

2015

Parents Knowledge of Child Passenger Safety Laws and Use of Safety Restraints

Tracy Bell
Gardner-Webb University

Follow this and additional works at: https://digitalcommons.gardner-webb.edu/nursing_etd



Part of the [Public Health and Community Nursing Commons](#)

Recommended Citation

Bell, Tracy, "Parents Knowledge of Child Passenger Safety Laws and Use of Safety Restraints" (2015). *Nursing Theses and Capstone Projects*. 208.

https://digitalcommons.gardner-webb.edu/nursing_etd/208

This Thesis is brought to you for free and open access by the Hunt School of Nursing at Digital Commons @ Gardner-Webb University. It has been accepted for inclusion in Nursing Theses and Capstone Projects by an authorized administrator of Digital Commons @ Gardner-Webb University. For more information, please see [Copyright and Publishing Info](#).

Parents Knowledge of Child Passenger Safety Laws and Use of Safety Restraints

by

Tracy Bell

A thesis submitted to the faculty of
Gardner-Webb University Hunt School of Nursing
in partial fulfillment of the requirements for the
Master of Science in Nursing Degree

Boiling Springs

2015

Submitted by:

Approved by:

Tracy Bell

Tracy Arnold, DNP, RN

Date

Date

Abstract

The purpose of this study was to determine if there was an association between the parent's knowledge of child passenger safety laws and the use of child passenger safety restraints. A review of current literature demonstrates barriers to incorrect use of child passenger safety seats. The literature demonstrated that multiple factors that are involved in inappropriate use of child passenger safety seats. The research was guided by Nola Pender's framework for Health Promotion Model. The study was comprised of a convenience sample of 34 parents and caregivers from a child development center. Data was collected using the Child Passenger Safety Survey. The data did not show a significant difference between the parents understanding of the law and the use of child passenger safety restraints ($p = .2488$, Fisher's Exact test). In addition there was no association between the appropriate use of child passenger safety seats and the education parents received regarding child passenger safety seats ($p = 0.1711$, Fisher's Exact test).

Keywords: child restraint seats, booster seats, motor vehicle crashes, child restraint legislation, injury prevention, multi-media education, children, safety, child passenger safety, and intervention.

Acknowledgments

As I am concluding my educational journey at Gardner-Webb University, I think back to when I started six years ago and how fast the years have gone. I have met so many wonderful instructors and students along the way and have truly been blessed by each encounter. I value the knowledge that I have gained from time at Gardner-Webb and look forward to the opportunities of incorporating this knowledge into every aspect of nursing that I participate in. I am thankful for all of my instructors, but I want to say a special thank you to Dr. Tracy Arnold, whose guidance was vital to the completion of this research project.

I want to give a special thank you to the church site and the director of the child development center, which allowed me to conduct my research project. I would also like to thank the parents and caregivers that participated in the research as well.

I want to give a special thank you to my husband, Mike and my daughter, Cassidy for being so supportive and encouraging through my educational journey. I also want to thank each of my family members and friends for their love, support and encouragement through my educational endeavor and especially through this research project. I would like to give a special thank you to my sister Kristie, my coworker and friend Lorraine Calwile and friend LeAnne Golightly for their extra support and guidance throughout my entire educational experience.

© Tracy Bell 2015
All Rights Reserved

TABLE OF CONTENTS

CHAPTER I: INTRODUCTION

Significance.....2
Research Purpose2
Theoretical Framework.....2
Research Question4
Summary.....4

CHAPTER II: LITERATURE REVIEW

Literature Related to Theoretical Framework.....14
Strengths and Limitations of the Literature14
Summary.....15

CHAPTER III: METHODOLOGY

Setting16
Sample.....16
Design17
Instruments.....17
Data Collection18
Protection of Human Subjects19
Data Analysis19

CHAPTER IV: RESULTS

Sample Characteristics20
Major Findings.....21
Summary.....22

CHAPTER V: DISCUSSION

Implication of Findings.....23

Application to Theoretical Framework.....	24
Limitations	24
Implications for Nursing.....	25
Recommendations.....	25
Conclusion	26
REFERENCES	27
APPENDICIES	
A: Demographic Information.....	30
B: Child Passenger Safety Survey	31
C: Author’s Permission.....	34
D: Flyer	35
E: Informed Consent Form	36
F: Debriefing Statement.....	38

List of Tables

Table 1: Frequency Distribution of Demographic Variables of All Participants21

CHAPTER I

Introduction

Unintentional injuries remain a serious health issue for children age 14 and under in the United States (U.S.). “Motor – vehicle crashes (MVCs) are the leading cause of death and serious injury for children under the age of 14 in Canada and the United States (Snowdon, Hussein, Purc-Stevenson, Follo, & Ahmed, 2009, p.498). There are laws in place in all 50 states in the United States for the use of child passenger safety (CPS) seats for infants and toddlers, and all states have a law requiring the use of booster seats except for Florida, Arizona, and South Dakota (Elliott et al., 2013). Even though the improvements in CPS seat laws, safer car designs, and safer CPS seats have aided in decreasing childhood deaths from MVCs, they still signify the primary cause of death for children and youth in the United States (Elliott et al., 2013).

Multiple factors contribute to the death and injury of children and youth from MCVs. It is vital that parents have an understanding of the CPS seat law for their particular state and also have a working knowledge of how the CPS seat should be installed for their individual vehicle. According to South Carolina Department of Public Safety (2014), 73% of CPS seats are not installed correctly, and accurately installed CPS seats can decrease the possibility of death by 71%. Even though CPS seats can prevent injury and death, they remain frequently misused. According to Snowdon et al. (2009), “in one U.S. study , the rational used by parents for choosing not to use a child safety seat included the child’s fussiness and discomfort, the inconvenience of using the device, and needing the device for a younger child” (p. 498). In spite of the proven success of CPS seats, their improved availability, and child restraint laws that have been in existence for

over 25 years, MVCs continue to be the leading cause of death and injury to children over one year old in the U.S. (Tessier, 2009). Tessier (2009) reports that in 2007, 1,248 passengers under 15 years old died in MVCs and an additional 174,000 were injured in MVCs and the main reason for death in all age groups was failure to correctly restrain the child passengers.

Significance

Unintentional childhood injuries especially MVC, have a significant impact on nursing and the healthcare field in general. “ Car crashes remain the leading cause of death for children ages 1-14 in the United States, despite the introduction of child safety seats that can effectively decrease associated morbidity and mortality” (Brixey & Guse, 2009, p.547). It is imperative that nurses play a proactive role in reducing childhood injuries. The frequency and occurrence of unintentional childhood injuries should be extremely important to parents, nurses, health care providers, and the general public including legislators. Nurses are in a prime position to assess the parents and care givers knowledge of proper car seat installation and also their knowledge of the child passenger safety laws for their state.

Research Purpose

The purpose of this research study was to determine if there is a relationship between the parent’s knowledge of child passenger safety laws and the use of child passenger safety restraints.

Theoretical Framework

Pender’s Health Promotion Model was the theoretical framework used for this research study. Nola Pender began her study of health promotion in the 1970s and

published her First Health Promotion Model in the 1980s and later revised the model slightly in the 1990's (McEwen & Wills, 2011). The Health Promotion Model is “a proposed framework for integrating nursing and behavioral science perspectives on factors that influence health behaviors” (McEwen & Wills, 2011, p. 225). The model is to be utilized as a guide to assist in promoting healthy behaviors and enable others to participate in and practice healthy behaviors. Pender's Health Promotion Model signifies a theoretical viewpoint that explores the reasons and connections to health promoting behavior that improves the quality of life for individuals (Srof & Velsor-Friedrich, 2006).

Major concepts of the Health Promotion Model consists of individual characteristics, experiences, behavior-specific cognitions and affect, behavioral outcomes and health promoting behaviors (McEwen & Wills, 2011). Health promotion models are vital for improving individual and community health and Nola Pender's Health Promotion Model provides the necessary framework for nursing to incorporate and utilize in promoting healthy behaviors. “The behavior-specific cognitions and affect category includes perceived benefits- barriers to behavior, perceived self-efficacy, and affect cues to behavior. These factors are the target of most of the Health Promotion Models to date” (Srof & Velsor-Friedrich, 2006, p. 367). Nurses have the opportunity to develop and implement health-promoting interventions to individuals and groups of people and the goal of nurses should be to empower people to care for one's self and improve their own individual behaviors (McEwen & Wills, 2011).

The Health Promotion Model will be used for this study to see if there is a relationship between parent's knowledge of CPS laws and the use of CPS restraints. Based on Pender's Health Promotion model a theoretical assumption will be made that if

parents have a better understanding of the CPS laws an increase in the proper utilization of child restraints will increase. Data from this study will validate whether or not this assumption is supported.

Research Question

This study aimed to answer the following research question:

Is there a relationship between parents' knowledge of child passenger safety laws and the use of child passenger safety restraints?

Summary

Unintentional injuries remain a serious health issue for children 14 years of age and younger and motor vehicle crashes are the number one cause of death and injury in this age group. Despite the improvements and advancements in child passenger restraints and CPS laws, the misuse and nonuse of CPS restraints is still extremely high.

CHAPTER II

Literature Review

A literature review was conducted by searching a variety of databases and search engines. To perform the literature review three different databases and search engines were utilized: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, EBSCO Host, and Google. Keywords for the search included child restraint seats, booster seats, motor vehicle crashes, child restraint legislation, injury prevention, multi-media education, children, safety, child passenger safety, and intervention.

Child Passenger Safety

Child passenger safety and legislation. Brixey, Ravindran, and Guse (2010) utilized a prospective, non-randomized study to evaluate the effect of the newly enacted child passenger safety law, Wisconsin Act, 106, on self-report of proper restraint usage of children. The settings used were a pediatric urban health center, and two Women, Infants and Children offices. A total of 11,566 surveys were collected over an 18 month time period that included pre-legislation and post-legislation. The study was designed to assess proper child passenger restraint. The researchers found that there was no statistically substantial change over time in unrestrained child passengers. The results in adjusted proper restraint use rate for infants between the pre-law, grace period and post – fine period were 94%, 94% and 94%. For the one to three year old children the adjusted proper rates were 65%, 63%, and 59%. For children four to seven years old, the rates were 43%, 44%, and 42%. The researchers found that the number of unrestrained children decreased, but there was an increase of children being moved to the belt positioning booster to early. At the conclusion of the study the researchers reported that

generally, there was not a substantial increase in self-reported appropriate booster seat use in the vulnerable population. The researchers concluded that in order to avoid improper utilization of the booster seat related to misunderstanding the child passenger safety law, health care professionals and community leaders need to be more involved in educating the parents about which child restraint seat is best for the child's age and weight.

Elliott et al. (2013) executed an Inpatient Child Passenger Safety (CPS) program for hospitalized children to increase awareness and compliance with the Massachusetts CPS law that required children younger than eight years old or 57 inches tall to be protected in a car seat while riding in a motor vehicle. The inpatient program was piloted on three units the first year and then the program was expanded the next year to all of the inpatient units. A computerized nursing assessment tool was utilized to identify children that needed CPS education or a child safety seat. With the expanded inpatient program, 3,650 children were assessed, 598 consults were initiated and, 325 families were given CPS education. Child safety seats were given to 419 children and 134 families were loaned specialty seats. The study found that with a multidisciplinary approach, an inpatient CPS program for hospitalized children could be successful.

Child passenger safety and parental perception. Yuma-Guerrero et al. (2013) conducted 24 semistructured focus groups over a 14 month time period that included pregnant and parenting teens from four urban high schools to explore and understand the safety opinions of teenage parents. The students from the participating high schools came from various socioeconomic backgrounds. The focus groups centered on four different safety topics that did include prevention of injury from motor vehicle crashes.

The participant's demographics were examined utilizing descriptive statistics. A total of 93 pregnant or parenting students participated in one or more of the 24 focus group sessions. Generally, the participants reported that motor vehicle safety was important to them. Yet, the participants reported mixed views regarding the family members wearing seat belts. Also, the participants reported that some of them didn't own a car seat for their child. The focus group study discusses several issues that are important for preventing injury to the children of pregnant and parenting teens. The study found that children of pregnant and parenting teens are at a greater risk for injury and that pregnant and parenting teens need more support for developing skills to prevent childhood injuries inside their complicated and challenging situations.

Macy, Cunningham, Resnicow, and Freed (2014) used a two-site, cross-sectional tablet-based survey of parents looking for emergency care for their one to 12 year old child that was piloted over a seventh month time span. The parents provided self-report of child passenger safety practices, demographic characteristics, and information sources. Direct surveillance of child passenger restraint use was conducted in a subset of children at emergency department discharge. The age-appropriate use was defined by Michigan law. Out of the 744 qualified parents, 669 decided to participate and 601 provided complete answers to crucial variables. The survey demonstrated that white parents had a higher use of car seats in the one to three year olds and in the four to seven year olds compared to the non-white parents. The study demonstrates that a concentrated effort should be put into eliminating racial disparities in age-appropriate child passenger restraint utilization for children less than eight years old.

Tessier (2009) conducted a study that assessed whether a hands-on educational intervention made an important difference in the correct utilization of child passenger restraint by a parent. The clinical trial design involved a sample of 111 parents who were at least seven months pregnant and who were randomly assigned to one of two groups that involved 56 interventions and 55 controls. All subjects received a free car seat and a standardized education session on the safety and proper use of car safety seats. The experimental group received an additional module consisting of a hands-on demonstration and return demonstration of proper installation and use in their own vehicle. Follow-up observation for proper use was completed after birth utilizing a standardized tool. A total of 24 (22%) parents properly utilized the car safety seat. Out of these parents, 18 (32%) were in the intervention group and 6 (11%) were in the control group. The intervention group was four times more likely to have proper use than the control group. The study demonstrated that hands-on educational intervention made a significant difference in the correct use of child safety seats by parents.

Keay et al. (2012) evaluated an education, distribution, and fitting program for improving age appropriate and proper use of child passenger restraints. The researchers performed a cluster randomized trial involving 28 early childhood education centers in poverty stricken areas. The main goal was optimum restraint use defined as age - appropriate restraints, installed in the vehicle properly and utilized correctly. This study involved 689 children aged three to five years old for 27 child care centers. More children attending intervention centers were correctly restrained (43% vs 31%), thus allowing for clustering. More three year olds were utilizing forward- facing seats rather than booster seats, and more four to five year olds were using booster seats rather than

seat belts by themselves, and fewer errors were noted in the intervention centers. The study demonstrated that the program improved the utilization of age-appropriate car seats and proper use of restraints. The study also indicated that multifaceted education, seat distribution, and fitting enhanced legislation effects, and the effect size was larger in non-English-speaking families.

Rogers, Gallo, Saleheen, and Lapidus (2013) conducted a study that involved a preintervention phase in which the researchers conducted a survey among the maternal/newborn unit nurses in a large urban teaching hospital to measure child safety seat (CSS) knowledge, attitude, and practice. The researchers then enrolled 60 maternal-newborn dyads at discharge to survey maternal CSS knowledge and observe the CSS misuse rate. The intervention phase included a one hour mandatory nurse CSS education rate classroom session, a nurse hands-on CSS demonstration and practice in a mother's hospital room. Throughout the post-intervention phase, the researchers enrolled 70 maternal-newborn dyads at hospital discharge to survey maternal CSS knowledge and observe change in CSS misuse rate. In the pre-intervention phase, 73% of the eligible nurses completed the survey and 80% of the nurses completed the CSS education and training program. Of 70 post-intervention mothers, 44% reported receiving no nurse education, 21% reported receiving a brochure only, and 31% reported receiving nurse education. The study illustrated that CSS misuse among mothers who received registered nurse education was not decreased compared with mother's who received a brochure only and those who did not receive CSS education. The study demonstrated that CSS misuse did not improve following implementation of a comprehensive nursing and training

program. This study determined that future work is necessary to improve and identify the appropriate settings to decrease newborn CSS misuse.

Rogers, Gallo, Saleheen and Lapidus (2012) conducted a study to determine how parents learned how to use and install CSS at newborn discharge. The researchers enrolled maternal/newborn couplets at discharge from a large urban teaching hospital. The survey data included the maternal demographics and the parent's knowledge regarding CSS installation. After the survey was completed a certified child passenger safety technician (CCPST) observed how the parents placed the infant in the CSS and how the CSS was installed in the vehicle. The researchers observed nine categories of improper installation of the CSS. A total of 101 mothers were enrolled from various educational and economic backgrounds. The researchers noted 254 CSS errors. The researchers observed that 52% of the infants were placed in the CSS incorrectly and 48% of the CSS were installed in the vehicle improperly. The researchers noted that there was no difference in the parents misuse related to how, when and where the mothers learned about proper CSS installation. The researchers concluded that regardless of federal, state and hospital policies requiring newborns to be transported in a CSS, they found a substantial number of CSS misuse in the study population. These results support the need for better quality CSS education.

Snowdon et al. (2009) utilized a pre-test and post-test design to examine the usefulness of a multi-media intervention study on parents' understanding of car safety seat use for children aged birth to 12 years old. The study sample involved 201 parents from four Ontario cities. The results demonstrated that parents' knowledge of when to correctly change a child to the proper car seat based on the child's age, weight and height

was retained at the one year post-test for children four to eight years old. The rates of accurate use of child safety seats greatly improved one year after the intervention program began. The researchers found other factors that influenced the parents understanding which involved being a parent versus a non-parent, gender, income, education, sources of information, and location. The research concluded that this study can assist with improving and executing future intervention programs and injury prevention guidelines.

The AAA Foundation for Traffic Safety, (Arnold, 2014), conducted a study that involved a national survey of CPS instructors and technicians. The purpose of the study was to supplement a previous study from these experts concerning their observations of how parents and caregivers use and misuse the Lower Anchors and Tethers for Children (LATCH) system in motor vehicles. The survey tool was established in conjunction with the previous study to inform the topic areas and questions, and was reviewed by several CPS experts. Each of Quesenbery's 5 E's was covered in the survey. The survey was presented in sections that contained a series of ratings or a multiple choice question covering how easy it was for the parents to utilize the LATCH system; LATCH installation errors and design improvements that may enable easier and more correct use of the car safety seats. Participants were sampled randomly from a searchable online database of CPS technicians and instructor maintained by Safe Kids Worldwide. The data base provided contact information for more than 16,000 technicians and instructors in the United States. The researchers gathered the following recommendation for the survey which include and support previous studies. The researchers reported that the LATCH system needs to be readily available in all vehicles; standardization of weight

limits for both lower and tether anchors, clear and concise information requirements for parents, and continued public awareness educational efforts.

Robertson et al. (2012) conducted a study to decide the most effective instructional method for parents to correctly install child safety seats. The participants were assigned to a “hands-off,” “hands-on”, condition. Participants finished the preliminary installation and a survey, and then returned two weeks later for an unsupervised reinstallation of the car seat and a second survey. The study found that there were no noteworthy differences between condition groups that included gender, education, ethnicity, or the amount of children. The study found no differences between treatment groups for installation and safety confidence ratings at both Time one and two, but there was a significantly high correlation between installation confidence and the number of times the car seat had been installed. The researcher found that this study was similar to prior research in regards to a low percentage of follow-up visits. The lack of follow up may indicate a need for improved methods for retaining participants or the potential need for a one time education and evaluation project concentrating high repetition and practice of correct installation of car seats.

According to Safe Kids Worldwide (2012), the Safe Kids organization and the National Highway Traffic Safety Administration (NHTSA) conducted a national survey to determine if parents and caregivers were properly utilizing and installing child safety seats. The survey demonstrated that parents were making five significant mistakes when utilizing car seats and booster seats. The survey also found that one in five parents did not read any instructions prior to installing their child’s safety seat. The survey showed that the most frequently observed mistakes made by caregivers included: using the wrong

harness slot, harness chest clip positioned over the abdomen rather than the chest, loose safety seat installation, loose harness, and wrong seat belt placement. The survey also discovered that 20% of caregivers did not read any instructions, but 90% felt confident or very confident that their child safety seats were properly installed. Safe Kids and NHTSA encouraged parents to take a 15 minute at home checkup using a Safe Kids downloadable checklist that could be found on the Safe Kids website and also encouraged parents to seek technical support if they still had questions.

Child passenger safety and health care provider perspective and knowledge.

Brixey and Guse (2009) conducted a study to establish physicians' and caregivers' understanding, performances and comfort levels concerning CPS restraint transitions with belt position booster seats (BPB). The researchers conducted a targeted survey of doctors caring for four to eight year old children, plus administered a convenience sampling survey of caregivers that involved an urban population. Statistics showed that 42% of the doctors and 47% of caregivers did not realize that MVC are the leading cause of death of children in this age range. The study revealed that 34% of caregivers regularly positioned children in booster seats; 48% stated receiving information regarding correct placement in booster seats; 67% reported wanting to learn about correct restraint; and 36% of caregivers wanted to receive this information from their doctor. The study indicated that 70% of doctors reported questioning about CPS in automobiles for this age group. Only 48% of the physicians were comfortable with knowing when to recommend booster seats, 43% reported having received no training in CPS, and 37% knew where to refer caregivers for the correct information. The study indicated that doctors need further

information regarding correct CPS restraints and are willing to learn so they can better assist the pediatric population and their caregivers.

Macy, Clark, Sasson, Meurer and Freed (2012) conducted a cross-sectional survey to understand the attitudes and self-reported practices of emergency room doctors concerning CPS. Surveys were mailed to 600 pediatric emergency medicine (PEM) physicians and 600 emergency medicine (EM) physicians who deliver care in the United States. Participants were randomly sampled from the American Medical Association Physician Masterfile. Survey questions explored attitudes associated to the role of the doctor and the emergency center in CPS and how often the doctor and staff assisted caregivers with CPS education and assistance of proper car seat placement. Responses to the survey were received from 638 of 1,000 eligible doctors. Surveys were completed by 367 PEM and 271 EM doctors. The study indicated that the doctors agreed that it was their responsibility to educate the caregivers about CPS and they could make a significant difference in improving how caregivers restrain their children. The researchers concluded that emergency physicians are supportive of the emergency department and staff as a setting to improve CPS.

Literature Related to Theoretical Framework

There was no literature related to theoretical framework found.

Strengths and Limitations of the Literature

The literature provided strong evidence that there is still a significantly high rate of child safety seat misuse despite the national, state, and hospital policies that exist (Rogers et al., 2013). The literature also discussed the importance of effective education prior to hospital admission and also upon hospital discharge. Bull and Chappelow (2014)

reported that “motor vehicle crashes remain the leading cause of death and injury among U.S. children. Car seats reduce the risk of fatal injury by 71% for infants and by 54% for toddlers” (p.1).

The studies that were completed described various ways to determine parents and caregivers knowledge of appropriate use of child passenger safety seats. Some of the limitations found in the studies involved gaps in the populations that were studied. Several of the studies included parents that were predominantly white, educated and volunteered for the various studies. Larger, randomized studies would contribute to a more comprehensive understanding of the general population. Another limitation noted in the studies was parents were not asked to demonstrate their ability or inability to properly install the child passenger safety seats.

Summary

Health care providers play a key role in improving CPS education for parents and caregivers. This research study served to add to the existing body of knowledge related to child passenger safety issues.

CHAPTER III

Methodology

Motor vehicle crashes (MVC) are the leading cause of death in the United States for children 14 years of age and less (Brixey & Guse, 2009). Parents play a vital role in implementing and utilizing the proper child passenger safety restraints appropriate for their child's age. Parents must have adequate knowledge in order to provide a safe environment for their children of various ages. The purpose of this research study was to assess the parents' practice measures regarding child passenger safety.

Setting

The research study was conducted at a child development center (CDC) located in a small, rural town with a population of 2,407 (U.S. Department of Commerce, 2015) and is part of a faith based program that is open to the public. The CDC serves children ranging in ages from 12 weeks old to five years old and after school children ages five years to 12 years old. Approximately 85 children attend the CDC.

Sample

Convenience sampling was used to recruit participants from a church daycare center. Participants had to be a parent aged 21 years old or older with at least one child, aged six or younger, enrolled within the child development center. Children could have been enrolled in any of the services provided by the daycare center including the preschool program, full day program, or after school program. Approximately 85 participants were contacted and 34 agreed to participate.

Design

A descriptive correlational design was employed for this study. The research provided an actual representation of the parents of children enrolled in the CDC's perception of appropriate child passenger restraint utilization.

Instruments

The instruments used to collect data for this study included a demographic questionnaire developed by the researcher (Appendix A) and the Child Passenger Safety (Appendix B) survey.

The Child Passenger Safety originally consisted of 14 items developed for a study conducted at the University of Michigan C.S. Mott Children's Hospital Emergency Department and the Hurley Medical Center ED (Macy et al., 2014). Questions were related to child passenger safety practices and demographic variables.

The questionnaire used yes and no questions and closed ended questions that covered the following topics: type of passenger restraint used (including a car seat, booster seat, or seat belt) when riding in a vehicle, how often child rides in the front seat, how parent learned to use child's car seat, where has parent gone to seek information, did parent receive any information in a doctor's office, how often did parent use a seat belt, parents demographics. Answer choices consisted of yes and no responses and selection of all that apply or a combination of appropriate answers.

Macy et al. (2014) reported the original instrument had a Flesch-Kincaid grade level of 5.1. The researchers used descriptive statistics to calculate each variable. Agreement between parents reported usual restraint and observed restraint at the emergency discharge was assessed with the *k* statistic. Sensitivity and specificity for

parent-reported age- appropriate restraint were calculated. X^2 statistics were calculated to test for a bivariate associations between the out-come variables (sitting in the front seat and age-appropriate restraint use) and the predictor variable (sociodemographic characteristics, parent seat belt use, and child passenger safety information sources) Macy et al. (2014).

For the purposes of this study, the Child Passenger Safety (survey was adapted. Permission to use and adapt the tool was obtained from the author (Appendix C). Questions 1-3 were related to information about knowledge of the South Carolina law on child passenger safety devices. Questions 5-11 consisted of the questions on the original author's questionnaire.

Data Collection

Flyers (Appendix D) were sent home with the parents two days prior to the scheduled data collection and emails were also sent out to the parents by the director of the day care reminding parents of the child passenger survey. On the day of the collection the researcher met the parents at the door and greeted the parents at the child development center during the facilities dismissal hours, during the time range of 4-6 PM over the course of two days. The researcher explained the research study to the parent, and invited them to a classroom where they could review the consent form and complete the survey. A box was placed in the classroom for the parent to place their completed surveys. The researcher was available to answer any questions. After the survey was completed the parents and caregivers were given a brochure from Safe Kids with information regarding CPS and a copy of the current South Carolina law regarding child passenger restraint devices and proper use.

Protection of Human Subjects

Permission from the director of the CDC and the CDC board members was obtained and the University of study. Participants were not exposed to any risks during the conduction of the research study. Letters of informed consent (Appendix E) describing the purpose, risks, benefits and voluntary completion of the questionnaire were distributed on the CDC to the parent in person. All surveys were submitted anonymously to maintain confidentiality. Participants were allowed to submit blank surveys as well. A debriefing statement was provided (Appendix F) at the conclusion of the study.

Data Analysis

The researcher entered the data into the Minitab 17 software program for statistical analysis. Descriptive statistics were calculated for each variable. Data for this research study to be determined.

CHAPTER IV

Results

Motor vehicle crashes (MVC) are the leading cause of death in the United States for children 14 years of age and less (Brixey & Guse, 2009). Parents play a vital role in implementing and utilizing the proper child passenger safety restraints appropriate for their child's age. Parents must have adequate knowledge in order to provide a safe environment for their children of various ages. The purpose of this research study was to assess the parents' and caregivers' knowledge of the South Carolina child passenger laws and how it affects the parents' use of safety restraints and responses to the survey instrument will give better insight into the parents' knowledge and practice.

Sample Characteristics

The final sample size for this study was 34 participants. Ten parents/caregivers declined participating in the survey, three families were on vacation and were not able to participate in the survey, and five surveys could not be utilized because the children were older than six years old. As shown in Table 1, the sample consisted of 21 (62%) mothers, 4 (12%) fathers, 7 (21%) grandparents, and 1 (3%) baby sitter. Participants identified their race/background as white (n=32) and other (n=2), which included black/Hispanic and Afghan/white. The majority of the subjects had a bachelor degree (n=15), followed by an associate degree (n=6), graduate school (n=7), technical school (n=1), and high school (n=5).

Table 1

Frequency Distribution of Demographic Variables of All Participants

Demographic Variable	<i>n</i>	%
Relationship to child		
Mother	21	62
Father	4	12
Grandparent	7	21
Babysitter	1	3
Race/Background		
White	32	98
Other	2	2
Highest Level of Education		
High school	5	14
Technical school	1	3
Associate degree	6	18
Bachelor degree	15	44
Graduate school	7	21

Major Findings

Each participant was asked to complete survey instrument, which included 11 questions, after reading the informed consent. The first four questions focused on the parents' knowledge of the South Carolina law regarding child passenger safety, age of child, weight of child, and any type of use of child passenger safety restraints. Questions five and six focused on the child buckling up in the car and if they rode in the front or back seat. Questions seven and eight focused on what type of safety restraint was utilized, questions nine and ten focused on education parents received regarding child passenger safety and question 11 focused seat belt use of parents. For this research study the Fisher's Exact Test was utilized for association of the parent's knowledge of child

passenger safety laws and the use of safety restraints. After the survey instruments were returned the data analysis began.

The data did not show a significant difference between the parents understanding of the law and the use of child passenger safety restraints ($p = .2488$, Fisher's Exact test).

Another test was run to determine if there was an association between the appropriate use of child passenger safety seats and the education parents received regarding child passenger safety seats. No significant difference was found ($p = 0.1711$, Fisher's Exact test).

Summary

Although data collected from the "Child Passenger Safety Survey" study did not show statistical significance, it will be used to improve educating parents on the South Carolina Child Passenger Safety Laws and best practices. There was a slight improvement noted in the association between child passenger safety education and appropriate use of child passenger safety seats. This showed that education possibly had a positive effect on the appropriate use of CSS.

CHAPTER V

Discussion

Implications of Findings

The purpose of this study was to determine if there was an association between the parent's knowledge of child passenger safety laws and the use of child passenger safety restraints. Because of the limitations of the method in data collection, a small sample size of parents and caregivers, the findings cannot be generalized to all parents and caregivers. In addition, the majority of the participants were white, educated females. The questionnaire method allowed the researcher to survey a small group of parents and caregivers, but did not offer opportunity for follow up. Based on the findings of this study, that data did not show significant difference between the parents understanding of the law and the use of child passenger safety restraints. However, there was a slight improvement noted in the appropriate use of CSS and education received regarding CPS.

Despite the limitations, the information gathered in the study offered a look at how educating the parents on proper use of CSS can have a positive effect of the proper use of CSS and promote a safer environment for children while riding in a motor vehicle.

The researcher used a survey instrument that measured the parent's current understanding of the South Carolina law, proper use of CSS, and also how education affected the parent's appropriate use of CSS. This study didn't show a significant difference between the understanding of the law and appropriate use of CSS. One study conducted on the effects legislating child restraint usage, which included officers passing

out fines for nonuse or inappropriate use of CSS, did not see a substantial improvement in the correct use of CSS in children from birth to seven years old (Brixey et al., 2010).

Application to Theoretical Framework

Pender's Health Promotion Model was the framework utilized for this research study. The model was utilized to assist in promoting healthy behaviors in the parents and caregivers that participated in this study. Pender's Health Promotion Model explores the reasons and connections to health promoting behaviors that improves the quality of life for individuals (Srof & Velsor- Friedrich, 2006).

The main concepts of the Pender's Health Promotion Model were individual characteristics and experiences which incorporated previous related behavior and biological, psychological, and sociocultural individual influences. These factors were elemental as to whether or not participants of the study would participate in health-promoting behaviors (McEwen & Wills, 2011). Some of the survey questions focused on personal safety behaviors such as seat belt use.

Based on Pender's Health Promotion Model, one theoretical assumption was developed for the research study. The theoretical assumption was that the parent's knowledge of child passenger safety laws affects their use of child passenger safety restraints. However, the data did not show a significant difference between the parents understanding of the law and the use of child passenger safety restraints.

Limitations

The results of the study were limited by the single setting and lack of random sampling. Limitations also included a small sample size that did not represent a diverse group of people. The majority of the participants were white, educated females. The

results of this study may not be indiscriminate to other samples that do not meet the same individualities.

Implications for Nursing

Even though the data from this research study was determined not to be statistically significant, there was some evidence that education did improve the parent's appropriate use of CSS. Individual and community education is an extremely important factor in the role of nursing. Nurses have the opportunity on a daily basis to educate patients and individuals and to promote a healthier life style. Pender's Health Promotion Model gives the framework to teach parents and caregivers safer practices that would enable them to use CSS appropriately.

It is essential for nurses to continue to explore and research the barriers that are associated with inappropriate use of CSS and develop a variety of teaching strategies that would enable nurses to meet the educational needs of the parents and caregivers. Nurses and health care professionals that work with the pediatric population need to receive further education and training in the correct installation of CSS, which in turn, will allow the nurse to aid the parents in proper installation of CSS and contribute to reducing unintentional injuries.

Recommendations

Recommendations for further research included conducting the research at more than one site to increase sample size and reach a more diverse population. Another recommendation would be to conduct a survey at a car seat checkup event where certified child passenger safety technicians would be available, so appropriate use of CSS could be observed. Conducting the research at a car seat checkup event not only allows for direct

observation of appropriate use, but it also allows for hands on education of the parents and caregivers. Hands on education for parents and care givers can make a major improvement in the correct use of CSS (Tessier, 2009). A recommendation that could improve the study would be to simplify or clarify some of the questions of the survey. Some of the parents seemed to misinterpret questions included in the child passenger survey. Continued research and study was needed to improve the appropriate use of CSS.

Conclusion

The data from the research didn't indicate a significant difference between the parents understanding of the South Carolina Child Passenger Safety Law and the appropriate use of CSS. A larger sample size was needed to improve the results of this study. There was a slight improvement noted that there is an association between education received for correct use of CSS and the appropriate use of CSS. This could possibly support the need for continued and improved education for parents and caregivers on proper installation for CSS. Prevention of childhood injuries and promoting public health are vital for the care of children. It is more advantageous to maintain the health and wellness of children than to try repairing them after an injury (Tessier, 2009). The nursing profession plays a vital role in decreasing childhood injuries and promoting healthy behaviors that can be used throughout one's life.

References

- Arnold, L. (2014). National survey of child passenger safety technicians on the LATCH system, United States, 2013. Retrieved from AAAFoundation.org
- Brixey, S. N., & Guse, C. E. (2009, August 28). Knowledge and behaviors of physicians and caregivers about appropriate child passenger restraint use. *J Community Health, 34*, 547-552. <http://dx.doi.org/10.1007/s10900-009-9176-2>
- Brixey, S., Ravindran, K., & Guse, C. E. (2010). Legislating child restraint usage - Its effect on self-reported child restraint use rates in a central city. *Journal of Safety Research, 41*, 47-52. <http://dx.doi.org/10.1016/j.jsr.2009.12.004>
- Bull, M. J., & Chappelow, M. L. (2014). Hospital encouraged to provide child passenger safety training, resources. *AAP News, 35*.
<http://dx.doi.org/10.1542/aapnews.2014357-17>
- Elliott, L. N., DiGirolamo, B., McMahon, M., Damian, F., Brostoff, M., Shermont, H., ... & Lee, L. K. (2013). An inpatient child passenger safety program. *Clinical Pediatrics, 52*, 1022-1028. <http://dx.doi.org/10.1177/0009922813507130>
- Keay, L., Hunter, K., Brown, J., Simpson, J. M., Bilston, L. E., Elliott, M., ... & Ivers, R. Q. (2012). Evaluation of an education, restraint distribution, and fitting program to promote correct use of age-appropriate child restraints for children aged 3 to 5 years: A cluster randomized trial. *Research and Practice, 102*, 96-101.
- Macy, M. L., Clark, S. J., Sasson, C., Meurer, W. J., & Freed, G. L. (2012). Emergency physician perspectives on child passenger safety: A national survey of attitudes and practices. *Academic Pediatrics, 12*, 131-137.

- Macy, M. L., Cunningham, R. M., Resnicow, K., & Freed, G. L. (2014). Disparities in age-appropriate child passenger restraint use among children aged 1 to 12 years. *Pediatrics, 133*, 262-270. <http://dx.doi.org/10.1542/peds.2013-1908>
- McEwen, M., & Wills, E. M. (2011). *Theoretical basis for nursing* (3rd ed.). Philadelphia, PA: Wolters Kluwer Health/ Lippincott Williams & Wilkins.
- Robertson, B. D., Jones, R., Jackson, S., Beckworth, K., Alderete, J., & Green, S. (2012). The evaluation of a car seat installation education program: Results of a pilot study. *Texas Public Health Journal, 64*, 4-7.
- Rogers, S. C., Gallo, K., Saleheen, H., & Lapidus, G. (2012). Wishful thinking: Safe transportation of newborns at hospital discharge. *Trauma Acute Care Surg, 73*, 262-265. <http://dx.doi.org/10.1097/TA.0b013e31826b0146>
- Rogers, S. C., Gallo, K., Saleheen, H., & Lapidus, G. (2013). Can nurse education in the postpartum period reduce car seat misuse among newborns. *Trauma Acute Care Surg, 75*, 319-323. <http://dx.doi.org/10.1097/TA.0b012e31829cba75>
- Rosales, P. P., & Jackson-Allen, P. L. (2012). Optimism bias and parental view on unintentional injuries and safety: Improving anticipatory guidance in early childhood. *Pediatric Nursing, 38*, 73-79.
- Safe Kids Worldwide. (2012). U.S. DOT and Safe Kids kick-off child passenger safety week with new survey on common car seat mistakes. Retrieved from <http://www.safekids.org/press-release/us-dot-and-safe-kids-kick-child-passenger-safety-week-new-survey-common-car-seat>

- Snowdon, A. W., Hussein, A., Purc-Stevenson, R., Follo, G., & Ahmed, E. (2009). A longitudinal study of the effectiveness of a multi-media intervention on parents' knowledge and use of vehicle safety systems for children. *Accident Analysis and Prevention, 41*, 498-505. <http://dx.doi.org/10.1016/j.aap.2009.01.013>
- South Carolina Department of Public Safety. (2014). South Carolina child passenger restraint law: Synopsis of law. Retrieved from http://www.buckleupsc.com/safety_seat_law.asp
- Srof, B. J., & Velsor-Friedrich, B. (2006). Health promotion in adolescents: A review of Pender's health promotion model. *Nursing Science Quarterly, 19*, 366-373. <http://dx.doi.org/10.1177/0894318406292831>
- Tessier, K. (2009). Effectiveness of hands-on education for correct child restraint use by parents. *Accident Analysis and Prevention, 42*, 1041-1047. <http://dx.doi.org/10.1016/j.aap.2009.12.011>
- U.S. Department of Commerce. (2015). State and county quick facts. Retrieved from [quickfacts census.gov/qfd/states/.../45083.htm](http://quickfacts.census.gov/qfd/states/.../45083.htm)
- Yuma-Guerrero, P. J., Duzinski, S. V., Brown, J. M., Wheeler, T. C., Barczyk, A. N., & Lawson, K. A. (2013). Perceptions of injury and prevention practices among pregnant and parenting teenagers. *Journal of Trauma Nursing, 20*, 3-9. <http://dx.doi.org/10.1097/JTN.0b013e3182866157>

Appendix A

Demographic Information

For the following items, please choose the response that most accurately describes you or fill in the blank as appropriate.

1. What is your relationship to your child?

- Mother, stepmother, foster mother
- Father, stepfather, foster father
- Grandparent
- Sibling
- Other relative
- Other, please specify _____

2. What is your race or background?

- American Indian/Alaska Native
- Asian Native Hawaiian or Other Pacific Islander
- Black or African American
- White
- Hispanic
- Other, please specify _____

3. What is the highest grade/level you completed?

- Eighth grade or less
- Some high school
- High school/general equivalency diploma
- Technical school
- Associate degree (2 – Year College)
- Bachelor degree (4-year College)
- Graduate school

Appendix B

Child Passenger Safety Survey

Please complete the following survey based on ONE child. If you have multiple children, please complete one survey per child.

#	Question
Q1	Are you familiar with the South Carolina law regarding child passenger safety? <input type="checkbox"/> No <input type="checkbox"/> Yes
Q2	What is the age of the child currently using a child passenger safety restraint in your vehicle? _____
Q3	What is the weight of the child currently using a child passenger safety restraint in your vehicle? _____
Q4	Does your child ever use ANY type of passenger restraint (including a car seat, booster seat, or seat belt) when riding in a vehicle? <input type="checkbox"/> No <input type="checkbox"/> Yes
Q5	If response to Q4 was “Yes,” how often does your child ride in the car without buckling up at all? <input type="checkbox"/> Never <input type="checkbox"/> Once <input type="checkbox"/> Once or twice but less than half of trips <input type="checkbox"/> Greater than half of trips but not every trip <input type="checkbox"/> Every trip
Q6	How often does your child ride in the front seat? <input type="checkbox"/> Never <input type="checkbox"/> Once <input type="checkbox"/> Once or twice but less than half of trips <input type="checkbox"/> Greater than half of trips but not every trip <input type="checkbox"/> Every trip

Q7	<p>Select All of the restraints that your child uses when riding in a vehicle.</p> <p><input type="checkbox"/> Infant Carrier</p> <p><input type="checkbox"/> Rear-Facing Car Seat</p> <p><input type="checkbox"/> Forward-Facing Car Seat</p> <p><input type="checkbox"/> Built-in Car Seat/Booster</p> <p><input type="checkbox"/> High Back Booster With Seat Belt</p> <p><input type="checkbox"/> No Back Booster With a Seat Belt</p> <p><input type="checkbox"/> Seat Belt Without a Booster</p> <p><input type="checkbox"/> Other Restraint</p>
Q8	<p>If response to Q7 was a Car Seat or Booster Seat option, how did you learn to use your child's car seat or booster seat? Select ALL that apply.</p> <p><input type="checkbox"/> I just figured it out</p> <p><input type="checkbox"/> A friend/family member showed me</p> <p><input type="checkbox"/> I read the instruction manual</p> <p><input type="checkbox"/> I watched a video</p> <p><input type="checkbox"/> I went to a car seat installation program</p> <p><input type="checkbox"/> Other (list)</p>
Q9	<p>Where have you gone to find information about car safety for children? Select ALL that apply.</p> <p><input type="checkbox"/> Friends or family</p> <p><input type="checkbox"/> Magazine or books</p> <p><input type="checkbox"/> Internet or Web</p> <p><input type="checkbox"/> Daycare provider or teacher</p> <p><input type="checkbox"/> Doctor or nurse</p> <p><input type="checkbox"/> Police officer or firefighter</p> <p><input type="checkbox"/> Child passenger safety technician</p> <p><input type="checkbox"/> Religious leaders</p> <p><input type="checkbox"/> Nowhere or from no one</p>
Q10	<p>At your child's last regular checkup at (his/her) doctor's office, did you receive any specific information (written or spoken) about car seats, booster seat, or seat belts?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
Q11	<p>How often do you use a seat belt when you are:</p> <p>Q11a: Driving</p> <p><input type="checkbox"/> Never</p> <p><input type="checkbox"/> Sometimes but less than half of trips</p> <p><input type="checkbox"/> Greater than half of trips but not always</p> <p><input type="checkbox"/> Always</p> <p><input type="checkbox"/> Not applicable</p>

<p>Q11b: Riding as a passenger in the front seat</p> <p><input type="checkbox"/> Never</p> <p><input type="checkbox"/> Sometimes but less than half of trips</p> <p><input type="checkbox"/> Greater than half of trips but not always</p> <p><input type="checkbox"/> Always</p> <p><input type="checkbox"/> Not applicable</p> <p>Q11c: Riding as a passenger in the back seat</p> <p><input type="checkbox"/> Never</p> <p><input type="checkbox"/> Sometimes but less than half of trips</p> <p><input type="checkbox"/> Greater than half of trips but not always</p> <p><input type="checkbox"/> Always</p> <p><input type="checkbox"/> Not applicable</p>
--

Adapted from Macy et al. (2013)

Appendix C

Author's Permission

From: Macy, Michelle [mlmacy@med.umich.edu]

Sent: Wednesday, March 25, 2015 4:10 PM

To: Bell, Tracy

Cc: gfreed@umich.edu

Subject: Re: Survey instrument

Hello Tracy,

Thank you for your follow-up note. I apologize for not responding to your earlier request. I would be more than happy to have you to use and adapt the survey tool that we developed for our study "Disparities in Age- Appropriate Child Passenger Restraint Use Among Children Aged 1 to 12 Years" published in Pediatrics. There is not an official title for the survey tool. If you could reference our work in presentations and publications of your research I would appreciate it. Please let me know if you have additional questions.

Sincerely,

Michelle

Michelle L. Macy, MD, MS
Child Health Evaluation and Research (CHEAR) Unit
University of Michigan
300 North Ingalls Building, Room 6C13
Ann Arbor, MI 48109-5456
Email: mlmacy@umich.edu
Phone: 734.936.8338
Fax: 734.764.2599
www.chear.org

Appendix D

Flyer

You are invited to participate in a Child Passenger Safety Survey for Parents / Caregivers



Who: Tracy Bell, a graduate student at Gardner-Webb University, will distribute the survey.

What: You will be asked to complete an 11 item multiple-choice questionnaire. Your approximate time commitment is 10 minutes.

When: Drop in, June 10th or 11th between 4:00-6:00 PM

Where: Room 122

Why: This is a graduate research study to determine parent's knowledge of child passenger safety laws and the use of safety restraints.

Contact information: Please contact Tracy Bell at 864-978-4776 or via email at tbell4@gardner-webb.edu

Child passenger safety resources will be available.

Appendix E

Informed Consent Form

The Parents Knowledge of Child Passenger Safety Laws and Use of Safety Restraints

You are being asked to participate in a research study conducted by Tracia Bell, a Master of Science in Nursing student at Gardner-Webb University (GWU).

PURPOSE: The purpose of this study is to determine if there is an association between the parent's knowledge of child passenger safety laws and the use of child passenger safety restraints.

PROCEDURE: You are being asked to complete a demographic form and the Child Passenger Safety survey. Once you have completed this survey, you will have no further obligations to the study. The researcher will provide instructions on how to complete the survey. Your participation should take approximately 10 minutes.

VOLUNTARY PARTICIPATION: Participation in this study is voluntary. Your decision to participate or not to participate will in no way affect your current or future relationship with your child's daycare facility. You have the right to withdraw from the research study at any time without penalty. You also have the right to refuse to answer any question(s) for any reason without penalty.

CONFIDENTIALITY: The researcher is asking you to complete this survey anonymously. Please do not disclose any identifying information on the survey. All research data will be stored in the researcher's home in a locked file cabinet. All electronic data will be stored on the researcher's personal computer which is password protected. After completion of the study, all surveys will be given to the Hunt School of Nursing for storage. Surveys will be kept for 10 years in a secured location.

RISKS & BENEFITS: The Institutional Review Board at GWU has determined that participation in this study poses minimal risk to participants. There are no direct benefits associated with participation in this study. After completing the survey, if you have additional questions or concerns regarding your state's current law on child passenger safety restraints or have questions on installation/use of child passenger safety restraints please contact Penny Shaw, the Spartanburg SAFE KIDS coordinator at 864-560-6000.

If you have questions, want more information or have suggestions, please contact Tracia Bell, who may be reached at 864-979-4776 or at tbell4@gardner-webb.edu. You may also contact the principal investigator, Dr. Tracy Arnold at 704-406-4359 or at tarnold@gardner-webb.edu.

If you have any concerns about your rights, how you are being treated, or complaints regarding this study, benefits, or risks associated with being in this study please contact the Institutional Review Board for the Hunt School of Nursing at 704-406-4358.

CONSENT TO PARTICPATE:

Please retain this copy of the consent form for your records.

By completing this survey you are voluntarily consenting to participate in this research study. If you choose not to participate in this study, please discard this survey.

Appendix F

Parents Knowledge of Child Passenger Safety Laws and the Use of Safety Restraints

Debriefing Statement

The survey you have just finished was developed to explore if there is an association between the parents knowledge of child passenger safety laws and the use of child passenger safety restraints. The researcher is interested to see if the parent's awareness of the child passenger safety law improves safe practices of the parent in regards to use and installation of child safety seats.

Thank you for your participation in this research study. If you have any questions regarding this study, please contact Tracy Bell at tbell4@gardner-webb.edu. The research results will be presented via a poster presentation at Gardner-Webb University and the final document will be uploaded to ProQuest.