

OKLAHOMA STATE UNIVERSITY

THE RELATIONSHIP BETWEEN SEAT
BELT USE AND ALCOHOL
IMPAIRED DRIVING

By

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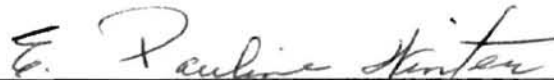
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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Statement of the Problem	2
Hypotheses	2
Delimitations of the Study	3
Limitations of the Study	3
Assumptions	3
Need and Importance of Study	4
Definition of Terms	4
II. REVIEW OF LITERATURE	6
Motor Vehicle Accidents Statistics	6
Efficacy of Risk Reduction	7
Occupant Restraint Systems	8
Anti-Drug Abuse Act of 1986	9
Oklahoma State University Wellness Center Data	10
III. METHODOLOGY AND PROCEDURES	12
Population and Sample	12
The Survey Instrument	12
Research Design and Statistical Analysis	13
IV. RESULTS AND DISCUSSION	15
Introduction	15
Results	15
Correlation Analysis	17
Analysis of Gender Means	18
Analysis of Age Group Means	19
Discussion	21

V. SUMMARY, FINDINGS, CONSLUSION AND RECOMMENDATIONS	22
Summary	22
Findings	22
Conclusions	23
Recommendations	23
REFERENCES	25
SELECTED BIBLIOGRAPHY	27
APPENDIXES	29
APPENDIX A—THE SURVEY INSTRUMENT	30
APPENDIX B—INSTITUTIONAL REVIEW BOARD HUMAN SUBJECTS REVIEW	32

LIST OF TABLES

Table	Page
I. Mean and Standard Deviations of Subjects' Age	16
II. Spearman Correlation Coefficients for the Sample Subjects ...	17
III. Mann-Whitney U-Test for the Two Genders	18
IV. Means and Standard Deviations for the Age Groups	19
V. Analysis of Variance Results for Seat Belt Use	20
VI. Newman-Keuls Results for Seat Belt Use	20

CHAPTER I

INTRODUCTION

This study is of a descriptive type that is concerned with the correlation of drinking and driving along with seat belt use when driving or riding in a motor vehicle. The study focuses on these two acts, one considered healthy and one considered unhealthy. The literature shows that injuries are the fourth leading cause of death in the United States and the leading cause of death in persons under age 45. Motor vehicle injuries account for about half of these deaths (National Center for Health Statistics, 1988). In 1986, nearly 48,000 Americans died in motor vehicle crashes (National Center for Health Statistics, 1988; Centers for Disease Control, 1988; Baker and O'Neil, et al, 1984). According to the Columbia-Presbyterian Medical Center, only 46% of Americans use seat belts and in 1986, about 1.7 million persons were arrested for alcohol impaired driving (National Highway Traffic Safety Administration, 1989; Centers for Disease Control, 1988). About 40% of persons killed in motor vehicle crashes are intoxicated by alcohol (Centers for Disease Control, 1988)). In 1987, an estimated 23,630 persons were killed in alcohol-related motor vehicle crashes (Centers for Disease Control, 1988). The literature also shows that the use of occupant restraint systems has been shown to reduce the risk of motor vehicle

injury by about 40-50% (Newman, 1986). It has been estimated on the basis of such evidence that the proper use of lap and shoulder belts can decrease the risk of moderate to serious injury to front seat occupants by 45-50% (Department of Transportation, 1984). Therefore, this study is concerned with the tendency of those that engage in alcohol impaired driving to fasten their seat belts and the tendency of those who regularly fasten their seat belts to engage in alcohol impaired driving.

Statement of the Problem

The problem of the study was to determine the correlation of the two variables. Do those that regularly involve themselves in positive health behaviors also involve themselves in the negative health variable? If a correlation shows that the subjects are not predictable in their positive health choices, education showing results of just such research could prove beneficial in preventing and reducing the frequency of these unhealthy lifestyle choices.

Hypotheses

The following hypotheses were tested at the .05 level:

1. The researcher hypothesized that there will be no relationship between the two measures by gender and age group.
2. The researcher hypothesized that there will be no differences among age groups or between genders on the two measures.

Delimitations of the Study

The study was delimited to the following:

1. The study was conducted using four hundred subjects that were randomly selected from faculty and staff members of Oklahoma State University, between the ages of 25 and 50.
2. All of the subjects were distributed a questionnaire to be completed and returned to the researcher.

Limitation of the Study

1. The study was limited by the representativeness of the subjects that are randomly selected.
2. The questionnaire was a self report measure designed by the researcher.
3. The study was also limited by those that received a questionnaire but did not respond.

Assumptions

1. The researcher assumed that the sample members were honest with their answers.
2. The researcher assumed that the respondents accurately reflected the population.

Need and Importance of Study

The concern with the humanities field deals greatly with the quality of life and how it can be improved. By concerning oneself with health related behaviors and the tendency of people to be consistent with positive health choices (as opposed to negative health choices) the study could play a vital part in determining the likelihood of positive health choices versus negative health choices and how to increase the likelihood of positive health or lifestyle choices.

Definition of Terms

1. Alcohol-impaired-driving/Intoxication- A person is driving impaired because of intoxicating liquor, when as a result of drinking such liquor, their physical and mental abilities are impaired so that they no longer have the ability to drive with the caution characteristic of a sober person of ordinary prudence under the same or similar circumstances.
2. Blood Alcohol Concentration- Or BAC, is the amount, or percentage of alcohol in the bloodstream determined by most states to be legally intoxicating, (a level of .10), established as a legal statute in California in 1982.
3. Fetal Alcohol Syndrome- The toxic effect of alcohol and its byproducts on the developing brain, the alcohol enters the baby's bloodstream through the placenta and medical professionals do not know the exact amount of alcohol to cause this syndrome. Characteristics include growth retardation, facial

defects such as small head, small eyes, etc., and some central nervous defects such as learning disabilities and seizures.

CHAPTER II

REVIEW OF RELATED LITERATURE

In reviewing the literature that reflects the problem of the study, it is apparent that the correlation of the two variables is not likely to be researched. The statistics regarding automobile accidents and the use, or lack of use, of occupant restraint systems shows the urgency and need for this type of study.

Motor Vehicle Accidents Statistics

Injuries are the fourth leading cause of death in the United States and the leading cause of death in persons under age 45. Motor vehicle injuries account for about half of these deaths (National Center for Health Statistics, 1988). In 1986, nearly 48,000 Americans died in motor vehicle crashes, and each year several million suffer nonfatal injuries (National Center for Health Statistics, 1988; Centers for Disease Control, 1988; Baker and O'Neil, et al, 1984). Over 3,100 children under age 15 died in motor vehicle crashes in 1986 (Centers for Disease Control, 1988). Motor vehicle injuries occur most commonly in males and in persons aged 15-24 (Williams and Carsten, 1989). This age group has the highest mortality rate and accounts for one-third of all deaths from motor vehicle crashes in the United States (National Center for Health

Statistics, 1988). Motor vehicle crashes are the leading cause of death in persons aged five-24; in 1986 they accounted for 38% of all deaths in young persons aged 15-24 (National Center for Health Statistics, 1988). The risk of motor vehicle crashes is also increased for persons over age 60, but elderly motorists account for only 10% of fatal crashes, primarily because they drive less than younger persons (Williams and Carsten, 1989). According to the Columbia-Presbyterian Medical Center, only 46% of Americans use seat belts and in 1986, about 1.7 million persons were arrested for alcohol-impaired driving (National Highway Traffic Safety Administration, 1989; Centers for Disease Control, 1988). About 40% of persons killed in motor vehicle crashes are intoxicated by alcohol (Centers for Disease Control, 1988). In 1987, an estimated 23,630 persons were killed in alcohol-related motor vehicle crashes, accounting for about 7% of the total years of potential life lost before age 65 in the United States during that year (Centers for Disease Control, 1988). The proportion of fatally injured drivers having illegally high blood alcohol concentrations (BAC) is highest for those aged 20-34 (Department of Transportation Fatal Accident Reporting System, 1988; Centers for Disease Control, 1987).

Efficacy of Risk Reduction

Driving while intoxicated and failing to use occupant protection (e.g., safety/seat belts, child safety seats) are two important personal behaviors that increase the risk of motor vehicle injury. Several crash studies have found that about half of fatally injured drivers have BAC's of 0.10% by weight (the legal

limit in most states) or higher (Baker and O'Neil, et al, 1984; Waller, 1985). Controlled studies have shown that fatally injured drivers are more likely to have a BAC of at least 0.10% than are drivers who are not killed (McCarrol and Haddon, 1962; National Highway Traffic Safety Administration, 1979). In addition to its role as a risk factor for causing motor vehicle crashes, alcohol intoxication increases the risk of death or serious injury during and after a crash, and it can limit the ability of the victim to escape from the vehicle (Waller, 1985; Council of Scientific Affairs, 1986; Waller and Steward, et al, 1986). Alcohol-intoxicated survivors with severe brain injuries appear to have longer hospitalizations and more persistent neuralgic impairment than those who are not intoxicated (Kraus and Morgenstern, et al, 1989).

Occupant Restraint Systems

Use of occupant protection systems has been shown to reduce the risk of motor vehicle injury by about 40-50%. The effectiveness of safety/seat belts has been demonstrated in a variety of study designs that include laboratory experiments (using human volunteers, cadavers, and anthropomorphic crash dummies), postcrash comparisons of injuries sustained by restrained and unrestrained occupants, and postcrash judgments by crash analysts regarding the probable effects of restraints had they been used (Newman, 1986). It has been estimated on the basis of such evidence that the proper use of lap and shoulder belts can decrease the risk of moderate to serious injury to front seat occupants by 45-55% and can reduce crash mortality by 40-50% (Department of

Transportation, 1984; Campbell, 1987). When brought to the hospital, crash victims who are wearing safety belts at the time of the crash have less severe injuries, are less likely to require admission, and have lower hospital charges (Ors and Trundle, et al, 1988).

Anti-Drug Abuse Act of 1986

The United States Center for Substance Abuse Prevention states that research has shown that virtually no one initiates tobacco, alcohol, or other drug (except cocaine and prescription drugs) use after the age of 25 (United States Center for Substance Abuse Prevention, 1986).

According to the Columbia Presbyterian Medical Center's Guide to Clinical Preventive Services, alcohol is used by over half of all American adults, but reliable data on the percentage who abuse alcohol are lacking (Berkelman and Ralston, et al, 1986). National surveys indicate that 11% of American drinkers use alcohol daily; 10% report losing control while drinking or admit to dependence on alcohol during the past year; and 8% report recent binge drinking (five or more drinks) (Berkelman and Ralston, et al, 1986; Clark and Midanik, et al, 1982). It has been estimated that alcohol accounted for over 69,000 deaths in 1980 (Kamerow and Pincus, et al, 1986). About half of all deaths from motor vehicle crashes, fires, drowning, homicides, and suicides are the result of alcohol intoxication (West and Maxwell, et al, 1984). In 1987, an estimated 23,630 persons were killed in alcohol-related motor vehicle crashes, accounting for nearly 7% of all years of potential life lost in the United States in that year

(Centers for Disease Control, 1988). Chronic alcohol abuse often leads to dependence, alcohol withdrawal syndrome, serious medical complications (e.g., hepatitis, cirrhosis, pancreatitis, thiamin deficiency, gastrointestinal bleeding, cardiomyopathy), and certain forms of cancer (West and Maxwell, et al, 1984). Over 560,000 hospital admissions in 1982 were for alcohol-related conditions (Berkelman and Ralston, et al, 1986). A common complication, cirrhosis, was the ninth leading cause of death in the United States in 1986 (National Center for Health Statistics, 1988). Excessive use of alcohol during pregnancy can produce the fetal alcohol syndrome, which has been estimated to affect about one out of every 750 newborns (Rosett and Weiner, et al, 1983; Hanson and Streissguth, et al, 1978). Social consequences of alcohol and other drug dependence include divorce, unemployment, and poverty. It has been estimated that the economic costs of alcohol abuse, including medical treatment, lost productivity, and property damage, exceeded \$115 billion in 1983 (Kamerow and Pincus, et al, 1986). An estimated 27 million American children are at risk for abnormal psychosocial development due to the abuse of alcohol by their parents (Harrigan, 1987).

Oklahoma State University Wellness Center Data

In an unpublished study taken from the Oklahoma State University Wellness Center's Health Risk Appraisal scantron, one question was concerned with the number of times per month drinking and driving occurred. Another question in the appraisal was concerned with seat belt use percentage. The

researcher then analyzed four-hundred of these subjects. The subjects were all between the ages of 25 and 50. The findings showed that there was a positive relationship and a correlation of .22 in the study (Hackney, 1996). These findings were deemed significant. Therefore, there is a need to develop a study to determine the prevalence of each of these tendencies and provide statistical analysis between the two actions.

CHAPTER III

METHODOLOGY AND PROCEDURES

The purpose of this study was to identify any relationships involving seat belt use and drinking and driving. The researcher then determined, compared and described the relationships, if any, between the two variables.

Population and Sample

The population for this study consisted of faculty and staff members of Oklahoma State University that are between the ages of 25 and 50. A sample of 400 subjects were randomly selected by the University's Institutional Research Department.

The Survey Instrument

The researcher began the study by analyzing the data from Oklahoma State University Wellness Center Health risk appraisal data. The two variables that were a part of this study were included in the health appraisal data. The researcher then decided that there was a need to compare the two variables on a wider scale that involved more specific questioning.

Preliminary procedures began with the development of the questionnaire and the decision regarding the age limitations of the subjects (see Appendix A). Once it was determined that the study would involve human subjects, the researcher and committee adviser, Dr. Steve Edwards submitted the survey instrument to the University's Institutional Review Board for approval (see Appendix B). Once this occurred the researcher then contacted Mr. Lee Tarrant in the Oklahoma State University Department of Planning, Budgeting and Institutional Research. Mr. Tarrant then returned a list of four hundred randomly selected names of Oklahoma State University faculty and staff between the ages of 25 and 50. The researcher then addressed four hundred envelopes to be distributed to the subjects through the University's mail system. The instrument was self addressed so that the subjects could fold in half and return to the researcher through Campus mail. The next step for the researcher was to record the data into computer memory and begin the statistical analysis.

Research Design and Statistical Analysis

After the returned data was entered into the computer, the researcher calculated various descriptive statistics. The researcher used the Spearman Correlation Coefficient to analyze the relationship between drinking and driving and safety/seat belt use. As will be discussed in Table I, there were 223 respondents that recorded their age. Two hundred and two subjects listed gender, 111 females and 91 males. Five age groups were used with interval sizes of five years. The Spearman Correlation Coefficient was used to analyze by

gender and age group; the Mann-Whitney U-test to compare genders and the Analysis of Variance to compare among the five age groups.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

The purpose of this study was to determine if two health-related behaviors would have some form of relationship. Four-hundred subjects, faculty and staff from Oklahoma State University were randomly selected to participate in this study. Two-hundred and forty-one subjects returned questionnaires for a return rate of 60%. The subjects ranged in age from 25 to 49 years. Fifty-five percent of the subjects were females (n=111) and 45% were males (n=91). Table I displays the age data for the sample. NOTE: Though 241 subjects returned the survey, 39 of them did not complete the portion listing gender and 18 of them failed to complete the portion of the survey that listed age.

Results

The mean age of these respondents was 39.0 years of age. Table I shows the age groups of all respondents and the age group breakdown of the genders. Table II shows the correlation coefficients of the sample subjects by age groups of all respondents and the correlation coefficients of the genders by age group.

Table III of the analyzed data shows the mean for percentage of seat belt use for both genders, as well as the frequency or number of times per month each gender engaged in alcohol impaired driving/riding in a motor vehicle. Table IV explains the different means and standard deviations among the five age groups involving seat belt use percentage and frequency of alcohol impaired driving. Table V displays the data involving the analysis of variance for seat belt use by the subjects. Table VI displays the Newman-Keuls results for seat belt use percentage among each of the five age groups.

TABLE I
MEAN AND STANDARD DEVIATIONS OF
SUBJECTS' AGE

Group	n	Mean	Standard Deviation
Total	223	39.0	6.86
Males	91	38.8	7.10
Females	111	38.7	6.90
Age 25-29	28	27.2	1.40
Age 30-39	75	34.7	2.77
Age 40-49	116	44.2	2.91
Males			
Age 25-29	14	27.6	1.40
Age 30-39	27	34.3	2.84
Age 40-49	47	44.0	2.79
Females			
Age 25-29	14	26.9	1.38
Age 30-39	42	35.0	2.74
Age 40-49	54	44.4	3.12

Correlation Analysis

The Spearman rho method is used to determine the relationship between the two variables, percentage of time the subject fastened seat belt and number/frequency of times per month the subject drove/rode with an alcohol impaired driver. Table II displays the results for this method.

TABLE II
SPEARMAN CORRELATION COEFFICIENTS
FOR THE SAMPLE SUBJECTS

Group	n	Spearman rho
Total	241	-.224
Males	91	-.393
Females	111	NS*
Age 25-29	28	NS
Age 30-39	75	-.440
Age 40-49	116	-.374
Males		
Age 25-29	14	NS
Age 30-39	27	-.440
Age 40-49	47	-.374
Females		
Age 25-29	14	NS
Age 30-39	42	NS
Age 40-49	54	NS

*not significant at the .05 level.

relationship. The tendency shows some low correlation among males, but no significant relationships among females of any age group.

The males, aged 30-39, give the strongest relationship or correlation.

Analysis of Gender Means

The two genders, male and female, are compared or ranked on the two variables using the Mann-Whitney U-Test. Table III displays the gender mean analysis with this test. The mean for seat belt use displays a percentage, while the mean for the drink/drive variable displays a frequency.

TABLE III
MANN-WHITNEY U-TEST FOR THE TWO GENDERS

Variable	n	Mean	Standard Deviation	Mean Rank	U/Z
Seat belt Use (%)					
Males	91	81.3	28.71	93.6	U=4335.0
Females	111	87.9	26.06	108.0	Z=-1.87
Drink/Drive					
Males	91	0.50	1.728	107.9	U=4469.0
Females	111	0.22	0.825	96.3	Z=-2.31*

*significant at the .05 level

These results show that there are no differences between genders on seat belt use. However, there is a slight difference for gender in the fact that females are slightly less likely to drink and drive.

Analysis of Age Group Means

Because of the size and scope of the study five different age groups were created for comparison purposes. Table IV displays this data.

TABLE IV
MEANS AND STANDARD DEVIATIONS FOR THE AGE GROUPS

Age Group	n	Mean	Standard Deviation
Seat belt use (%)			
25-29	28	77.3	31.99
30-34	32	79.2	34.10
35-39	43	84.6	30.87
40-44	62	81.5	28.01
45-49	54	96.4	8.60
Drink/drive (f)			
25-29	28	0.86	2.863
30-34	32	0.47	0.915
35-39	43	0.23	0.812
40-44	62	0.24	0.953
45-49	54	0.09	0.351

The analysis of variance results for the seat belt variable are shown in Table V. The mean comparisons using the Newman-Keuls Multiple Range Test are displayed in Table VI.

TABLE V
ANALYSIS OF VARIANCE RESULTS FOR SEAT BELT USE

Source	SS	df	MS	F
Between groups	10510.4	4	2627.6	3.63*
Within groups	155506.2	214	726.7	
Total	166016.6	218		

*significant at the .01 level.

TABLE VI
NEWMAN-KEULS RESULTS FOR SEAT BELT USE (%)

Group 1 25-29	Group 2 30-34	Group 3 35-39	Group 4 40-44	Group 5 45-49
<u>*77.3</u>	<u>79.2</u>	<u>84.6</u>	<u>81.5</u>	96.4

*Means underlined are not significantly different ($p < .05$)

The one-way analysis of variance for the seat belt use variable shows a high percentage for one age group, Table VI displays the percentages.

Although there are a high percentage of subjects in all of the age groups that regularly fasten their seat belts, the results concerning group five show that this group has a very high percentage for this variable.

Discussion

Since the correlation of these two health related behaviors was available to the researcher, this study seemed beneficial and relevant to the humanities related field. The literature tells us that injuries are the leading cause of death in the United States for persons under the age of 45 and that motor vehicle injuries account for about half of these deaths. The literature also stated that motor vehicle injuries occur most commonly among males, rather than females (Kamerow and Pincus, et al, 1986). The literature review indicated that about 40% of persons killed in motor vehicle crashes are intoxicated by alcohol (Centers for Disease Control, 1988). The review of literature also shows that in 1987, an estimated 23,630 persons were killed in alcohol-related motor vehicle crashes (Centers for Disease Control, 1988). The use of occupant restraint systems has been shown to reduce the risk of motor vehicle injury by about 40-50% (Newman, 1986). It has been based on such evidence that the lap and shoulder belts can decrease the risk of moderate to serious injury to front seat occupants by 45-55% (Department of Transportation, 1984; Campbell, 1987). Therefore, the need to study and correlate the health-related actions of fastening seat belts and not driving while under an alcohol impaired condition are not only obvious, but quite necessary.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS AND RECCOMENDATIONS

Summary

The purpose of this study was to determine whether or not there is a relationship between seat belt use and drinking and driving. The subjects were all faculty and staff of Oklahoma State University between the ages of 25 and 49. Fifty five percent of the subjects were females and 45% were males. The subjects were randomly selected through the Institutional Research Department of Oklahoma State University (n=241). Four hundred questionnaires were originally sent and 241 were returned for a return rate of 60%.

Findings

Chapter IV provided a summary of tables and the discussion of results from the questionnaire. Based upon the information contained in that chapter, the following findings were observed regarding the tendencies of the subjects to fasten safety belts and drive/ride in a motor vehicle with an impaired driver.

1. The respondents for this study, faculty/staff members of Oklahoma State University, were mostly female, ranged in age from 25 to 49 years, and had a mean age of 39.0 years.
2. There was a slight correlation between the two variables but no strong or overwhelming relationship.
3. The subjects reflected a tendency for females to drive while impaired at a rate slightly less than males. There are virtually no differences between the genders regarding seat belt use.
4. The subjects all regularly fasten their seat belts, however the subjects aged 45-49 were extremely likely to fasten seat belts, (96.4%).

Conclusions

1. The study indicates that females are less likely to drink and drive than males.
2. The age group from ages 45 to 49, fasten their seat belts more often than the younger age groups.
3. The study indicates that there is no real relationship between the variables of seat belt use and alcohol impaired driving.

Recommendations

The study was conducted in the form of a self-report measure, although the researcher assumes that the subjects will be representative of

the population, it is somewhat doubtful. If an interview questionnaire could be conducted by a survey method, perhaps this could provide for better accuracy in the relationship, or lack of relationship, between the two variables.

The purpose and hope for a study of this type is to identify health behaviors that are detrimental to the quality of life and alleviate them. The researcher relies on the sample immensely to provide answers and solutions to poor choices in health related behaviors.

REFERENCES

1. Centers for Disease Control. Deaths from Motor Vehicle-Related Injuries, 1978-1984. MMWR CDC Surv Summ, 1988.
2. Centers for Disease Control. Drinking and Driving and Binge Drinking in Selected States, 1982 and 1985: The Behavioral Risk Factor Surveys. MMWR; 35:788-91,1987.
3. Centers for Disease Control. Premature Mortality due to Alcohol-related Motor Vehicle Traffic Fatalities—United States, 1987. MMWR; 37:L753-5, 1988.
4. Centers for Disease Control. Progress Toward Achieving the National 1990 Objectives for Injury Prevention and Control. MMWR; 37:138-40, 145-49, 1988.
5. Council of Scientific Affairs. Alcohol and the Driver. JAMA; 255: 522-7, 1986.
6. Department of Transportation Fatal Accident Reporting System (FARS). Table 2-4. Percentage of Drivers Involved in Fatal Crashes, by Age Groups and Estimated Alcohol Level. Washington, DC: (Publication no. DOT HS 807-245.),1988.
7. Department of Transportation Fatal Accident Reporting System(FARS). Table 8-2. All Involved and Fatally Injured Occupants and Non-occupants, by Age Group. Washington, DC: (Publication no. DOT HS 807-245.), 1988.
8. Department of Transportation. Final Regulatory Impact Assessment on Amendments to Federal Motor Vehicle Safety Standard 208, Front Seat Occupant Protection. Washington DC : (Publication no. DOT HS 806-572.), 1984.
9. Department of Transportation, National Highway Traffic Safety Administration. Use of Controlled Substances and Highway Safety: A Report to Congress. Washington DC : Government Printing Office, (Publication no. DOT HS 806-572.), March 1988.

10. National Center for Health Statistics. Advance Report of Final Mortality Statistics. Monthly Vital Statistics Report (Suppl), vol. 37, no. 6. Hyattsville, Md.: Public Health Service, (Publication no. DHHS (PHS) 88-1120.), 1988.
11. National Highway Traffic Safety Administration. Alcohol and Traffic Safety: A Review of the State of Knowledge, 1978. Washington DC: Department of Transportation, (Publication no. DOT HS 805-172.), 1979.
12. National Highway Traffic Safety Administration. Nineteen-City Safety Belt and Child Safety Seat use Observational Survey. Washington, DC; Department of Transportation, February 1989.
13. United States Center for Substance Abuse Prevention. Anti-Drug Abuse Act of 1986.

SELECTED BIBLIOGRAPHY

- Baker, S.P. , O'Neill, B., Karpf, R. (1984). The injury fact book. Lexington, Mass: DC Heath.
- Berkelman R.L., Ralston, M., Herndon, J., et al. (1986). Patterns of alcohol consumption and alcohol-related morbidity and mortality. MMWR CDC Surveill Summ; 35: 1SS-5SS.
- Campbell, B.J. (1987). Safety belt injury reduction related to crash severity and front seated position. J Trauma: 27: 733-9.
- Clark, W.B., Midanik L., (1982). Alcohol use and alcohol problems among U.S. adults: results of the 1979 national survey. In: Nations Institute on Alcohol Abuse and Alcoholism. Alcohol consumption and related problems. Alcohol and Health Monograph 1. Rockville, Md.: National Institute on Alcohol Abuse and Alcoholism. (Publication no. DHHS (ADM) 82-1190.)
- Hackney, D., (1996). Network Administrator, Wellness Center, Oklahoma State University.
- Hanson, J.W., Streissguth A.P., Smith, D.W., (1978). The effects of moderate alcohol consumption during pregnancy on fetal growth and morphogenesis. J Pediatr; 92: 457-60.
- Harrigan, J.A., (1987). Children of alcoholics. Am Fam Phys; 35(1):139-44.
- Kamerow, D.B., Pincus, H.A., Macdonald, D.I., (1986). Alcohol abuse, other drug abuse, and mental disorders in medical practice. JAMA; 255:2054-7.
- Kraus, J.F.,Morgenstern, H., Fife, D., et al. (1989). Blood alcohol tests, prevalence of involvement, and outcomes following brain injury. Am J Public Health; 79:294-9.
- McCarroll, J.R., Haddon, W. Jr., (1962). A controlled study of fatal automobile accidents in New York City. J Chronic Dis; 15:811-26.

- Newman, R.J., (1986). A prospective evaluation of the protective effect of car seat belts. J Trauma; 561-4.
- Ors, E.M., Trundle, T.L., Dune, M., et al, (1988). Prospective study of the effect of safety belts on morbidity and health care costs in motor vehicle accidents. JAMA; 260:3598-603.
- Rosett, H.L., Weiner, L., Edelin, K.C., (1983). Treatment experience with pregnant problem drinkers. JAMA; 249:2029-33.
- Waller, J.A., (1985). Injury control: a guide to causes and prevention of trauma. Lexington, Mass: DC Heath.
- Waller, P.F., Stewart, J.R., Hansen, A.R., et al, (1986). The potentiating effects of alcohol on driver injury. JAMA: 256: 1461-6.
- West, L.J., Maxwell, D.S., Noble, E.P., et al, (1984). Alcoholism. Ann Intern Med; 100:405-416.
- Williams, A.F., Carsten, O., (1989). Driver age and crash involvement. Am J Public Health; 1 79:326-7.
- Williams, A.F., Peat, M.A., Crouch, D.J., et al, (1985). Drugs in fatally injured young male drivers. Public Health Rep; 100: 19-25.

APPENDIX A
THE SURVEY INSTRUMENT

INSTRUCTIONS: As an OSU staff or faculty member, you have been randomly selected to participate anonymously in a risk-free study conducted by Mr. Bryan Sudduth (X5500), a Master's degree candidate. The purpose of the study is to investigate correlates among health behaviors. You may direct questions about the study to Jennifer Moore (X45700) at the IRB office.

Please provide the information below and **thank you** in advance for your help with this research.

----- ✂ ----- (Detach and mail completed form below) -----

Gender: M F
(circle one)

Age: _____
(to the nearest year)

1. Circle the number below which best approximates the **percentage of time** that you usually have your seatbelt buckled while driving or riding in a motor vehicle.

0 5 10 15 20 25 30 35 40 45 50
55 60 65 70 75 80 85 90 95 100

2. Considering the last year, circle the number below which best approximates the **number of times per month** when you drove or rode in a motor vehicle with a driver who had "too much" to drink*.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

*"too much" would be 4 or 5 drinks in a two or three hour period.

**PLEASE FOLD THIS SHEET IN HALF, TAPE SHUT
AND PLACE IN CAMPUS MAIL**

APPENDIX B
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 02-22-96

IRB#: ED-96-082

Proposal Title: THE RELATIONSHIP BETWEEN SEAT BELT USE AND
ALCOHOL IMPAIRED DRIVING

Principal Investigator(s): Steven W. Edwards, Bryan Sudduth

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD
AT NEXT MEETING.

APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A
CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD
APPROVAL.

ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR
APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval
are as follows:

Provisions received and approved.

Signature:



Chair of Institutional Review Board

Date: April 11, 1996

2

VITA

Bryan Dwane Sudduth

Candidate for the Degree of

Master of Science

Thesis: THE RELATIONSHIP BETWEEN SEAT BELT USE AND
ALCOHOL IMPAIRED DRIVING

Major Field: Health, Physical Education, and Leisure Science

Biographical:

Personal Data: Born in Weatherford, Oklahoma, on April 18, 1965, the
son of Dwane and Toni Sudduth.

Education: Graduated from Weatherford High School, Weatherford,
in May 1983; received Bachelor of Arts degree in Recreation from
Southwestern Oklahoma State University in December, 1991.
Completed the requirements for the Master of Science degree
with a major in Physical Education at Oklahoma State University
in December, 1996.

Experience: Many years have been spent around aquatic facilities as a
lifeguard, water safety instructor and as a supervisor; employed
by Oklahoma State University, School of Health, Physical Education
and Leisure as a graduate assistant professor and as a graduate
research assistant by the Oklahoma State University Wellness Center,
1993 to present.