change.

Surprising to the project investigator was the number of childhood injuries mothers experiencing the stress of homelessness reported happening to their children. Mothers either left the item blank about any injuries their child had or said no injuries. Additionally, the injuries mentioned appeared to be minimized by the mothers. It is unclear whether the mothers did not want to look like bad mothers and share the number and extent of the injuries, whether some of the injuries were not seen by the women, whether some of the injuries were not remembered by the women, or whether mothers were so tired at the end of the day that they just wanted to finish up the questionnaire and quickly hand in the piece of paper. Drachler et al. (2007) noted that special attention should be given to injuries that were likely to be overlooked through the unrealistic optimism of parents. Frencher et al. (2010) stated that calculating the prevalence of unintentional injury for the homeless population was unreliable. These results of this project may be an example of unrealistic optimism of parents and the fact that calculating unintentional injury prevalence from the homeless population can be unreliable.

This project results demonstrated an overall improvement mean score 8.11 (23.9%) in the women's ability to identify safety hazards on the van after child safety education. Interestingly, the women seemed more animated during the second time on the van and were anxious to find safety hazards that had been previously missed. Junglemobile (Emery et al., 2010) and CARES Mobile Safety Center (Gielen et al., 2009) also saw improved knowledge using mobile safety vehicles.

Many of the mothers expressed pleasure with their new skills and wanted to know if they had identified all of the safety hazards. These mothers experiencing homelessness seemed comfortable learning with other women and participated freely in discussions regarding their experiences with some of the safety hazards and resultant injuries. Using hands on approaches to teaching and discussing real life situations were health education methods described by Schooley & Kelly (2008) and were well received in this project. A relaxed environment appeared to have a positive impact on group learning which is similar to Towner (1995) who noted that a comfortable environment influences learning.

Swick (2008) noted that homeless parents of young children have reported that the classes help them to have better parenting skills and feel better about themselves. This appeared to be true with the mothers who participated in this project. Mothers in this project were asked about what they had learned, what they would change to make a safer environment, and how they would feel about requesting help from others in making changes to the environment to minimize safety hazards. The mothers' comments demonstrated an increased awareness of safety hazards, their knowledge of the importance of home assessment, their need for more knowledge, and increased self confidence.

Garzon (2005) noted that using the health belief model (Rosenstock, 2005) for safety hazard education would require the parent or caregiver to believe the child was susceptible to injury, the injury would be serious, there would be a benefit to taking action, and the barriers to prevent injury would not be a problem in order to take action. The health belief model was useful in guiding this project. For example, the responses of the mothers to the interview questions

suggests they believed their child(ren) were susceptible to injury, that the injury could be serious enough to take action, that there would be a benefit to taking action, and that it was worth doing so in order to provide an environment that had minimal safety hazards. The results of this project suggest the safety education in this project helped mothers learn how to take action to provide a safe environment for their child(ren).

This study brought safety hazard education to mothers who were homeless in a shelter environment. The women appeared to be comfortable with the group child safety hazard education in the environment in which they lived. The shelter staff cared for their children so that they could better absorb the information. Mothers appeared to enjoy going on the van with the planned safety hazards and be able to demonstrate how they could apply what they had learned. Results of this project suggest that this model of targeted safety hazard education is an effective method for learning in this population of homeless women. It would be helpful to provide it to other populations of homeless women and to compare the data.

In light of time issues and the huge need in the community for similar at risk populations, it might be considered to allow more than one woman on the van at a time while still using a check list. After those women identify safety hazards, the educator could congratulate the women on the safety hazards that they identified, show the women the hazards that were missed, provide a short discussion, and offer a sheet on home safety hazards to take with them. This type of education could be done at health fairs, preschools, churches, and other community activities. It could bring safety hazard awareness to the forefront and make it fun.

Strengths and Limitations

A strength of this project is that it is the first study looking at homeless mothers and their baseline knowledge/acquired knowledge/applied knowledge of safety hazard education, to the knowledge of the researcher. This population is difficult to study due to unstable living conditions. There are several limitations to this study. The limitations included: a small number of participants (N=17), van generator issues leading to poor lighting and chilly conditions at the first site, late afternoon/evening classes at both sites to accommodate schedules of participants when mothers were very tired, and no teenage participants (agency admitted women 18 years and above but current women were 20 years and above). Another limitation was that it was limited to homeless women living in a shelter situation.

Implications for Future Practice and Research**Health Legislation and the Advance Practice Nurse**

Health professionals need to campaign for new legislation based on evidence that supports changes that will decrease childhood injuries (Woods, 2006). Legislation that would create a health education reimbursement policy that reimburses primary care providers for spending added time with patients would allow them to provide more anticipatory guidance regarding injury prevention. Health education and environmental measures go hand in hand with promoting legislative changes (Towner, 1995). Towner (1995) describes Katcher's first failure to get legislation passed for a water temperature burn prevention bill. It took years to create stakeholders (educated parents and professionals) who would educate the public and the politicians in order to influence the development of policy and get the bill passed. A grass roots

campaign was needed to change the public's perception of the risk involved. Such legislation was able to change the social norms.

Pollack (2009) points out that there are many missed opportunities for injury prevention legislation because researchers are often absent from the process. Findings need to be translated into clear language for those who have the power to make legislative changes to understand them. Advanced practice nurses have the education and practical knowledge to translate issues to legislators so that appropriate changes can be made in health related policies.

Child Unintentional Injury and the Advanced Practice Nurse

Nurse scientists need to study injury science and to develop and test interventions that are culturally appropriate to prevent and control injury, as injury prevalence is increasing as a public health concern (Sommers, 2006). The American Nurses Association (ANA) states a major role of nursing is to “protect, promote, and optimize health and abilities and to work towards the prevention of illness and injury” (ANA, n.d.). The NAPNAP Position Statement on the Prevention of Unintentional Injuries in Children (2008) states that health providers need to educate parents/caregivers on pediatric injury risk and prevention by providing education to those families. There is a real need by nurses to refine interventions that are culturally sensitive to the subpopulations that are most at risk for injury (Sommers, 2006). Nurses have the opportunity to address the learning needs of homeless women who will benefit in acquiring information that can give them more power over their lives as they improve the environments for their children (Towner & Dowswell, 2002).

There is increasing evidence that multiple interventions presented over a period of time providing different forms of repeated messages works to create a culture of safety (Towner & Dowswell, 2002). Developing a culture of safety will require advance practice nurses to become more informed about childhood injury and to partner with parents, families, colleagues, and communities to create the changes needed towards the goal of prevention of childhood injury. It is important that advanced practice nurses seek innovative methods of safety hazard education and support to empower parents with and without homes to provide a safer environment for their children with the expected outcome of injury prevention.

Accomplishment of DNP Essentials

The AACN DNP Essentials provided a foundation for the project (AACN, 2006). The data showing child unintentional injury as a significant public health issue is the scientific underpinning for this project (Center for Disease Control Child Injury Report, 2000-2006; Forum on Child and Family Statistics, 2011). With the rise of homeless families with children who are at increased risk for unintentional injury, quality improvement in safety hazard education is key to providing better outcomes. Studying this group of homeless women developed an evidence basis about this small group of homeless mothers and their baseline knowledge and ability to apply knowledge after a safety hazard education program. It is a beginning in understanding this population. This project takes into account the possible literacy issues of the population and limited the use of information technology for the study. However, use of technology for the project was invaluable for data analysis. This program showed significant results in applied knowledge of homeless mothers after the safety hazard education class and should help in

advocating for the safety of children in families who are homeless. Advocacy can be accomplished by further programming and health policy to fund this type of program. I have a goal of expanding the project to other populations in the area. Program planning involved collaboration with other professionals with the hope of improving population health outcomes through prevention. Information obtained from this research will be used to develop an article for submission to a peer reviewed journal and to develop poster presentations and podium presentations. These presentations will be targeted to disseminate the information regarding these homeless women and safety hazard education at the local and national levels.

References

- Alho, E., Piotrowski, C., & Briggs, G. (2010). Child injury at home: Exploring a connection between household rules about safety, sibling harm, and child injury. *Injury Prevention, 16*, A182. doi:10.1136/ip.2010.029215.651
- American Association of Colleges of Nursing (AACN) (2006). Retrieved from <http://www.aacn.nche.edu/publications/position/DNPEssentials.pdf>
- American Medical Association (n.d.) Unintentional injuries in children and youth. Retrieved from http://www.amassn.org/resources/doc/mss/toolkit_inj_notes.pdf
- American Nurses Association (ANA)(n.d.). What is nursing? Retrieved from <http://www.nursingworld.org/EspeciallyForYou/What-is-Nursing>
- Borse, N.N., Rudd, R.A., Dellinger, A.M. & Sleet, D.A. (2013). Special report from the CDC: Years of potential life lost from unintentional child and adolescent injuries- United States, 2000-2009. *Journal of Safety Research, 45*, 127-131.
- Brandenburg, M.A., Ogle, M.B., Washington, B.A., Garner, M.J., Watkins, S.A., & Brandenburg, K.L. (2006). Operation Child-Safe: A strategy for preventing unintentional pediatric injuries at a Hurricane Katrina evacuee shelter. *Prehospital Disaster Medicine, 21*, 359-365.
- Bright Futures. (n.d.). Bright Futures guidelines for the health supervision of infants, children and adolescents. Retrieved from: http://brightfutures.aap.org/pdfs/Guidelines_PDF/10-Promoting_Safety_and_Injury_Prevention.pdf and http://www.brightfuturesforfamilies.org/gold_standard.shtml

Burns, C.E., Dunn, A.M., Brady, M.A., Starr, N.B. & Blosser, C.G. (ed.). (2013).

Pediatric Primary Care. Philadelphia, PA: Elsevier Saunders.

Carmen, J., Friedman, E., Lamb, D. & Lennon, K. (1997) Evaluating the impact of a child injury prevention project. *Community Practitioner: The Journal of the Community Practitioner's & Health Visitor's Association*, 79, 188-192.

Center for Disease Control Child Injury Report (2000-2006). Retrieved from http://www.cdc.gov/safechild/Child_Injury_Data.html#3.

Center for Disease Control Child Injury Report (2011). *Missouri: Injury deaths among children 0-19 years of age*, Retrieved from <http://www.cdc.gov/safechild/states/mo.html>.

Center for Disease Control National Action Plan for Child Injury. (2012). *National Center for Injury Prevention and Control of the Centers for Disease Control and Prevention*, 1-92. Retrieved from http://www.cdc.gov/safechild/pdf/National_Action_Plan_for_Child_Injury_Prevention.pdf and <http://www.cdc.gov/safechild/NAP/background.html>

Chandran, A., Hyder, A.A., & Peek-Asa, C. (2010). The Global Burden of Unintentional Injuries and an Agenda for Progress. *Epidemiologic Reviews*, 32, 110-120. doi: 10.1083/epirev/mxq009

Corso, P., Finkelstein, E., Miller, T., Fiebelkorn, I., & Zaloshno, E. (2006). Incidence and Lifetime costs of injuries in the United States. *Injury Prevention*, 12, 212-218. doi: 10.1136/ip.2005.010983

- Crandall, M., Sridharan, L. & Schermer, C. (2010). Injury and health among toddlers in vulnerable families. *Journal of Trauma-Injury Infection and Critical Care*, 68, 1128-1133.
- Cubbin, C., & Smith, G. S. (2002). Socioeconomic inequalities in injury: critical issues in design and analysis. *Annual Review of Public Health*, 23, 349-375.
- Drachler, M.deL, Leite, J.C.deC, Marshall, T., Almaleh, C.M.A.H., Feldens, C.A. & Vitolo, M.R..(2007). Effects of the home environment on unintentional domestic injuries and related health care attendance in infants. *Foundationn Acta Paediatrica*, 96, 1169-1173.
- Durkin, M.S., Davidson, L.L., Kuhn, L., O'Connor, P. & Barlow, B. (1996). Low-income neighborhoods and the risk of severe pediatric injury: A small-area analysis in northern Manhattan. *American Journal of Public Health*, 84, 587-592.
- Emery, K.D., Hawkes, A.P., Cassabaum, V., & Rapstine, T. (2010). Junglemobile: A mobile injury-prevention program for young children. *Journal of Trauma Nursing*, 17, 19-27.
- European Association for Injury Prevention and Safety Promotion (EUROSAFE). (2012). Recommendations for research and practice. Retrieved from <http://www.eurosafe.eu.com/>
- Fallat, M. E., Costich, J., & Pollack, S. (2006). The impact of disparities in pediatric trauma on injury-prevention initiatives. *The Journal of Trauma*, 60, 452-454.

- Forum on Child and Family Statistics. (2011). *America's Children: Key National Indicators of Well-Being, 2011*. Retrieved from childstats.gov: <http://childstats.gov>.
- Frencher, S. K., Benedicto, C., Kendig, T. D., Herman, D., Barlow, B. & Presley, J. C. (2010). A comparative analysis of serious injury and illness among homeless and housed low income residents of New York City. *The Journal of Trauma-Injury, Infection, and Critical Care*, 69, S191-S199.
- Garzon, D. L. (2005). Contributing factors to preschool unintentional injury. *Journal of Pediatric Nursing*, 20, 441-447.
- Garzon, D. L., Lee, R.K., & Homan, S.M. (2007). There's no place like home: A preliminary study of toddler unintentional injury. *Journal of Pediatric Nursing*, 22, 368-375.
- Gielen, A.C., Wilson, M.E.H., McDonald, E.M., Serwint, J.R., Andrews, J.S., Hwang, W-T., & Wang, M-C. (2001). Randomized trial of enhanced anticipatory guidance for injury prevention. *Archive of Pediatric and Adolescent Medicine*, 155, 42-49.
- Gielen, A.C., McDonald, E., Frattaroli, S., McKensie, L.B., Backes, B., Glenshaw, M., Shields, W., & Bulzacchelli, M.T. (2009). If you build it, will they come? Using a mobile safety centre to disseminate safety information and products to low-income urban families. *Injury Prevention*, 15, 95-99. doi:10.1136/ip.2008.018325
- Glik, D.C., Greaves, P.E., Kronenfeld, J.J., & Jackson, K.L. (1991). Safety Hazards in Households with Young Children. *Journal of Pediatric Psychology*, 18, 115-131.
- Greaves, P., Glik, D.C., Kronenfeld, J.J. & Jackson, K. (1994). Determinants of controllable in-home safety hazards. *Health Education Research*, 9, 307-315.

- Grossman, D. C. (2000). The history of injury control and the epidemiology of child and adolescent injuries. *The Future of Children: Unintentional Injuries in Childhood*, 10, 23-52. Retrieved from <http://futureofchildren.org>
- Hawkins, E.R., Brice, J. H., & Overby, B.A. (2007). Welcome to the world: Findings from emergency medical services pediatric injury prevention program, *Pediatric Emergency Care*, 23, 790-795.
- Horizons for Homeless Children. (n.d.). Statistics and definitions. Retrieved from <http://www.horizonsforhomelesschildren.org/understanding-homelessness>
- Ingrim, J. & Emond, A. (2009). Parents' perceptions of home injury risk and attitudes to supervision on pre-school children: A qualitative study in economically deprived communities. *Primary Health Care Research & Development*, 10, 98-108.
- Irving, L. (2011) Preventing unintentional injuries in children and young people under 15. *Community Practitioner*, 84, 36-38.
- Johns Hopkins (n.d.) Safety and Injury Prevention for Children. Retrieved from http://www.hopkinsmedicine.org/healthlibrary/conditions/adult/pediatrics/safety_and_injury_prevention_for_children_85,P01062/
- Katcher, M.L., Meister, A.N., Sorkness, C.A., Staresinic, A.G., Pierce, S.E., Goodman, B.M., Peterson, N.M., Hatfield, P.M., & Schirmer, J.A. (2006). Use of the modified Delphi technique to identify and rate home injury hazard risks and prevention methods for young children. *Injury Prevention*, 12, 189-194. Doi:10.1136/ip.2005.010504

Kendrick, D., Barlow, J., Hampshire, A., Polnay, L., & Stewart-Brown, S. (2007).

Parenting interventions for the prevention of unintentional injuries in childhood.

Cochrane Database of Systematic Reviews, 2007(4), 1-33.

doi:10.1002/14651858.CD006020.pub2

Kendrick, D., Coupland, C., Mason-Jones, A. J., Mulvaney, C., Simpson, J., Smith, S., Sutton, A. & Watson, M. (2007). Home safety education and provision of safety equipment for injury prevention, *Cochrane Database of Systematic Reviews*, 2007(7), 1-124.

doi:10.1002/14651858.CD005014.pub2

Kendrick, D., Mulvaney, C., Burton, P. & Watson, M. (2005). Relationships between child, family and neighborhood characteristics and childhood injury: A cohort study. *Social Science Medicine*, 61, 1905-1915.

Kenrick, D., Mulvaney, C., Ye, L., Stevens, T., Mytton, J.A., & Stewart-Brown, S. (2007).

Parenting interventions for the prevention of unintentional injuries in childhood.

Cochrane Database of Systematic Review, 2007(3), 1-73.

Doi:10.1002/14651858.CD006020.pub3.

Kendrick, D., Mulvaney, C.A., Ye, L., Stevens, T., Mytton, J.A., Stewart-Brown, S.

(2013). Update of parenting interventions for the prevention of unintentional injuries in childhood. *Cochrane Database of Systematic Review*, 2013(3). doi:

10.1002/14651858.CD006020.pub3.

- Kendrick, D., Watson, M., Mulvaney, C. & Burton, P. (2005). How useful are home safety behaviors for predicting childhood injury? *Health Education Research*, 20, 709-718.
doi:10.1093/her/cyh021
- Kerker, B.D., Bainbridge, J., Kennedy, J., Bennani, Y., Agerton, T., Marder, D., Forgione, L., Faciano, A., & Thorpe, L.E. (2011). A population-based assessment of the health of homeless families in New York City, 2001-2003. *American Journal of Public Health*, 101, 546-533.
- Kerr, K. (2007). Cochrane Corner: Prevention of injuries at home. *Injury Prevention*, 13, 141.
- King, W.J., Klassen, T.P., LeBlanc, J., Bernard-Bonnin, A.-C., Robitaille, Y., Coyle, D., Tenenbein, M. & Pless, I.B. (2001). The effectiveness of a home visit to prevent Childhood Injury. *Pediatrics*, 108, 382-388.
- License, K. (2004). Promoting and protecting the health of children and young people. *Health and Development*, 30, 623-635.
- Lyons, R.A., Brophy, J.A., Jones, S., Johansen, A., Kemp, A., Lannon, S., Patterson, J., Rolfe, B., Sander, L.V. & Weightman, A. Modification of the home environment for the reduction of injuries. *Cochrane Database of Systematic Reviews 2006*, Issue 4, Art. No.: CD003600, DOI:10.1002/14651858.CD003600.pub2
- Magar, N., Dabova-Mssova, & Gjerdingen, D.W. (2006). Effectiveness of targeted anticipatory guidance during well-child visits: A pilot trial. *JABFM*, 19, 430-458.
- Morris, R.I. & Strong, L. (2004). The impact of homelessness on the health of families. *The Journal of School Nursing*, 20, 221-227.

- Morrongiello, B. A., Corbett, M., & Brison, R. J. (2009). Identifying predictors of medically-attended injuries to young children: Do child or parent behavioural attributes matter? *Injury Prevention*, 15, 220-225. doi:10.1136/ip.2008.019976.
- Morrongiello, B.A., Corbett, M., Lasenby, J., Johnston, N., & McCourt, M. (2006). Factors influencing young children's risk of unintentional injury: Parenting style and strategies for teaching about home safety. *Journal of Applied Developmental Psychology*, 27, 560-570. doi:10.1016/j.appdev.2006.08.004
- Morrongiello, B.A. & Dayler, L. (1996). A community-based study of parent's knowledge, attitudes and beliefs related to childhood injuries. *Canadian Journal of Public Health*, 87, 383-388.
- Morrongiello, B.A. & Kiriakou, S. (2004). Mother's home-safety practices for preventing six types of childhood injuries: What they do, and why? *Journal of Pediatric Psychology*, 29, 285-297.
- Morrongiello, B.A., Midgett, C., & Shields, R. (2001). Don't run with scissors: Young children's knowledge of home safety rules. *Journal of Pediatric Psychology*, 26, 105-115.
- Morrongiello, B.A., Ondejko, L., & Littejohn, B.A. (2004). Understanding toddler's in-home injuries: II. examining parental strategies, and their efficacy, for managing child injury risk. *Journal of Pediatric Psychology*, 29, 433-446. doi: 10:1093/jpepsy/jso47

- Morrongiello, B.A. & Schwebel, D.C. (2008). Gaps in childhood injury research and prevention: What can developmental scientists contribute? *Child Development Perspectives*, 2, 78-84.
- Munro, S. A., Van Niekerk, A., & Seedat, M. (2005). Childhood unintentional injuries: The perceived impact of the environment, lack of supervision and child characteristics. *Child: Care, Health & Development*, 32, 269-279.
- Nansel, T.R., Weaver, N. L., Jacobsen, J. A., Glasheen, C. & Kreuter, M. W. (2007). Preventing unintentional pediatric injuries: A tailored intervention for parents and providers. *Health education research*, 23, 656-669.
- NAPNAP Position Statement on the Prevention of Unintentional Injuries in Children. (January 24, 2008). *Journal of Pediatric Health Care*, 22, 27A-28A.
doi:10.1016/j.pedhc.2008.02.001 retrieved from www.jpmedhc.org
- National Center on Homelessness. (n.d.) America's youngest outcasts: State report card on child homelessness. Retrieved from www.familyhomelessness.org.
- National Coalition for Homeless. (n.d.). Fact sheets. Retrieved from <http://www.nationalhomeless.org/factsheets/#basic>
- National Safekids Campaign. (2004). retrieved from www.safekids.org/
- National Safety Council (2011). Injury facts. Retrieved from http://www.nsc.org/Documents/Injury_Facts/Injury_Facts_2011_w.pdf
- Naylor, M.D. & Kurtzman, E.T. (2010). The role of nurse practitioners in reinventing primary care. *Health Affairs*, 29, 893-899. doi:10.1377/hlthaff.2010.0440.

- Osberg, J.S., Kahn, P., Rowe, K., & Brooke, M.M. (1996). Pediatric trauma: Impact on work and family finances. *Pediatrics*, 98, 890-897.
- Peterson, L. (1988). Preventing the leading killer of children: The role of the school psychologist in injury prevention. *School Psychology Review*, 17, 593-600.
- Peterson, L., Ewigman, B. & Kivlahan, C. (1993). Judgements regarding appropriate child supervision to prevent injury: The role of environmental risk and child age. *Child Development*, 64, 934-950.
- Phelan, K.J., Khoury, J., Kalkwarf, H., & Lanphear, B.) (2005). Residential injuries in U.S. children and adolescents, *Public Health Reports*, 120, 63-70.
- Phelan, K.J., Khoury, J., Xu,Y. & Lanphear, B. (2009). Validation of a home safety survey. *Injury Prevention*, 15, 300-306. doi:10.1136/ip.2008.02095ic
- Phelan, K.J., Khoury, J., Xu,Y., Liddy,S., Homung,R. & Lanphear, B.P. (2011). A randomized, controlled trial of home injury hazard reduction: The home study. *Archives of Pediatric and Adolescent Medicine*, 165, 339-345. doi:10.1001/arcpediatrics.2011.29.
- Philippakas, A., Hemenway, D., Alexe, D.M., Dessypris, N., Spyridopoulos, T., & Petridou, E. (2004). A quantification of preventable childhood injury mortality in the United States. *Injury Prevention*, 10, 79-82.
- Pollack, K.M., Frattaroli, S., & Morhaim, D. (2009). Working in the legislature: Perspectives on injury prevention in the United States. *Injury Prevention*, 15, 208-211.
doi:10.1136/ip.2008.020388

- Pritchard, S. (1990). Safety of children in temporary accommodation. *Health Visitor*, 63, 194-195.
- Rosenstock, Irwin. (2005). Why people use health services. *The Milbank Quarterly*, 83,1-32.
reprinted from *The Milbank Memorial Fund Quarterly* volume 44, 1966, 94-124.
- Russell, K. M. & Champion, V.L. (1996). Health beliefs and social influence in home safety practices of mothers with preschool children. *Image: Journal of Nursing Scholarship*, 28, 59-64.
- Safe Kids. (2013). Retrieved from http://www.safekidscobbcounty.org/factsheets/unintentional_injury_risk_for_children.pdf
- Saint Louis Children's Hospital (n.d.). Kohl's Safety Street. Retrieved from:
<http://www.stlouischildrens.org/health-resources/advocacy-outreach/kohls-safety-street>
- Saluja, G., Brenner, R., Morrongiello, B.A., Haynie, D., Rivera, M., & Cheng, B.S. & T. L. (2003). The role of supervision in child injury risk: Definition, conceptual and measurement issues. *Injury Control and Safety Promotion*, 11, 17-22.
- Schnitzer, P.G., Covington, T.M., & Kruse, R.L. (2011). Assessment of caregiver responsibility in unintentional child injury deaths: Challenges for injury prevention. *Injury Prevention*, 17, i45-i54. doi:10.1136/ip.2010.02704.
- Schooley, C.B., & Kelly, A.R. (2008). Home Hazards: Can children recognize the dangers? *Journal of Trauma Nursing*, 15, 131-135. doi:0.1097/01.JTN.0000337156.93216.97

- Schwebel, D.C. & Gaines, J. (2007). Pediatric unintentional injury: Behavioral risk factors and implications for prevention. *Journal of Developmental Pediatrics*, 28, 245-254.
- Sommers, M.S. (2006). Injury as a global phenomenon of concern in nursing science. *Journal of Nursing Scholarship*, 38, 314-320.
- Songer, Thomas. (n.d.). Injury epidemiology. Retrieved from:
<http://www.pitt.edu/~epi2670/moving/researchdesigns.pdf>
- Spinks, A., Turner, C. McClure, R. & Nixon, J. (2004). Community based prevention programs targeting all injuries for children. *Injury Prevention*, 10, 180-185. doi:
10.1136/ip.2003.004903
- Spivey, C. & D'Amico, T. (2011). New Hanover Regional Medical Center/Kohl's Cares for Kids Partnership: Community injury prevention collaborative. *Journal of Trauma Nursing*, 18, 87-88. doi:10.1097/JTN.Ob013e318226c116
- Sridharan, L. & Crandall, M. (2011). Injury and health among children in vulnerable families. *The Journal of Trauma*, 70, 1539, 1539-1545. doi:10.1097/TA0b013e182190b94.
- Stone, D.H. (2007). Ten myths about injury prevention that hinder effective child safety policy making. *The Journal of the Royal Society for the Promotion of Health*, 127, 161-163.
- Swebel, D.C. & Gaines, J. (2007). Pediatric unintentional injury: Behavioral risk factors and implications for prevention. *Journal of Developmental and Behavioral Pediatrics*, 28, 245-254.

- Swick, K. (2009). Strengthening homeless parents with young children through meaningful parent education and support. *Early Childhood Education Journal*, 36,327-332.
doi:10.1007/s10643-008-0274-z
- The National Center on Family Homelessness. (2008). The characteristics and needs of families experiencing homelessness. *Fact Sheet*. Retrieved from www.familyhomelessness.org
- Tomlinson,R. & Sainsbury. (2004). Childhood injury prevention advice: A survey of health professionals responses to common scenarios. *Child: Care, Health & Development*, 30, 301-305.
- Towner, E.M.L. (1995). The role of health education in childhood injury prevention. *Injury Prevention*, 1, 53-58.
- Towner, E., & Dowswell, T. (2002). Community-based childhood injury prevention interventions: What works? *Health Promotion International*, 17, 273-284.
- Trifiletti, L. B., Shields, W.C., McDonald, E.M., Walker, A.R., & Gielen, A.C. (2005). Development of injury prevention materials for people with low literacy skills. *Patient Education and Counseling*, 64, 119-127.
- Turner, S., Arthur, G., Lyons, R.A., Weightman, A.L., Mann, M.K., Jones, S.J., & Lannon, S. Modification of the home environment for the reduction of injuries. *Cochrane Database of Systematic Reviews* 2011, Issue 2. Art No: CD003600.
doi:10.1002/14651858.CD003600.pub3.
- Tymchuk, A.J., Lang, C.M., Sowards, S.E., Lieberman, S., & Koo, S. (2003). Developmental and validation of the illustrated version of the home inventory for dangers and safety

- precautions: Continuing to address learning needs of parents in injury prevention. *Journal of Family Violence*, 18, 241-252.
- U.S. Department of Health and Human Services. (2010). *Healthy People 2020: Improving the Health of Americans*. Retrieved from <http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx>
- Vladutiu, C.J., Nansel, T.R., Weaver, N.L., Jacobsen, H.A., & Kewurwe, M.W. (2006). Differential strength of association of child injury prevention attitudes and beliefs on practices: A case for audience segmentation. *Injury Prevention*, 12, 35-40. doi:10.1136/ip.2004.07153.
- Woods, A.J. (2006). The role of health professionals in childhood injury prevention: A systematic review of the literature. *Patient Education and Counseling*, 64, 35-42.
- Zaloshnja, E., Miller, T.R., Lawrence, B.A., & Romano, E. (2005). The cost of unintentional home injuries. *American Journal of Preventive Medicine*, 28, 88-94.
- Zolotor, A. J., Burchinal, M., Skinner, D., & Rosenthal, M. (2007). Maternal psychological adjustment and knowledge of infant development as predictors of home safety practices in rural low-income communities. *Pediatrics*, 121, 1668-1674. doi:10.1542/peds.2007-1255.



Appendix A
Informed Consent Document for Participants
 Safety Hazards Education for Mothers

Participant _____
 Principal Investigator: Susan Fliesher

HSC Approval Number 515915-3
 PI's Phone Number: 314-283-5523

1. You are invited to participate in this research study conducted by Susan Fliesher, a Doctor of Nursing Practice student at the University of Missouri St. Louis and her advisor, Dr. Susann Farberman after a short information session which will tell you about the study and what is required to participate. The purpose of this project is to provide a child safety hazard education program and to learn more about what you know about child safety hazards for children who are under five years of age.

Susan Fliesher, a University of Missouri St. Louis graduate nursing student, is sponsoring this program as part of the requirements for her doctorate in nursing practice (DNP). The agency where you are staying has agreed to be a site for this research. Participants will be recruited from the information session today.

2. Participation in the child safety program takes place on two different days.

The first day is today.

- You have been invited to in an informational meeting that tells you about the child safety hazard education program.
- You have chosen to participate in this research study.
- You are being asked to sign a consent form letting us know you are willing to participate. The researcher and assistants will be happy to read the consent to you.
- You are also being asked to complete a brief demographic form that will ask questions like your age, race, education, and number of children. The researcher and assistants will be happy to read these questions to you.
- This should take about 60 minutes of your time.

The second day will next week on Tuesday. At that time you will be:

- escorted to a van with visible child safety hazards, walk around, and point out the child safety hazards you see;
- participating in a hands on child safety hazard education class;
- returning to the van, walk around and again point out child safety hazards you see;
- participating in an interview telling us about the child safety program (we will ask your permission to record the interview, we will not identify you by name during the interview, you may ask not to be recorded and not answer any question you do not want to answer).

On the second day, it will take about one hour and 30 minutes

At the completion of all of the activities on both days of the program, you will receive a certificate saying you have completed the child safety education program and a \$10 gift card to Walgreens in appreciation for participation. No gift cards will be given for one day participation or if all of the activities are not completed.

Approximately 25 to 30 women may be involved in the research.

3. There are no anticipated risks associated with this research. However, if participants discuss any illegal activities or report abuse or neglect, the researcher and her assistants are mandatory reporters and would be obligated by law to report any known illegal activity, abuse, or neglect to appropriate legal authorities.
4. The possible benefits to you from this research are:
 - increased ability to identify child safety hazards in your living area or in the community;
 - increased ability to decrease the number of injuries to your children;receipt of a certificate of completion for the safety hazard education program.
5. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw. Non participation has no impact on your being able to stay at this agency. There is an option to participate in the safety hazard education program without participating in the research study, however, those participants who are not in the study would not be able to go on the van.
6. By agreeing to participate, you understand and agree that your data may be shared with other researchers and educators in the form of presentations and/or publications. In all cases, your identity will not be revealed. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection). That agency would be required to maintain the confidentiality of your data. All research data will be stored on a password-protected computer and/or in a locked cabinet or office that is only accessible to the researcher. Upon completion of the project (this research study is targeted to end by June 2014), those recordings and transcriptions will be destroyed by deletion or shredding.
7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Susan Fliesher 314-283-5523 or Dr. Susann Farberman 314-516-6067. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research Administration, at 516-5897.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

Participant's Signature

Date

Participant's Printed Name

Signature of Investigator or Designee

Date

Investigator/Designee Printed Name

Appendix B

Demographic Information Form
Safety Hazards Education for Mothers

1. How old are you? _____

2. What is the last grade you completed of your education? _____

3. How would you describe your race? _____

4. Are you currently pregnant? _____

5. Do you have any children? Yes___ No___
 If yes, how many children are with you here? _____
 Do you have other children? _____
 What are the ages of the children? _____

6. Would you consider yourself from:
 the city _____
 a small town or the country _____

7. Have you ever had someone tell you about child safety hazards or child proofing
 where you live to keep your child safe?
 Yes _____ No _____

 If yes, who talked to you about it? _____

8. If you have children, what kinds of injuries have they had so far?

Appendix C

<i>Van Safety Hazard Checklist Pre and Posttest</i>	
<i>Participant number:</i>	<i>Date:</i>
<i>Living area</i>	<i>Check correct response</i>
1. Car seat on floor, can tip over, not for sitting	
2. Car seat strap ripped	
3. Toys in end table cabinet—within reach	
4. Cords on end table	
5. Outlet not covered	
6. Curling iron and hair dryer in reach	
7. Toy box with unsafe toys in it	
8. Glass bell not safe toy	
9. Vase within reach	
10. Coffee/candle warmer on end table	
11. Batteries out and within reach	
12. Space heater next to flammable material	

13. Cigarettes and lighter on end table	
14. TV in position to tip over	
<i>Kitchen area</i>	
1. No locks on cabinets	
2. Poisons under sink	
3. Utensils left out that are dangerous	
4. Coffee pot on edge of counter-splash burn	
5. Hot plate on edge of counter	
6. Pot handle turned outward and on warmer— splash burn	
7. Bucket with water	
8. Vitamins on counter	
<i>Dining area</i>	
1. Table cloth on table	
2. Beads on table, not safe toy	
3. Marbles in area-not safe toy	

4. Purse on floor with visible medication	
5. High Chair with slats too far apart	
6. Pacifier tied around baby's neck	
Bedroom	
1. Crib with unsafe slats	
2. Bedding too soft in bed	
3. Toys/stuffed animals in crib	
4. Crib by window blinds	
5. Smoke detector without batteries	
6. Ironing board with iron cord hanging	

|

Appendix D
Interview questions
Safety Hazards Education for Mothers

1. What were the best things you learned today about child safety?

2. What changes will you try to make to keep your child safe?

3. If you see a safety hazard where you live or visit, would you feel comfortable asking to have it removed or fixed?

4. Was this child safety education program useful?

5. Is there anything else you think I should know?