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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

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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.

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)

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 vehice 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

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

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

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.

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 Dalgleish (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.

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.

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 persecutions 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 of 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

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,
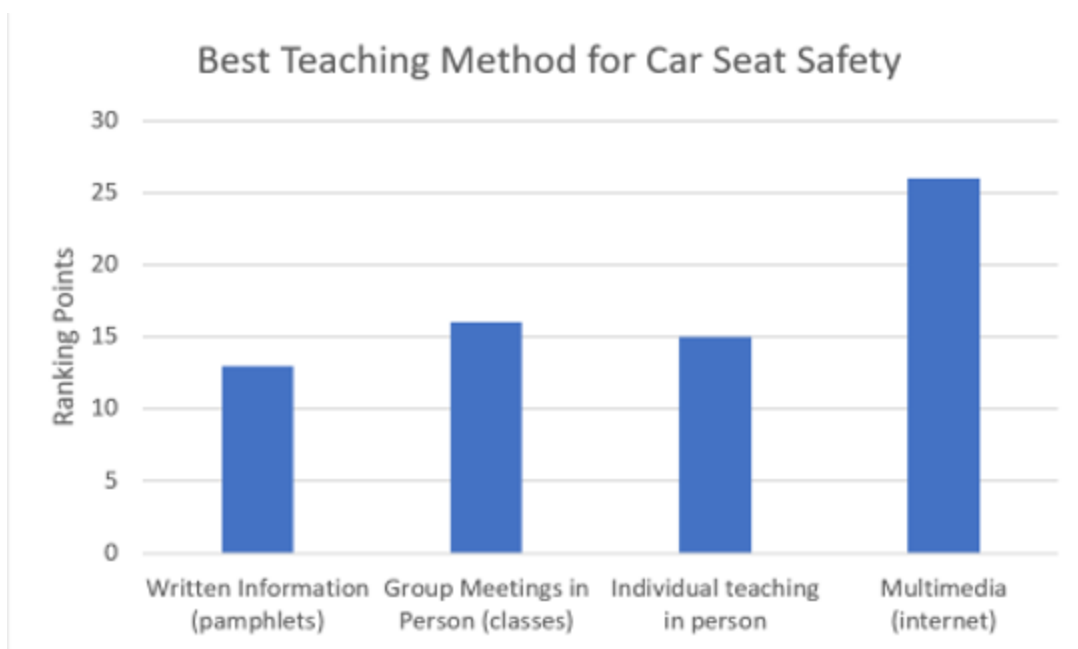
parents of low socioeconomic status are at risk for knowledge deficit in regards to proper car seat

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.

Note: Summary of responses ranking best teaching methods for car safety education.
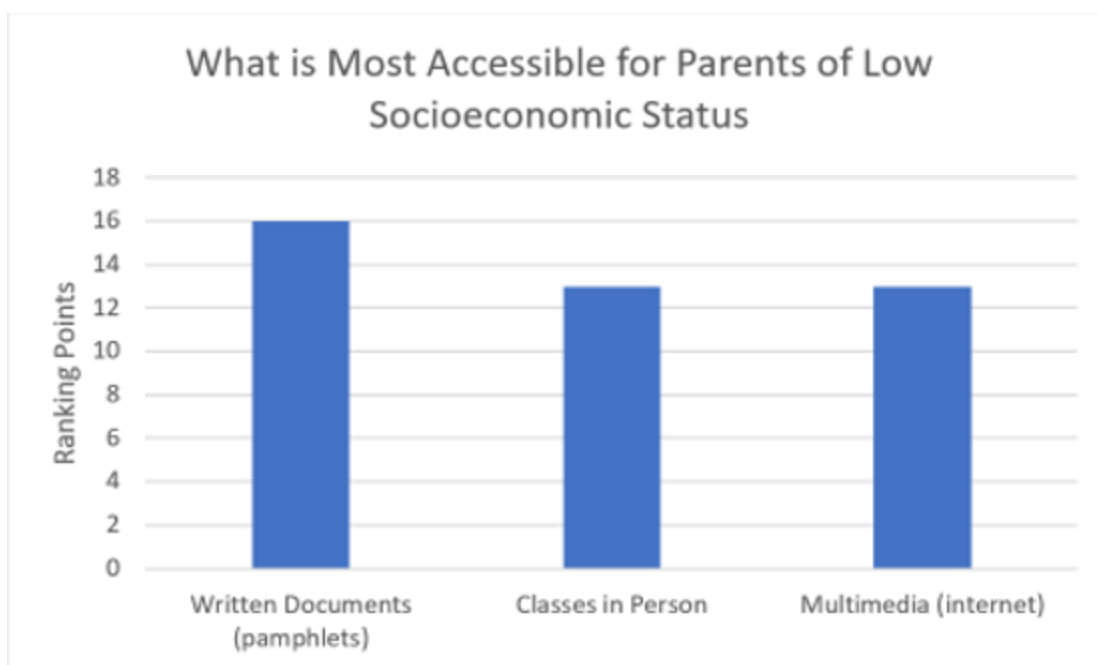
Note: Summary of responses ranking what is most accessible for parents of low socioeconomic

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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<div align="center">Conclusion</div>

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 my 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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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

<u>**Demographics**</u>

- 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

<u>**Mark Your Level of Agreement or Disagreement With The Following Statements:**</u>

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**

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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