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The Relationship Between Low Socioeconomic Status and Mortality Rates of School Age Children Related to Motor Vehicle Accidents

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Running head: THE RELATIONSHIP BETWEEN LOW SOCIOECONOMIC STATUS AND MORTALITY RATES OF SCHOOL AGE CHILDREN RELATED TO MOTOR VEHICLE ACCIDENTS

The Relationship Between Low Socioeconomic Status and Mortality Rates of School Age

Children Related to Motor Vehicle Accidents

Rubi Calderon-Rodriguez

Spring 2020

NURS 4998 Honors Senior Thesis

Dr. Patricia Harris

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I want to express how eternally grateful I am for the unconditional support of my parents. Their love has molded me into the person I am today and has deeply influenced both where I want to go in life, and what I want to offer to society. My family are my roots. They keep me grounded and grant me strength. Without them and the love of God, I would not be where I am today, so I thank them.

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Abstract

The purpose of this study is to assess nurses' perceptions on the relationship between low socioeconomic status and high mortality rates of children due to motor vehicle accidents(MVAs). MVAs are the leading cause of death among children four years and older. Studies reviewed in this paper support that low socioeconomic status is associated with high child mortality rates caused by motor vehicle accidents. Factors contributing to these high mortality rates include: the lack of or improper use of restraints, low parental education attainment levels, black or Hispanic race, and environmental risks of low socioeconomic areas. A mixed methods study is conducted to examine pediatric and NICU nurses' perceptions on the relationship between low socioeconomic status and high mortality rates of children related to MVAs. Possible nursing interventions to increase the use of car seats primarily involving patient education, are discussed as well.

Keywords: low socioeconomic status, motor vehicle accidents, mortality rates, car seat

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Introduction

Every year an average of 12,175 children from birth to 19 years of age die from unintentional injury ("CDC Childhood Injury Report | Child Safety and Injury Prevention| CDC Injury Center", 2019). Common death-leading injuries include suffocation, drowning, and motor vehicle accidents. Of these, transportation, specifically motor vehicle related deaths, is the leading cause of death in all children. Children between the age of 5 to 19 are the age group with the highest prevalence of injury deaths due to motor vehicle accidents. (Centers for Disease Control & Prevention).

Thousands of children die each year due to reasons that are preventable. Unfortunately, a risk factor increasing the probability of death due to unintentional injury is not preventable, known as low socioeconomic class. In low-to-middle income countries motor vehicle accidents (MVAs) are a significant cause of pediatric morbidity (Schrodt, Huynh & Fitzgerald, 2018). The article, "Factors Associated With Poor Child Motor Vehicle Restraint on the USA–Mexico Border," states that, "Children from New Mexico and Mexico [have] the lowest rates of proper restraint and the highest injury severity scores"(Schrodt, Huynh & Fitzgerald, 2018).

Socioeconomic status also influences whether or not parents take measures to ensure car safety (Rok Simon, Korošec & Bilban, 2017). The relationship between low socioeconomic status and mortality rates due to unintentional injuries needs to be further assessed. This assessment may result in the identification of interventions that can benefit and possibly reduce the number of children dying per year from a motor vehicle accident.

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Problem Statement

For most people in the United States, driving is part of our everyday lives that consumes much of one's time. It is such a routine that one does not deem it as a danger to oneself or to our loved ones. According to the Center for Disease Control (Center for Disease Control and Prevention, 2014), unintentional injury, specifically MVAs, is the leading cause of death amongst school age children in the United States. MVAs rank as number one out of the ten leading causes of unintentional deaths followed by unintentional drowning, unintentional fire/burn, homicide firearm, unintentional suffocation, unintentional other land transport, homicide suffocation, homicide due to cuts or piercing, and unintentional firearm (Centers for Disease Control & Prevention, 2014).

Despite the evolution of child passenger safety over the past decade, motor vehicle crashes are still the leading cause of death among children four years of age and older. In 2017, 675 children 12-years-old and younger died and 116,000 were injured in MVAs that could have been prevented. Of the 675 children that died, 35% were not buckled up (Centers for Disease Control and Prevention, 2019). According to the Centers for Disease Control, risk factors contributing to motor vehicle accident related deaths include: no restraint use, being either black or Hispanic, being passenger of alcohol impaired drivers, riding with unbelted drivers, and incorrect restraint use (Centers for Disease Control and Prevention, 2019).

In Dr. Sam Harper's article titled *Trends in Socioeconomic Inequities in Motor Vehicle Accident Deaths in the United States, 1995-2010*, he notes that traffic accident related injuries and fatalities are more common in regions of low income and low education. Blue collar, lower status occupation, and lower educational levels are associated with increased risk of motor

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vehicle accident related death (Harper, Charters & Strumpf, 2015). Although the incidence of motor vehicle accident related deaths are decreasing, social inequities have remained the same. Thousands of children's lives are ended early due to a cause that is preventable, but unfortunately the root of the problem, low socioeconomic status, is not an easy fix. Because socioeconomic status will typically remain the same, interventions can and should be implemented to decrease the prevalence of motor vehicle accident related deaths in school aged children from low income families. Nurses are in a prime position to provide community-based education.

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Literature Review

The research for this paper was found using Dominican's Iceberg database, and google scholar. Based on similarities among the articles found, the subheadings contrived include restraint use, parental education, racial differences, prevention policies, environmental risks, and the effects of non-restraining children. Nursing interventions are also outlined that would help and decrease the mortality rates due to motor vehicle accidents.

Restraint Use

Low-to-middle income countries have high pediatric morbidity rates due to motor vehicle accidents. Schrodt, Huynh, and Fitzgerald's (2018) article, *Factors Associated with Poor Child Motor Vehicle Restraint on the USA-Mexican Border* focused on the car seat use in children on the US-Mexico border. The researchers found that 80% of children were inappropriately restrained, and children from both New Mexico and Mexico had the lowest rates of proper restraint use, and the highest injury severity rates. There is a great concern for effective restraint use on the US-Mexico border, as there is in all low socioeconomic populations.

The accurate use of seat belts and restraints is the most effective way to save lives in MVAs (Schrodt, Huynh & Fitzgerald, 2018). Although seatbelt use has increased significantly over the years, the United States still has the highest rate of non-seatbelt use. Han's study 2016, *Non-seatbelt Use and Associated Factors Among Passengers* found a significantly lower percentage of seatbelt use among passengers whose drivers did not wear seatbelts compared to those who did where them. The driver's attitude also has a significant impact on the passenger's seat belt use as well, demonstrating that the driver has the greatest influence on the passenger's seat belt use.

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Drivers are the children's role models. An additional article that supports the relationship between the driver's seat belt use influencing the passenger's is White's (2018) article *Traffic, Injuries, Children, Adolescents, and Demographics*. Children's safety is dependent on the driver's/care-taker ensuring they are properly restrained. Her findings indicate that when drivers do not use their seat belts, 70% of children are also not restrained. A child's safety is dependent upon their care-taker's actions. Their restraint use is directly related to their driver's.

Parental Education

In *The Influence of Parental Education and Other Socio-Economic Factors on Child Car Seat Use*, Rok Simon, Korosec, and Bilban (2017) conducted a study to determine whether or not the level of parental education influences the use of car seats during short car rides. Participants of this study were parents who brought their three year old children into 41 pediatric outpatient sample study clinics for a routine well child visit. A self administered questionnaire was given to the parents, and its findings were in efforts towards developing programs for safety developments to reduce health inequities due to injuries. The study found that indeed the level of educational attainment does influence parent's use of car seats, and that it is more likely for a mother with less college education to not use a car seat than a mother with a university education. Parents of low socioeconomic status are not aware of the importance of ensuring child safety because they tend to have inaccurate beliefs, and are less likely to believe that child injuries are preventable. Less education leads to worse material status, less knowledge, and a greater likelihood to consult with less reliable sources of information regarding child injury prevention (friends and relatives). (Rok Simon, Korošec, & Bilban, 2017)

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The article nicely describes how and why children of low socioeconomic status are at greater risk safety-wise. Poverty and lack of resources plays a significant role in high mortality and morbidity rates. There is an increased risk of injury because these children reside in poor living environments, exposing them to a wider range of hazards. Parents also have less knowledge and time to actively privative safety measures. Furthermore, living on a low income makes it difficult to buy the devices crucial to children's safety.

One item in particular that stood out to this researcher was that this article mentioned but did not emphasize how car seat use is influenced by state regulations in Slovenia. With data collected from their study Rok Simon, Korošec, and Bilban (2017) aimed to develop safety counseling programs with provision and installation of free car seats. These interventions outlined in the research article promote opportunity for nursing practice interventions involving patient teaching as well.

Racial Differences

Disparities in Age-Appropriate Child Passenger Restraint Use Among Children Aged 1 to 12 Years by Macy, Cunningham, Resnicow, and Freed (2014) also discusses racial disparities in proper use of restraints and car seats. White parents also had higher rates of age-appropriate restraint use compared to non-white parents. This study found that efforts are needed to eliminate racial disparities in age-appropriate restraint use for children.

Another article focused on racial disparities is *Vital Signs: Restraint Use and Motor Vehicle Occupant Death Rates Among Children Aged 0-12 Years*, written by Sauber-Schatz, West, and Bergen (2015). This study analyzed a decade's worth of data on child motor vehicle accident deaths, to determine the porportion of restraint use and discren differences in age, sex,

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and race/ethnicity. Data of children between the ages 0-12 was collected, collected from the U.S. Census Bureau. Race/ethnicity was divided into the following five categories: non-Hispanics whites, blacks, American Indians/Alaska Natives, Asian/Pacific Islanders, and Hispanics or all races. Because American Indians/Alaska Natives had less than 20 deaths, they were not included in this analysis.

The number of deaths due to MVAs has decreased. There has been a total of 9,182 of child deaths from their time of birth to twelve years old between 2002-2011, and a total of 1,409 between 2009-2010. There are significantly greater death rates among black and Hispanic children aged 0-12, with greater rates of unrestrained deaths compared to white children. Speculations were made that socio-economic status may be a contributing factor for greater death rates among racial/ethnic groups. Children with Medicaid were more often black and were less likely to be restrained, suggesting that children with an economic disadvantage are more likely to be unrestrained. From 2002 to 2011 restraint use increased but it varied among race/ethnicity. Restraint use increased among white children between the ages of 1-12, but decreased among Hispanic children of the same age. During this same period restraint use for black children increased between the ages 1-7, but decreased for those 8-12 years of age.

It is noted in the study above that numerous child deaths are preventable with the use of restraints especially because of its known effectiveness. This researcher believes that Sauber-Schatz, West, and Bergen's study (2015) identified a large root cause of high mortality rates due to MVAs, being low socioeconomic status. This data grants opportunity for future studies to investigate possible interventions to further decrease the number of deaths caused by

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motor vehicle accidents, and figure out why there is a decrease in restraint use among older children of ethnic backgrounds.

As in prior articles, state regulations are noted to be a strong influence in the application of restraint use. Recent studies have found that five states that increased their required age for a booster seat to seven or eight years old has decreased the number of fatal injuries by 17%. (Sauber-Schatz, West, and Bergen, 2015) This puts into question, are the consequences of not abiding to laws such as fines of more importance to parents than the safety and wellbeing of the child. And puts into question why this is a greater influencer for the parents. When living on a low income, budget is important to consider how costs must be prioritized. These families already struggle with paying for the basic needs, so it would make sense for them to be extra cautious in provoking additional and unnecessary expenses.

Prevention Policies

A significant influential factor in the United States on parents implementation of restraints are prevention policies. Pinet-Peralta's article (2018), *The Effect of Primary Prevention Policies on Mortality from Motor Vehicle Crashes Among Children in the United States* focuses on the effects injury prevention laws have on mortality rates due to motor vehicle accidents. Each year there are 4500 children die in MVAs in the U.S. with more than \$40,000 and \$240 billions in productivity losses. The majority of deaths in this study were found to be associated with the improper use of restraints, alcohol consumption, environment, and high speeds.

The author found that the states that had fines greater than \$50 for not using restraints, used red light cameras, and had graduate license programs with a minimum age requirement of 16 instead of 14 had lower mortality rates. Pinet-Peralta (2018) notes that injury risk is

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influenced but the physical world children live in. This includes where they live, play, their care-takers they are dependent on, and their socioeconomic status.

This study aimed to evaluate the effectiveness of primary prevention policies such as: restraint laws, licensing programs, speed cameras, driving under the influence laws, and environmental modification on reducing the mortality rates of children from motor vehicle accidents. Children are a vulnerable population, with limited control over their environment. Their safety is influenced by where they live, their socioeconomic status, and the people they depend on for safety. More money is going into medical expenses and the costs of injuries than money going into preventing injuries. State laws are of great influence on parent's use of safe practices when conducting an automobile with their children on board. Possible preventative nurse implementations may include educating parents on the consequences that may face when state laws are not obeyed. Being a strong influencer, it is likely to serve as an effective intervention. It is unfortunate that the well being of their children is not a great enough influence alone to execute safe driving practices, but if insight on state regulations is what is effective, then may it be carried out.

Environmental Risks

Children are also in danger of unintentional injury caused by MVAs as pedestrians, and their environment plays a large role as a contributing factor. *Environmental Risk Factors Contributing to Traffic Accidents in Children: a Case-Control Study* by Jamshidi, Moradi, and Majdzadeh (2016) aimed to identify environmental risk factors related to road accidents in Tehran, Iran. In this case controlled study, the subjects were pedestrians aged 5-15 who were injured in a traffic accident. There were a total of 280 cases with 180 boys and 100 girls. Around

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48.6% of children had fractures in the lower part of their bodies, 20% had fractures in their scalp bones, and 20% had a length of stay greater than four days in the hospital.

The child pedestrian road crashes were commonly linked to low socioeconomic status, living in high density areas, roads not separated according to different vehicle types, and areas near major highways and roads. Additional environmental factors pertaining to child pedestrian and traffic congestion are parking lots near residence areas, width of alleys streets, traffic speed, accessible pedestrian bridges, and the distance between the children's school and home.

A common theme among the children involved in the unintentional injuries was the lack of supervision. Some children were playing unsupervised in the absence of safe places. The study revealed that the majority of accidents happened when the children were on their own, without the supervision of adults. Most of the children were not injured on their trips to school, rather the accidents occurred while they were walking.

With the association of low socioeconomic status mentioned in this study, the researcher of this paper related the lack of supervision to the typical lifestyle of a family with a low socioeconomic background. Low income families often earn minimum wages, have to work multiple jobs, and cannot afford childcare. Many times these children are latchkey kids, and have to fend for themselves while their care-takers are off at work. Public health nurses can organize community events where their voices can reach the parents of these children reminding them of the dangers their children can face when unsupervised. They can also work with local schools to develop after school programs run by college or high school students so that children don't have to walk back home by themselves, buying parents some extra time to later pick up their children.

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These events may also serve parents with the opportunity to get to know each other and possibly have a parent of their child's class-mate take them back home.

Effects of Non-restraining

Survivors of MVAs may also face life changing consequences. Kuhn, Corlis, and Damashek (2018) focused on the development of Post Traumatic Stress Disorder due to MVAs in children in their article, *Children and Motor Vehicle Accidents: Assessment, Early Intervention, and Evidence-Based Treatments for Post-Traumatic Stress Disorder*. Consequences of unintentional injury can either be physical or emotional, with this article focusing on post-traumatic stress disorder , an emotional life changing consequence. Between 10% and 35% of children who were in MVAs develop PTSD (Kuhn, Corlis & Damashek, 2018). Risk factors associated with developing PTSD after a motor vehicle accident include the child's caregiver's level of PTSD, length of stay at the hospital, invasive medical procedures, and low socioeconomic status.

Translating the Cognitive Model of PTSD to the Treatment of Very Young Children: A Single Case Study of an 8-Year-old Motor Vehicle Accident Survivor, by Goodall, Chadwick, McKinnon, Werner-Seidler, Meiser-Stedman, Smith, and Dalglish (2017) focused on Dylan, an 8 year old child who suffered from PTSD after a motor vehicle accident. Dylan, driven by his father, was a front seat passenger going home from soccer practice when the accident happened. There were no major injuries, only his father suffered from a minor injury to his knee. After the incident, Dylan had an inaccurate and exaggerated recollection of what occurred. His verbal narrative was disjointed and he only understood the end result of the crash.

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Dylan started having problems both at home and at school. His sleep patterns were disturbed, no longer being able to sleep on his own, taking up hours to fall asleep, insisting his father sleep with him, and having frequent nightmares. He became more physically aggressive with his siblings at home and other students at school. It became difficult for him to concentrate in class, and had outbursts of anger manifested through trashing the classroom and overturning tables. His poor behavior in school led to a referral to Child and Adolescent Mental Health Services from the school.

Before the referral to Child and Adolescent Mental Health Services, Dylan's father had long had a concern his son had attention deficit hyperactivity disorder. Dylan met the diagnostic criteria for PTSD, ADHD, and other comorbidities. His PTSD was manifested through intrusions, avoidance, hyperarousal, and a disorganized understanding of the event. The additional comorbidities diagnosed included: oppositional defiant disorder, conduct disorder, major depressive disorder, and separation anxiety disorder. These comorbidities emerged weeks after the crash, and are thought to be due to Dylan's difficulties processing both his anger and fear.

Children are a vulnerable population. They do not have fully developed expressive language skills and have limited cognitive abilities. Those who experience nonabusive traumas are profoundly affected and develop PTSD (Goodall et al., 2017). When PTSD is left untreated it can become chronic and disrupt a child's normal development. A child with PTSD has difficulty coping with frustration, intense fear, regression in development, sleep disturbances, social withdrawal, and more behavioral problems.

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Dylan's story is only one of many cases. His story serves as a lesson for parents, which should encourage them to practice safe driving. In this case the damages from the motor vehicle accident were not severe, yet they caused great damage to Dylan with the development of multiple comorbidities. The consequences to an even greater or more damaging motor vehicle accident may be even more detrimental. The damage may be more extensive for children who have a long stay in the hospital, who's parent dies, or who's parent(s) have a long stay at the hospital. All parents want the best for their children and educating them on what can happen to their children may influence them to implement better safety practices when driving.

Conclusion

The articles reviewed in this literature review support that low socioeconomic status is associated with high child mortality rates caused by motor vehicle accidents. Lack of or improper restraint use, lower levels of parental education, being of black or Hispanic race, and environmental risks of low socioeconomic areas are all contributing factors of high mortality rates caused by motor vehicle accidents. State traffic laws have significantly decreased the overall number of deaths due to motor vehicle collisions, yet the number of occurrences remains the highest in the United States. Parents should be aware of both the physical and emotional effects that are possible for children that survive motor vehicle accidents.

Nursing interventions applicable in efforts to decrease the mortality rates may primarily involve patient education and community outreach. Community gatherings can be organized by public health nurses where they can have various pamphlets or brochures of information. The flyers with primary prevention information can also be distributed at the doorsteps of households

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in communities of low socioeconomic status, for those community members that cannot attend the events.

Teachings may include the physical and emotional effects on children who experience motor vehicle accidents, guidelines on proper restraint use that is age appropriate, and information on the fines they can get for not properly restraining their children. Public health nurses could also work with primary schools in their community to develop after school programs for children that cannot be picked up when school ends and usually walk back home alone. This can buy some time for parents that cannot pick up their children immediately, and although it does not fix the problem entirely, and may not aid all parents it may make a difference for some.

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Theoretical Framework

Born in Florence, Italy in 1820 Florence Nightingale, the founder of modern nursing, developed the Environment Theory of Nursing. The development of her theory was inspired by her work during the Crimean War. It was during this time that she saw a correlation between patient mortality and their living conditions. Nightingale's work improved the unsanitary conditions of a British base hospital, reducing the number of deaths (Biography, 2019).

According to this model a patient's environment affects his or her health, and its focus is on taking care of the patient's environment in order to reach health goals and cure illnesses. The seven assumptions made by this theory include: natural laws, mankind can achieve perfection, nursing is a calling, nursing is an art and a science, nursing is achieved through environmental alteration, nursing requires a specific educational base, and nursing is distinct and separate from medicine. The ten major concepts outlined in the Environmental Theory, Nightingale's Canons, include: ventilation and warming, light and noise, cleanliness of the area, health of houses, bed and bedding, personal cleanliness, variety, offering hope and advice, food, and observation.(Nursing Theory, 2019) When any of these areas is lacking, the patient's health is at risk. It is the nurse's role to alter or manipulate a patient's environment to create optimal conditions for the patient's body to heal itself. Nightingale found that alterations in an individual's environment can improve a patient's condition.

An individual's socioeconomic status is a great determinant of Nightingale's Canons and can have an effect on each factor's state. An individual's environment encompasses more than solely where they live. Means of transportation is also a part of an individual's everyday life, which comes along with its own risks and safety measures that may or may not be implemented.

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Children especially, and their dependence on their guardians need additional measures to ensure safety. Socioeconomic status plays a big role in what parents are able to offer and provide for their children. If parents are not implementing safety measures, children's lives are put in danger.

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Pilot Study

The research question proposed earlier in this paper was the relationship between low socioeconomic status and high mortality rates of school age children related to motor vehicle accidents. The ten articles reviewed in this study's literature review support that low socioeconomic status is associated with high mortality rates caused by motor vehicle accidents. Factors contributing to high mortality rates caused by MVAs include: lack of or improper restraint use, lower parental educational attainment, being of black or Hispanic race, and environmental risks or low socioeconomic areas. Despite traffic laws significantly decreasing the overall number of deaths due to motor vehicle accidents, the number of occurrences remains the highest in the United States.

Nursing implications proposed to decrease the mortality rates may primarily involve patient education and community outreach. Because community education is the primary intervention, this researcher is conducting a mixed methods study investigating pediatric and NICU nurses' view on car seat education discrepancies among social classes, accessibility of car seat education, and what they view as best teaching practices.

Jean Orlando's theory, The Nursing Process, was the theoretical framework used in this study. This theory states that the role of the nurse is to identify what a patient's immediate needs are in order to help the patient (Nursing Process Theory, 2020). Because each patient is different, nurses must utilize their own insight and perceptions in order to find out what the patient truly needs. Assessment, diagnosis, planning, implementation, and evaluation are the steps of the process, some of which are incorporated in my study. With the finding of this research further studies may be conducted to implement the best practices identified. The results of those

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interventions may then be evaluated and the cycle may continue if desired results are not obtained.

Research Method

The subjects for this mixed methods study are registered nurses that work in pediatrics or the NICU, aiming for a target sample size of 20. Dominican's pediatric clinical instructors were recruited as potential participants. Requirements for the study include: being 18 years of age or older, working in either pediatric or NICU, and possessing a Registered Nurse license. Faculty members Dr. Beebe, Dr. Harris, and Dr. Linnard-Palmer helped distribute the survey to colleagues who work in either specialty as well. Snowball sampling was done as well, by asking those who received the link to the survey to send it out to other pediatric or NICU nurses they know.

Each Participant was sent a letter of introduction (Appendix A). This letter included the goal of the study, link to the survey posted on Qualtrics, and both my faculty advisor, Dr. Harris, and my contact information. It was indicated in the letter that submission of the survey implied participant consent, and asked that no identifying information be provided. Survey responses were kept confidential. Qualtrics data collection setting was adjusted so that email addresses and other identifying information were not collected. Only the researcher viewed the data stored under a file owned by this researcher, on a password protected computer.

Participants had the option to stop filling out the survey at any time, and were asked to spend approximately 15 minutes of their time to complete it. This study gives participants the opportunity to analyze what they think are best practices for patient education regarding car seat

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safety. With that, they are able to put their thoughts into actions and try to implement more effective methods of teaching depending on the population they are working with.

Data Collection

Demographics were taken on nine participants including age, race/ethnicity, number or years practicing, specialty, and their primary employment setting. A likert scale with nine items was also included with answer choices ranging from strongly disagree to strongly agree. The questions assessed nurses' view on difference in car seat accessibility among social classes, the risk of knowledge deficit regarding car seat use in parents of low socioeconomic status, their employment setting's efficacy in providing sufficient car seat education, the need for teaching adjustments depending on an individual's socioeconomic status, their standpoint on their own capability to provide car seat education, and their ability to obtain information on free car seats. Participants were asked to rank written information, group meetings, individual teaching, and multimedia from most to least effective, and its accessibility to parents of low socioeconomic status in teaching car safety. The last free response question asked for any ideas on best teaching practices on the matter.

Results

All nine participants were females working in the acute hospital setting, with the majority identifying as White or Caucasian. There were a total of five NICU and four pediatric nurses. Two nurses had more than 25 years of practice, and the rest had between zero to five years. Of those nine participants seven answered the survey questions. More than half of the participants strongly agree that teaching approaches must be adjusted depending on an individual's socioeconomic status, parents of low socioeconomic status have less access to car seat education,

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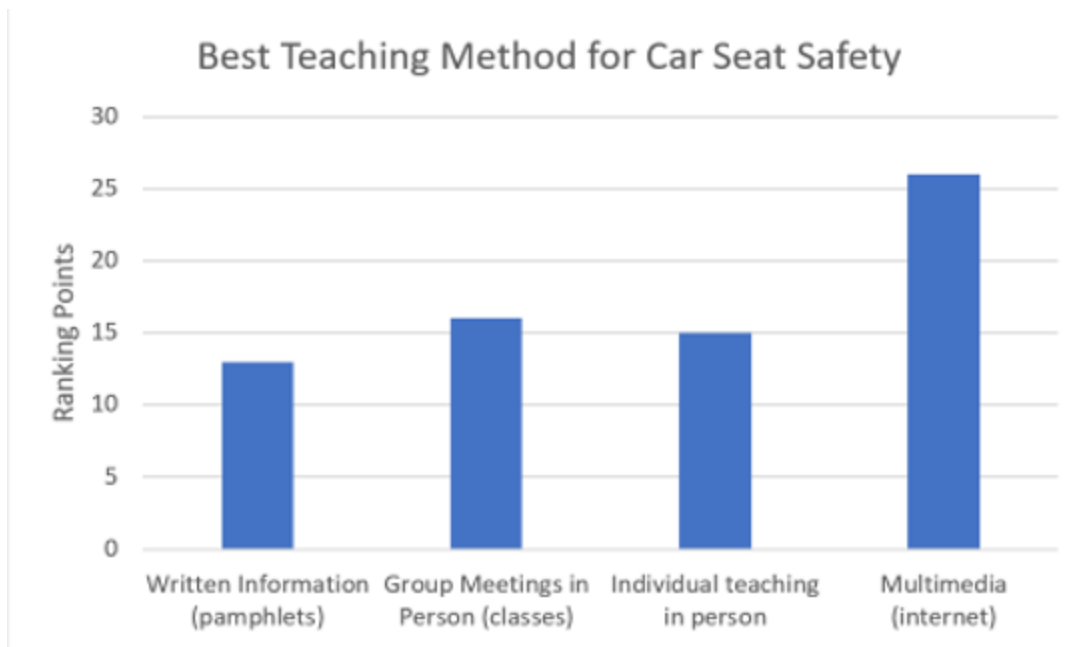
parents of low socioeconomic status are at risk for knowledge deficit in regards to proper car seat use, implementation of car seat education with every well child's visit would be beneficial, and healthcare professionals in my employment setting provide sufficient car seat education to parents with children of all ages.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Teaching approaches must be adjusted depending on an individual's socioeconomic status	0.0%	14.3%	0.0%	28.6%	57.1%
Parents of low socioeconomic status have less access to car seat education.	0.0%	14.3%	14.3%	57.1%	14.3%
Parents of low socioeconomic status are at risk for knowledge deficit regarding proper car seat use	0.0%	0.0%	14.3%	57.1%	28.6%
It is in the child's best interest for nurses to be educated in proper car seat use.	0.0%	0.0%	0.0%	14.3%	85.7%
Implementation of car seat education with every well child's visit would be beneficial.	0.0%	0.0%	0.0%	42.9%	57.1%
I know where to obtain information on free car seats for parents who ask	14.3%	0.0%	0.0%	42.9%	42.9%
Healthcare professionals in my employment setting provide sufficient car seat education to parents with children of all ages.	0.0%	14.3%	28.6%	57.1%	0.0%
Healthcare professionals do not offer enough car seat education for parents with children of all ages.	0.0%	57.1%	14.3%	14.3%	14.3%
As a nurse I feel capable of teaching parents about proper car seat use for any age group of children.	0.0%	14.3%	14.3%	42.9%	28.6%

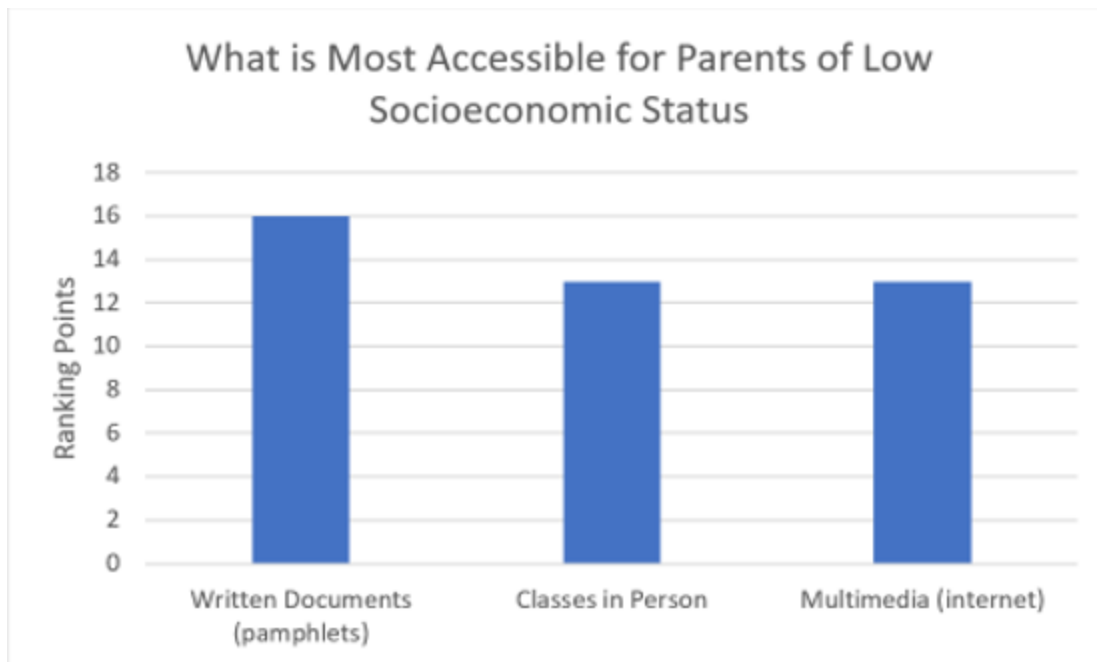
Note: Summary of Likert Scale responses.

The majority of nurses ranked multimedia (internet) as the best teaching method for car safety, and written information (pamphlets) as the least effective in teaching. Participants also indicated that the most accessible resources for parents of low socioeconomic class are written documents, what they consider the least effective teaching method.

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Note: Summary of responses ranking best teaching methods for car safety education.



Note: Summary of responses ranking what is most accessible for parents of low socioeconomic status.

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Six out of seven participants listed their thoughts on best practices to provide car seat education. Key responses were compiled and one common theme identified was language barriers. One participant shared that, “Parents are required to watch a car seat safety video but it’s only available in English or Spanish.” Another participant believes, “Materials need to be provided in a myriad of languages with a qualified interpreter.” One comment correlated with the majority of participants’s beliefs that multimedia is the best teaching method suggesting, “A public awareness and education campaign would be beneficial (such as a public service announcement on TV).”

Data Analysis

Descriptive statistics was used to analyse the quantitative data using Qualtrics data analysis and reports features, and Microsoft Excel. Both standard deviations and variances were analyzed for each likert scale item. One pediatric nurse chose what the researcher would classify as “unfavorable responses”. This nurse did not believe they were capable of teaching parents proper car seat use for any age group of children, strongly agreed that healthcare professionals do not offer enough car seat education to parents, and did not know how to obtain information on free car seats. This participant's responses created a greater standard deviation and variance for those questions. Results from this study were dramatized by the fact that there is such a small sample size.

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	Mean	Standard Deviation	Variance
Parents of low socioeconomic status have less access to car seat education.	3.71	0.88	0.78
Parents of low socioeconomic status are at risk for knowledge deficit regarding proper car seat use	4.14	0.64	0.41
Healthcare professionals in my employment setting provide sufficient car seat education to parents with children of all ages.	3.43	0.73	0.53
Healthcare professionals do not offer enough car seat education for parents with children of all ages.	2.86	1.12	1.27
Implementation of car seat education with every well child's visit would be beneficial.	4.57	0.49	0.24
Teaching approaches must be adjusted depending on an individual's socioeconomic status	4.29	1.03	1.06
As a nurse I feel capable of teaching parents about proper car seat use for any age group of children.	3.86	0.99	0.98
It is in the child's best interest for nurses to be educated in proper car seat use.	4.86	0.35	0.12
I know where to obtain information on free car seats for parents who ask	4	1.31	1.71

Note: Analysis of Likert Scale responses.

Language barriers should not be the reason why parents are not receiving the education they need to ensure the safety of their child. Our society has advanced enough technologically where these services should be easily accessible. Healthcare settings should have resources available for people of all backgrounds to ensure that everyone receives the same quality of care. With three out of the six responses being about language barriers, it is something that requires more attention.

Discussion of Findings

This study analyzed both qualitative and quantitative data, and all participants had all inclusion criteria required in the study. All participants were asked the same questions and were not given a limit as to how long their responses can be. Limitations to this study include its representativeness, small sample size, lack in sample diversity, and reliability with it utilizing a survey. There were no male participants, and all of those who were part of the study were from northern California. Although self administered questionnaires ensure better anonymity for

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participants to be more open in expressing themselves, it also opens the possibility for misclassifications. Participants may have not been completely honest by choosing an answer choice they may have thought is socially desirable. Participants' specialty, years of practice, and different backgrounds may have created a bias on behalf of the topic which may have influenced their responses as well.

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Conclusion

Motor vehicle related deaths are the leading cause of death of all children. Articles reviewed support that low socioeconomic status is associated with high mortality rates of children caused by MVAs. Contributing factors: lack of or improper restraint use, lower parental education attainment levels, being black or Hispanic race, environmental risks of low socioeconomic areas. Identification of best teaching practices can possibly reduce the number of children dying per year from motor vehicle related accidents, and nurses are in a prime position to provide parents accurate education.

This study analyzed pediatric and NICU nurses' view on car seat education discrepancies among social classes, accessibility of car seat education, and what they view as best teaching practices. Most participants agree that written information is the worst teaching method, yet it is the most accessible for parents of low-socioeconomic status. The majority of suggested teaching practices aim to break language barriers in providing accurate car seat education to parents of low socioeconomic status.

This study has identified what educational barriers need to be broken, and what nurses view may be the best way to overcome them. Further investigation may look to see if multimedia is the best way to educate parents, and if having access to education tools in more languages other than English and Spanish is effective. Parents may have all the information on proper restraint use, yet may not be compliant with the safe practices. There also needs to be further research on how to deliver education through multimedia platforms to parents of low socioeconomic status, when written platforms are deemed as least effective yet most accessible to them. Is there a way to improve the efficacy of written information if education through

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multimedia cannot be provided? Would a more visual approach with more pictures and less words be more effective?

Participants' insights may be a step towards decreasing the mortality rates of school age children due to MVAs. With further studies, potential benefits in clinical practice involves the implementation of best teaching practices for parents of all social classes on the subject of proper car seat use.

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References

Biography. (2019). Retrieved 28 November 2019, from <https://www.biography.com/scientist/nightingale>

Centers for Disease Control & Prevention. (2014). Ten leading causes of death and injury charts: Causes of death by age group, causes of injury death: Highlighting unintentional injury. Retrieved from www.cdc.gov/injury/wisqars/leadingcauses.html.

Biography. (2019). Retrieved 28 November 2019, from <https://www.biography.com/scientist/florence-nightingale>

Centers for Disease Control and Prevention. (2019). Road Traffic Safety | Child Safety and Injury Prevention| CDC Injury Center. Retrieved 26 September 2019, from https://www.cdc.gov/safechild/road_traffic_injuries/index.html

CDC Childhood Injury Report | Child Safety and Injury Prevention| CDC Injury Center. (2019). Retrieved 20 September 2019, from https://www.cdc.gov/safechild/child_injury_data.html

Durbin, D. (2011). Policy Statement-Child Passenger Safety. Retrieved 26 September 2019, from <https://pediatrics.aappublications.org/content/pediatrics/early/2011/03/21/peds.2011-0213.full.pdf>

Goodall, B., Chadwick, I., McKinnon, A., Werner-Seidler, A., Meiser-Stedman, R., Smith, P., & Dalgleish, T. (2017). Translating the Cognitive Model of PTSD to the Treatment of Very Young Children: A Single Case Study of an 8-Year-Old Motor Vehicle Accident Survivor. *Journal Of Clinical Psychology*, 73(5), 511-523. doi: 10.1002/jclp.22449

LOW SOCIOECONOMIC STATUS AND MOTOR VEHICLE ACCIDENT MORTALITY RATES

Han, G. (2016). Non-seatbelt use and associated factors among passengers. *International Journal Of Injury Control And Safety Promotion*, 24(2), 251-255. doi:

10.1080/17457300.2016.1170042

Harper, S., Charters, T., & Strumpf, E. (2015). Trends in Socioeconomic Inequalities in Motor Vehicle Accident Deaths in the United States, 1995–2010. *American Journal Of Epidemiology*, 182(7), 606-614. doi: 10.1093/aje/kwv099

Jamshidi, E., Moradi, A., & Majdzadeh, R. (2016). Environmental risk factors contributing to traffic accidents in children: a case-control study. *International Journal Of Injury Control And Safety Promotion*, 24(3), 338-344. doi: 10.1080/17457300.2016.1183031

Kuhn, J., Corlis, M., & Damashek, A. (2018). Children and motor vehicle accidents: Assessment, early intervention, and evidence-based treatments for post-traumatic stress disorder. *Int J Child Adolesc Health*.

Leung, L. (2019). Validity, reliability, and generalizability in qualitative research. Retrieved 1 December 2019, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4535087/>

Macy, M., Cunningham, R., Resnicow, K., & Freed, G. (2014). Disparities in Age-Appropriate Child Passenger Restraint Use Among Children Aged 1 to 12 Years. *PEDIATRICS*, 133(2), X10-X10. doi: 10.1542/peds.2013-1908d

Nursing Process Theory. (2020). Retrieved 12 May 2020, from <https://www.nursingprocess.org/Nursing-Process-Theory.html>

Nursing Theory. (2019). Nightingale's Environment Theory. Retrieved 22 October 2019, from <http://nursing-theory.org/theories-and-models/nightingale-environment-theory.php>

LOW SOCIOECONOMIC STATUS AND MOTOR VEHICLE ACCIDENT MORTALITY RATES

- Pinet-Peralta, L. (2018). The effects of primary prevention policies on mortality from motor-vehicle crashes among children in the United States. *Journal Of Safety Research*, 66, 89-93. doi: 10.1016/j.jsr.2018.06.006
- Rok Simon, M., Korošec, A., & Bilban, M. (2017). The influence of parental education and other socio-economic factors on child car seat use. *Slovenian Journal Of Public Health*, 56(1), 55-64. doi: 10.1515/sjph-2017-0008
- Sauber-Schatz, E., West, B., & Bergen, G. (2014). Vital Signs: Restraint Use and Motor Vehicle Occupant Death Rates Among Children Aged 0–12 Years — United States, 2002–2011. *Morbidity And Mortality Weekly Report*. Retrieved from <http://www.cdc.gov/mmwr>
- Schrodt, A., Huynh, T., & Fitzgerald, T. (2018). Factors Associated With Poor Child Motor Vehicle Restraint on the USA–Mexico Border. *Journal Of Trauma Nursing*, 25(2), 75-82. doi: 10.1097/jtn.0000000000000347
- White, K. (2018). Traffic, Injuries, Children, Adolescents, and Demographics. *Int J Child Adolesc Health*.

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Appendix A

Dear Study Participant,

My name is Rubi Calderon-Rodriguez and I am an undergraduate Nursing major at Dominican University of California. I am conducting a research project as part of my senior thesis requirements, and this work is being supervised by Patricia R.E. Harris, Ph.D., Assistant Professor of Nursing at Dominican University of California.

My study examines **pediatric and NICU nurse's** view on car seat education discrepancies among social classes, accessibility of car seat education, and what they view as best teaching practices.

You are being asked to participate in this survey research because you have been identified as working in NICU and pediatric setting. You must be 18 years or older to participate.

Participation in this minimal risk study involves answering the survey questions to the best of your ability, being as honest as possible. Please note that your participation is completely voluntary, and you are free to withdraw your participation at any time. Your submission of the survey implies consent in this study. Please do not put your name or any other identifying information, such as the name of your workplace on your survey form. In the unlikely event, an identity becomes known, all information will be held as completely confidential. Completion of this survey is likely to take approximately 15 minutes of your time.

To participate, go to the link:
https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_9yKkWHugRd6lcCF

For any questions please contact me at the email address below, or you may contact my faculty advisor, Dr. Patricia Harris, at patricia.harris@dominican.edu or 510-260-7307. In addition, you may contact the Dominican University of California Institutional Review Board for the Protection of Human Participants (IRBPHP), which is concerned with protection of volunteers in research projects. You may reach the IRBPHP Office by calling (415) 482-3547 and leaving a voicemail message, or FAX at (415) 257-0165, or by writing to IRBPHP, Office of Associate Vice President for Academic Affairs, Dominican University of California, 50 Acacia Avenue, San Rafael, CA 94901.

Thank you in advance for your

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participation.

Sincerely,

Rubi
Calderon-Rodriguez

Email address:

rubi.calderon-rodriguez@students.dominican.edu

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Appendix B

Survey

Demographics

- Age:
- Gender:
- Years of nursing practice:
- Current specialty in nursing: Pediatrics NICU
- Years working as a pediatric or NICU nurse
- Race/ethnicity:
- Primary employment setting: Acute Care Hospital Community Clinic Home Health School

Mark Your Level of Agreement or Disagreement With The Following Statements:

Parents of low socioeconomic status have less access to car seat education.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Parents of low socioeconomic status are at risk for knowledge deficit, in regards, to proper car seat use	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Healthcare professionals in my employment setting provide sufficient car seat education to parents with children of all ages.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Healthcare professionals do not offer enough car seat education for parents with children of all ages.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Implementation of car seat education with every well child's visit would be beneficial.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

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Teaching approaches must be adjusted depending on an individual's socioeconomic status	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
As a nurse I feel capable of teaching parents about proper car seat use for any age group of children.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
It is in the child's best interest for nurses to be educated in proper car seat use.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I know where to obtain information on free car seats for parents who ask	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Ranking Question

Which is the best teaching method for car seat safety? Drag and drop to rank the following from most to least effective (1 being the most and 4 being the least).

1. Written information (pamphlet)
2. Group meetings in person (classes)
3. Individual teaching in person
4. Multimedia (internet)

For people of low socioeconomic status, rank the following from most to least accessible (1 being the most and 3 being the least)

1. Written documents such as pamphlets (may be offered at clinics, foodbanks, local community centers, government program locations like WIC)
2. Classes in person held at community clinics or pediatric hospitals
3. Multimedia (internet)

Free Response:

Do you have ideas on best practices on how to provide car seat education to parents of low socioeconomic status?

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