

Experiences of Aggressive Behavior and It's Effect Regarding Road Rage

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ABSTRACT

This study was performed to ascertain information that would aid health educators in increasing an individual's awareness and education, along with helping educators develop interventions regarding different behavioral changes dealing with aggressive behavior and its relationship to road rage. The study consisted of 47 University of Michigan-Flint college students' and their experiences of aggressive behavior. Most students (74.5%) had completed at least two years of college and the majority (61.7%) ranged from 17-25 years of age. The largest group of participants (53.2%) consisted of females. A survey questionnaire was developed where participants were asked a series of questions about their background and experiences of aggressive behavior addressing the following variables: time, stress in the classroom, conflicts with significant others and stress associated with being a single parent and their possible relationships to road rage. Results showed that students (89.3%) had strong feelings in regards to how much effect time between experiencing an aggressive emotion and getting into an automobile has on ones driving style. More than three-quarters of the respondents indicated that time (within 10 minutes) of experiencing an aggressive emotion and getting into an automobile would more likely make them get aggressive with a driver who was going slow or cut in front of them on the highway. Eighty-five percent of the students indicated that they felt that having a "heated argument" with a significant other also affects their driving style. Almost 100% of those who indicated that having a heated argument did effect their driving style indicated that they would be more likely to get aggressive with a driver who cuts in front of them on the highway. This study also provided insight about two other variables; those being success on an exam and single parenthood. Results showed that more university students felt that doing poorly on an

exam played more of an affect than doing well, 86.6% vs. 67.3%. More than one-half of the respondents (57.1%) indicated that they felt that being a single parent had no effect on ones driving style. The author proposed recommendations for further research on aggressive behavior and its effect on road rage.

Chapter One

Introduction

During the final decade of the 20th century, concern over road rage and aggressive driving swept the United States. While in some areas this still appears relatively infrequent, the number of incidents appears to be growing (Rathbone and Huckabee, 1999). The apparent randomness of the victims and perpetrators frightens the general public, yet motorists who wish to avoid confrontations are ill informed about the precursors or antecedents to behavior leading to road rage or how to defuse potentially dangerous traffic situations. Likewise, little practical information exists on how organizations or individuals can intervene to curb road rage.

Data from an independent study by Mizell, shows that from January 1990 to September 1, 1996, a period of 6 years and 8 months, there were at least 10,037 incidents of road rage in the United States. At least 218 men, women and children are known to have been murdered and 12,610 people injured as a result of these incidents (Mizell and Company, 1996).

Research Question

Do University of Michigan –Flint college student’s experiences of aggressive behavior associated with everyday stressors such as final papers and exams, conflicts with significant others and single parenthood, along with the time frame between these experiences increase their likelihood to initiate violent behavior in the driving environment? This research question will be investigated on a local level and analyzed by surveying a random number of University of Michigan-Flint students through the use of a questionnaire addressing the aggressive behaviors that they may have experienced and its effect on their driving habits.

Rationale and Purpose

Road Rage is defined for this study as an incident in which an angry or impatient motorist or passenger intentionally injures or kills another motorist, passenger or pedestrian, or attempts to injure or kill another motorist, passenger, or pedestrian, in response to a traffic dispute, altercation or grievance. The findings of this study, will aid health educators in increasing an individual's awareness and education, along with developing interventions which would aid in behavioral changes regarding aggressive behavior and its relationship to road rage. With the topic of road rage of such great concern since the last decade of the 20th century and continuing into the 21st century, some of the important aspects regarding this issue are as follows:

The Role of Domestic Violence and Children as Victims

It appears that domestic violence plays a surprisingly large role in regards to road rage. When love turns to hate, spouses and or lovers appear to vent their rage on the highway. Three hundred thirty two (332) incidents of domestic violence were played out on roads and Interstates throughout the country. For example, in 1994 in Michigan, a man was charged with killing his estranged wife age 28, and a male companion. Witnesses reported that the man rammed the companion's car after a high speed chase. In 1995, in Massachusetts, a woman and her three year old daughter were injured when a car in which they were driving was rammed by a former boyfriend of the woman (Mitzel and Company, 1996). More recently in the news it was reported that Clara Harris of Huston Texas ran down her husband with her Mercedes after catching him and his lover at a hotel. (Lansing State Journal, February 2003).

Children, the most innocent of bystanders, are frequently the victims of road rage, or as some researchers indicate aggressive driving. At least 94 children under the age of 15 were injured or killed in “road rage” incidents during 1990-1996. (AAA Foundation for Traffic Safety, 1997).

Road Rage and Michigan

Between 1996 and 1999 road rage was a hot topic among the legislature and the private and public sector. It was such a hot topic that Michigan Senate Bill number 287; was introduced on February 9, 1999, sponsored by Senator William Van Regenmorter. This bill specified that a person who committed three or more of specific listed violations of the Vehicle Code during a single continuous period of driving would be guilty of aggressive driving and responsible for civil infraction. Some of the listed violations were, reckless driving, speeding, following another vehicle too closely, and failing to yield the right-of-way (Senate Fiscal Agency, SB: 287).

According to the Michigan Network of Employers for Traffic Safety (MINETS) Fall 1997 report, about one in six Michigan motorists- nearly one million drivers-may be in danger of “overheating” or driving “in the red”. This represents 16 percent of Michigan motorists who were diagnosed as aggressive/stressed drivers. The MINETS survey showed that 56 percent of aggressive drivers are women, contrary to what many people believe. The survey also showed that aggressive drivers were more likely to be single, under 35, and had less than a college education and fall into the middle income category.

A report on Aggressive Driving by the Surface Transportation Policy Project (STPP) was the first to compare aggressive driving death rates by metropolitan area and state. It found that Detroit, Michigan ranked 18th at 4.9 deaths per 100,000 people and that Michigan as a state

ranked 27th in the nation for aggressive driving deaths at 7.9 deaths per 100,000 people (Road Rage and Aggressive Driving, L. James and D. Nahl 2002).

The purpose of this study is to address/understand theories regarding the antecedents of behavior in relationship to experiences of aggressive behavior which precede road rage, addressing these factors; stress in the classroom, conflicts with significant others, and stress associated with being a single parent.

Chapter Two

Review of Literature

Literature addressing road rage primarily focuses on independent research in traffic psychology, and testimony to the Subcommittee on Surface Transportation and Infrastructure, US House of Representatives (Washington, DC), July 1997. Dr. Leon James and John Larson, MD, identified Road Rage as a “Culturally Acquired Habit” a learned behavior. That we, as individuals inherit aggressive and dangerous driving patterns as children, watching our parents and other adults behind the wheel and by watching and absorbing bad driving behaviors depicted in movies and television commercials. Professor James states that because aggressive driving is a cultural trait, we need to apply social cultural techniques to alter the negative cultural norm of hostility and competition on the highways. Only a cultural approach will have the power and authority to convince millions of drivers to change their style and philosophy (Congressional Testimony on Road Rage, 1997). This concept, addresses aspects of the Social Learning Theory, that individual’s learn not only by their experiences, but also by experiences of others, which is a form of vicarious learning (Glanz and Rimer,1990). In addition, it also incorporates concepts which are inherent in the social learning conception idea that people self-regulate their environments and actions. Although people are acted upon by their environments, they also help create their surroundings (Green and Kreuter, 1991). This concept of reciprocal determinism is social learning theory’s major departure from operant conditioning theory, which tends to view all behavior as a one-way product of the environment. Furthermore, individual differences, regarding the frequency and modality of expressing hostility is conditioned by several social factors such as, gender, education, age, personality style, demeanor, or conduct. For instance,

one would expect gender differences in driving aggressiveness to be consistent with cultural norms for violence in the family or workplace.

Gender Affects on Aggressive Driving Behavior

Relevant findings from a Web survey of 2,010 respondents regarding gender and workplace conducted by Dr. James (1988), dealt with an itemized list of driving behaviors often considered aggressive and illegal such as tailgating, elaborate lane changes and speeding. By checking an item, the respondent was making a confession or a self-witness report "I sometimes engage in this behavior." By tabulating the results in terms of demographic variables, they were able to explore various cultural influences on specific forms of aggressive driving. The results of this survey showed that for each aggressive driving behavior listed, more men than women reported doing it. These results confirmed what earlier surveys have found, that men drive more aggressively than women and manifest road rage symptoms more regularly. However, popular surveys also show a growing number of women are engaging in aggressive driving behavior and are involved in a higher rate of non-fatal accidents than men (Woman Motorist, 1999). This aggressiveness of men drivers and the increasing aggressiveness of women drivers are defining indicators of cultural trends reflecting an expanding permissiveness towards the expression of anger behind the wheel.

Women and Aggressive Driving

Some of the rise in women's aggressive driving is attributed to the increased presence of women in workplace. According to the studies of James and Nahl, there are over 88 million licensed women drivers in the U.S. today. The proportion of women in the driver population

rose from 43 percent in 1963 to 50 percent in 1999. More women are stuck in congested traffic, and more females are experiencing the stress and frustration men have endured for decades (James and Nahl, 2002). Additionally, women have more stops to make while they cart children to school, sports, and lessons, as well as driving to work, running errands, shopping and banking. Women are forced to drive under time pressure during congestion, which in turn adds to the problem of road rage frustration. As a result, auto insurance rates for young women are now closer to those of inexperienced young men, who are still being charged 185 percent above the base rate (James and Nahl, 2002).

A Connection to Stress and Illness

The connection between stress and illness has long been established in medicine and new research shows that driving related stress is no different from other life stress in the way it affects our health (APA Monitor, 1996). According to professor James, health professionals generally attribute part of the increase in driving “pugnacity” to social factors such as swelling congestion, urbanization, dual-income families, workplace downsizing that increase crowding, family discord, job dissatisfaction, and physical illness. Health education literature has also indicated similar findings in their discussions on stress and illness (Goleman, 1995). According to Goleman, the overt expression of anger and hostile behavior is normally “inhibited” or kept under wraps because we are directly or indirectly punished for it in various ways. In the past decade, public schools have implemented conflict resolution or peer mediation programs designed to help children acquire the habit of resolving disagreements non-physically, non-violently. The key to this civilized conduct provides the teaching skills of inhibiting the physical expression of anger or fear, so it doesn’t come out in provocative or violent behavior. Therefore,

health educators involved in helping individuals with their aggressive behaviors in relationship to road rage must find ways to restore this same principle in the “driving-world” of today.

Intervention Techniques

Dr. John Larson urges all motorists to consider anger management training techniques as a way to cope with aggressive driving,

“Driving is not a competition, be polite and courteous, even if the other driver isn’t. Don’t lose your temper, rude gesturing and other kinds of hostile behavior is a waste of time and emotions, besides they could escalate into a hazardous situation” (Michigan NETS Talk, 1997).

Additional literature indicates that some of the interventions that have attempted to address the issue of road rage/ aggressive driving seem to approach it from an institutional and public policy perspective. (Subcommittee on Surface Transportation Hearing, 1997). This level of intervention is consistent with the Ecological Theory Approach, dealing with reciprocal determinism. This theory helps explain how environments affect behavior and how environments and behavior affect each other. This is done by looking at multiple levels, which include individual, interpersonal, community, institutional and public policy. Because of the ability to impact such a broad range of the population, some officials have begun a two step process to minimize road rage based on enforcement and prevention to combat this problem.

Community, Institutional and Public Policy Interventions

Programs have been developed to apprehend and penalize aggressive drivers. One of the most notable is the Smooth Operator Program in the D.C. metropolitan area which involves law enforcement officials in Northern Virginia, Washington, D.C. and Southern Maryland who work

in cooperation to spot and apprehend aggressive drivers. In addition to these activities, judges are imposing stiffer penalties on motorists convicted of offenses related to aggressive driving to let the public know that this type of behavior will not be tolerated by the justice system (Subcommittee on Surface Transportation Hearing, 1997). Penalties are being enforced, but there appear to be some gaps in regard to education, and how educating the drivers in regard to road rage/aggressive driving could help.

“Massachusetts is one state that offers an eight- hour video course prevention type program to motorists convicted of aggressive driving offenses in lieu of license suspension.

These drivers had 77 percent fewer accidents in the year after taking the course.”

(<http://ww.house.gov/transportation/surface/stherin>). Furthermore, some state agencies have developed fliers, pamphlets and public service announcements detailing what aggressive driving behavior is and how to avoid an aggressive/road rage driving incident. But as of date, no data is available as to how these types of interventions actually affect ones driving behavior.

A K-12 Driving Education Intervention

Prevention of aggressive driving is being implemented in driver education courses. Driver education and training continue to focus on imparting a minimum knowledge of safety principles and of vehicle operation and manipulation. Courses and manuals generally include a brief section on “driver attitude” and “driver error” and this practice constitutes an acknowledgement that personality habits of the driver ought to be addressed in the instructional process. Dr. Leon James research efforts have addressed this behavioral component, and to allow specific recognition of this subject in driver education and training thru a K-12 driving education program. Dr. James has proposed a phrase “driving psychology” to represent this new driver

instruction area. Driving psychology is a behavioral engineering tool. Research in driving psychology uses the self-witnessing approach, which is a method of generating objective data on oneself as a driver (James, 1996). According to Dr. James, the driver operates in three separate but interacting behavioral areas known as affective, cognitive and sensorimotor. In other words, it takes the motive of a goal destination (affective domain) to keep the car moving, as well as a variety of related motives (affective) such as the desire (affective) to avoid a collision or the emotion of anger (affective) at another driver. Besides this, it takes knowledge (cognitive domain) of vehicle operation and traffic regulations to get through, besides making judgments (cognitive) about what other motorists are likely to do or not to do. And finally, it also takes the coordinated execution or performance (sensorimotor domain) of movements in appropriate response to the motive and the judgment. These three behavioral domains jointly and interactively constitute driving or traffic behavior.

Most educational researchers agree that learning can be organized into three major categories or domains. The cognitive domain includes behaviors requiring various levels of thought: knowledge, understanding, reason and judgment. The psychomotor domain includes behaviors involving physical actions, neuromuscular manipulations and coordination. The affective domain includes behaviors guided by feelings and emotions that are influenced by one's interests, attitudes, values and beliefs.

The new driving psychology and the older traffic psychology represent distinct paradigms to the study of driver behavior, as was anticipated by the distinction between input-output relations and those involving internal states (Michon, 1985). Input- output models use taxonomies or inventories based on task analyses, as well as functional control models of a mechanistic nature. Internal state models use trait analysis of drivers and their motivational-cognitive context.

Michon (1985, p.490) considers the input-output models as “behavioral” while the internal states models are termed “psychological.” However, driving psychology views the affective and cognitive areas as equally behavioral to the sensorimotor. Inventories or driver tasks have so far been based on external or public observation and description of driving performance (McKnight and Adams, 1970). The self-witnessing approach is a way of obtaining internal behavioral data, sometimes called “private data”.

As mentioned earlier, driving psychology is the study of the social-psychological forces that act upon drivers in traffic. Situations are analyzed through external as well as internal methods of data gathering. Self-witnessing along with the concepts in regard to cognitive domain of behavior are analogous to the concepts of “self-efficacy and the social learning theory” as a determinant of behavior. Furthermore, personality and character are related to driver’s style of coping with traffic stress. Acts, thoughts, and feelings in driving interact in an integrated system. A driving trip typically involves the presence of a dominant motive such as the feeling of being in a rush, or the desire to outplay other drivers by getting ahead of them. The dominant motive (affective domain) is character tendency that expresses itself in other settings as well. For example, a person may experience hostile thoughts (cognitive behavior) toward others wherever competition is at work, a bank line, a restaurant, or switching traffic lanes (sensorimotor domain). Data on the private world of drivers show that frustration begets anger, which leads to feelings of hostility that are elaborated in mental violence and ridicule, and finally acted out in aggressive behavior. As health educators one can see a direct relationship between these concepts and the Health Education Theories and Strategies regarding stress, illness and coping and how these concepts can play a part in ones overall behavioral outcomes as they relate to road rage.

Chapter Three

Methodology and Design

Subjects

The subjects for this survey included 47 students who attended the University of Michigan-Flint campus, located in Flint, Michigan during Winter Semester of 2004. No pre-selection of subjects or list of names was used for this survey. A sample of convenience was used and obtained by the research worker within the University Pavilion building. Both male and female students ranging from 17 years of age and older are used for this survey. Voluntary participation in research was made known to all participants through a consent form and verbal communication by the research worker.

Variables

The variables of this survey consisted of looking at the antecedents of behavior that are related to different types of aggressive emotions that are associated with road rage and how those behaviors may interrelate. Specific variables of investigation were as follows:

1. Effect of time
2. Stress in the classroom (Success on Exams)
3. Conflicts with significant others
4. Stress associated with being a single parent.

Procedures

A survey questionnaire was developed which consisted of a list of questions addressing the aggressive behaviors which precede road rage. This questionnaire along with a request for

review was submitted to the University of Michigan-Flint, Review Committee for the Use of Human Subjects in Research. Once approval was given, the survey was then given out to 60 University of Michigan- Flint participants. In this survey, participants were asked a series of questions about their background and experiences of aggressive behavior addressing the following factors: stress in the classroom, conflicts with significant others and stress associated with being a single parent and their possible relationships to road rage. Data collection was performed by the use of this written questionnaire.

No pre-selection of subjects was used for this survey. A sample of convenience using student volunteers from the University of Michigan-Flint was used. All participants were invited to participate by personal solicitation by the student researcher within the University Pavilion building. Participants were assured of the confidentiality of all information obtained through this survey and that the research would be available through the thesis which copies could be found in the university library and the offices of the Department of Health Sciences and Administration. An informed consent form was attached to the questionnaire that contained information about the study, and directions on how to complete the questionnaire.

Design

The locale for conducting this study was established at a specific post-secondary institution, the University of Michigan-Flint, in Flint, Michigan. The gathering of information relative to students' behavior patterns as they relate to different stressors in ones life and if a relationship between these stressors and ones driving behavior exist, are the main objectives of this design.

A “cross-sectional” design is used to collect data on all relevant variables at one time. A major reason for the use of this cross-sectional design is to help uncover relationships. These relationships can then be studied by health educators so that recommendations regarding different health theories and methodologies addressing one’s behavior regarding aggressive driving and/or road rage can be developed. This cross-sectional design is seen as a “snapshot in time” and recognizes that events could change markedly at a later time. Information was obtained by the use of a descriptive survey consisting of fifteen (15) questions.

Data Analysis

Descriptive statistics assessing demographics of the participants’ was conducted on survey data. Participant’s surveys were divided into different sub-groups based on demographic analysis and the degree to which different stressors may affect ones driving style were ascertained from each sub-group. Comparisons for similarities and differences are discussed in the results and discussion sections of this thesis. Univariate analysis is used to help determine the relative frequency (percentages) in regards to the relevant variables that were ascertained by the surveys.

Chapter Four

Results

The primary intention of this study was to determine if University of Michigan-Flint student's experiences of aggressive behavior associated with everyday stressors such as final papers and exams, conflicts with significant others and single parenthood, along with the time frame between these experiences increase their likelihood to initiate violent behavior in the driving environment. In addition, a secondary intention of this study was to aid health educators in increasing an individual's awareness and education, by obtaining data that could help in the development of interventions dealing with aggressive behavior and its relationship to road rage. In an effort to accomplish these objectives a survey was designed to gather data from 60 university students.

Sample

Selected demographic information can be found in Tables 1.0, 2.0 and 3.0. Of the 60 surveys that were completed, 78.3% (n=47) were verified to be college students attending the University of Michigan-Flint and were therefore included in the data analysis.

| <i>Class Ranking</i> | <i>Number of Participants</i> | <i>Percent</i> |
|----------------------|-------------------------------|----------------|
| Freshman | 4 | 8.5% |
| Sophomore | 8 | 17.0% |
| Junior | 11 | 23.4% |
| Senior | 18 | 38.3% |
| Graduate | 6 | 12.8% |
| Total | 47 | 100.0% |

| <i>Age Group</i> | <i>Number of Participants</i> | <i>Percent</i> |
|------------------|-------------------------------|----------------|
| 17-21 | 15 | 31.9% |
| 22-25 | 14 | 29.8% |
| 26-30 | 7 | 14.9% |
| 31-35 | 5 | 10.6% |
| 36-38 | 2 | 4.3% |
| 39-42 | 2 | 4.3% |
| 43+ | 2 | 4.3% |
| Total | 47 | 100.0% |

Table 1 indicates that of the 47 study participants, 8.5% (n = 4) were freshmen, 17% (n = 8) were sophomore, 23.4% (n = 11) were juniors, 38.2% (n = 18) were seniors and 12.7% (n = 6) were graduate students.

Table 2 showed the age group of the participants ranged from 43+ to 17. Of these, 31.9% (n = 15) were 17-21 years of age, 29.8% (n = 14) were 22-25 years of age, 14.9% (n = 7) were 26-30 years of age, 10.6% (n = 5) were 31-35 years of age, 4.3% (n = 2) were 36-38 years of age, 4.3% (n = 2) were 39-42 years of age and 4.3% (n=2) were 43 and above.

| <i>Gender</i> | <i>Number of Participants</i> | <i>Percent</i> |
|---------------|-------------------------------|----------------|
| Male | 22 | 46.8% |
| Female | 25 | 53.2% |
| Total | 47 | 100.0% |

Table 3 showed the gender break down of the 47 study participants consisted of 53.2% (n = 25) female and 46.8% (n =22) males.

Effect of time

Table 4.0 indicates that 89.3% (n = 42) of the participants indicated that they felt time (within 10 minutes) between experiencing an aggressive emotion and getting into an automobile affects ones driving style. Table 4.1 more specifically shows that 83.3% (n = 35) indicated that they would be more likely to get aggressive with a driver who was going slow or cut in front of them on the highway.

Table 4.2 provides information that shows the majority of the participants 55.3% (n = 26) indicated that it took them between 5-10 minutes after leaving the classroom to get to their automobiles. Of the remaining 44.7% (n=21), 14.9% (n = 7) took less than 5 minutes, 12.8% (n = 6) took 11-15 minutes and 17% (n = 8) took more than 15 minutes to get to their automobiles.

Table 4.0: Effect of Time

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|-----------------|-------------|---------------|--------------|-------------------------|
| No Effect | 3 | | 3 | 6.4% |
| Little Effect | 5 | 5 | 10 | 21.3% |
| Moderate Effect | 9 | 14 | 23 | 48.9% |
| Large Effect | 4 | 5 | 9 | 19.1% |
| No Answer | 1 | 1 | 2 | 4.3% |
| Total | 22 | 25 | 47 | 100.0% |

Table 4.1: Effect of Time Scenarios

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|-----------------------------|-------------|---------------|--------------|-------------------------|
| <i>Cut Off Scenario</i> | | | | |
| Less Likely | 3 | 4 | 7 | 16.7% |
| More Likely | 15 | 20 | 35 | 83.3% |
| Total | 18 | 24 | 42 | 100.0% |
| <i>Slow Moving Scenario</i> | | | | |
| Less Likely | 3 | 4 | 7 | 16.3% |
| More Likely | 15 | 21 | 36 | 83.7% |
| Total | 18 | 25 | 43 | 100.0% |

Table 4.2: Time Passed Before Returning to Automobile

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|----------------------|-------------|---------------|--------------|-------------------------|
| less than 5 minutes | 4 | 3 | 7 | 14.9% |
| 5-10 minutes | 10 | 16 | 26 | 55.3% |
| 11-15 minutes | 5 | 1 | 6 | 12.8% |
| more than 15 minutes | 3 | 5 | 8 | 17.0% |
| Total | 22 | 25 | 47 | 100.0% |

Success on Exams

Table 5.0 indicates that 67.3 % (n = 31) of those surveyed indicated they felt that doing well on an exam does have an effect on their driving style. Table 5.2 shows that of those who indicated there was an effect, 80% (n = 24) stated that they would be less likely to become aggressive with a driver who cuts in front of them on the highway. In comparison when asked if doing poorly on an exam affects ones driving style, Table 5.1 shows that 86.6% (n = 39) indicated that it did. As indicated in Table 5.3 only 18.9% (n = 7) stated that they would be less likely to become aggressive with a driver who cuts in front of them on the highway.

Table 5.0: Effect of Good Exam Performance

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|---------------------|-------------|---------------|--------------|-------------------------|
| Has no effect | 7 | 8 | 15 | 32.6% |
| Has little effect | 6 | 9 | 15 | 32.6% |
| Has moderate effect | 5 | 5 | 10 | 21.7% |
| Has large effect | 4 | 2 | 6 | 13.0% |
| Total | 22 | 24 | 46 | 100.0% |

Table 5.1: Effect of Poor Exam Performance

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|---------------------|-------------|---------------|--------------|-------------------------|
| Has no effect | 4 | 2 | 6 | 13.3% |
| Has little effect | 8 | 10 | 18 | 40.0% |
| Has moderate effect | 5 | 10 | 15 | 33.3% |
| Has large effect | 4 | 2 | 6 | 13.3% |
| Total | 21 | 24 | 45 | 100.0% |

| Table 5.2: Effect of Good Exam Performance Scenarios | | | | |
|---|-------------|---------------|--------------|-------------------------|
| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
| <i>Cut Off Scenario</i> | | | | |
| Less Likely | 10 | 14 | 24 | 80.0% |
| More Likely | 4 | 2 | 6 | 20.0% |
| Total | 14 | 16 | 30 | 100.0% |
| <i>Slow Moving Scenario</i> | | | | |
| Less Likely | 10 | 12 | 22 | 73.3% |
| More Likely | 4 | 4 | 8 | 26.7% |
| Total | 14 | 16 | 30 | 100.0% |

| Table 5.3: Effect of Poor Exam Performance Scenarios | | | | |
|---|-------------|---------------|--------------|-------------------------|
| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
| <i>Cut Off Scenario</i> | | | | |
| Less Likely | 3 | 4 | 7 | 18.9% |
| More Likely | 13 | 17 | 30 | 81.1% |
| Total | 16 | 21 | 37 | 100.0% |
| <i>Slow Moving Scenario</i> | | | | |
| Less Likely | 4 | 2 | 6 | 16.7% |
| More Likely | 12 | 18 | 30 | 83.3% |
| Total | 16 | 20 | 36 | 100.0% |

Conflicts With Significant Others

Table 6.0 shows that 90.9% (n = 40) indicated that they felt that having a “heated argument” with a significant other affects your driving style. As indicated in Table 6.1 of those responding, 95.1% (n = 39) indicated that they would be more likely to get aggressive with a driver who cuts in front of them on the highway. The survey also found as Table 6.1 indicates that of those who indicated that having a heated argument with a significant other did affect their driving style, 90.2% (n = 37) indicated that they would also be more likely to become aggressive with a slow moving vehicle in front of them on the highway.

Table 6.0: Effect of Heated Argument

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|-----------------|-------------|---------------|--------------|-------------------------|
| No Effect | 2 | 1 | 3 | 6.8% |
| Little Effect | 3 | 6 | 9 | 20.5% |
| Moderate Effect | 7 | 11 | 18 | 40.9% |
| Large Effect | 9 | 4 | 13 | 29.5% |
| No Answer | 1 | 0 | 1 | 2.3% |
| Total | 22 | 22 | 44 | 100.0% |

Table 6.1: Effect of Heated Argument Scenarios

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|-----------------------------|-------------|---------------|--------------|-------------------------|
| <i>Cut Off Scenario</i> | | | | |
| Less Likely | 1 | 1 | 2 | 4.9% |
| More Likely | 18 | 21 | 39 | 95.1% |
| Total | 19 | 22 | 41 | 100.0% |
| <i>Slow Moving Scenario</i> | | | | |
| Less Likely | 3 | 1 | 4 | 9.8% |
| More Likely | 16 | 21 | 37 | 90.2% |
| Total | 19 | 22 | 41 | 100.0% |

Single Parenthood

Table 7.0 indicates that 42.6% (n = 20) of those surveyed indicated that they felt that being a single parent had no effect on their driving style. As Table 7.2 indicates of the 31.9% (n = 15) who did state that being a single parent does affect their driving style, 66.7% (n = 10) of them indicated that they would be more likely to become aggressive with a driver that was going slow or cut in front of them or on the highway, while 33.3% (n = 5) would be less likely to become aggressive with a driver that was going slow or cut in front of them on the highway.

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|-----------------|-------------|---------------|--------------|-------------------------|
| No Effect | 11 | 9 | 20 | 42.6% |
| Little Effect | 2 | 4 | 6 | 12.8% |
| Moderate Effect | 3 | 2 | 5 | 10.6% |
| Large Effect | 3 | 1 | 4 | 8.5% |
| No Answer | 3 | 9 | 12 | 25.5% |
| Total | 22 | 25 | 47 | 100.0% |

| | <i>Male</i> | <i>Female</i> | <i>Total</i> | <i>Percent of Total</i> |
|-----------------------------|-------------|---------------|--------------|-------------------------|
| <i>Cut Off Scenario</i> | | | | |
| Less Likely | 4 | 1 | 5 | 33.3% |
| More Likely | 4 | 6 | 10 | 66.7% |
| Total | 8 | 7 | 15 | 100.0% |
| <i>Slow Moving Scenario</i> | | | | |
| Less Likely | 4 | 1 | 5 | 33.3% |
| More Likely | 4 | 6 | 10 | 66.7% |
| Total | 8 | 7 | 15 | 100.0% |

Ancillary Results

The primary intentions of this study are presented above but two additional findings were also obtainable from this survey. One additional finding was regarding the family status of the participants and the other was looking at any gender differences that may apply.

A survey question was asked regarding what the family status of the 47 participants was. The results from this question showed that 63.8% (n = 30) were single with no children, 10.6% (n = 5) were single with children, 4.2% (n = 2) were married with no children and 17% (n = 8) were married with children. There were 4.2% (n = 2) who did not give a response to this question.

Although gender differences were not the primary intention of this survey some general information regarding this can be ascertained from Tables 4.0 through 7.1 of this survey. Results are as follows regarding:

Genders Effect Regarding Time

As mentioned earlier the gender break down for this survey consisted of 22 males and 25 females. Of the 89.3% (n = 42) who indicated time did affect their driving style 42.8% (n = 18) were males and 57.1 % (n = 24) were female. Of the 83.3% (n = 35) who indicated they would be more aggressive toward a driver who either cut in front of them or was going to slow, 35.7% (n = 15) were males and 47.6% (n = 20) were females.

Genders Effect Regarding Success on Exams

34.1% (n = 16) of females surveyed reported that doing well on an exam affects their driving style and 29.7% (n = 14) of males reported the same effect of exams on driving. Of the 80% (n = 24) who indicated that they would be less likely to become aggressive with a driver who cuts in front of them on the highway 33.3% (n = 10) were males and 46.6% (n = 14) were females.

Genders Effect Regarding Conflict with Significant Other

Of the 85% (n = 40) who indicated that having a heated argument with a significant other did affect their driving style, 40.4% (n = 19) were males and 44.6% (n = 21) were females. Of the 97.5% (n = 39) who indicated that they would more likely get aggressive with a driver who cut in front of them on the highway, 46.1% (n =18) were male and 53.8% (n=21) were female. Of

the 92.5 % (n = 37) who indicated that they would be more likely to become aggressive with a driver who was going slow 43.2% (n = 16) were males and 56.7% (n = 21) were females.

Genders Effects Regarding Single Parenthood

Of the 57.1% (n = 20) that indicated that they felt that being a single parent had no effect on their driving style, 55% (n = 11) were male and 45% (n = 9) were female. Of the 42.8 % (n=15) who did state that being a single parent does affect their driving style, 53.3% (n = 8) were males and 46.6% (n = 7) were female.

Chapter Five

Discussion

Health educators must rely on many sources to ascertain valid and reliable information so that development of programs that address behavioral changes in an individual can be successful and helpful to all participants. This study was an attempt to provide additional information and data that can be useful in refining and strengthening current aggressive driving interventions and help in the development of new strategies in dealing with this dilemma.

Summary

Rationale for this study came from a review of literature and previous independent studies that were designed to investigate the causes and behaviors of individuals who exhibit aggressive driving and some of the programs that were developed to address this topic. The initial data from these studies stimulated much interest among legislature and the private and public sector, yet, little research was available to educators in determining which strategies or programs worked the best and were successful in developing behavioral changes. This study was designed to contribute data that could be used to assist those involved in aggressive driving/road rage campaigns to formulate criteria that will aid individuals in successfully developing the behavioral changes necessary to address their road rage behaviors.

The primary objectives of this study were to elicit information from the respondents concerning their experiences of aggressive behavior associated with everyday stressors such as final papers and exams, conflicts with significant others and single parenthood, along with the time frame between these experiences to see if these would increase their likelihood to initiate violent behavior in the driving environment. To accomplish this, a thorough review of literature

was conducted. Although literature concerning aggressive driving/road rage programs and initiatives is limited, literature reviews of aggressive driving programs and initiatives in other states offered very useful information that could be linked to aggressive driving and road rage. The instrument used for this study contained 15 multiple choice questions that dealt with demographics, effect of time, success on exams, conflicts with significant others and single parenthood. The questionnaire was distributed to 60 individuals at the University of Michigan-Flint campus. Of the 60 surveys returned 78.3% were actual university students and were used for data collection.

The responses provided demonstrate that students at the University of Michigan-Flint campus have strong feelings in regards to how much effect time between experiencing an aggressive emotion and getting into an automobile has on ones driving style. More than three-quarters of the respondents indicated that time (within 10 minutes) of experiencing an aggressive emotion and getting into an automobile would more likely make them get aggressive with a driver who was going slow or cut in front of them on the highway. In addition, the students also indicated that they felt that having a “heated argument” with a significant other also affects their driving style. Almost one hundred percent of those who indicated that having a heated argument did effect their driving style indicated that they would be more likely to get aggressive with a driver who cuts in front of them on the highway. Collection of data also provided insight about two other variables; those being success on an exam and single parenthood, and how these may effect ones driving style. Results showed that more university students felt that doing poorly on an exam played more of an affect than doing well, 82.9% vs. 62.8%. Furthermore, this study indicated that more than one-half of the respondents indicated that they felt that being a single parent had no effect on ones driving style. Continued study of aggressive behaviors and their

effect on road rage is indicated and should be pursued. The findings of this study may be useful to other investigators who seek to identify behavioral predictors of aggressive driving and road rage.

Discussion

The primary purpose of this study was to aid health educators in increasing an individual's awareness and education, along with helping them develop interventions which would aid in behavioral changes regarding dealings with aggressive behavior and its relationship to road rage. To accomplish this purpose the study proposed to look at four variables. These variables will be discussed independently.

Effect of Time

The amount of effect that time plays between experiencing an aggressive emotion and getting into an automobile has on one's driving style was addressed in the study by looking at two specific questions on the survey. Respondents answered the primary time question using a form of Likert scale. Results from this question answered how much effect the first variable has on one's driving style by noting that the majority of students indicated that time had a moderate effect. The second question looked at the variable of time in relationship to an aggressive behavior that the driver would most likely exhibit. Results from this question indicated that more than three-quarter of the respondents indicated that they were more likely to become aggressive with a driver who was going slow or cut in front of them on the highway. The results from these two questions show a similar time and effect relationship as did studies done by Dr. Leon James(1996) dealing with the affective domain and the emotion exhibited at other drivers. This

study was more limited than that of Dr. James because it only took into consideration two types of exhibited behavior, those being drivers who were going to slow and those who cut in front of people on the highway.

From the information obtained from the survey questionnaire, one could make a good argument that states that a relationship between the time of experiencing an aggressive emotion and getting into an automobile does play a part in ones driving style.

Success on Exams

As literature and other studies dealing with aggressive behavior and road rage has indicated, a person's action, thoughts, and feelings in driving interact in an integrated system. A driving trip typically involves the presence of a dominant motive; such as the feelings of being in a good or bad mood. This study looked at this by evaluating ones success on exams and how this may affect ones driving style.

One interesting finding was that respondents felt that doing poorly on an exam affected their driving style more than doing good on an exam did. The majority of respondents indicated that because they had done poorly on an exam that they would be more likely to become aggressive with drivers who either cut in front of them or were going slow. This researcher feels that this negative feeling/ environment which accompany doing poorly on an exam, increases ones stress level and therefore has a direct effect on ones behavior. These findings contradict the findings of Goleman, 1995 which indicated that individuals usually keep their overt expression of anger under wraps. Furthermore, this researcher also believes that these findings help to reinforce the health education Ecological Theory Approach dealing with reciprocal determinism. That

because of the negative environment that one finds themselves in when performing poorly on an exam in turn effects their driving behavior and how each of these have an effect on each other.

The data extrapolated from this survey question has provided information that only suggests that this variable may be used to predict aggressive behaviors and how in turn may affect ones driving style.

Conflicts With Significant Others

Throughout the literature review and a study of the results of the questionnaire it became apparent that conflict with significant others and or domestic violence played a surprising large role in aggressive driving and road rage. More than three-quarters of the respondents had indicated that having a heated argument with a significant other affected their driving style. Nearly one hundred percent of those who responded indicated that they would more likely become aggressive with drivers after experiencing a heated argument. These findings reinforce the same findings of Mitzel and Company, 1996 that showed that those who experienced conflicts/domestic violence vented their rage on the highway.

This variable had the most overall effect on students driving style than any of the other variables looked at by this study and therefore shows a need for further study by educators on the area of conflicts with significant others and how these conflicts affect ones driving style and its affect on road rage.

Single Parenthood

Single parenthood and its effect on ones driving style was addressed in this study. According to the results no real connection could be made in regards to ones driving style and single

parenthood. The age group and family status of most of the participants may be a reason as to why no connection could be made from this study. The majorities of respondents are single with no children and under 26, and therefore had no real experience regarding the effect of being a single parent. Furthermore, according to MINETS Fall 1997 report showed that aggressive drivers were more likely to be single and under 35, and had less than a college education. This researcher feels that the information obtained from this survey is not exclusive and that further studies should look at this variable in more depth.

Conclusions and Recommendations

The purpose of this study was to provide information that would aid health educators in increasing an individual's awareness and education, along with helping educators develop interventions which would aid in behavioral changes regarding aggressive behavior and its relationship to road rage. As a result of this research and the analysis, recommendations have been divided into two sections. The first section concerns recommendations involving future research. The second provides recommendations to improve the study.

Any information gained from this study should be considered as a starting point for further research of aggressive behavior and its effect on road rage rather than a definitive answer to the research question posed. The relationship between aggressive behaviors and their effect on road rage remains unclear; however, some of the results and conclusions of this study should contribute to the current knowledge of aggressive behaviors and their effect on road rage and serve as a foundation for advanced inquiry.

Recommendations for Improving Future Research

1. Because health educators must rely on many sources to ascertain valid and reliable information so that development of programs that address behavioral changes in an individual can be successful and helpful to all participants the variables that were addressed in this survey should be expanded on and subject to further investigation.
2. Because of the wide range of individuals that health educators are involved with research into demographics, previous educational level other than university level students may provide insight into other variables related to aggressive behavior and road rage. The characteristics of other individuals other than college students may make a significant contribution to the development of other intervention programs.
3. Research involving other cross-sectional studies should be done to compare findings of these variables with other future studies.

Recommendations to Improve the Study

1. The weighting of the responses that indicate appropriate aggressive behavior criteria should be considered in future studies so that a more direct relationship between aggressive behaviors and road rage could be established.
2. Increasing the awareness of study population by publishing the results of other studies prior to releasing survey questionnaires may generate interest and result in an increase response rate regarding total number of responses for all questions asked.

3. Survey other individuals besides just college students to get a better overall understanding of individuals behavior patterns in relationship to their experiences regarding aggressive driving and road rage.

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Appendix 1

Consent Form

Information for Subjects Completing *Experiences of Aggressive Behavior and It's Effect Regarding Road Rage Survey*

The following information is to help you decide if you would like to be part of this research survey. If you do not understand any part of this form, please ask for clarification.

Title of Study: Experiences of Aggressive Behavior and It's Effect on Road Rage

Research Worker: Brian W. Pickford, Candidate for Master of Science in Health Education, Department of Health Sciences & Administration, University of Michigan-Flint.

Principal Investigator: Shan Parker, PhD, M.P.H., University of Michigan-Flint, Department of Health Sciences & Administration

General Information about the Survey

This survey consists of a list of questions addressing the aggressive behavior which precede road rage. The findings of this survey may be used to aid health educators in increasing an individual's awareness and education, along with developing interventions which may aid in behavioral changes regarding ones aggressive emotion and its relationship to road rage.

Plan of Study

In this survey, you will be asked a series of questions about your background and experiences of aggressive emotions addressing the following factors, stress in the classroom, conflicts with significant others and stress associated with being a single parent and their possible relationships to road rage. If you agree to take part in this survey, you will be ask to complete the questionnaire, which will take about 10-15 minutes to fill out.

Payment for Participation

You will receive a small drink and food snack for taking part in this survey.

Benefits of Being Part of this Survey

There are no direct benefits to you for taking part in this survey. The information that you give us may help in developing interventions which would aid in behavioral changes regarding dealing with aggressive emotions and their relationship to road rage.

Risks of Being a Part of this Research Study

There are no known risks associated with taking part in this survey.

Confidentiality of Your Records

For this research survey, any information you give us will be kept confidential. Only the research team working on the project will have access to the survey data. The data will be stored in locked drawers at the University of Michigan-Flint, Department of Health Sciences and Administration offices.

No names will be collected or appear on the survey or data collected. Your survey data will be kept confidential to the extent provided by federal, state and local law. Approved staff of the research team at the University of Michigan –Flint, Department of Health Sciences and Administration and The University of Michigan-Flint Review Committee for the Use of Human Subjects in Research may inspect the files from this research survey.

The results of this survey may be published. The data obtained from you will be combined with data from other people if published. The published results will not include your name or any other details that would in any way identify you.

Volunteering to Be Part of this Research Survey

Your choice to take part in this research study is voluntary. You are free to take part in this research survey or to withdraw at any time. You may refuse to answer any questions that you don't want to answer. If you choose not to take part, or if you withdraw, there will be no penalty or loss of benefits that you are entitled to receive. Your decision about whether to participate in this survey will no way affect your academic standings at the university.

Funding for this survey

This survey is not being paid for by any funds contributed by foundations or agencies in Genesee County or by the federal government through a grant to the University of Michigan-Flint.

Questions and Contacts

If you have any questions about this research survey, call Brian Pickford, B.S., R.T.(R) at (517) 483-5379 or Shan Parker, PhD. at 810-762-3172.

Your Consent-

- I have fully read or have had read and explained to me this consent form describing this research survey.
- I have had the chance to question one of the persons in charge of this research survey and have received satisfactory answers.

- I am aware that I am being asked to take part in this research survey. I am aware of the risks and benefits, and I freely give my consent to take part in the research survey outlined in this form, under the guidelines.

Investigator Statement

I have fully explained to the subject the nature of the study. I hereby certify that to the best of my knowledge the subject is aware of the nature, demands, risks and benefits involved in taking part in this survey.

| | | |
|--|---------------------------------------|---------------|
| _____ Signature of Investigator Or Authorized research investigators Designated by the Principal Investigator | _____ Printed Name of Investigator | _____ Date |
|--|---------------------------------------|---------------|

Institutional Approval of Research Survey and Informed Consent

This research survey project and informed consent form were reviewed and approved by the Department of Health Care Studies at the University of Michigan-Flint and the University of Michigan-Flint Review Committee for the Use of Human Subjects in Research.

Appendix 2

Survey Questionnaire Regarding *Experiences with Aggressive Behavior and It's Effect Regarding Road Rage*

Introduction and Instructions: In this survey, you will be asked a series of questions about your background and experiences addressing the following factors, stress in the classroom, conflicts with significant others and stress associated with being a single parent and their possible relationships to road rage. If you agree to take part in this survey, you will be ask to provide answers to the questionnaire, it will take about 10-15 minutes to fill out.

1. Please indicate which of the following best describes your status with the University of Michigan-Flint.

- A. Freshman**
- B. Sophomore**
- C. Junior**
- D. Senior**
- E. Graduate Student**
- F. Other _____**

2. What is your gender?

- A. Male**
- B. Female**

3. Which age group are you in?

- A. 17-21**
- B. 22-25**
- C. 26-30**
- D. 31-35**
- E. 35-38**
- F. 39-42**
- G. 42 and above**

4. Think about your last big exam that you took. After leaving the classroom how much time passed before you got into your automobile?

- A. less than 5 minutes**
- B. 5-10 minutes**
- C. 11-15 minutes**
- D. more than 15 minutes**

5. How much of an effect do you think doing well on an exam has on your driving style?

- A. Has no effect (if you chose this answer skip to question #7)
- B. Has little effect
- C. Has moderate effect
- D. Has a large effect

6. If you indicated that doing well on an exam affects your driving style, which of the following ways does it affect it. (check one from each section)

Section 1

Makes me less likely to become aggressive with a driver who cuts in front of me on the highway.

Makes me more likely to get aggressive with a driver who cuts in front of me on the highway.

Section 2

Makes me less likely to become aggressive with a slow moving vehicle in front of me on the highway.

Makes me more likely to become aggressive with a slow moving vehicle in front of me on the highway.

7. How much of an effect do you think doing poorly on an exam has on your driving style?

- A. Has no effect (if you chose this answer skip to question #9)
- B. Has little effect
- C. Has a moderate effect
- D. Has a large effect

8. If you indicated that doing poorly on an exam affects your driving style, which of the following ways does it affect it. (check one from each section)

Section 1

Makes me less likely to become aggressive with a driver who cuts in front of me on the highway.

Makes me more likely to get aggressive with a driver who cuts in front of me on the highway.

Section 2

Makes me less likely to become aggressive with a slow moving vehicle in front of me on the highway.

Makes me more likely to become aggressive with a slow moving vehicle in front of me on the highway.

9. Which of the following best describes your family status:

single with no children

single with children

married with no children

married with children

10. How much of an effect do you think having a “heated argument” with a significant other affects your driving style?

A. Has no effect (if you chose this answer skip to question #12).

B. Has little effect

C. Has a moderate effect

D. Has a large effect

11. If you answered that having a “heated argument” does affect your driving style which of the following ways does it affect it. (check one from each section)

Section 1

Makes me less likely to become aggressive with a driver who cuts in front of me on the highway.

Makes me more likely to get aggressive with a driver who cuts in front of me on the highway.

Section 2

Makes me less likely to become aggressive with a slow moving vehicle in front of me on the highway.

Makes me more likely to become aggressive with a slow moving vehicle in front of me on the highway.

12. How much of an effect do you think being a single parent has on your driving style?

- A. Has no effect (if you chose this answer skip to question #14).
- B. Has little effect
- C. Has a moderate effect
- D. Has a large effect

13. If you answered that being a single parent does affect your driving style which of the following ways do you think it affects it. (check one from each section).

Section 1

Makes me less likely to become aggressive with a driver who cuts in front of them on the highway.

Makes me more likely to get aggressive with a driver who cuts in front of them on the highway.

Section 2

Makes me less likely to become aggressive with a slow moving vehicle in front of them on the highway.

Makes me more likely to become aggressive with a slow moving vehicle in front of them on the highway.

14. How much effect do you think time (i.e. within 10 minutes) between experiencing an aggressive emotion and getting into an automobile has on ones driving style?

- A. Has no effect (if you chose this answer please skip question 15).
- B. Has little effect
- C. Has a moderate effect
- D. Has a large effect

15. If you answered that time (i.e. within 10 minutes) between experiencing an aggressive emotion and getting into an automobile does affect ones driving style, which of the following ways do you think it affects it. (check one from each section).

Section 1

Makes one less likely to become aggressive with a driver who cuts in front of them on the highway.

Makes one more likely to get aggressive with a driver who cuts in front of them on the highway.

Section 2

Makes one less likely to become aggressive with a slow moving vehicle in front of them on the highway.

Makes one more likely to become aggressive with a slow moving vehicle in front of them on the highway.

Please give your completed survey to the research worker.

Thank you.

Appendix 3

Survey Results:

1. Please indicate which of the following best describes your status with the University of Michigan-Flint.

| Male | | Female |
|------|---------------------|--------|
| 2 | A. Freshman | 2 |
| 5 | B. Sophomore | 3 |
| 6 | C. Junior | 5 |
| 5 | D. Senior | 13 |
| 4 | E. Graduate Student | 2 |
| | F. Other <u>13</u> | |
| 22 | total | 25 |

*total surveys collected 60 but only 47 were actually university students who were used for this study.

2. What is your gender?

| | |
|----------------------------|-----------|
| A. Male | 22 |
| B. Female | <u>25</u> |
| Total Student Participants | 47 |

3. Which age group are you in?

| Males | | Females |
|-------|-----------------|---------|
| 9 | A. 17-21 | 6 |
| 5 | B. 22-25 | 9 |
| 4 | C. 26-30 | 3 |
| 2 | D. 31-35 | 3 |
| - | E. 35-38 | 2 |
| 1 | F. 39-42 | 1 |
| 1 | G. 42 and above | 1 |

4. Think about your last big exam that you took. After leaving the classroom how much time passed before you got into your automobile?

| Males | | Females | Totals |
|-------|-------------------------|---------|--------|
| 4 | A. less than 5 minutes | 3 | 7 |
| 10 | B. 5-10 minutes | 16 | 26 |
| 5 | C. 11-15 minutes | 1 | 6 |
| 3 | D. more than 15 minutes | 5 | 9 |

5. How much of an effect do you think doing well on an exam has on your driving style?

| Males | | Females | total |
|-------|---|---------|-------|
| 7 | A. Has no effect (if you chose this answer skip to question #7) | 8 | 13 |
| 6 | B. Has little effect | 9 | 15 |
| 5 | C. Has moderate effect | 5 | 10 |
| 3 | D. Has a large effect | 2 | 5 |
| 1 | No Answer given | 1 | 2 |

6. If you indicated that doing well on an exam affects your driving style, which of the following ways does it affect it. (check one from each section)

Males Females

Section 1

10 14 Makes me less likely to become aggressive with a driver who cuts in front of me on the highway. (Total responses 24)

4 2 Makes me more likely to get aggressive with a driver who cuts in front of me on the highway. (Total responses 6)

Section 2

10 12 Makes me less likely to become aggressive with a slow moving vehicle in front of me on the highway. (Total responses 22)

4 4 Makes me more likely to become aggressive with a slow moving vehicle in front of me on the highway. Total response 8

7. How much of an effect do you think doing poorly on an exam has on your driving style?

| Males | Females | Total | |
|-------|---------|-------|--|
| 4 | 2 | 7 | A. Has no effect (if you chose this answer skip to question #9) |
| 8 | 10 | 18 | B. Has little effect |
| 5 | 10 | 15 | C. Has a moderate effect |
| 4 | 2 | 6 | D. Has a large effect |
| 1 | 1 | 2 | No Answer given |

8. If you indicated that doing poorly on an exam affects your driving style, which of the following ways does it affect it. (check one from each section)

| Male | Female | |
|------------------|--------|--|
| Section 1 | | |
| 3 | 4 | Makes e <u>less likely</u> to become aggressive with a driver who cuts in front of me on the highway. (Total Response 7) |
| 13 | 18 | Makes me <u>more likely</u> to get aggressive with a driver who cuts in front of of me on the highway. (Total Response 31) |
| Section 2 | | |
| 4 | 2 | Makes me <u>less likely</u> to become aggressive with a slow moving vehicle in front of me on the highway. (Total Response 6) |
| 12 | 18 | Makes me <u>more likely</u> to become aggressive with a slow moving vehicle in front of me on the highway. (Total Response 30) |
| 1 | 2 | No answer given |

9. Which of the following best describes your family status:

| Male | Female | Total | |
|------|--------|-------|--------------------------|
| 16 | 14 | 30 | single with no children |
| 2 | 3 | 5 | single with children |
| 1 | 1 | 2 | married with no children |
| 2 | 6 | 8 | married with children |
| 1 | 1 | 2 | No Answer given |

10. How much of an effect do you think having a “heated argument” with a significant other affects your driving style?

| Male | Female | Total | |
|------|--------|-------|---|
| 2 | 1 | 3 | A. Has no effect (if you chose this answer skip to question #12). |
| 3 | 6 | 9 | B. Has little effect |
| 7 | 11 | 18 | C. Has a moderate effect |
| 9 | 4 | 13 | D. Has a large effect |
| 1 | 3 | 3 | No Answer given |

11. If you answered that having a “heated argument” does affect your driving style which of the following ways does it affect it. (check one from each section)

Male Female Total

| Male | Female | Total | |
|------------------|--------|-------|--|
| Section 1 | | | |
| 1 | 1 | 2 | Makes me <u>less likely</u> to become aggressive with a driver who cuts in front of me on the highway. |
| 18 | 21 | 39 | Makes me <u>more likely</u> to get aggressive with a driver who cuts in front of me on the highway. |
| Section 2 | | | |
| 3 | 1 | 4 | Makes me <u>less likely</u> to become aggressive with a slow moving vehicle in front of me on the highway. |
| 16 | 21 | 37 | Makes me <u>more likely</u> to become aggressive with a slow moving vehicle in front of me on the highway. |

12. How much of an effect do you think being a single parent has on your driving style?

Male Female Total

| | | | |
|----|---|----|---|
| 11 | 9 | 20 | A. Has no effect (if you chose this answer skip to question #14). |
| 2 | 4 | 6 | B. Has little effect |
| 3 | 2 | 5 | C. Has a moderate effect |
| 3 | 1 | 4 | D. Has a large effect |
| 3 | 9 | 12 | No Answer given |

13. If you answered that being a single parent does affect your driving style which of the following ways do you think it affects it. (check one from each section).

Male Female Total

| | | | |
|---|---|----|--|
| | | | Section 1 |
| 4 | 1 | 5 | Makes me <u>less likely</u> to become aggressive with a driver who cuts in front of them on the highway. |
| 4 | 6 | 10 | Makes me <u>more likely</u> to get aggressive with a driver who cuts in front of them on the highway. |
| | | | Section 2 |
| 4 | 1 | 5 | Makes me <u>less likely</u> to become aggressive with a slow moving vehicle in front of them on the highway. |
| 4 | 6 | 10 | Makes me <u>more likely</u> to become aggressive with a slow moving vehicle in front of them on the highway. |

14. How much effect do you think time (i.e. within 10 minutes) between experiencing an aggressive emotion and getting into an automobile has on ones driving style?

Male Female Total

| | | | |
|---|----|----|--|
| 3 | - | 3 | A. Has no effect (if you chose this answer please skip question 15). |
| 5 | 5 | 10 | B. Has little effect |
| 9 | 14 | 23 | C. Has a moderate effect |
| 4 | 5 | 9 | D. Has a large effect |
| 1 | 1 | 2 | No Answer given |

15. If you answered that time (i.e. within 10 minutes) between experiencing an aggressive emotion and getting into an automobile does affect ones driving style, which of the following ways do you think it affects it. (check one from each section).

Male Female Total

| | | | |
|----|----|----|---|
| | | | Section 1 |
| 3 | 4 | 7 | Makes one <u>less likely</u> to become aggressive with a driver who cuts in front of them on the highway. |
| 15 | 20 | 35 | Makes one <u>more likely</u> to get aggressive with a driver who cuts in front of them on the highway. |
| | | | Section 2 |
| 3 | 4 | 7 | Makes one <u>less likely</u> to become aggressive with a slow moving vehicle in front of them on the highway. |
| 15 | 21 | 36 | Makes one <u>more likely</u> to become aggressive with a slow moving vehicle in front of them on the highway. |