ABSTRACT

LUPKES, Sherri S. Effects of the Keep Infants Seated Safely (K.I.S.S.) program on adult and infant automobile restraint use. M.S. in Community Health Education, 1986. 91 pp. (Dr. J. V. Schindler).

This research examined the effects of the La Crosse County Chapter American Red Cross Keep Infants Seated Safely (K.I.S.S.) program on the use of infant car seats and adult safety belts. Marital status, level of income, occupational status, level of education, and prior safety belt use were other variables analyzed in the study. Ss consisted of 84 mothers who delivered healthy infants at either La Crosse Lutheran Hospital or St. Francis Medical Center, La Crosse, Wisconsin, during the month of October, 1985.

The treatment group (N=44) was composed of Ss who participated in the K.I.S.S. program. The control group (N=40) were Ss who did not participate in the program.

The study utilized a pretest, four telephone follow-up interviews, and a posttest conducted with the final telephone interview. The telephone interviews were conducted at six week intervals.

The chi square test of independence, Spearman's r, multiple regression, and the independent groups t-test were used to analyze the data collected from both groups at the $p \leq .05$ level. Marital status and K.I.S.S. program participation were significantly related to infant car seat use. Prior safety belt use, level of education, and K.I.S.S. program participation were significantly associated with adult safety belt use. No significant correlation was found between infant car seat and adult safety belt use. Further studies that include observational methods of data collection are needed to determine the effects of legislation on safety restraint use.

Effects of the Keep Infants Seated Safely (K.I.S.S) Program On Adult and Infant Automobile Restraint Use

A Thesis Presented

to

The Graduate Faculty

University of Wisconsin-La Crosse

In Partial Fulfillment

of the Requirements for the

Master of Science Degree

by

Sherri S. Lupkes

July 1986

UNIVERSITY OF WISCONSIN - LA CROSSE
College of Health, Physical Education and Recreation
La Crosse, Wisconsin 54601

Candidate: Sherri S. Lupkes

We recommend acceptance of this thesis in partial fulfillment of this candidate's requirements for the degree:

Master of Science - Community Health Education

The candidate has completed her oral report.

Jay Schindler Thesis Committee Chairperson	7/10/86 Date
R. Daniel Duquette Thesis Committee Member	7/10/86 Date
Lois A. Muir Thesis Committee Member	7/10/86 Date

This thesis is approved for the College of Health, Physical Education and Recreation.

John C. Mitchem Dean, College of Health, Physical Education and Recreation	July 21, 1986 Date
Howard C. Rose Dean of Graduate Studies	July 21, 1986 Date

ACKNOWLEDGEMENTS

I wish to acknowledge those individuals who made significant professional and personal contributions for the successful completion of this research thesis.

My sincere appreciation goes to my thesis committee for the expertise and advice each member gave to the study. Endless gratitude and deep respect are extended to Dr. Jay Schindler, my thesis chairperson, for your invaluable knowledge, assistance, support, and time. Special thanks for your personal interest and friendship. My gratitude also goes to Dr. Dan Duquette and Dr. Lois Muir, my committee members, for referring me to appropriate resources, for your ideas, and for your professional assistance.

Special recognition goes to the La Crosse County Chapter of the American Red Cross, St. Francis Medical Center, and La Crosse Lutheran Hospital for making the implementation of this study possible. A note of thanks to the following employees for their assistance in planning and implementing the pretest: Karen Muldenhuer, Diane Peso, Ruth Priebe, and the nursing staff at both hospitals. An extra special thank you to Linda Lorenz who assisted me with interviewing the mothers during the pretest. Your dedication was appreciated. I would also like to thank Mary Halbach and Nancy Lovold for your assistance throughout the study.

I am grateful to the mothers, and their infants, who participated in the study. Without them, the study would not have been possible.

I want to thank some of the special people in my life who have helped me to attain my goal of completing the graduate program. Thank you to my colleague, Barb, for advising me to obtain a M.S. in Community Health Education from the University of Wisconsin-La Crosse, for your professional advice, and for your continued friendship. I wish to thank my sister, Sally, for your support, encouragement, and pride. Finally, I thank my fiance, Paul. Your advice, understanding, support, and love are greatly appreciated.

TABLE OF CONTENTS

TABLES

CHAPTER I

INTRODUCTION

The first automobile death on record in the U.S. occurred in New York City in 1899. By 1951, traffic accidents accounted for more than 1 million fatalities. Lawson, Sleet, & Amoni (1984) reported that unless there is a significant change in this trend, fatalities will reach 3 million by 1990. Inextricably associated with the risk factors for motor vehicle trauma are behavioral and lifestyle choices, such as safety belt use.

Background

Safety belt use has proven to be effective in saving lives. However, Sleet (1984) stated that of all the health practices which contribute to illness, injury, and premature death, a lack of safety belt use is usually the most widespread.

Accident prevention and health education are coordinated in the case of safety belt use. In 1978, Pless stated not only did this subject provide an end point that was observable, but the behavioral change was expected within a short interval, and the target population was large.

Pless (1978) also stated there were two questions that faced pediatrics. One was how to prevent accidents. The other was how to change health behavior. This not only included

reducing accidents, but also promoting lifestyles that would lead to positive health in other spheres. The researcher decided to address these questions in the adult population also.

In 1984, Lawson et al. reported the role of health education in reducing public misconceptions about safety belts and child restraint use was becoming increasingly recognized as a health and lifestyle issue.

Purpose and Statement of the Problem

One purpose of the study was to determine the influence of the American Red Cross Keep Infants Seated Safely (K.I.S.S.) program on the level of infant car seat use and/or adult safety belt use. Another purpose of the study was to determine if the use of infant car seats influence the frequency of adult safety belt use. The final purpose of the study was to determine if the variables of marital status, level of income, occupational status, level of education, and prior safety belt use influence infant car seat and/or adult safety belt use.

The statement of the problem in this study addressed the following: What was the effect of the use or nonuse of infant car seats upon the use of adult safety belts for the mothers who participated in the study? A second problem addressed by the study was: What was the effect of the K.I.S.S. program upon the level of infant car seat use and/or adult safety belt use by mothers who recently gave birth compared to mothers who did

not participate in the program? Finally, what was the effect of the variables of marital status, level of income, occupational status, level of education, and prior safety belt use upon the level of infant car seat use and/or adult safety belt use?

Need for the Study

The importance and need for this study can be stated in three ways.

The first is that the study may support (or develop) an approach to health behavior change which suggests that parents are motivated by their children to change their behavior. If parents participate in the practice of healthy behaviors for the purpose of the child's well-being, will they personally adopt these behaviors for their own well-being? Specifically, if parents believe that safety (as exhibited in the regular use of infant car seats) is important for their child, will they also view safety as an important aspect of their own lives and therefore use their safety belts on a regular basis?

Secondly, the study may provide evidence to support the idea that the implementation of a law for the protection of children may have an indirect benefit of protecting the adult population. Infant car seats may provide a stimulus for the adult population to utilize their safety belts. If this is true, it may be possible to find another way of getting adults

to use their safety belts other than through the enactment of unpopular or unenforceable laws.

The study may also provide evidence showing the K.I.S.S. program is effective in increasing infant car seat use and/or adult safety belt use. Therefore the program may be initiated in other areas of the country in an effort to decrease the number of traffic-related infant fatalities and/or injuries.

Research Hypotheses

This study examined the following research hypotheses:

1. The marital status, level of education, income, professional status, prior safety belt use, and K.I.S.S. program participation of mothers who give birth at La Crosse Lutheran Hospital or St. Francis Medical Center will have differing impacts upon the regularity of infant car seat use.
   - A. Subjects who are married will use their infant car seats more consistently than those who are not married.
   - B. Subjects with professional occupations will use their infant car seats more consistently than those who have nonprofessional occupations.
   - C. There is a significant relationship between infant car seat use and higher income levels.
   - D. There is a significant relationship between the higher levels of education and the consistent use of

infant car seats by subjects who participate in the study.

E. Among subjects who give birth at La Crosse Lutheran Hospital or St. Francis Medical Center during the month of October, 1985, those who participate in the K.I.S.S. program will use their infant car seats more consistently during the following six month period than those who do not participate in the program.

F. Subjects who report a high percentage of prior safety belt use during the pretest will use their infant car seats more consistently than subjects who report a low percentage of safety belt use.

2. The use level of infant car seats is positively correlated with the use level of adult safety belts by subjects with newborn infants.

3. The marital status, level of education, income, professional status, prior safety belt use, and K.I.S.S. program participation of subjects who participate in the study will have differing impacts upon the adult safety belt use scores.

A. Subjects who are married will use their safety belts more consistently than subjects who are not married.

B. Subjects with professional occupations will use their safety belts more consistently than subjects who have nonprofessional occupations.

C. There is a significant relationship between safety belt use and higher income levels.

D. There is a significant relationship between the higher levels of education and the adult safety belt use of subjects who participate in the study.

E. Among subjects who give birth at La Crosse Lutheran Hospital or St. Francis Medical Center during the month of October 1985, those who participate in the K.I.S.S. program will use their safety belts more consistently than those who do not participate in the program.

F. Subjects who report a high percentage of safety belt use at the beginning of the study will use their safety belts more consistently than subjects who report a low percentage of safety belt use.

4. The change in pretest to posttest adult safety belt use, as indicated by the change scores will be significantly greater for subjects who participate in the K.I.S.S. program compared to those who do not participate in the program.

Assumptions

1. It was assumed that the media coverage regarding safety belts and/or infant car seats did not influence the actual use of adult safety belts and/or infant car seats, by the subjects, while the study was in progress.
2. Infant car seats were available to parents whether or not they participated in the K.I.S.S. program.

3. Subjects traveled in vehicles that were equipped with safety belts.
4. The variables associated with the K.I.S.S. program (content, procedures, etc.) did not change during the implementation of this study.
5. All of the subjects responded honestly to the questions presented in the pretest, follow-up interviews, and the posttest.

Delimitations

There were six delimitations to the study:

1. Participants for the K.I.S.S. program were volunteers who desired to attend the program.
2. The subjects were delimited to mothers whose infants were less than three weeks in age, and were discharged from the hospital during subject selection time.
3. The study was delimited to mothers who gave birth at La Crosse Lutheran Hospital or St. Francis Medical Center.
4. Subjects who participated in the K.I.S.S. program after they were discharged from the hospital were not included in the study.
5. The study did not include subjects who did not have an infant car seat and/or who usually traveled in automobiles that were not equipped with safety belts.
6. Subjects with infants who had serious physical and/or mental disabilities were not included in the study.

Limitations

1. A community outside of the northern Midwest may obtain different results because of differences in economic, geographic, cultural, and other factors.
2. Fathers were not included in the study and may have had an impact on adult safety belt and infant car seat use.
3. Results may be different for infant safety restraint programs other than the K.I.S.S. program.
4. Participants at other hospitals which offer the K.I.S.S. program may respond differently.
5. Conducting the study at a different time may influence the results.

Definition of Terms

Infant: For the purpose of the study, an infant was defined as a full-term, healthy child who was less than three weeks old at the beginning of the study.

Keep Infants Seated Safely (K.I.S.S.) program: An infant safety restraint program sponsored by the La Crosse County Chapter of the American Red Cross, in which, after being presented with information, a demonstration, and practicing the use of car seats, participants receive the opportunity to rent an infant car seat for a period of up to nine months.

Serious physical and/or mental disability: An impairment of the infant's body and/or mental state that requires specialized treatment on a permanent basis.

CHAPTER II

LITERATURE REVIEW

The review of the literature includes information regarding the following: Motor vehicle accident statistics; infant car seat benefits and usage; benefits and usage of adult safety belts; legislation regarding child restraint laws and mandatory adult safety belt laws; educational programs; the K.I.S.S. program; variables affecting safety belt usage; theories which may be relevant to health education and safety restraint use; and a former study on child restraint and adult safety belt use.

Motor Vehicle Accident Statistics

The statistics regarding motor vehicle accidents are numerous and staggering. Some of the statistics relative to this study are listed below:

Sleet (1984) reported traffic accidents are the fourth leading cause of death in the U.S., and in 1982 there were 19.9 automobile-related deaths per 100,000 population. Based upon a number of studies and analyses from Hedlund, Arnold, Cerrelli, et al., (cited in Sleet, 1984) and the National Highway Traffic Safety Administration (NHTSA), cited in Tolsma, (1984), safety belts have the potential of reducing fatalities by about 50 percent and injuries by 65 percent.

The National Safety Council (cited in Gemming, Runyan, Hunter, and Campbell, 1984) stated in 1983 motor vehicle accidents accounted for more than 46,000 deaths and an estimated 1.5 million serious injuries.

Approximately two out of every three unbelted occupants killed in automobile accidents last year might be alive today if they had been wearing their safety belts at the time of the crash (Sleet, 1984).

Lawson et al. (1984) and the NHTSA (cited in Mc Ginnis, 1984) reported the economic costs of traffic accidents were extensive. Motor vehicle accidents were estimated to cost the nation more than $56 billion dollars each year (Lawson et al., and Mc Ginnis), and an estimated 11-14 million days of work were lost because of traffic accidents (Sleet, 1984).

As for children, Nichols (1982) and the National Child Passenger Safety Association (1985) reported that every year in the U.S. 600-700 children aged 0-4 years are killed in motor vehicle accidents and thousands more are seriously injured. Nichols specifically stated approximately 185 infants are killed each year. Sleet (1984) also added that automobile crashes kill ten times as many children as all of the diseases they are immunized against. Agran (cited in Nachem & Bass, 1984) found that almost 25 percent of the children injured in automobiles are not involved in a crash. Rather, they fall against objects inside the automobile or fall out of it during stops or swerves, or even during normal driving. Eriksen &

Gielen (1983) referred to Baker's study when they stated infants are six times more likely to be killed in a crash than children over one year of age. This is due to their anatomical structure and body proportions.

As for ejection statistics, O'Day and Scott (1984) stated one in every five occupants thrown from an automobile receives fatal injuries. Fatal injury was found to be 40 times greater for occupants thrown from the automobile than for those who weren't.

Benefits and Usage of Infant Car Seats

Studies have shown that although the potential benefits of using infant car seats is great, many parents still expose their children to great risks by allowing their children to ride in an automobile unrestrained.

Benefits of Infant Car Seat Usage

Studies by the National Safety Council (cited in Nachem & Bass, 1984), Nichols (1982), Richelderfer (cited in Roberts & Turner, 1984), and Scherz (cited in Colletti, 1983; Eriksen & Gielen, 1984; Gielen & Radius, 1984; and Nachem & Bass, 1984) estimated the proper use of car seats would reduce the number of children injured or killed in automobile accidents by 60-90 percent.

Improved behavior and other benefits of infant car seats were also reported by some of the studies reviewed.

Christopherson & Gyulay (1981) indicated the behavior of children who were restrained in motor vehicles tended to be much better during an automobile ride than children who were not restrained. Children's behavior in vehicles has shown to be either a direct cause or contributing factor in motor vehicle accidents.

Nachem & Bass (1984) stated other advantages of using infant car seats. One was that the seat could be used as an infant carrier, since it is lightweight.

Usage of Infant Car Seats

The consistent and proper use of infant car seats is the solution to decreasing the number of motor vehicle fatalities and injuries in children.

There was a discrepancy in the literature regarding the use rates of infant car seats. Part of the problem was that some studies did not specifically report on infants themselves, but grouped them into a 0-5 year old age bracket. Williams (1976) completed an observational study of vehicles containing at least one passenger under the age of ten. He found that children who were less than two years old were more likely to be restrained and restraint use sharply declined after the age of one.

Two studies that grouped infants into their own age category included a study for the NHTSA and an observational study completed for the state of Minnesota. The NHTSA study

found the average infant restraint use for the nation to be at a low level. Data collected from observations in 19 U.S. cities showed an average use of 45.3 percent (Phillips, 1980).

The Minnesota Department of Public Safety together with the Minnesota Occupant Restraint Program have conducted annual automobile restraint studies since 1981. The study utilized the same ten cities each year to observe the restraint use of infants, young children, older children, young adults, passengers, and drivers. In 1985, the agencies added ten more cities to the study, for a total of 20 cities. The study found 76 percent of the infants observed were in safety restraints, however only 71 percent of the infants observed were correctly restrained (Minnesota Occupant Restraint Program & Minnesota Department of Public Safety, 1985).

Researchers in three of the 20 cities reported 100 percent of the infants observed were in safety restraints, yet in two other cities only 40 and 53 percent were restrained.

Infant restraint use for the ten original cities increased, but fluctuated, from an overall average use of 54.5 percent in 1981 to 75.5 percent in 1985 (Minnesota Occupant Restraint Program & Minnesota Department of Public Safety, 1985).

Although the percentages of observed infant restraint use were high, the researchers of the study warned the percentages were not useable because the number of observations in any one city were small (Minnesota Occupant Restraint Program & Minnesota Department of Public Safety, 1985). However, the

researchers stated that of all the groups observed, only infants consistently showed a high percentage of restraint use.

Other studies stated information to consider when measuring the level of infant safety restraint use. According to Eriksen & Gielen (1983) and Gielen & Radius (1984), as much as two thirds of parents still do not use car seats, even in states with legislation. Lawson et al. (1984) stated the majority of parents who used child safety seats were unaware they were using them incorrectly. These studies grouped infants into the same category as young children.

C. Forbes, Wisconsin Department of Transportation highway safety coordinator, (personal communication, February 21, 1986) stated reliable observational studies of safety restraint use in Wisconsin were not available. However, a survey of accident data from Wisconsin indicated there is a low usage level of safety restraints in this state. According to St. Clair (1985), only 20.1 percent of children (aged 5 years or younger) injured in accidents were in a restraint.

Benefits and Usage of Adult Safety Belts

Most people are aware of the positive value safety belt usage has in preventing injury or death; however, at the present time, few people use them on a continuous basis.

Benefits of Adult Safety Belt Use

As stated earlier, Hedlund et al. (cited in Sleet, 1984) and the NHTSA (cited in Tolsma, 1984) reported safety belt use has the potential of preventing 50 percent of traffic fatalities and 65 percent of automobile-related injuries. However, Campbell & Reinfurt (cited in Campbell, Hunter, & Stutts, 1984) indicated these statistics could even be higher. Research conducted by the University of North Carolina Highway Safety Research Center showed safety belts to be as much as 75 percent effective in preventing deaths due to motor vehicle crashes. To be more specific, Nichols (1982) stated that for every one percent rise in annual safety belt use, more than 180 lives are saved.

O'Day & Scott (1984) studied the benefits of protection from ejection. They found 20-30 percent of all occupants ejected from automobiles received fatal injuries, compared to only 0.5 percent who remained in the automobile.

Usage of Adult Safety Belts

Although the benefits of wearing safety belts outweigh the reasons for not wearing them, many people still do not use safety belts. Amoni (1984), Goodell-Grivas, Inc. (cited in Campbell et al., 1984), and Lawson et al. (1984) indicated the current level of safety belt use among Americans is 14 percent.

Statistics for the state of Wisconsin were similar to the national level. R. Fleming, chief of accident data for the

Wisconsin Department of Transportation, (personal communication, April 1985) stated the safety belt use level for people of all ages in Wisconsin was 14-16 percent.

Legislation

There are many disagreements regarding the most appropriate approach to take when considering the issue of safety restraint use and traffic accidents. The literature referred to legislation of restraint use as one of the methods being used to decrease the number of fatalities and injuries related to traffic accidents.

Child Restraint Laws

In 1978, Tennessee became the first state to initiate a child restraint law (Roberts & Turner, 1984). According to the NHTSA (personal communication, April 29, 1986), all 50 states have enacted legislation requiring parents to utilize safety restraints for their children. In 1982, Wisconsin enacted a law on child passenger protection requiring children under the age of four to be restrained while traveling in motor vehicles. In 1983, Wisconsin amended the law to include a penalty which required parents, or legal guardians, to pay $30-$75 if found transporting children under two years of age without having them restrained. The parent would not be fined if he/she provided proof of obtaining and installing a car seat within 30 days of the violation. Parents with children two to four years

of age received a fine of $10-$25 for the first offense, and $25-$200 for the second offense within three years. Proof of restraint installation would not alleviate the violation for this parent (Wisconsin Department of Transportation, 1981).

The Wisconsin Traffic Safety Reporter (1985) recently published the results of a study completed by Fleming. He found injuries for children in the 0-3 year age group declined by 14 percent in the past three years. However, fatalities for children in the same age group fluctuated. There were 14 fatalities (of children under four years) in 1981, five in 1983, and 12 in 1984.

This decrease in childhood injuries was reported to coincide with the adoption of the mandatory child restraint law that went into effect in November of 1982 (Wisconsin Traffic Safety Reporter, 1985). However, Fleming also stated that injuries in this age group had been declining for several years prior to the implementation of the mandatory child restraint law.

The literature cited several problems which exist with the implementation of child safety laws, potentially affecting the benefits of their use. Some of the problems included law enforcement and the issues of personal rights and freedom (Roberts & Turner, 1984). Philpot, Heathington, Sontag, et al. (cited in Roberts & Turner) noted awareness of the law and correct use of the car seat as being potential problems.

Mandatory Adult Safety Belt Laws

In July, 1984, Secretary of Transportation, Elizabeth Dole, issued a statement saying that if states representing two-thirds of the U.S. population did not enact mandatory safety belt laws by April 1, 1989, all new automobiles would be required to be equipped with passive restraints (Molotsky, 1985). This resulted in automobile companies putting considerable pressure upon state legislatures to enact mandatory safety belt laws. At the end of 1985, 17 states and the District of Columbia had mandatory safety belt laws. This represented over 50 percent of the U.S. population (Minnesota Occupant Restraint Program & Minnesota Department of Public Safety, 1985). Minnesota passed a mandatory safety belt law in the early part of 1986. At the time of this writing, the Wisconsin legislature has not passed a mandatory safety belt law.

The increased level of safety belt use that occurs after a mandatory law is enacted was reported by Jonah, Dawson, & Smith (1982) to occur as a result of the threat of punishment. They found the less likely the enforcement of the law, the less likely a person would be to use safety belts. Fhaner & Hane (1979) related the decision making process regarding safety belt use and mandatory laws to dissonance theory. The individual would have to choose between wearing the safety belt or risking a fine.

The success of mandatory safety belt use laws was found to be dependent not only on adequate law enforcement, but also on public awareness, acceptance, and support. Educational programs, alone, were reported as being generally unsuccessful (Gemming et al., 1984; & Tolsma, 1984).

Tolsma (1984) reported there is evidence legislation is most effective when accompanied with education. Education could supply the rationale needed for compliance with legislation. Tolsma (1984) added:

> Legislative mandates should arise, therefore not to direct the public's will but to serve it. The public health community, by acquiring epidemiologic and other data, analyzing it, and conveying it to both individuals and community decision makers in compelling ways, contributes substantially to this process. Nevertheless, it is our continuing responsibility to find better, more effective ways to convey this message and to reduce risks to occupants of motor vehicles. (pp. 139-140).

The May/June 1985 issue of the Wisconsin Traffic Safety Reporter stated C. Forbes as saying the decline in injuries for the 0-3 year old age group in Wisconsin may have been due to an increasing use of safety restraints, as well as statewide educational efforts to promote restraint use. These included loaner programs in numerous areas throughout the state of Wisconsin.

Educational Programs

Numerous safety restraint education programs exist throughout the United States. Two studies were found which examined various child restraint education programs.

Reisinger and Williams (1978) evaluated three educational programs in comparison to a control group. One program consisted of providing literature with easy access and convenient purchase of the infant car seat. The second program provided the same as the first, but added a personal discussion on the technique and importance of protecting the infant. The third program provided a free infant car seat with the literature. The study found the various education programs had little effect upon increasing the protection of infants in automobiles.

Miller and Pless (1977) examined three types of educational programs that were presented in pediatricians' offices in comparison to a control group. The three programs consisted of: A pamphlet alone; a pamphlet and verbal instruction by a pediatrician; or a pamphlet, verbal instruction, and a brief slide-tape show. Miller and Pless found no statistically significant behavior changes in any of the groups.

Keep Infants Seated Safely (K.I.S.S.) Program

The Keep Infants Seated Safely (K.I.S.S.) program of the American Red Cross was first initiated in Madison by the Dane County Chapter (American Red Cross, 1981). The La Crosse County Chapter of the American Red Cross intiated the program here in March, 1983. After a short educational film, demonstration by a volunteer instructor, and personal practice with a doll and an infant car seat, parents are given the

opportunity to rent a car seat before they leave the hospital with their newborn infant. The infant car seats may be utilized for a period of up to nine months or until the child reaches a weight of 20 pounds. The program is offered at La Crosse Lutheran Hospital and St. Francis Medical Center. The parents pay a nominal fee for the infant car seat; however they receive a partial reimbursement of the original fee when it is returned to the Red Cross. Those who are unable to afford a car seat may receive assistance through a social service agency. After the return of the car seat, parents are referred to the La Crosse Jaycettes for toddler seat rental.

Variables

Variables associated with the use of infant car seats or adult safety belts were reported to resemble the variables associated with the practice of preventive health behaviors (Eriksen & Gielen, 1983).

Allen & Bergman (1976); Fhaner & Hane (1973); Gielen, Eriksen, Daltroy, & Rost (1984); Gielen & Radius (1984); Kielhorn & Westphal (cited by Eriksen & Gielen, 1983); Neumann, Neumann, Cockrell, & Banani (1974); and Robertson, O'Neill, & Wixom (1972) indicated the variables of education, occupation, and income as being positively associated with the use of infant car seats and/or adult safety belts.

Neuman et al. (1974) and Reisinger & Williams (1978) found that married mothers were more likely to use their infant car

seats than single mothers. Gielen & Eriksen (1984) and Neuman et al. also indicated parental safety belt use was a significant factor associated with the proper and consistent use of car seats.

Fhaner & Hane (1973) cited numerous studies which indicated people with higher levels of education tended to use their safety belts more frequently. According to Mayas, Boyd, Collins, & Harris (1983), education was the strongest and most consistent of all the demographic variables affecting adult safety belt use cited in most studies.

Manheimer & Mellinger, and Sweetser (both cited in Fhaner & Hane, 1973) found that people with professional occupations and higher income levels tended to use their safety belts more frequently.

Dobson, and Manheimer & Mellinger (both cited by Fhaner & Hane, 1973) stated married people were more likely to use their safety belts.

Allen & Bergman (1976), Fhaner & Hane (cited by Mayas et al., 1983), and Neumann et al. (1974) indicated accident history was not associated with either adult safety belt or infant car seat use.

Theories

There were two theories the researcher had an interest in pursuing: Social learning theory, and child effects upon parent behavior.

Social Learning Theory

The social learning theory was supported in the literature as being relevant to health education when considering the use of infant car seats. Allen & Bergman (1976) have described social learning theory as follows:

> Within the social learning theory model, new patterns of behavior can be acquired through direct experience or by observing the behavior of others. Social learning theory assumes that modeling produces learning through informative processes and that observers acquire symbolic representations of modeled activities. (p. 324).

Allen & Bergman (1976) used the technique of social learning theory to promote the use of car seats. A film was shown to new mothers in which model parents transported their infants in car seats. The new mothers were requested to enact the part of the modeled performance in which an infant doll was placed and secured in a car seat. Follow-up results of the study were encouraging for applying social learning theory principles to health education. The rate of infant car seat use in the experimental group was almost twice that of the control group. The measurement of the study was completed by self-reported purchase and use of infant car seats.

However, there have been ineffective results of behavioral rehearsal on increasing behavioral change (Allen & Bergman, 1976). Two possible explanations were given for the ineffectiveness of behavioral rehearsal. One was the probability of retention produced by the information and modeling components was so high as to attenuate the effects of

behavioral rehearsal. Another explanation was that no provision was made for the reinforcement of successful enactment of modeled behavior.

Christopherson & Gyulay (1981) studied the effects of clinic visits and a written protocol regarding how to use child restraints. The approach used encompassed the educational modalities of verbal and written instruction, modeling, and behavioral rehearsal. The parents' behavior of requiring their child to use the car seat was consistently reinforced when they realized the expectations of the health care provider.

Child Effects on Parent Behavior

The literature regarding child effects on parent behavior seemed to report this topic has been overlooked. Specifically, Bell & Harper (1977) stated: "We expect parents to influence their children. People who live together usually affect each other, but what is often overlooked is the extent to which children influence their parents and other adults" (p. ix).

Children's influence on parents, even when acknowledged in the past, has usually been treated as if it were unimportant. However, Bell & Harper (1977) refuted these statements by saying children, even infants, can exert definite and sometimes very strong influences on adult behavior. Barker (cited in Sears, Festinger, & Lawrence, 1967) reported people who are influenced by a behavior setting are sometimes not as able to recognize it as often as those on the outside.

Bell & Harper (1977) further stated when studying child effects on adult behavior, a distinction has to be made between those responses that take cognizance of the child as a stimulus and those that do not. Is the adult aware the behavior was induced by the child? Or does the adult believe he/she responded or reacted to the child as a result of thoughts or feelings that exist within the adult?

The study by Watson (cited by Bell & Harper, 1977) was used to describe the development of "contingency games". Contingency games were described as involving complementarity and reciprocity, one of the more pure forms of social interaction. The responses that the infant follows as a result of parent behavior, can, by that contingency, acquire reward value. The reverse is also true. The responses that the parent follows as a result of infant behavior, can also acquire reward value.

In Sears et al. (1967), the author, Meek Stolz, interviewed a series of parents and analyzed the influences that affected the rearing of children:

> Although many values and beliefs guide the behavior of parents, there are other elements entering into any parent-child interaction that may often be critical in determining a practice. Within the family, the personal needs of the parents, the influence of the spouse, and especially the characteristics and behavior of the child have strong effects on the way parents bring up their children. Even the behavior setting in which the parent-child interaction takes place may be a determining factor in the parent's behavior. (p. 304).

Differences between mothers and fathers were examined (Sears et al., 1967). The values and beliefs on child-rearing

were emphasized more by fathers than mothers. Mothers tended to stress the effect of circumstances that inhibit, modify, or change practices emanating from a parent's values or beliefs (Sears et al., 1967). Mothers were reported to change their child-rearing practices because of their interests, physical condition, or anxieties. The author found the behavior setting in which parent-child interaction occurs modified the practices of mothers more than fathers, both within and outside the home.

Former Studies

The researcher found one study which used procedures and measured data that were similar to this research study.

Moffit (1981) developed a study that measured the effects of the Utah Child Restraint Education and Loan Program on the use of infant restraints and adult safety belts among mothers enrolled in a public health clinic.

Moffit (1981) utilized a posttest only control group design. Initially, 50 pregnant women were randomly assigned to experimental and control groups, along with the selection of a nonequivalent control group. All women in the experimental and control groups were enrolled in a Public Health Department Maternal and Infant Care Program which provided comprehensive health care to high risk mothers during the prenatal, intrapartum, and postpartum periods.

The study included the assessment of knowledge and beliefs regarding automobile restraint safety, health locus of control

attitudes, and the incidence of safety belt and child restraint use at two-week postpartum clinic visits (Moffit, 1981). Moffit conducted a telephone follow-up survey six months later. Nonequivalent control group observations were completed at the beginning and at the end of the study.

The results of the study indicated no significant differences in the incidence of child restraint and mother's safety belt use between experimental, equivalent control, and nonequivalent control subjects (Moffit, 1981). However, the six month follow-up study indicated an increased use of child restraints for both the experimental and equivalent control groups.

Moffit (1981) concluded the educational treatment had no significant impact on the incidence of infant restraint use and adult safety belt use.

CHAPTER III

METHODOLOGY

Data collection began in October, 1985, and was completed in April, 1986. This chapter describes the methods used to collect and analyze the research data.

Subject Selection

Females who delivered live births and were discharged with their infants during the month of October, 1985, from either La Crosse Lutheran Hospital or St. Francis Medical Center were the subjects of this research study. All of the subjects in the study were hospitalized at a time when the K.I.S.S. program was normally offered. The subjects volunteered to participate in the study. All of the subjects were mothers whose infants were healthy, full-term, and less than three weeks old at the beginning of the study. The sample in the control group included mothers who did not attend the K.I.S.S. program but were hospitalized for childbirth at the time it was offered. Those in the treatment group included mothers who attended the K.I.S.S. program before being discharged from the hospital during the month of October.

The control and treatment groups were each divided into five subgroups that represented each of the five weeks in October. This yielded a total of ten subgroups. The minimum

acceptable number of subjects in both the control and treatment groups was thirty.

Materials

Other than the instruments mentioned below, the additional materials necessary for this study were the infant car seats. The car seat loaned through the La Crosse County Chapter of the American Red Cross was the Century Infant Love Seat.

Instrumentation

The instruments used in this study included a pretest, four telephone follow-up surveys, and a posttest conducted with the final telephone survey. Each instrument included questions derived by the researcher, as well as questions modified from Moffit (1981).

The pretest requested the following information: the mother's marital status, income, occupation, and educational level; the infant's date of birth; ages and restraint use of other family children; availability of safety belts in automobiles; possession and/or intent to obtain an infant car seat; mental and/or physical disabilities of the infant; perceived frequency of adult safety belt use and the reasons for their use and nonuse (Appendix A).

Each telephone follow-up survey asked the subjects for information regarding their actual use of safety belts and infant car seats within the recent three day time period. Also

included in this survey were questions regarding mental and/or physical disabilities of the infant, availability of safety belts in automobiles, and posession of an infant car seat (Appendix B).

The posttest was administered during the last telephone survey. Some of the information from the pretest and the follow-up survey was requested with the exception of infant's date of birth. Questions regarding the subject's infant car seat use during the past month, perceived frequency of infant car seat use, and the reasons for their use and nonuse were also included in this final survey (Appendix C).

Procedures

Moffit (1981) found a significant relationship between observed and self-reported use of infant car seats and therefore did not recommend observational procedures be used in future studies. However, other studies stated that although there is a high correlation between self-reported and observed use, self-reported use tended to be inflated (Mayas et al., 1983). The researcher decided to utilize a pretest, four follow-up interviews conducted at six week intervals, and a posttest conducted at the end of a six month period. Although this may not be as valid as an observational study, the validity is enhanced with recurrent measurement. Measurement times included: 1) a pretest in October, 1985, 2) four

telephone follow-up surveys at six week intervals, and 3) a posttest administered during the final telephone survey.

Study Preparation

Before the study began, the researcher received permission from the Chairpersons of the Research Committee and the Human Investigation Committee at La Crosse Lutheran Hospital and the Nursing Service Department Human Subjects Committee at St. Francis Medical Center to administer the pretest while the subjects were hospitalized (Appendix D).

The researcher was required to obtain a TB test and rubella titer before the pretest could be initiated.

Two types of volunteer training occurred for this study: the researcher was trained as a hospital volunteer, and the researcher trained a volunteer to assist in the administration of the pretest at one of the hospitals. The researcher attended a volunteer orientation at St. Francis Medical Center. The orientation presented information regarding hospital policies, volunteer responsibilities, and volunteer benefits. One hospital volunteer, Mrs. Linda Lorenz, was obtained through the Volunteer Services Department at La Crosse Lutheran Hospital. Mrs. Lorenz was evaluated on her abilities in face-to-face interviewing and oriented to the study objectives and the pretest procedures. After observing and conducting the pretest with the researcher, Mrs. Lorenz interviewed the subjects separately.

Pretest Survey

Mothers who attended the K.I.S.S. program were asked to give their consent (Appendix E) and fill out the pretest questionnaire mentioned above at the session shortly before the program began. At the time the program was being presented, the researcher approached those who did not attend the program, and asked them to participate in the study as control group subjects. They also completed a consent form and the same questionnaire. During this time the researcher also received the names, addresses, and phone numbers of both the K.I.S.S. program participants and nonparticipants.

Telephone Follow-up Surveys

Telephone follow-up interviews were conducted at six week intervals for a period of six months after the final pretest was completed. All of the subjects in each subgroup were interviewed six weeks after they took the pretest. The subjects from both the treatment and control groups who completed the pretest during the first week in October were later interviewed during weeks 6, 12, 18, and 24. Those who completed the pretest during the second week were also interviewed during weeks 7, 13, 19, and 25. The subjects who took the pretest during the third week in October were interviewed during weeks 8, 14, 20, and 26. Subjects who completed the pretest during the fourth week were interviewed

during weeks 9, 15, 21, and 27. The final group of subjects who took the pretest during the fifth week were interviewed during weeks 10, 16, 22, and 28.

During each follow-up interview time period, the subjects for each respective subgroup were contacted once and asked to give information regarding their actual automobile, safety belt, and infant car seat use during the last three days (Appendix B). The researcher tried to contact each subject a maximum of five different times of the day and week during each period. If the subject was not contacted by the fifth trial, the researcher assumed she was unable to be reached by telephone and sent the subject a letter, questionnaire, and prepaid return envelope. If the questionnaire was not returned within 10 days after it was sent, the researcher sent a reminder notice. If two questionnaires were not returned by the same subject, she was dropped from the study.

Posttest Survey

A posttest was included on the last telephone follow-up survey. This was completed for the respective subgroups during weeks 24, 25, 26, 27, and 28.

Survey Reliability

A reliability study control group of 31 mothers, unassociated with the study, was surveyed to establish the reliability of the follow-up survey instrument. A one-tailed Z

test compared the responses of this group to the response of the study subjects.

Data Analysis

The following sections describe how the dependent variables were derived and the statistical analyses used to indicate the significance of the independent variables on the dependent variables.

Deriving the Dependent Variables

The dependent variables analyzed in this study were: regularity of infant car seat use, mean infant car seat use scores, mean adult safety belt use scores, and the adult safety belt use change scores.

Mean adult safety belt and infant car seat use scores. Each subject was contacted at six week intervals and requested to give specific information regarding her automobile, safety belt, and infant car seat use. The mean adult safety belt and infant car seat use score for each subject was calculated at the end of six months for both groups. The mean adult safety belt use score for each subject was calculated by using the following method: For each of the four follow-up interviews, the total number of times the subject used her safety belt within a three-day period was calculated, and compared with the total number of times she drove and/or rode in an automobile during that same three-day period. The ratio of safety belt

use to automobile riding/driving experience provided a measure of the proportion of the time she used her safety belt. The average ratio was calculated from the four ratios collected during the six month period (Appendix F-1).

The same method was used for obtaining the mean infant car seat use score for each subject. The total number of times the subject used an infant car seat within a three-day period was calculated for each follow-up interview, and compared to the total number of times the subject put her infant into an automobile during that same period. The resulting ratios for the four follow-up interviews were added together and then divided by four to obtain a mean infant car seat use score for each subject (Appendix F-2).

Regularity of infant car seat use. The posttest provided a question about infant car seat use during the past month (see Appendix C, question 17). Due to the subjects reporting an almost 100% use rate of infant car seats during the follow-up interview periods, the answers to this question provided a more discriminating response and therefore were used as the basis for the dependent variable in Hypothesis One. The answers to question 17 of the posttest were qualitative and dichotomous.

Adult safety belt use change scores. The pre- and posttest requested the subjects to estimate their safety belt use (see Appendices A and C) of which the group means served as the basis for calculating the change scores. Three change scores were measured in this study. They were calculated as follows:

the difference between estimated adult safety belt use during the posttest and estimated adult safety belt use during the pretest; the difference between the adult safety belt use score calculated at the end of the study and the estimated adult safety belt use during the pretest; and the difference between the adult safety belt use score calculated at the end of the study and the estimated adult safety belt use during the posttest.

Statistical Analyses

The statistical analyses used to analyze the data collected in this study were the chi square test of independence, multiple regression, Spearman's rank order correlation, and the independent groups t-test. Although the chi square test of independence and Spearman's rank order correlation are not as powerful as parametric tests when examining data that closely follows a normal distribution, they were relevant choices due to the skewed distribution of infant car seat use scores: all but seven of the 84 study subjects reported they always used an infant car seat during the follow-up interview periods.

Referring to Hypothesis One, the dependent variable was the regularity of infant car seat use, a dichotomous variable. The independent variables were marital status, professional status, income, level of education, prior safety belt use, and K.I.S.S. program participation. The chi square test of independence was used to analyze the effects of each of these independent variables upon the infant car seat use score at the $p=.05$ level

of significance. The data regarding infant car seat use was highly skewed. Therefore the independent variables were computed to dichotomous variables.

Spearman's rank order correlation was used to examine Hypothesis Two. Although this test is not as powerful as a parametric test, it allowed for the skewed distribution of infant car seat use scores. The use level of infant car seats was the independent variable and the use level of adult safety belts was the dependent variable. Both variables were quantitative in nature.

The dependent variable for Hypothesis Three was the mean adult safety belt use score. The independent variables were the same as those used for Hypothesis One. Many of these variables were either dichotomous or interval/ratio level data. Therefore, multiple regression was used to analyze data at the $p=.05$ level of significance for this hypothesis.

The independent groups t-test analyzed data at the $p=.05$ level of significance for Hypothesis Four. The independent variable, K.I.S.S. program participation, was between subjects and had only two values. The dependent variables, the adult safety belt use change scores, were measured on an interval/ratio level.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the analysis of the independent variables and their impact upon the total adult safety belt and infant car seat use scores obtained throughout the study.

Introduction

Eighty-nine subjects participated in the pretest, which began on October 2, 1985, and was administered to new subjects each Monday, Wednesday, and Friday through October 30, 1985. Data collection for the entire study was completed by April 19, 1986.

During the telephone follow-up interviews, seven subjects were consistently surveyed through the mail. These subjects stated, during the pretest, that they did not have telephones. Other subjects either did not answer their telephone or had disconnected numbers during the follow-up periods. Nine surveys were mailed during the first follow-up period with five returned; ten surveys were mailed during the second follow-up with a return response of eight; and during each of the last two follow-up interviews, nine surveys were mailed with a return response of eight.

The researcher deleted five subjects from the study. Two subjects stated they had safety belts that were broken; two did

not respond to the mailed surveys; and one subject consistently responded with a zero answer to the questions regarding automobile use for herself and her infant during each of the four follow-up telephone surveys.

There were a total of 84 subjects at the completion of the study. Forty-four subjects participated in the K.I.S.S. program (treatment group), and 40 did not participate in the program (control group).

Results

Table 1 compares the independent variables analyzed in this study for both the K.I.S.S. program participants and nonparticipants.

Comparison of Demographic Variables

The nonparticipant group had slightly higher levels of education and income, and a higher percentage of married subjects. The two occupational categories most often reported by both groups were "professional" and "housewife". The participant group had a higher percentage of housewives, while the nonparticipant group had a higher percentage of professional workers. The most notable difference was the higher percentage of prior safety belt use reported by the nonparticipant group (see Table 1).

Table 1

Demographic Variable Comparisons
K.I.S.S. Program Participants & Nonparticipants

Independent Variables	Participants	Nonparticipants
Marital Status (%)		
Married	77.3	87.5
Single	22.7	7.5
Other	----	5.0
Professional Status (%)		
Professional	13.6	25.0
Housewife	38.6	22.5
Clerk/Typist/Secretary	11.4	12.5
Unskilled	9.1	7.5
Other	27.5	32.5
Estimated Individual Safety Belt Use During Pretest (%)	32.02	57.87
Median Income (in dollars)	18,000	20,000
Level of Education (Mean Years)	13.07	13.95

Mean Adult Safety Belt and Infant Car Seat Use Scores

The means of the adult safety belt and infant car seat use scores were calculated for both groups at the end of the study (see Appendix F for the equation used to calculate these scores). Adult safety belt use scores will be discussed under Hypothesis Four. The mean infant car seat use score for the program participants was 99.36%, and for the nonparticipants, 97.95%.

Survey Reliability

All but seven of the 84 study subjects reported a 100% use rate of infant car seats during each of the follow-up interviews. A reliability study control group was surveyed during the follow-up period. This group was used to establish the reliability of the telephone follow-up survey instrument. Two of the 31 mothers who had infants born in November did not use their infant car seats on a consistent basis. The other 29 mothers reported a 100% infant car seat use rate. The mean infant car seat use score for this group was 93.55%.

A one-tailed Z test was computed to determine if there was any significant difference in the follow-up survey responses given by the reliability study control group compared to the study subjects. A Z test value of -.364 indicated the mothers of the reliability study control group did not respond differently to the questions on the survey than the study subjects.

Statistical Analyses of the Hypotheses

The chi square test of independence, Spearman's rank order correlation, multiple regression, and an independent groups t-test were the statistical procedures used to analyze the results obtained from this study.

The research hypotheses in Chapter One are restated here in their null form.

Null Hypothesis One

The first hypothesis states: The independent variables of marital status, educational level, income, professional status, prior safety belt use, and K.I.S.S. program participation will not have a significant impact upon the regularity of infant car seat use.

A. Married subjects will not use their infant car seats more consistently than those who are not married.

B. Subjects with professional occupations will not use their infant car seats more consistently than those who have non-professional occupations.

C. There is no significant relationship between infant car seat use and higher income levels.

D. There is not a significant relationship between higher levels of education and the consistent use of infant car seats.

E. Subjects who participate in the K.I.S.S. program will not use their infant car seats more consistently than subjects who do not participate in the program.

F. Subjects who report a high percentage of prior safety belt use during the pretest will not use their infant car seats more consistently than subjects who report a low percentage of safety belt use.

A chi square test of independence analyzed the results obtained for each subhypothesis listed above. Based upon chi

square analysis, "marital status" and "K.I.S.S. program participation" were the only two variables that proved to be significant at the p=.05 level (see Table 2). The other independent variables were not statistically significant. Subhypotheses B, C, D, and F were not rejected.

Table 2

Chi Square Test of Independence: Relationship Between Independent Variables and Regularity of Infant Car Seat Use

Independent Variables	N	df	X^2	p
Marital Status	82	2	7.221*	.027
Occupational Status	81	9	7.866	.548
Level of Income	83	11	13.375	.270
Level of Education	83	10	9.232	.510
K.I.S.S. Program Participation	83	1	5.157*	.023
Prior Safety Belt Use	80	17	17.574	.416

*significant at $p \leq .05$ level

When the chi square test of independence was performed to analyze the relationship between marital status and regularity of infant car seat use, the chi square was statistically significant, X^2 (df=2, N=82)=7.22, $p<.05$ (see Table 2). The strength of the relationship, as measured by Cramer's V, was equal to .297. The nature of the relationship was such that single subjects were more likely to use their infant car seats on a consistent basis than married subjects. Because of this, subhypothesis A was not rejected.

The relationship between K.I.S.S. program participation and regularity of infant car seat use demonstrated a significant X^2 (df=1, N=83)=5.16, p<.05 (see Table 2). The strength of the relationship as measured by phi, was .278. The nature of the relationship suggests that subjects who participated in the K.I.S.S. program were more likely to use their infant car seats on a consistent basis than those who did not participate in the program. Since K.I.S.S. program participation proved to be a significant variable in the regular use of infant car seats, subhypothesis E was rejected.

Null Hypothesis Two

The second hypothesis is: The use level of infant car seats is not correlated to the use level of adult safety belts by subjects who have infants.

The researcher used the Spearman's rank order correlation test to analyze the results for the second hypothesis. The correlation coefficient was not statistically significant, r_s =.0055 (N=84), p= .480. Therefore the null hypothesis was not rejected, and the researcher could not conclude that the use level of infant car seats is correlated to the use level of adult safety belts by the subjects in this study.

Null Hypothesis Three

The third hypothesis states that the independent variables of marital status, educational level, income, professional status, prior safety belt use, and K.I.S.S. program

participation do not have a significant impact upon the mean safety belt use score of subjects who participate in the study.

A. Married subjects will not use their safety belts more consistently than subjects who are not married.

B. Subjects with professional occupations will not use their safety belts more consistently than subjects with non-professional occupations.

C. There is not a significant relationship between safety belt use and higher income levels.

D. There is not a significant relationship between higher levels of education and adult safety belt use.

E. Subjects who participate in the K.I.S.S. program will not use their safety belts more consistently than subjects who do not participate in the program.

F. Subjects who report a high percentage of safety belt use at the beginning of the study will not use their safety belts more consistently than subjects who do not participate in the program.

The researcher used multiple regression analysis to determine the effects of the variables listed in the above paragraph upon the mean adult safety belt use score of subjects in the study.

The initial regression equation was significant at the $p=0.05$ level with "prior safety belt use" being the only significant independent variable. The strength of the relationship, as measured by the adjusted R square, was .4744.

Subhypothesis F was rejected. Table 3 shows the significance of prior safety belt use in the regression equation. The independent variables of marital status, level of education, income, professional status, and K.I.S.S. program participation were not retained in the equation.

Table 3

ANOVA Table for Regression Analysis Including Prior Safety Belt Use

Source	df	Sum of Squares	Mean Squares	F Value[a]
Regression	1	62014.25	62014.25	71.4060
Residual	77	66872.51	868.47	
Total	78			

[a] $p<0.0001$

Regression equation

Adult safety belt use score = .694(prior safety belt use) + 18.463[b]

[b] adjusted R square=0.4744

Prior safety belt use, because of its high correlation with the dependent variable, adult safety belt use, accounted for most of the explained variability in the dependent variable. However, since this independent variable is conceptually so similar to the dependent variable, the researcher decided to leave this one variable out of a follow-up regression analysis to examine the possibility of the other independent variables as being significantly associated with adult safety belt use.

The follow-up regression equation (with prior safety belt use left out) was found to be significant at the $p=0.05$ level (see Table 4). The only significant variable was level of education. The strength of this relationship, as measured by the adjusted R square, was .0609. Subhypothesis D was rejected.

Table 4

ANOVA Table for Follow-up Regression Equation

Source	df	Sum of Squares	Mean Squares	F Value[c]
Regression	1	9733.13	9733.13	6.1932
Residual	79	124154.87	1571.58	
Total	80			

[c] $p=0.0149$

Regression equation

Adult safety belt use score= 4.859(education lev) -16.344[d]

adjusted R square=0.0609[d]

The variables, marital status, occupational status, income, and K.I.S.S. program participation were not retained in the follow-up regression equation. Subhypotheses A, B, C, and E were not rejected.

Null Hypothesis Four

The final hypothesis states: The change in pretest to postest adult safety belt use, as indicated by the change

scores, will not be significantly greater for subjects who participate in the K.I.S.S. program compared to those who do not participate.

Table 5 shows a comparison of estimated pre-and posttest safety belt use mean scores, and the safety belt use mean scores calculated at the end of the study (see Appendix F-1 for calculation of the actual adult safety belt use scores).

Table 5

Adult Safety Belt Use: Mean Pre-and Posttest Estimates, and Calculated Adult Safety Belt Use Score for K.I.S.S. Program Participants & Nonparticipants

	Participants	Nonparticipants
Safety Belt Use Score (%)		
Pretest Estimate	32.02	57.87
Posttest Estimate	44.58	52.60
Calculated Adult Safety Belt Use Scores	44.30	53.45

An independent groups t-test was used to analyze the effects of K.I.S.S. program participation upon the adult safety belt use change scores. Table 6 shows that the independent groups t-test result was significant ($t=2.08$, $df=78$) at the $p=.05$ level of significance for Change Score One, the difference between mean estimated pre- and posttest adult safety belt use. Change Score One analyzed whether subjects thought they significantly increased their safety belt use

during the study period by examining the change score between estimated posttest safety belt use and estimated pretest safety belt use. The change score was greater for subjects who participated in the K.I.S.S. program, therefore indicating that subjects who participated in the program thought they increased their safety belt use more than those who did not participate. The strength of the relationship, as estimated by eta squared, was .05.

Table 6

Independent Groups T-Test
Change Score One
Difference Between Mean Estimated
Pre-and Posttest Adult Safety Belt Use

Variable	Number of Cases	Mean	Standard Deviation	T Value	df	Prob
Group 1 (K.I.S.S. Participants)	41	9.93	33.81	2.08	78	.04
Group 2 (Nonparticipants)	39	-3.95	24.80			

The t-test result was also significant (t=2.20, df=79) at the p=.05 level for Change Score Two, the difference between the mean calculated safety belt use score and mean estimated pretest safety belt use score (Table 7). This change score was used to determine if subjects actually did increase their safety belt use during the study period. The K.I.S.S. program participants had a significantly greater change score than

those who did not participate in the program, indicating that the K.I.S.S. program participants did increase their safety belt use during the study period. The strength of the relationship, as measured by eta squared, was .06

Table 7

Independent Groups T-Test
Change Score Two
Difference Between Mean Calculated Adult Safety Belt Use Score and Mean Estimated Pretest Safety Belt Use

Variable	Number of Cases	Mean	Standard Deviation	T Value	df	Prob
Group 1 (K.I.S.S. Participants)	42	12.00	33.12	2.20	79	.03
Group 2 (Nonparticipants)	39	-3.05	27.96			

The t-test result was not significant (t=-.08, df=81) at the p=.05 level for Change Score Three, the difference between the calculated adult safety belt use score and estimated posttest safety belt use (Table 8). This change score was used to determine if there was any variability in the self-reported, estimated safety belt use score and the self-reported, adult safety belt use score that was calculated at the end of the study using recurrent, specific information. The change scores for subjects in the K.I.S.S. program did not differ significantly from those who did not participate in the program.

In summary, the t-test result was significant for the first and second change scores. Therefore the null hypothesis that the pretest to posttest change scores would not be significantly greater for subjects who participated in the K.I.S.S. program was rejected.

Table 8

Independent Groups T-Test
Change Score Three
Difference Between Mean Calculated Adult Safety Belt Use Score and Mean Estimated Posttest Safety Belt Use

Variable	Number of Cases	Mean	Standard Deviation	T Value	df	Prob
Group 1 (K.I.S.S. Program)	43	.53	21.60	-0.08	81	.94
Group 2 (Nonparticipants)	40	.85	13.52			

Discussion

Statistical significance was found in the data for Hypotheses One, Three, and Four. The following sections discuss the data and results obtained for infant car seat use and adult safety belt use; the use of self-reported data; and the significance of the study.

Infant Car Seat Use

The data collected for the infant car seat use scores were highly skewed. All but seven of the 84 study subjects reported they always used their infant car seats during each of the

follow-up interviews. Several possibilities exist for this result being obtained:

An important assumption in this study was that the subjects gave honest responses. This assumption may have been violated. A high percentage of subjects indicated they knew a child restraint law existed in the state in which they lived. The researcher reminded each subject, during each interview, that her answers were kept confidential. However, subjects still may have felt threatened or uncomfortable by giving an answer that indicated they did not abide by the law. They may, therefore, have stated they used the car seat when they actually did not use it. Self-reported use data will be discussed in greater detail in a later section of this chapter.

It is possible that the assumption of honesty may not have been violated. The Minnesota Occupant Restraint Program & Minnesota Department of Public Safety (1985) observed some cities that had a 100% use rate of infant restraints. Both the Minnesota study and Williams (1976) found that infants were the only age group to have consistently high percentages of restraint use. The subjects analyzed in this study may have actually had a high level of infant car seat use.

A factor which may have influenced this part of the research was the study itself. Because of the study, subjects may have been more conscientious of their infant car seat use. The subjects were told they were participating in a study that would involve telephone follow-up interviews. Expecting a

telephone call may have prompted the subjects to utilize their car seats during the follow-up interview periods.

Another factor which may have influenced the data is this was the first child for some of the subjects. The experience of being a new parent may have prompted the subjects to be more protective with the child, which may have been shown through the high use level of infant car seats.

Hypothesis One. Because the infant car seat use score data was highly skewed, the researcher utilized the answers from posttest question 17 (see Appendix C) regarding infant car seat use during the past month. The answers to this question provided a more variable estimate for analyzing data for Hypothesis One.

It was found that single subjects were more likely to use their infant car seats on a consistent basis than subjects who were married. This is contrary to the studies by Neuman et al. (1974) and Reisinger & Williams (1978). However, the small number of single subjects (12) compared to married subjects (70) must be taken into consideration. Since the sample in this study is small, less than 30, the significance of the relationship is cautioned.

K.I.S.S. program participation was found to be a significant variable in the regular use of infant car seats. Former studies for this program have not been established. However, the methods involved in the K.I.S.S. program utilized

the social learning theory techniques described by Allen & Bergman (1976). The results of their study and the present one were similar. The subjects who participated in the program retained their behavior of using their car seats more consistently than subjects who did not participate in the program.

The lack of significance of the other independent variables (income and occupation) was contradictory to studies by Gielen & Eriksen (1984) and Neuman et al. (1974). The range of categories for these variables may have been too broad. Because of this, the number of subjects in each category may have been too small to show significance.

Hypothesis Two. The Spearman's rank order correlation was not statistically significant, which indicated adult safety belt and infant car seat use were not correlated. Again, this result was contrary to Gielen &Eriksen (1984) and Neuman et al. (1974), who found that infant car seat use was significantly related to parental restraint use.

All but seven of the 84 subjects analyzed in this study reported a 100% use rate of infant car seats during each of the follow-up interviews. Although Spearman's rank order correlation was chosen because of the skewed distribution of infant car seat use scores, the extreme lack of variability in these scores may have made it too difficult for any significance to occur.

Adult Safety Belt Use

Prior safety belt use and level of education were the only two variables found to be significantly associated with adult safety belt use. The discovery of significance in the level of education in safety belt use supports the findings reported by Mayas et al. (1983). However, the strength of the relationship between level of education and adult safety belt was weak (eta squared =.06). Contrary to Manheimer & Mellinger, and Sweetser (both cited in Fhaner & Hane, 1973), the variables of professional status, income, and marital status were not shown to be statistically significant. However, it may be interesting to note that the nonparticipant group had a higher percentage of married subjects and reported higher levels of education, income, and professional status. This group still had a higher mean adult safety belt use score at the end of the study.

Statistical analysis showed the K.I.S.S. program may have had a slight impact upon the adult safety belt use change scores. The K.I.S.S. group had a significantly greater change score between estimated post-and pretest safety belt use, as well as between the calculated safety belt use score and estimated pretest safety belt use. The first change score indicates the subjects in the K.I.S.S. group may have thought they increased their safety belt use. The second change score indicates they may have actually increased their safety belt use (Table 7). However, the significance of these change

scores is cautioned because the strength of the relationship for both scores is very weak (eta squared =.05 and .06, respectively). Although the change score was not statistically significant for the nonparticipant group, a comparison of their pretest safety belt estimate to the calculated safety belt use score shows a slight decrease.

The reasons for the results obtained regarding adult safety belt use may include the following:

The study utilized self-reported techniques. (Self-reported use of safety belts and infant car seats is discussed in the following section).

Two factors which may have also affected adult safety belt use were stated in the above section under infant car seat use. They are: the study itself may have influenced the subjects to be more conscientious of their safety belt use; and the range of categories for occupational status and income may have been too broad for any significant relationship to be shown.

Some of the factors which may have influenced adult safety belt use were stated by the subjects. One of the most stated reasons for using safety belts, other than safety or traveling conditions, was that someone else told them to use their safety belt. The subjects most often stated that younger children were the ones who told them to do it. Some of the subjects also stated that having to buckle their children into a restraint made them more aware of using their own safety belt.

Finally, another factor which may have influenced the adult safety belt use scores is that the subjects may not have remembered exactly how many times they rode/drove in an automobile and/or used their safety belt during the three day period requested in each of the telephone interviews conducted in the study. Therefore, some of the subjects may have estimated their actual automobile and/or safety belt use during that period.

Self-reported Use

All of the infant car seat and adult safety belt use score data was obtained through self-reported use. This should be remembered because other studies (Mayas, et al., 1983) have found that "self-reported usage figures may be slightly exaggerated". Compared to the national average (14% for adults and 45.3% for infants), the safety belt and infant car seat use scores for both groups are high. However, the national average for adults is based upon data obtained for all people.

The researcher did not have the resources available to conduct an observational study. A number of techniques were used to control for the possibility of overestimating restraint use, and also to enhance the reliability and validity of the study. The first was the use of recurrent measurement. Each subject was interviewed four times during the follow-up surveys using the same questions, with the exception of the final time when the posttest questions were added. The four follow-up

surveys were used because it would be harder for subjects to be dishonest more than once, and the accuracy of reporting would be improved. Also, data collected during each of the follow-up interviews utilized an immediate three-day time period. This enabled the subjects to have a better recollection of their automobile, safety belt, and infant car seat use.

The Third Change Score compared the posttest estimated safety belt use to the safety belt use scores calculated at the end of the study. The lack of significance for this change score indicated the subjects gave accurate estimates of their safety belt use at the end of the study when compared to the three day recall during the follow-up interviews. Because of this, it can be assumed that the estimated safety belt use during the pretest was fairly accurate.

Infant car seat use could not be analyzed in the same way as adult safety belt use because subjects reported a high use rate of infant car seats and it was impossible to estimate infant car seat use during the pretest. In order to substantiate the reliability of the follow-up instrument, a reliability study control group was surveyed. This group did not respond differently than the study subjects to the questions in the telephone follow-up survey. This indicates the questions were understandable and the subjects in the study responded consistently with subjects not in the study.

Study Findings

This study found that the theories discussed in Chapter Two may be effective techniques for health education. Effects of child behavior upon parent behavior were not solidly established in this study, yet the reason it may be an effective technique was pointed out when subjects stated they used their safety belts because of their children. Also, since safety belt use rates were so high, and the variability in the infant car seat use scores was low, the impact of child restraint use on adult safety belt use may be present, but unmeasureable.

The principles of social learning theory were effective educational techniques in infant car seat use. This study found that the subjects who participated in the K.I.S.S. program retained their infant car seat use behavior more consistently than those who did not participate in the program. As a result of this, the K.I.S.S. program participants may have increased their own safety belt use. Since the K.I.S.S. program utilized social learning theory, it may be cautiously suggested that social learning theory principles are effective in infant car seat use, and indirectly effective for increasing adult safety belt use.

Finally, the study indicates there is a high usage rate of infant car seats for subjects who delivered and were discharged from La Crosse Lutheran Hospital or St. Francis Medical Center

during the month of October 1985; and their adult safety belt usage rate is higher than the national average (14%).

Summary

This study found that the variables of K.I.S.S. program participation and marital status were significantly associated with the consistent use of infant car seats. The variables found to be significantly related to adult safety belt use were prior safety belt use, level of education, and K.I.S.S. program participation. Infant car seat and adult safety belt use were not significantly correlated. Self-reported use was utilized throughout the study. A number of techniques were used to indicate that the subjects responded accurately to the questions regarding adult safety belt use, and they did not respond differently than a reliability study control group to the questions regarding infant car seat use. Recurrent measurement also helped to establish the validity and reliability of the telephone follow-up interview questions.

The results of the study seem to indicate that the K.I.S.S. program is effective in changing the automobile restraint behavior perceptions of mothers who have infants.

CHATPER V

CONCLUSIONS AND RECOMMENDATIONS

This research study examined the effectiveness of the American Red Cross K.I.S.S. program upon the use of infant car seats and adult safety belts by mothers who delivered healthy infants and were discharged from St. Francis Medical Center or La Crosse Lutheran Hospital during the month of October, 1985. Marital status, level of income, occupational status, level of education, and prior safety belt use were other variables analyzed in the study to see if they were significantly associated with infant car seat and/or adult safety belt use. The study also analyzed the correlation between infant car seat and adult safety belt use.

Marital status and K.I.S.S. program participation were significantly related to the consistent use of infant car seats. Prior safety belt use, level of education, and K.I.S.S. program participation were significantly associated with adult safety belt use. The study found no significant correlation between infant car seat and adult safety belt use.

Conclusions

Based on the results, the following conclusions were drawn from the study:

1. Participation in the K.I.S.S. program increased the subjects' perception of their consistent use of infant car seats.
2. Single subjects used their infant car seats more consistently than married subjects.
3. Subjects with higher levels of education had higher levels of adult safety belt use.
4. Prior safety use was associated with the adult safety belt use scores. Safety belt use did not significantly decline for any of the groups after the study began.
5. Participation in the K.I.S.S. program slightly increased adult safety belt use.
6. There was no correlation between infant car seat use and adult safety belt use in this study.
7. Subjects with higher income levels did not have higher levels of adult safety belt use, and did not use their infant car seats more consistently than subjects with lower income levels.
8. Married subjects did not have higher levels of adult safety belt use than single subjects.
9. Subjects with professional occupations did not use their infant car seats more consistently, and did not have higher levels of adult safety belt use, than subjects who had non-professional occupations.
10. Subjects who reported higher levels of prior safety belt use during the pretest did not use their infant

car seats more consistently than subjects who reported lower levels of prior safety belt use.

11. Subjects with higher levels of education did not use their infant car seats more consistently than subjects who had lower levels of education.

Recommendations

Recommendations are based on the results, discussion, and conclusions of this study. The following recommendations are suggested:

1. This study should be replicated with the following changes:
   A. A valuable contribution to this study would be to include a period of direct observation of the study subjects and another control group of mothers with infants.
   B. Reduce self-consciousness of safety belt use because of assessments by minimizing the subjects' knowledge of the study procedures.
   C. Decrease the number of occupational and income categories on the pretest in order to increase the possibility of their significance.
   D. Conduct this study for other infant car seat programs.
   E. Include fathers in the study, and analyze data for the sexes separately.

F. Compare mothers who have other children to mothers of whom this is the first child to see if the existence of other children may have already impacted the mothers' knowledge and/or practice of restraint use.

2. Adult safety belt legislation has been examined by the state of Wisconsin. If a law is passed, another study should be completed to assess the effect of legislation upon adult safety belt use.

3. Because there is a low use rate of child safety seats and the K.I.S.S. program was significant for the consistent use of infant car seats, a series of educational programs should be conducted for people who have children in the toddler age category.

4. Education was a significant variable associated with adult safety belt use. This may indicate that safety education is beneficial for increasing adult safety belt use, or that increased schooling is related to the adoption of this health behavior. A prospective study is recommended to further examine the relationship between education and adult safety belt use.

Summary

The purposes of this study were to determine the influence of the American Red Cross K.I.S.S. program and the variables of marital status, level of income, occupational

status, level of education, and prior safety belt use upon infant car seat and adult safety belt use.

Eighty-four females who delivered and were discharged with healthy infants during the month of October, 1985, volunteered to be the subjects for this study. Forty-four subjects participated in the K.I.S.S. program and forty subjects, acting as controls, did not participate in the program.

The study utilized a pretest, four telephone follow-up surveys, and a posttest conducted with the final telephone survey. The study lasted six months.

Most of the study subjects reported a 100% use rate of infant car seats during each of the follow-up interviews. Therefore, nonparametric tests were used in the data analysis of the infant car seat use scores. A chi square test of independence found K.I.S.S. program participation and the marital status of being single were the independent variables significantly related to the consistent use of infant car seats. Spearman's rank order correlation found no significant relationship between infant car seat and adult safety belt use. Prior safety belt use and level of education, as determined by multiple regression analysis, were significant variables associated with adult safety belt use. The independent groups t-test found that subjects who participated in the K.I.S.S. program significantly changed their perception of safety belt use.

Self-reported use was utilized throughout the study. A second control group was surveyed to substantiate the reliability of the telephone follow-up survey instrument. This group did not respond differently than the study subjects to the questions on the instrument. Therefore, the researcher concluded the questions were understandable, and the subjects in the study responded consistently with subjects not in the study.

The independent groups t-test showed no significant difference between mean estimated posttest adult safety belt use and the mean adult safety belt use scores calculated at the end of the study.

References Cited

Allen, D.B., & Bergman, A.B. (1976). Social learning approaches to health education: Utilization of infant auto restraint devices. Pediatrics, 58, 323-328.

American Red Cross, Dane County Chapter. (1981). K.I.S.S., Keep Infants Seated Safely, Infant Car Seat Loaner Program. Unpublished manuscript.

Amoni, M. (1984). Federal education efforts to promote occupant protection. In D. Lawson, D.A. Sleet, & M. Amoni (Eds.), Health Education, Automobile Protection: An Issue for Health Educators (Symposium), 15, (p. 33).

Bell, R.Q., & Harper, L.V. (1977). Child effects on adults. Lincoln: University of Nebraska Press.

Campbell, B.J., Hunter, W.W., & Stutts, J.C. (1984). The use of economic incentives and education to modify safety belt use behavior of high school students. In D. Lawson, D.A. Sleet, & M. Amoni (Eds.), Health Education, Automobile Protection: An Issue for Health Educators (Symposium), 15, (p. 30).

Christopherson, E.R., & Gyulay, J.E. (1981). Parental compliance with car seat usage: A positive approach with long-term follow-up. Journal of Pediatric Psychology, 6(3), 301-312.

Colletti, R.B. (1983). Hospital based programs to increase car seat usage. Pediatrics, 71(5), 771.

Eriksen, M.P., & Gielen, A.C. (1983). The application of health education principles to automobile child restraint programs. Health Education Quarterly, 10(1), 32, 35, 41.

Fhaner, G., & Hane, M. (1973). Seat belts: Factors influencing their use, a literature survey. Accident Analysis and Prevention, 5,32.

Fhaner, G., & Hane, M. (1979). Seat belts: Opinion effects of law-induced use. Journal of Applied Psychology, 64(2), 206.

Gemming, M.G., Runyan, C.W., Hunter, W.W., & Campbell, B.J. (1984). A community health education approach to occupant protection. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.). Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 147-148.

Gielen, A.C., Eriksen, M.P., Daltroy, L.H., & Rost, K. (1984). Factors associated with the use of child restraint devices. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.). Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 202.

Gielen, A.C., & Radius, S. (1984). Project K.I.S.S. (Kids in Safety Seats): Educational approaches and evaluation measures. In D. Lawson, D.A. Sleet, & M. Amoni (Eds.), Health Education, Automobile Protection: An Issue for Health Educators (Symposium), 15, (pp. 43-44).

Jonah, B.A., Dawson, N.E., & Smith, G.A. (1982). Effects of a selective traffic enforcement program on seat belt use. Journal of Applied Psychology, 67(1), 89.

Lawson, D., Sleet, D.A., & Amoni, M. (Eds.). (1984). Priorities for motor vehicle protection among children and youth. Health Education, Automobile Protection: An Issue for Health Educators (Symposium), 15, (pp. 27-29, 63).

Mayas, J-M.B., Boyd, N.K., Collins, M.A., & Harris, B.I. (1983). A study of demographic, situational, and motivational factors affecting restraint usage in automobiles (DOT HS-806-402). Washington, D.C.: National Highway Traffic Safety Administration. (NTIS No. DTNH 22-80-C-17278)

Mc Ginnis, J.M. (1984). Occupant protection as a priority in national efforts to promote health. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.), Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 127-128.

Miller, J.R., & Pless, I. B. (1977). Child automobile restraints: Evaluation of health education. Pediatrics, 59(6), 907-911.

Minnesota Occupant Restraint Program, & Minnesota Department of Public Safety. (1985). 1985 Minnesota safety restraint and helmet use study with driver attitude survey. Minneapolis, MN: Author.

Moffit, P.B. (1981). Effects of a child restraint education and loan program on restraint use (Doctoral dissertation, University of Utah, 1981).

Molotsky, I. (1985, February 28). Debate Over Laws on Seat Belt Use Fills State Capitols With Lobbyists. The New York Times.

Nachem, B., & Bass, R.A. (1984). Children still aren't being buckled up. American Journal of Maternal and Child Nursing, 9(5), 320-321.

National Child Passenger Safety Association. (1985). National child passenger safety awareness week, information package. Unpublished manuscript.

Neuman, C.G., Neuman, A.K., Cockrell, M.E., & Banani, S. (1974). Factors associated with child use of automobile restraining devices: Knowledge, attitudes, and practice. American Journal of the Diseases of Children, 128, 469-474.

Nichols, J.L. (1982). Effectiveness and efficiency of safety belt and child restraint programs (DOT-HS-806-142). Washington, D.C.: National Highway Traffic Safety Administration. (NTS-40)

O'Day, J., & Scott, R.E. (1984). Seat belt use, ejection and entrapment. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.). Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 141, 142-143.

Phillips, B.M. (1980). Safety belt usage among drivers, use of child restraint devices, passenger safety belts and postion of passengers in cars, motorcycle helmet usage (DOT-HS-805 398). Washington, D.C.: National Highway Traffic Safety Administration. (NTIS No. DOT-HS-7-01736)

Pless, B.I. (1978). Accident prevention and health education: Back to the drawing board? Pediatrics, 62(3), 431-432.

Reisinger, K.S., & Williams, A.F. (1978). Evaluation of programs designed to increase the protection of infants in cars. Pediatrics, 62(3), 280-287.

Roberts, M.C., & Turner, D.S. (1984). Preventing death and injury in childhood: A synthesis of child safety seat efforts. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.). Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 181.

Robertson, L.S., O'Neill, B., & Wixom, C.W. (1972). Factors associated with observed safety belt use. Journal of Health and Social Behavior, 13, 18-24.

Sears, R.R., Festinger, L., & Lawrence, D.H. (Eds.). (1967). Influences on parent behavior. Great Britain: Travistock Publications Ltd.

Sleet, D.A. (1984). Reducing motor vehicle trauma through health promotion programming. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.). Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 114-116, 119-120.

St. Clair, R.D. (1985, February). 1983 Wisconsin accident data: Passenger restraint usage in light vehicle accidents. Paper presented to the Wisconsin State Senate Committee on Transportation, Madison, WI.

Tolsma, D.D. (1984). Health promotion approaches to occupant protection: An epidemiologic framework. In M.H. Becker, N.M. Clark, & D.A. Sleet (Eds.). Health Education Quarterly: Occupant Protection and Health Promotion, 11(2), 134, 139-140.

Williams, A.F. (1976). Observed child rstraint use in automobiles. American Journal of Diseases of Children, 130, 1311,1313.

Wisconsin Department of Transportation, Office for Highway Safety. (1985). Child restraint law credited for injury drop. Wisconsin Traffic Safety Reporter. Madison, WI: Author.

Wisconsin Department of Transportation, Office of Information. (1981). Wisconsin has new child passenger protection law (Release No. [050682-223]). Madison, WI: Author.

APPENDIX A

Automobile Restraint Study: Pretest

Automobile Restraint Study

Pretest

Directions: For the questions that provide answers, please check the one answer which best applies to your situation. For those questions that do not provide answers, please write your own.

1. Marital Status:

____Single

____Married

____Separated

____Divorced

____Widowed

2. Which of the following dollar ranges best describes your household's TOTAL GROSS income for 1984 before taxes?

____$0 to $3,999

____$4,000-$7,999

____$8,000-$11,999

____$12,000-$15,999

____$16,000-$19,999

____$20,000-$23,999

____$24,000-$27,999

____$28,000-$31,999

____$32,000-$35,999

____$36,000-$39,999

____$40,000-$43,999

____$44,000 or more

3. Which of these occupations comes closest to what you do?

____Professional, Technical

____Small Businessperson

____Salesperson

____Clerk/Typist Secretary

____Skilled Crafts

____Unskilled or Manual

____Farming

____Student

____Armed Forces Member

____Housewife

____Unemployed

____Other:_____

4. Circle the highest grade level that you have completed:

Grade and high school												College or trade school				Post college studies			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

5. Date of newborn infant's birth: _____

6. Has the doctor told you if your newborn infant has a physical or mental disorder?

_____Yes _____ No

If yes, please explain _____

_____

7. Do you have an infant car seat for your newborn? _____ Yes

_____ No

If no, do you intend to obtain one? _____ Yes

_____ No

8. Does the car in which you usually ride have safety belts?

_____ Yes _____ No

9. Do you have other children? _____ Yes

_____ No

If yes, what are the ages of your other children?

_____ _____ _____ _____ _____

10. What percent of the time would you say your other children are buckled up when riding in a car? _____%

11. What percent of the time do you personally use a safety belt when riding in a car? _____ %

12. If there are times when you don't wear a safety belt ,what is the main reason why you don't?

_____

13. If there are times when you do wear a safety belt,what is the main reason for doing so?

_____

APPENDIX B

Automobile Restraint Study: Telephone Follow-up Survey

Automobile Restraint Study

Telephone Follow-up Survey

The following questions refer to your personal use of adult safety belts as well as the use of an infant car seat for the child you delivered at (name of hospital) on (infant's date of birth).

1. Does the car in which you ride in most often have safety belts?

   ____ Yes ____ No

2. Do you have an infant car seat? ____ Yes

   ____ No

3. What is the brand name of the car seat? _____

4. Has the doctor told you your infant has a physical or mental disorder? _____ Yes

   _____ No

   If yes, please explain:

Now I would like to ask you questions about your automobile, safety belt, and infant car seat use within the past few days.

5. How many times did you drive or ride in a car today?

   _____

6. How many times did you use your safety belt today?

   _____

7. How many times did you put your infant into a car today?

   _____

8. How many times did you have your infant riding in an infant car seat today? _____

9. How many times did you drive or ride in a car yesterday?

   _____

10. How many times did you use your safety belt yesterday?

    _____

11. How many times did you put your infant into a car yesterday?

    _____

12. How many times did you have your infant riding in an infant car seat yesterday? _____

13. How many times did you drive or ride in a car the day before yesterday? _____

14. How many times did you use your safety belt the day before yesterday? _____

15. How many times did you put your infant into a car the day before yesterday? _____

16. How many times did you have your infant riding in an infant car seat the day before yesterday? _____

APPENDIX C

Automobile Restraint Study: Final Telephone Survey and Posttest

Automobile Restraint Study

Final Telephone Survey and Posttest

The following questions refer to your personal use of adult safety belts as well as the use of an infant car seat for the child you delivered at (name of hospital) on (infant's date of birth). Your answers will be kept confidential and it is important to the study that you answer each question as honestly as you can.

1. Does the car in which you usually ride have safety belts?

   ____Yes ____No

2. Do you have an infant car seat? ____Yes

   ____No

3. What is the brand name of the car seat? _____

4. Has the doctor told you if your infant has a physical or mental disorder? ____ Yes ____ No

   If yes, please explain: _____

   _____

5. How many times did you drive or ride in a car today?

   _____

6. How many times did you use your safety belt today?

   _____

7. How many times did you put your infant into a car today?

   _____

8. How many times did you have your infant riding in an infant car seat today? _____

9. How many times did you ride or drive in a car yesterday?

   _____

10. How many times did you use your safety belt yesterday?

    _____

11. How many times did you put your infant into a car yesterday? _____

12. How many times did you have your infant riding in an infant car seat yesterday? _____

13. How many times did you drive or ride in a car the day before yesterday? _____

14. How many times did you use your safety belt the day before yesterday? _____

15. How many times did you put your infant into a car the day before yesterday? _____

16. How many times did you have your infant riding in an infant car seat the day before yesterday? _____

17. Over the past month, have there been any times at all in which you did not have your infant riding in an infant car seat when your infant was in a car?

_____ Yes _____ No

18. All of your answers are kept confidential. It is important to the study that you answer each question as honestly as you can. Therefore, if you answered no to question 17, are you <u>certain</u> that within the past month there have not been any times in which you did not buckle your infant into an infant car seat while riding in a car?

_____ Yes, I am certain _____ No, I am not certain

19. What percent of the time do you personally use a safety belt when riding or driving in a car? _____%

20. Compared to six months ago, do you use your safety belt:

____More

____Less

____The same amount

Why do you think this is so?

21. If there are times when you don't use a safety belt, what is the main reason why you don't?

22. If there are times when you <u>do</u> use a safety belt, what is the main reason for doing so?

23. What percent of the time would you say your infant is buckled up in the car seat when riding in car? _____%

24. What made you decide to get a car seat? _____
_____

25. Now that you have a car seat, what is the main reason why you use it?
_____

26. Do you use the infant car seat as a carrier when your infant is not in the car, or do you keep it in the car?

_____ Use it as an infant carrier

_____ Keep it in the car

_____ Do not use as an infant carrier, but do not also keep it in the car

27. If there are times when you don't use a car seat, what is the main reason why you don't?

28. What percent of the time would you say your other children are buckled up while riding in a car? _____%

29. Do you know if there is any law in the state in which you live that requires parents to have their infants restrained while riding in a car?

____ Yes there is a law

____ No there is not a law

____ Unsure

APPENDIX D

Hospital Approval
D-1 La Crosse Lutheran Hospital
D-2 St. Francis Medical Center

LA CROSSE LUTHERAN HOSPITAL

1910 SOUTH AVENUE / LA CROSSE, WISCONSIN 54601-9980 / (608) 785-0530

September 1, 1985

Ms. Sherri S. Lupkes
2636 Hackberry Lane
La Crosse, WI 54601

Dear Ms. Lupkes:

The Human Investigation Committee, at its August 28, 1985 meeting approved "La Crosse County Chapter American Red Cross Automobile Restraint Study" along with the recommended changes voiced at the meeting. Please send us a copy of the revised consent form for our files.

As mandated by federal guidelines, we remind you of the following requirements:

a. that the researcher report any proposed changes in the research and any unanticipated problems involving risks to the subjects or others promptly to the Committee;

b. that the researcher promptly report any such problems, including adverse reactions to biological drugs, radioisotope labeled drugs, or to medical devices to the Department of Health and Human Services and/or other participating agencies or organizations;

c. that the researcher report to the Committee concerning approved research no less than annually and in addition on the termination of the research project.

The Committee requests that the consent form, when it has been properly signed, be placed in the patients permanent medical record.

We wish you success in your work. If you have further questions, please feel free to contact me.

Sincerely,

Daniel J. Vinge, Chaplain
Chairperson
Human Investigation Committee

dj

St. Francis Medical Center
700 West Avenue S. La Crosse, WI 54601-9968 608-785-0940

August 27, 1985

Ms. Sherry Lubkes
2636 Hackberry Lane
La Crosse, Wisconsin 54601

Dear Ms. Lupkes,

The Nursing Service Department Human Subjects Committee has reviewed your proposal and consent form. Approval has been granted and you may begin your data collection at any time.

If there are any changes in the methodology once your study is in process, please notify me. Also, upon completion of your research, please submit a copy of the study results. I will then share them with the Committee to review.

Good luck in your restraint study. If I can be of any further assistance, please do not hesitate to call me.

Sincerely yours,

Donna Kleinschmit, MSN

Donna Kleinschmit, M.S.N.
Assistant Director-Patient Care

ss

APPENDIX E

Consent Form

La Crosse County Chapter
American Red Cross
Automobile Restraint Study

You are being asked to participate in a research study conducted by the La Crosse County Chapter of the American Red Cross and the University of Wisconsin-La Crosse.

The purpose of the study is to examine the use of automobile restraints by mothers, for themselves and for their infants. The study will last six months, and the total amount of time requested from you personally will be approximately 30 minutes. You will be asked to answer questions on a brief questionnaire now, and at various times during a six month period. The researcher will telephone you during the six month period and ask for information regarding your automobile restraint use. The questionnaire and each telephone interview will take approximately five to ten minutes to complete.

The information obtained from this study will be useful to the American Red Cross as well as the university, physicians, and other health organizations in La Crosse. There may be no personal benefits for you.

Your name, address, telephone number, and the information you give in the interviews will be kept confidential. Your name and telephone number are necessary for the follow-up telephone interviews. However they will not be recorded with the information you give in the interviews.

Your participation is greatly encouraged but not required. You may choose not to participate in the study, or you may choose to withdraw from the study at any time. Whatever you decide will in no way jeopardize your freedom to participate in the K.I.S.S. program.

If you have questions you may contact Sherri Lupkes at 782-4681, Diane Peeso at La Crosse Lutheran Hospital (785-0530, ext. 3573), or Ruth Priebe at St. Francis Medical Center (785-0940).

I have read and understood the above information regarding the study's procedures, benefits, and inconvenience. I hereby agree to participate in the La Crosse County Chapter American Red Cross Automobile Restraint Study.

_____ _____
(Study Subject) (Researcher)

I affirm that _____ has read and signed this consent form in my presence today. The researcher answered all questions the subject had about the study's procedures, risks, and benefits. This person understood and gave consent to participate in this study willingly.

_____ _____
(Date) (Witness)

APPENDIX F

Calculation of Use Scores
F-1 Adult Safety Belt Use Score
F-2 Infant Car Seat Use Score

F-1

Adult Safety Belt Use Score

6 week safety belt use score

$$\frac{\text{Day 43 safety belt use}}{\text{Day 43 car use}} + \frac{\text{Day 42 safety belt use}}{\text{Day 42 car use}} + \frac{\text{Day 41 safety belt use}}{\text{Day 41 car use}}$$

12 week safety belt use score

$$\frac{\text{Day 85 safety belt use}}{\text{Day 85 car use}} + \frac{\text{Day 84 safety belt use}}{\text{Day 84 car use}} + \frac{\text{Day 83 safety belt use}}{\text{Day 83 car use}}$$

18 week safety belt use score

$$\frac{\text{Day 127 safety belt use}}{\text{Day 127 car use}} + \frac{\text{Day 126 safety belt use}}{\text{Day 126 car use}} + \frac{\text{Day 125 safety belt use}}{\text{Day 125 car use}}$$

24 week safety belt use score

$$\frac{\text{Day 169 safety belt use}}{\text{Day 169 car use}} + \frac{\text{Day 168 safety belt use}}{\text{Day 168 car use}} + \frac{\text{Day 167 safety belt use}}{\text{Day 167 car use}}$$

TOTAL SAFETY BELT USE SCORE

$$\frac{\text{6 week safety belt use score} + \text{12 week safety belt use score} + \text{18 week safety belt use score} + \text{24 week safety belt use score}}{4}$$

F-2

Infant Car Seat Use Score

6 week infant car seat use score

$$\frac{\text{Day 43 car seat use} + \text{Day 42 car seat use} + \text{Day 41 car seat use}}{\text{Day 43 car use} + \text{Day 42 car use} + \text{Day 41 car use}}$$

12 week infant car seat use score

$$\frac{\text{Day 85 car seat use} + \text{Day 84 car seat use} + \text{Day 83 car seat use}}{\text{Day 85 car use} + \text{Day 84 car use} + \text{Day 83 car use}}$$

18 week infant car seat use score

$$\frac{\text{Day 127 car seat use} + \text{Day 126 car seat use} + \text{Day 125 car seat use}}{\text{Day 127 car use} + \text{Day 126 car use} + \text{Day 125 car use}}$$

24 week infant car seat use score

$$\frac{\text{Day 169 car seat use} + \text{Day 168 car seat use} + \text{Day 167 car seat use}}{\text{Day 169 car use} + \text{Day 168 car use} + \text{Day 167 car use}}$$

TOTAL INFANT CAR SEAT USE SCORE

$$\frac{\text{6 week car seat use score} + \text{12 week car seat use score} + \text{18 week car seat use score} + \text{24 week car seat use score}}{4}$$