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Use of child safety seats among Mexican parents in a small south Dade community

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

USE OF CHILD SAFETY SEATS AMONG MEXICAN PARENTS
IN A SMALL SOUTH DADE COMMUNITY

A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE

IN

NURSING

by

Maria Beltran

1998
To: Dean DeLois Weekes  
College of Health Sciences

This thesis, written by Maria Beltran, and entitled USE OF CHILD SAFETY SEATS AMONG MEXICAN PARENTS IN A SMALL SOUTH DADE COMMUNITY, having been approved in respect to style and intellectual content, is referred to you for your judgement.

We have read this thesis and recommend that it be approved.

Tomas Madayag

Manuel Vega

Luz Porter, Major Professor

Date of Defense: November 18, 1998

The thesis of Maria Beltran is approved.

Dean DeLois Weekes  
College of Health Sciences

Dean Richard L. Campbell  
Division of Graduate Studies

Florida International University, 1998
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I dedicate this thesis to my husband, Albert, and my children, Alexander and Kevin. My husband supported me 100% and did much more than his share of the work, and my children spent many nights without “quality time” so that I could devote time to my studies. Also, I dedicate this thesis to my parents and my husband’s parents who have never failed to provide my children with the loving care that only grandparents can give.
ABSTRACT OF THE THESIS

USE OF CHILD SAFETY SEATS AMONG MEXICAN PARENTS

by

Maria Beltran

Florida International University, 1998

Miami, Florida

Professor Luz Porter, Major Professor

The purpose of this study was to determine the use and misuse of child safety seats among Mexican parents. Data were collected via personal interview and by use of the SAFE KIDS BUCKLE UP Child Safety Seat Checklist Form. This study used a descriptive comparative design. The convenience sample consisted of 63 Mexican mothers with at least one child under the age of four (index child). The findings showed that Mexican parents tend to misuse or not use child safety seats. Most parents were not aware of the misuse, and receiving prior information on the use of child safety seats had no bearing on its correct use. Factors influencing nonuse include lack of finances, driving short distances, leaving child safety seat at home, and being unaware of the Florida child restraint law. Findings of this study have implications for how nurses need to educate mothers on car safety and help reduce childhood injuries.
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CHAPTER I

INTRODUCTION

What is the leading cause of death among children? Many may think it is cancer, AIDS, or heart disease. Yet, the number one killer of children is injuries, both intentional and unintentional. However, not much is found on this topic in medical or nursing journals, and more importantly, the number of studies done on childhood injuries does not match the magnitude of the problem. Researchers need to focus on preventive measures to childhood injuries as they did on the communicable diseases and the advent of immunizations. Most childhood injuries, both fatal and non-fatal are preventable. Types of injuries causing death or injury depend on the age and developmental stage of the child, yet motor vehicle crashes (MVCs) account for most injuries in all age groups and are the leading cause of death among children. Forty percent of childhood deaths resulting from MVCs involved children four and under: over 50% of these children were unrestrained at the time of the crash (Spellicy, 1997). In 1996 over 600 children under the age of five were killed in MVCs, approximately 300 of these children were unrestrained at the time (Block, 1997a).

Laws mandating the use of child safety seats (CSSs) were enacted in the late 1970's and now include all 50 states, the District of Colombia, and U.S. territories. Injuries and deaths have greatly declined since, and use of CSSs have increased. Although studies have shown that correct use of CSSs reduce the risk of death by 69% for infants, and 47% for toddlers (Spellicy, 1997), three quarters of CSSs are misused (Block, 1997a).
Immigrant groups are at high risk of CSS misuse. Their high risk factors include lower income and education level, along with cultural and language barriers. Other factors contributing to misuse or nonuse of CSSs include non-white children who use a public clinic for primary care or a specialty clinic, children whose parent does not use safety belts, and toddlers over two years (Zempsky, 1996).

"The United States is in the midst of the largest wave of immigration it has ever experienced" (American Academy of Pediatrics Committee on Community Health Services [AAP CCHS], 1997). Immigrant children include legal, illegal, refugees and international adoptees, representing a growing group of our childhood population (AAP CCHS, 1997). Over one million immigrants, both legal and illegal, arrive in the United States yearly, the majority coming from Mexico, Central and South America and Asia (Lamberg, 1996). Mexicans represent 50% of the total Hispanic population in the United States (Marcall, 1994). Florida, particularly Miami, is one of the top ten metropolitan areas populated by Hispanics (Ross, 1995). Lower socioeconomic and educational levels, along with culture and language barriers place Mexicans at a higher risk of CSS nonuse and misuse.

**Problem Statement**

**Research Purpose:** The purpose of this research was to determine the use and misuse of CSSs among Mexican parents in Dade County.

**General Problem:** What are the rates of CSS use among Mexican parents compared to the national level?
Specific Problems:

1. To what extent are Mexican parents misusing CSSs compared to national levels?
2. To what extent are Mexican parents aware of CSS misuse?
3. To what extent does prior information on CSS use influence the current use or misuse of CSSs among Mexican parents?

Variables: Use of CSS, misuse of CSS, Mexican immigrants, aware of CSS misuse, and prior information on CSS use.

Definition of Terms

Use of CSS: By law, every child between the ages of 0-4 must be restrained in a federally approved car seat when traveling in a motor vehicle.

Misuse of CSS: Incorrectly placing a child in CSS. This includes using a CSS that does not meet federal standards, is inappropriate for age and size of child, is incorrectly placed in the car or not restrained properly with the vehicle safety belt, and not using the safety devices on the CSS correctly.

Mexican immigrants: Mexican immigrants include all Mexican descent persons who currently reside in the United States, whether legally or illegally. For the purpose of this study, the sample was limited to first generation Mexicans (parents must have been born in Mexico) regardless of the amount of time spent in the United States.

Awareness of CSS misuse: Acknowledging the incorrect use of the CSS, although the specific type of misuse need not be known.
Prior information on CSS: Receiving written or verbal information explaining the correct use of CSSs. If the information received was written, the subject must acknowledge reading the information.

Significance of Study

Although injuries and fatalities due to unrestrained children has declined since the 1980's, MVCs are still the leading cause of death to children. Many parents are still not aware of the importance of restraining their children, or are using CSSs incorrectly. As nursing practice is geared toward preventive care, more demand is being placed on education. Childhood injury is a major public health problem, thus advocating the importance of parent education. Studies have shown that parents look to the health professions for leadership in child safety, thus nurses are in an excellent position to improve parental knowledge on injury prevention and child safety. It is important for health professionals working with children and their parents to be aware of injury mortality rates, causes of injuries, and groups that are at high risk for such injuries.

Findings of this study may reduce childhood injuries and fatalities by stressing the importance of parental teaching. Knowledge of commonly seen types of misuses will alert the nurse to areas that should be addressed during the anticipatory guidance teaching. Nurses should have a basic understanding of CSSs and be aware of community resources available to parents that need further guidance. Nurse administrators must be able to provide their nurses with materials needed to assist parents in need. They are also better capable of following up with these parents and assure they do not "slip through the cracks". Findings of this study may also encourage nurse researchers to study different
immigrant groups and their relationship to childhood injuries which may be caused by lack of cultural awareness along with financial strains.
CHAPTER II

REVIEW OF LITERATURE

Childhood Injuries

Causes of childhood mortality differ by age intervals. However, injuries are the leading cause of death in the 1-4, 5-14, 15-24 age groups (Whaley & Wong, 1991). It has been pointed out that "injuries are the most important cause of mortality and long-term disability in children beyond the first few months of life" (Grossman, 1992).

Children also account for one third of emergency room visits with injuries being the number one cause in children over one year of age (Nelson, 1992). "It is estimated that for every fatal pediatric injury, 45 injured children require hospitalization, 1300 are treated and released from an emergency department, and 2600 are treated at home" (Burns, 1996).

Health care costs for injuries and deaths caused by MVCs to children four and under exceed $8.5 billion annually (National SAFE KIDS Campaign [NSKC], 1997). The average cost of non-fatal injury to children four and under was estimated at $35,000 per unrestrained child compared to $17,400 per restrained children (Spellicy, 1997). When comparing the incidence of injury causes with cost, transportation injuries have the highest cost per incidence in children (Malek, 1991). Use of CSSs saves this country $85 in direct medical cost per seat, plus over $1,200 in other society cost. In addition to the savings incurred by prevention of injury, unrestrained children average 60-70% greater hospital costs (NSKC, 1997).
When looking at hard numbers, 600 children die annually, while 60,000 to 70,000 are injured in MVCs. Two hundred of these deaths and over 20,000 of these injuries could have been prevented if these children were properly restrained in a CSS (Jones, 1997). The risk of death is reduced by 71% for children under four properly restrained in a CSS, and the need for hospitalization is reduced by 69% (National Highway Traffic Safety Administration [NHTSA], 1997b).

Child Safety Seat Use

Many studies looked at the use of CSSs in relation to injury and death and strongly advocate their use. However, current injury and death rates still remain significantly high. In 1995, approximately 1400 children under 14 died in MVCs, with children under four accounting for 35% of those deaths. In 1996 over 300,000 children under 14 were injured in MVCs, while 25% of these children were under four (NSKC, 1997). Approximately 50% of children four and under who have died in MVCs were unrestrained, of the remaining half, 26% were in an adult seat belt (inappropriate restraint protection at this age), while others were incorrectly restrained in a CSS (NHTSA, 1997b).

Although the use of CSSs has greatly increased in the last two decades, over 30% of children under four still ride unrestrained and approximately 80% of those who use CSSs are using them incorrectly. CSSs are extremely effective in reducing the death risk of children under four. Over 3,000 lives were saved from CSS use from 1982-1996. In 1995, nearly 300 children under four were saved as a result of CSS use (NSKC, 1997).
NHTSA's New National goals include reducing the death rate for children four and under by 15% by the year 2000 and by 25% by 2005 (NHTSA, 1997a).

**Parental Attitudes and Knowledge**

Parental attitudes and knowledge play a significant role in injury prevention. "The protection of children from injury ultimately depends on the actions of adults" (Eichelberger, 1990). The 1990 Objectives for the Nation for Injury Prevention include the increase of public and professional awareness of injury control as one of its top five goals. The National SAFE KIDS Campaign undertook a study to assess parental attitudes and knowledge of childhood injuries, identify parents who could benefit from specific safety interventions, and determine ways to make child safety more salient to parents. The results of this study showed parents' misconception of the risk of childhood injury in relation to other dangers.

**Factors Affecting Child Safety Seat Use**

There are approximately three million CSSs sold in the US yearly. Although CSSs have become safer and easier to use, they have become more expensive. Currently, the average price for a convertible seat is $70, yet the price is expected to rise above $100 (Jones, 1997). Many parents cannot afford a new CSS and will often acquire them secondhand. If the CSS is purchased or otherwise acquired secondhand the instructions may not be available. Although new CSSs come with written instructions, these may be difficult to understand (Block, 1997a). Some parents are uninformed or misinformed about the correct use of CSSs, while others find them inconvenient, expensive, or too difficult to install (NHTSA, 1997b).
There are currently over 50 models of CSSs sold, plus an array of different adult seat belts and safety combinations making CSSs difficult to install correctly. Parents must not only read the CSS instruction manual but also their motor vehicle manual to insure proper installation and fit. Some CSSs and adult seat belts do not fit together, regardless of how parents install them. NHTSA, auto makers, and CSS manufacturers are currently attempting to create a uniform standard for CSSs and auto seat belts, but it may take years (Jones, 1997). Using CSSs incorrectly decreases the effectiveness of the seat in protecting the child (Crawley, 1996).

In a study by Zempsky (1996) on child restraint devices used in patients leaving a children's hospital, he identified subjects at risk for noncompliance as nonwhite individuals, those whose primary medical care was received from a public clinic or from a specialty clinic, and those with children over 24 months. His studies showed a 30% misuse in infants under one year of age (infants were placed in the forward-facing position), and 23% did not use the seat's harness. The overall misuse rate was only 25% (compared to the national level of 80%), however their study design did not allow the investigators to enter the vehicles to evaluate misuse, thus underestimating the misuse rate (Zempsky, 1996).

A more comprehensive study by Block (1997a) involved the assessment of CSS misuse using observation and physical manipulation, determination of awareness of CSS misuse, and teaching of the proper use of CSSs. She identified a misuse of 79%, yet only one quarter of the mothers were aware of the incorrect use. The mothers were receptive to the teaching provided and were able to demonstrate proper use after instructions were
provided. However, the study did not incorporate two recently identified components of CSS misuse: placement of CSSs near an airbag and the life span of CSSs. Including these components would increase the misuse rate. Long term effects in proper CSS use teaching should also be studied (Block, 1997a).

In a study conducted by NHTSA (1996) on patterns of misuse of CSSs, results showed an overall use rate of 87.2%, slightly higher than the national level. Correct use of CSSs was defined as proper seat direction, and proper use of vehicle safety belt routing, harness buckle and harness strap, harness retainer clip, and locking clip. Overall correct use was 20.5%, with infants showing a 20.6% correct use, and toddlers showing an 18.9% correct use rate. This study found positive relationships between CSS use for drivers using safety belts, vehicles having airbags, driver being a family member, and CSS infrequently being moved from vehicle (NHTSA, 1996).

Other factors influencing proper CSS use include parental demographic, parental use of seat belts, using instructions to install the CSS, manner of acquiring the CSS, its physical characteristics, and awareness levels of parents (Block, 1997a).

Although the information on CSSs and different immigrant groups is vast, only one study has correlated the two. The study focused on CSS use and Hmong immigrants. Block (1997b) examined CSS use among Hmong refugees in a Midwestern community. Her sample consisted of 50 Hmong parents utilizing the Women, Infants, and Children (WIC) Supplemental Nutrition Program Center. There are approximately 150,000 Hmong living in the United States today who migrated from Laos a small country in Southeast Asia (Lindsay, 1998).
After determining use and misuse, the parents were asked about awareness of misuse, current and previous CSS use, sources of CSS information, and future interest in learning more about CSSs. Her study revealed that only 14% used a CSS (substantially lower than the national average of 60-80%), and 98% used them incorrectly (higher than the national average of 75-80%). None of the parents were aware of the misuse. Ten of the 43 parents observed not using a CSS had one at home, although several were broken, pre-standard, or recalled. Parents reported sources of CSS information included friends and neighbors. Eighty percent of the parents cited health care workers as sources of information, but said they did not understand the details. Ninety-two percent expressed interest in learning more about CSSs (Block, 1997b).

Various studies have also focused on injury prevention counseling in the primary care setting. A summary of the results indicate evidence supporting positive outcomes. An increased use of CSSs, increased sales of CSSs, and decreased auto passenger injuries were observed (Bass, 1993).

**Cultural Barriers**

Culture is defined as "a patterned behavioral response that develops over time as a result of imprinting the mind through social and religious structures and intellectual and artistic manifestations" (Giger, 1995). The cultural phenomena includes communication, space, social organization, time, environmental control, and biological variations. Although the application of these differ, they are evident in all cultural groups (Giger, 1995). In order to provide competent care, nurses must take cultural beliefs, norms, and practices into account.
Some cultural barriers experienced by Mexicans include skin color, language differences, and Spanish surnames. These differences have contributed to the discrimination experienced by Mexicans residing in the United States. Important concepts that predominate the Mexican culture include manliness, confidence, respect, shame and pride. They value courtesy and may seem agreeable regarding an issue but may not follow through (Giger, 1995).

**Language Barriers**

Language is the basis of communication in all cultural groups. This includes verbal and nonverbal communication. Even cultures that speak the same language may use one word to convey different meanings, thus one must ascertain appropriate interpretation (Giger, 1995). Speaking a different language and belonging to a different culture makes communication and proper interpretation difficult. Spanish is the primary language spoken by Mexicans. Although many can speak some English, the inability to speak it fluently has limited their quality of life.

Illegal immigrants, the majority of whom are from Mexico, are arriving in the United States at a rate of 300,000 to 500,000 per year (AAP CCHS, 1997). Practitioners need to be aware of the special health care needs of immigrant children. Most immigrants receive poor health care due to language and cultural barriers, fear of apprehension by immigration, and cost (AAP CCHS, 1997). Mexican Americans underutilize primary care services, are less likely to see a physician and lack health insurance and a regular source of medical care (Moore, 1994).
Immigrants must learn to communicate with a different culture and Americans must learn their ways (Lamberg, 1996). Four percent of US households are "linguistically isolated", meaning no one over the age of 14 speaks English. This has significant implications for health care providers, such as difficulties understanding and communicating important aspects of health care (AAP CCHS, 1997). Some strategies that are recommended when dealing with immigrants include: using bilingual personnel and appropriately translated materials, developing specific risk factor programs, and developing qualitative and health status research to adequately address this population's needs (Marcall, 1994).

Conceptual Framework

Although several nursing frameworks can be used in this study (Nightingale, King, and Henderson) since they focus on health promotion, the epidemiological framework of host, agent, and environment is most useful in considering injuries. The host refers to the person, the agent is the involvement in an injury producing event, while the environment can be divided into the physical (home, vehicle, street) and social environment (culture and society) in which the child lives (Grossman, 1992).

Grossman (1992) illustrates a second dimension added by William Haddon, Jr. He referred to this dimension as the event dimension. He separated the injury from the events leading to the injury and those that occurred subsequently. For example, the use of CSSs can prevent an injury although a crash occurs. He uses these two dimensions (epidemiological dimension and event dimension) and incorporates pre-event, event and post-event with human factors, agent or vehicle, physical environment, and sociocultural
environment (Grossman, 1992). Pre-event refers to the circumstances preceding the crash, the event is the actual crash, and the post-event factor refers to what happens after the injury occurs.

Injuries to children caused by MVCs illustrates the application of the epidemiological and event theory. The child is injured while riding in a vehicle that is involved in a crash. Although the crash could not be prevented in this case, the child's injuries could be prevented, thus the post-event dimension or consequences could be altered by the proper use of a CSS. Human factors and sociocultural environment play a significant role in whether the parents restrain their child properly. Cultural and language barriers need to be considered when assessing parents' knowledge and compliance to current CSS laws. These barriers can be eliminated through proper evaluation of current CSS use and misuse and appropriate intervention.

Hypotheses

1. There will be a higher rate of CSS nonuse in Mexican parents as compared to the national average.

2. There will be a higher rate of CSS misuse in Mexican parents as compared to the national average.

3. There will be a low rate of parental awareness of CSS misuse.

4. Parents who have received prior information on the correct use of CSSs will demonstrate a lower rate of misuse than those who have not received prior information.
The rationale for the direction of the first three hypotheses was that Mexican parents share similar risk factors with the Hmong parents which were observed in Block’s (1997b) study on CSS misuse and nonuse in a Midwestern Hmong community. The principal investigator hypothesized that parents who had received prior information on CSS use would demonstrate a lower misuse rate than those who had not, on the assumption that the information received was correct and that the parents had understood the instructions.
CHAPTER III

METHODOLOGY

Research Design

This study used a descriptive comparative design. The study sought to compare the nonuse and misuse of CSSs among Mexican parents with national statistics. Data were collected via personal interview and assessment and manipulation of the CSS by the principal investigator and the CSS experts.

Sample

The convenience sample consisted of 63 Mexican parents participating in a WIC (Women, Infants, and Children Nutritional Program) location in South Dade County, Florida. Several Community Health of South Dade, Inc. (CHI) clinics incorporate WIC programs at their locations and were utilized for this study.

Written permission was obtained from the Dade County Health Department (Appendix D) and Florida International University's Institutional Review Board (Appendix E). Participants who use WIC services were required to visit the site to collect their coupons. Parents that met the eligibility criteria were asked to participate in the study. Parents who agreed to participate in the study signed a consent form which was incorporated into the assessment tool. Those who only spoke Spanish signed a translated version of the consent. They were informed that participation in the study would in no way alter their current standing with WIC. They were assured that although their names and addresses would be included in the assessment form, it would only be used by National SAFE KIDS Campaign to inform them of recalls or other problems associated

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with their CSS. They were also informed that the principal investigator would keep the assessment form in a locked box for three years, at which time they would be appropriately destroyed. As the principal investigator is fluent in Spanish, communication with the parents was not a limitation. Parents with the youngest child under four (index child) who were present during data collection were invited to participate in the study (Appendix A).

Instruments

The Child Safety Seat (CSS) Checklist Form was used for data collection. This is a non-copyrighted assessment tool provided by The National SAFE KIDS Campaign (Appendix B). This assessment tool includes information on the CSS, placement of CSS in the vehicle, and types of misuses for rear-facing and forward-facing seats. Also, it accounts for the child’s age, weight and height. A separate sheet was attached to each form to determine the following: (a) country of birth; (b) prior knowledge on proper use of CSSs; (c) first time use of CSS; and (d) parental awareness of CSS misuse (Appendix C).

Data Collection

The methodology for this study is a replication of that used by Block (1997b) in a study entitled Child Safety Seat Use in a Midwestern Hmong Community. The principal investigator approached all mothers with small children as they arrived at the WIC facility. Once eligibility was determined (parent must have been born in Mexico and child must be under the age of four) explanation of the study was given and consent was obtained. A CSS expert involved in both the National Safety Council and the Broward County, Florida SAFE KIDS Campaign assessed the placement of the child in the CSS
and the placement of the CSS in the vehicle. The CSS was then physically manipulated to ensure proper placement in the vehicle. The principal investigator who had attended an eight hour course on the correct use of CSSs provided by The National Safety Council and the Broward County, Florida SAFE KIDS Campaign was present during the data collection and provided client education along with written materials on the correct use of CSSs. The Florida Department of Transportation provided these materials (in Spanish).

The items were scored using nominal measurement. The assessment tool was coded as 1 for “correct use” and 2 for “incorrect use”. The information on prior CSS knowledge, first time use, and parental awareness was coded 1 for “yes” and 2 for “no”.

**Data Analysis**

Frequency distributions were used to analyze all the information gathered and tested all four hypotheses. Results are shown in graphs. CSS nonuse and misuse among the study sample was compared to national CSS nonuse and misuse average using percentages. The data on CSS misuse was categorized into the following: (a) choice of CSS (Federally approved, recall status, prior involvement in an MVC, appropriateness of CSS for child's size and age); (b) position of CSS in vehicle (used in front of airbag, face direction and angle of CSS); (c) restraint of child in the CSS (slot position of harness straps, position of retainer clip, snugness of harness straps); (d) attachment of the CSS to the vehicle (routing of safety belt, snugness of safety belt, locking mode of safety belt, improper use of locking clip). Each dimension of misuse was also analyzed and divided into rearward-facing and forward-facing seats. Questions asked of parents: (a) country of
birth, (b) prior CSS knowledge, (c) first time CSS use, and (d) awareness of CSS misuse were documented separately.
CHAPTER IV

PRESENTATION OF FINDINGS

This chapter addresses each of the research questions and hypotheses. Frequency distribution graphs summarizing the findings are presented.

Sample Characteristics

The sample was comprised of 63 Mexican mothers who had at least one child under the age of four. Many mothers were not included in the study because they walked to the facility. The majority of these mothers denied owning a vehicle. Of the mothers who had vehicles at home, some said they had CSSs in their cars while others did not. Most mothers had more than one child under the age of four, however, only the youngest child was usually in a CSS. Some mothers "carpooled" to the facility, while the majority came by themselves. A few mothers said they spoke "some" English but preferred speaking in Spanish. There were no fathers present during the interviews. These interviews were conducted at a WIC facility in South Dade, Florida. The work status of these mothers was not asked, however this area is highly populated by migrant workers.

Most mothers were very receptive about participating in the study. Those who did not have a CSS were given one, along with written and oral instructions. One mother refused to participate in the study and drove off with a friend sitting in the front passenger seat while carrying the infant in her arms. Many mothers asked for a CSS for a friend who did not have one, however, due to the limited number of seats available only those who were present received one.
Findings

Nonuse of Child Safety Seats

The national average of CSS nonuse is 30% (NHTSA, 1997a). This study compared this average with the sample population. Of the 63 mothers interviewed, 50 (80%) did not utilize a CSS. This is 50% higher than the national average, thus supporting the first hypothesis, that Mexican parents have a higher rate of CSS nonuse than the national average (Figure 1).

Figure 1. Comparison of National Average CSS Nonuse and Study Sample
As depicted in Figure 2, common factors affecting CSS nonuse in Mexican parents (n=50) included the following: (a) 23 (40.6%) reported lack of finances; (b) 13 (20.6%) reported only driving short distances; (c) ten (2%) stated leaving CSS at home; and (d) four (0.8%) were unaware of Florida's CSS law. These findings are consistent with national data. These same factors reflect the national data affecting CSS nonuse. Studies have shown finances and difficulty in use are common reasons for nonuse (NHTSA, 1997a).

Figure 2. Factors Affecting CSS Nonuse in Study Sample

n=50
Misuse of Child Safety Seats

It was hypothesized in this study that Mexican parents would have a higher rate of CSS misuse than the national average. As depicted in Figure 3, the national average of CSS misuse is 80%. This study showed that Mexican parents have a 93% misuse rate. This finding lends support for the hypothesis. Also, this finding corroborates that of Block's (1997b) study on the Hmong community. Her study showed the Hmong population having a higher misuse rate than the national average.

Figure 3. Comparison of National Average CSS Misuse and Study Sample
The misuses observed with the rearward-facing CSSs (n=7) included the following, in order of occurrence: (a) car’s safety belt not holding seat tightly 5 (71.4%); (b) CSS straps not snug and/or flat 3 (42.8%); (c) car’s safety belt not locked 3 (42.8%); (d) CSS not reclined 45 degrees 2 (28.5%); (e) retainer clip position incorrect 2 (28.5%); (f) inappropriate height and/or weight 1 (14.1%), seat not rear-facing; (g) car’s safety belt not routed correctly 1 (14.1%); and (h) incorrect use of locking clip 1 (14.1%). No CSSs were observed in front of an air bag (Figure 4). There were more misuses observed with rearward-facing seats than with forward-facing seats.

Figure 4. Rearward-Facing Infant or Convertible CSS Misuse

n=7
The misuses observed with the forward-facing CSS’s (n=6) included, also in order of occurrence, the following: (a) car’s safety belt not holding seat tightly 5 (83.3%); (b) CSS straps not snug and /or flat 4 (66.6%); (c) CSS straps not at or above shoulder 2 (33.3%); (d) CSS not upright 1 (16.6%); (e) retainer clip improperly positioned 1 (16.1%); and (f) car’s safety belt not locked 1 (16.1%). There were no misuses observed with inappropriate height and/or weight, CSS not forward facing, car’s safety belt not routed properly, incorrect use of locking clip, or improper rear seat CSS installation (Figure 5).

Figure 5. Forward-Facing Toddler/Convertible CSS Misuse

\[ n = 6 \]
As depicted in Figure 6, Mexican parents in this study commonly misused the CSS in terms of attachment of the CSS to the vehicle (77%), followed by restraint of the child in the CSS (69%). These findings are consistent with NHTSA's (1996) and Block's (1997a) studies, which identified misuses in these categories as common areas of misuse.

Figure 6. Summary of CSS Misuse

\[ n=13 \]
Awareness of Child Safety Seat Misuse

Factors affecting the use of CSSs (n=13) included: (a) parental awareness of misuse; (b) prior knowledge on the use of CSSs; and (c) first time use (Figure 7). Two mothers (n=12) (16.7%) were aware of the misuse while the remaining ten (83.3%) thought they were using the CSS correctly. This corroborates Block's (1997a, 1997b) findings which indicated that most parents were unaware of the misuse. The third hypothesis stating that most parents are unaware of the CSS misuse is supported by the findings of this study.

Figure 7. Parental Factors in Study Sample CSS Use

\[ n = 13 \]
Impact of Prior Information on Child Safety Seat Use

It was hypothesized in this study that parents who had received prior information on the correct use of CSSs would demonstrate a lower rate of misuse than those who had not received prior information. Eight mothers had received prior information on the use of CSSs, yet they were observed to be using them incorrectly during the evaluation. Only one mother used the CSS correctly and she denied receiving prior information on the use of CSSs. These findings failed to support the hypothesis. None of these mothers reported using the CSS for the first time. In fact, many had older children who had used the same CSS and they reported using it in the same manner.

Conclusions

Findings of this study identified a higher rate of CSS nonuse in Mexican parents than the national average. This finding supports the first hypothesis that Mexican parents have a higher rate of CSS nonuse than the national average. Common factors affecting this study sample's CSS nonuse included lack of finances, driving short distances, leaving CSS at home, and being unaware of Florida's CSS law. It was hypothesized in this study that Mexican parents would have a higher rate of CSS misuse than the national average. This hypothesis was supported by the findings. The Mexican parents in this study showed a 93% misuse rate compared to the national average of 80%.

Most mothers were unaware of the CSS misuse. Two mothers were aware of the misuse but did not know the correct use. This finding lends support to the third hypothesis, that most parents are unaware of the CSS misuse. There were no differences noted with the CSS misuses between those who had received prior information on the use
of CSSs and those who had not. All mothers who reported receiving prior information were misusing the CSS. Only one mother in this study used the CSS correctly and she denied receiving prior information.
Discussion

The findings of this study clearly demonstrate the vulnerability of Mexican children to injuries in the event of a MVC. The number of children riding unrestrained was much higher than the national average. Many parents (n=50) were observed carrying the child on their laps or placing them on the back seat without any type of restraint. Some children under the age of four were also observed restrained in an adult seat belt. This does not provide the proper protection needed for this age group. Studies have shown that 50% of children under the age of four who have died in MVCs were unrestrained. Of the remaining half, 26% were restrained in an adult seat belt and the rest were improperly restrained in a CSS (NHTSA, 1997b). Most parents reported lack of finances for not having their child restrained in a CSS. Driving short distances was another common reason for having the child unrestrained. Of those mothers who reported leaving the CSS at home, all reported finding the seats too difficult to use. These findings are similar to those found in the literature. NHTSA reported that most parents find CSSs expensive, inconvenient, or too difficult to use (NHTSA, 1997b).

Some parents were unaware of the Florida CSS law. Many have only been in the United States for a short period of time, and stated that there is no CSS law in Mexico. According to these mothers, very few children in Mexico ride in CSSs, and those that do are either extremely wealthy or have previously resided in the US. The majority of these
mothers were accustomed to carrying their child unrestrained and were not aware of the statistics of childhood injuries.

Mexican parents have a higher rate of CSS misuse than the national average. Ninety-three percent of the parents who used a CSS were using it incorrectly, higher than the national average by 13%. Most parents (n=13) reported obtaining the CSS secondhand and not having instructions available to them. This finding also compares with Block's (1997a) study where she identified that many parents could not afford new CSSs and acquired them secondhand. When the CSSs are acquired secondhand the instructions may not be available (Block, 1997a).

It was hypothesized in this study that most parents would not be aware of the CSS misuse. This study showed that only two mothers (16.6%) were aware of the misuse, thus lending support to this hypothesis. Other studies have shown similar findings (Block, 1997a, 1997b). The mothers that were aware of the misuse stated they knew they were using the CSS incorrectly but were not sure of the correct use. The remaining ten (83.3%) mothers thought they were using the CSS correctly.

Findings of this study failed to support the fourth hypothesis, that parents who had received prior information on the correct use of CSSs would demonstrate a lower rate of misuse than those who had not received prior information. Eight mothers (61.5%) reported receiving prior information yet all eight were misusing the CSS. There were no documented differences noted in the number of misuses between those who had received prior information and those who had not. Only one (0.76%) mother was using the CSS correctly and she denied receiving prior information. Most mothers reported learning
best by observation and were able to return the demonstration provided by the principal investigator and the CSS experts.

**Conclusions**

This study showed that Mexican parents were more likely to not use and misuse CSSs, thus placing their child at an increased risk of injury or death if involved in a MVC. As illustrated in the conceptual framework, injuries to children can be applied to the epidemiological and event theory. Although the crash may not be prevented, having the child properly restrained in a CSS can prevent injuries caused by the MVC, thus altering the post-event dimension or consequences. Factors affecting CSS nonuse included lack of finances, driving short distances, leaving CSSs at home, and being unaware of Florida's CSS restraint law.

CSS misuses commonly observed in this study were placement of the child in the CSS and attachment of the CSS to the vehicle. These included the CSS straps not securing the child properly, and the car's safety belt not holding the CSS tightly to the vehicle. Common factors associated with the CSS misuse included acquiring seats secondhand and not having someone demonstrate the correct use of CSS. Most mothers were unaware of the misuse. Two mothers knew they were using the CSS incorrectly but did not know the correct use. Over half of the mothers had received prior information on the use of CSSs, yet all eight were using it incorrectly. There were no differences noted in the number of misuses between the mothers who had received prior information and those who had not. One mother was using the CSS correctly but she denied receiving
prior information on the CSS. This study did not consider the source of prior information on CSS use, only that it was received.

**Implications**

Over the past few years nursing has geared its focus to prevention, making patient/family teaching an essential role. This study showed that Mexican parents in South Dade County, Florida are at high risk for CSS nonuse and misuse. Nurses must recognize this and be able to direct these clients to the proper community resources. This study also showed common areas of CSS misuse. Nurses can focus on these specific areas and demonstrate the correct use to the clients. Although the mothers that reported receiving prior information on the use of CSSs stated they had understood the information, it is questionable since they were all misusing the CSS. Most mothers reported learning best by observation, and were able to provide correct return demonstration. This needs to be taken into account when considering methods of providing client teaching. Nurses need to assess the mothers’ knowledge base, literacy, language, and comprehension level, along with the psychomotor skills needed to use a CSS correctly. The findings of this study support Marcall’s (1994) findings which include using bilingual personnel, appropriately translated materials, and developing specific risk factor programs for appropriately providing educational interventions to immigrants. Client teaching should then be done accordingly.

In addition, there are community resources that offer CSS rental programs along with personnel trained in the proper use of CSSs who can be utilized to add to the instructions given by nurses. NHTSA also provides information on the use of CSSs. The
National SAFE KIDS Campaign offers many programs in the community related to the use of CSSs. These services should be made known to parents and referrals made as needed. Nursing administrators in hospitals that have maternity wards must have several nurses trained in the use of CSSs and be able to provide demonstration of its use as parents take their newborns home. Nursing schools should also incorporate teaching on the proper use of CSSs into their curriculum.

Although this study only focused on Mexican mothers in one South Dade location, the implications apply to other cultures that show similar characteristics, such as environmental, social, educational, and socioeconomic factors that may affect CSS use.

Limitations

This study only focused on Mexican parents in one location in South Dade County, Florida. Most of the Mexicans in that area are migrant workers. Mexicans in other settings with varied economic status may show different findings. This study did not examine parental demographics, parental use of seat belts, and frequency in which the CSS is moved from the vehicle. These factors have been shown to have a relationship with the use of CSS (NHTSA, 1996). Language barriers were not considered in this study. Although CSS instructions come in English and Spanish, they may still be difficult for someone with a limited education to understand. This study did not include the source of prior information on CSS use, only that it was received.

Recommendations

Comparative intracultural and crosscultural studies should be done to determine similarities and/or differences, which may affect the use of CSSs. These studies should be
done in varied settings and consider educational and comprehension levels, along with economic status. Studies on how different groups best acquire knowledge can also help nurses identify the most appropriate method or methods of teaching proper CSS use. A follow-up of the present study merits consideration to determine Mexican parents’ long term use of CSSs.

Future studies should consider attention to the specific language needs of the sample and target population, demographic variables, parental use of seat belts, and frequency in which the CSS is moved from the vehicle. Future studies should also consider the source of prior information on CSS use to identify a relationship, if any, between correct and incorrect use of the CSS and the source of the parent’s information. The safety values of different cultural groups should also be examined to assist nurses in identifying those who are at risk for childhood injuries. Studies should also be done on the effect of incentives provided by automobile insurance companies to parents who have their children restrained in the appropriate CSS to examine if this increases the use of CSSs and decreases the misuse rate.
References


Dear Participant:

My name is Maria Beltran and I am a graduate nursing student at Florida International University. I would like to invite you to participate in a study that I am conducting on the use of child safety seats among Mexican parents.

You have been selected for this study because you are of Mexican descent. Although your name and address will be included in the evaluation form, it will only be used by the National SAFE KIDS Campaign to inform you of recalls or other problems with your child safety seat. This information will not appear as part of the results of the study or used in any other manner.

Your participation in this study is voluntary. There are no known risks involved to you for participating. Benefits will include teaching of the proper use of child safety seats. If you do not have a child safety seat one will be provided for you for free. You will also receive written materials on the proper use of child safety seats for future use.

Participation in this study, or lack of participation will in no way jeopardize the assistance you receive from WIC. If you utilize CHI clinics for your health care, participation will not affect the health care you receive. If you decide to participate, a written consent, incorporated into the child safety seat evaluation form, must be signed by you prior to participation in the study.

Thank you for your time and cooperation in this study. If you have any questions, please contact me at (305) 644-0034, or Dr. Luz Porter, Faculty Supervisor, at (305) 919-5845.

Maria Beltran, RN, BSN
APPENDIX A (SPANISH VERSION)

USO DE ASIENTOS DE SEGURIDAD DE NIÑOS DE PADRES MEJICANOS EN UNA PEQUEÑA COMMUNIDAD EN EL SUR DE DADE

Querido participante:

Mi nombre es María Beltran y soy una estudiante de enfermería en la Universidad Internacional de la Florida. Me gustaría invitarle a participar en un estudio que estoy conduciendo sobre el uso de los asientos de seguridad de niños.

Usted a sido seleccionado para este estudio porque es de origen Mejicano. Aunque su nombre y dirección aparecen en la forma de evaluación, esto solamente será usado por National SAFE KIDS Campaign para infórmale a usted de algún problema de su asiento de seguridad. Esta información no aparecerá como parte de los resultados del estudio ni para otra causa.

Su participación en este estudio es voluntaria. No hay riesgos involucrados en participar. Beneficios incluyen la enseñanza y materiales escritos sobre el uso correcto de los asientos de seguridad. Si usted no tiene un asiento de seguridad, uno se le dará gratis.

Participación en este estudio, o falta de participación no afectará la asistencia que usted recibe de WIC. Si usted usa la clínica CHI para su cuidado médico, su participación no afectará el cuidado que recibe. Si decide participar, necesita firmar consentimiento para recibir el reviso de su asiento de seguridad.


María Beltran, RN, BSN
APPENDIX B

SAFE KIDS BUCKLE UP
Child Safety Seat Checklist Form

Please Print Clearly and Use One Checklist Form for Each Child Safety Seat

| Participant's Name: ___________________________ | Phone: ___________________________ |
| Address: ______________________________________ |

| Vehicle Information: Make: __________________ Model: __________ Yr.: ________ |
| Passenger-Side Air Bag: ☐ Yes ☐ No |

| Child Information: Age: _______ | Weight: _______ | Height: _______ | Expectant Mother: ☐ Yes ☐ No |

I understand and agree that the sole purpose of this program is to help reduce the incidence of the improper installation of child safety seats; that this inspection is being provided as a free service to me; that this program does not evaluate the quality, safety, or condition of my car safety seat or any component of my vehicle, including the seats or safety belts; and that this program will not guarantee my child's safety in a car collision. However, I understand that a properly used child safety seat can reduce fatal injury by 69% for infants and by 47% for toddlers. For these reasons, I hereby release Children's National Medical Center (CNMC), Washington, DC; CNMC Child Ventures; National SAFE KIDS Campaign and each of the SAFE KIDS Coalitions; General Motors and each of its divisions and subsidiaries and other operating entities; or any program participants, from any present or future liability for any injuries or damages that may result from a car collision or otherwise.

| Participant's Signature: ______________________ | Date: __________ |

| Check Up Location: __________________________ | Date: __________ | Checker: __________________________ |

| Seat Information: (Type of Seat) Infant: ☐ Toddler/Convertible: ☐ Booster: ☐ |

| Make of Seat: __________________________ | Model #: __________ | Yr.: ________ |

*Seat FMVSS certified by Mfr: ☐ Yes ☐ No *Recalled: ☐ Yes ☐ No *Original seat owner: ☐ Yes ☐ No
*Seat involved in crash: ☐ Yes ☐ No ☐ Unknown

Mark an X at where you found seat
Mark a M at where it was moved

CONDITIONS ENCOUNTERED:

I. REARWARD-FACING INFANT SEAT OR CONVERTIBLE SEAT

Note: A child should be rear-facing until at least one year of age and at least 20 lbs. If a child is less than one year and over 20 lbs, then a new seat with greater weight limits in the rear-facing position should be obtained.

☐ Seat in front of air bag ☐ Corrected
☐ Child not within mfg's recommended weight/height range ☐ Recommended Appropriate Seat
☐ Seat not rearward-facing ☐ Corrected
☐ Seat not reclined 45° ☐ Corrected
☐ Harness straps not at or below shoulders ☐ Corrected
☐ Harness retainer clip not threaded correctly or not at armpit level ☐ Corrected
☐ Harness straps not snug and flat (one finger test) ☐ Corrected
☐ Safety belt not routed correctly ☐ Corrected
☐ Safety belt not holding seat tightly in vehicle ☐ Corrected
☐ Safety belt not in locked mode (no locking clip or switched retractor) ☐ Corrected
☐ Locking clip not used correctly ☐ Corrected
☐ Other problems/comments: __________________________

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected

☐ Corrected
### II. FORWARD-FACING TODDLER/CONVERTIBLE SEAT

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<td>Seat not upright</td>
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### IV. SHIELD BOOSTER

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<td>Locking clip not used correctly</td>
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<td>Seat not installed in rear seat of vehicle</td>
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<td>Other problems/comments:</td>
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<td>Corrected</td>
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### IV. REPLACE CHILD SAFETY SEAT WITH FREE SEAT AT CHECK UP EVENT

New seat/make/model: ____________________________

Registration card completed and mailed to child safety seat manufacturer: □ Yes □ No
APPENDIX C

USE OF CHILD SAFETY SEATS AMONG MEXICAN PARENTS IN A SMALL SOUTH DADE COMMUNITY

Country of birth? ______________________

Do you have knowledge on how to use child safety seats?

Yes__________ No__________

Is this your first time using a child safety seat?

Yes__________ No__________

If you have been observed misusing the child safety seat, are you aware of misuse?

Yes__________ No__________

The above questions will be asked of the parent during the child safety seat evaluation. These questions will be translated into Spanish for those parents who do not speak English. This information will be collected on a separate sheet of paper and only be used by the principal investigator to record data. SAFE KIDS will not have access to this information.
APPENDIX D

FLORIDA DEPARTMENT OF HEALTH

REVIEW COUNCIL FOR HUMAN SUBJECTS

APPROVED RESEARCH PROTOCOL:

PROTOCOL SUMMARY

TITLE: Use and Misuse of Child Safety Seats among Mexican Immigrants

RCHS LOG # 573

APPROVED BY RCHS: Yes, April 15, 1998, Expedited Review

SUBMITTED BY: Maria Beltran, Principal Investigator

SUMMARY: The purpose of this study is to determine the use and misuse of child safety seats among Mexican parents compared to the national levels. The study will also determine to what extent Mexican parents are aware of this use or misuse, as well as to what extent a language barrier affects this use or misuse.

The Review Council for Human Subjects has approved this study and recommends the approval of the Secretary of Health. Please sign below if you approve.

APPROVED BY:

______________________________ 4/17/98

(James T. Howell, Secretary) (Date)
May 4, 1998

Ms. Maria Beltran
(Dr. Luz Porter)
AC 203
Florida International University
North Miami Campus
North Miami Fl 33181

Dear Ms. Beltran:

I am pleased to inform you that your research proposal titled “Use of Child Safety Seats Among Mexican Parents” has been reviewed and approved. Please note that you are required to conduct your research and all related procedures in the exact same manner as indicated in the proposal without any exception. I wish you all the best.

Sincerely

Suman Kakar. Ph.D.

cc: Professor Gerstman
URC Chairperson