THE FIVE FACTOR MODEL OF PERSONALITY AS IT RELATES TO THE PROPENSITY FOR ANGRY DRIVING SCALE

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Vita

Sembenea Baker, daughter of Samuel and Sylvia (Carroll) Baker, was born November 27, 1973, in San Francisco, California. She graduated from San Mateo High School in 1991. She attended San Francisco State University in San Francisco, California for one year before transferring to Tuskegee University in Tuskegee, Alabama, where she graduated with a Bachelor of Science in Psychology on May 12, 1996. She entered Graduate School at Auburn University at Montgomery during September of 1997, to pursue a Master of Science degree in Psychology. While there she taught classes in Developmental Psychology and Behavioral Analysis. She also spent 5 months interning at a center that develops assessment measures for businesses to use for purposes of selection. In 1999, she presented original research on road rage at the Southeastern Psychological Association Convention in Savannah, Georgia. Recently, she has worked with children as a Behavioral Specialist at a mental health center.

THESIS ABSTRACT

THE FIVE FACTOR MODEL OF PERSONALITY AS IT RELATES TO THE PROPENSITY FOR ANGRY DRIVING SCALE

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The personality differences between individuals disposed to driving- related aggression and those who are not were examined. Specifically, the study was designed to determine if there was a relationship between the Big Five personality types of Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism and a propensity for angry driving. Road rage behavior is a term used to refer to any display of aggression by a driver. Information was gathered from 107 students enrolled in psychology courses at Auburn University Montgomery. Individual susceptibility to road rage behavior was determined through the use of the Propensity for Angry Driving Scale, a measure developed to find individuals who are more likely to become angry and engage in aggressive driving behaviors. The participants' personality types were determined through the use of Goldberg's 100 Factor Markers Scale (Goldberg, 1992). The scores on the 100 Factor Marker Scale were correlated with the scores on the Propensity for Angry Driving Scale. Results showed a significant positive correlation between the scores on Neuroticism

and driving anger supporting the hypothesis that individuals scoring high on Neuroticism are more likely to have a higher propensity for driving anger than are those low in Neuroticism. The scores on Agreeableness were negatively and significantly correlated with Propensity for Angry Driving scores. This finding supports the hypothesis that individuals scoring high on Agreeableness are less likely to have a propensity for driving anger. Standardized betas show that Extraversion was positively correlated with driving anger which does not support the hypothesis that individuals high in Extraversion will be less likely to have a propensity for angry driving. The analysis shows a significant negative correlation between older individuals and scores on the Propensity for Angry Driving Scale. This supports the hypothesis that older individuals are less likely to have a propensity for angry driving. Gender correlated positively with driving anger, with males showing a greater likelihood. This supports the hypothesis that males will have a higher propensity for driving anger than females. Scores on Openness and Conscientiousness had no relationship with scores on the Propensity for Angry Driving Scale.

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The Five Factor Model of Personality as it Relates to the Propensity for Angry Driving Scale

Road rage refers to any display of aggression by a driver (Joint, 1995).This behavior can range from shouting obscenities at other drivers, leaving one's car in order to physically assault or kill another driver, aggressive tailgating, honking the horn, using a weapon in a display of aggression, or flashing headlights and rude gestures to name a few (Matthews, Dorn & Glendon, 1991).

According to Joint (1995) road rage incidents began occurring in large numbers during the late 1980s. Drivers began shooting and physically assaulting each other with increasing frequency. During this period, traffic congestion was beginning to grow as existing road ways were becoming overwhelmed by escalating numbers of automobiles.

In recent years the number of incidents attributed to this phenomenon has escalated. According to Connell and Joint (1996) violent crimes committed by motorists rose by 10 percent between July of 1995 and June of 1996 and in another study done by Mizell (1996) the number of reported incidents of aggressive driving rose from approximately 1,100 in 1990 to around 10,000 in 1996. Approximately 1,500 men, women and children are either injured or killed each year as a result of this type of aggressive driving (Mizell, 1996).

Most people who engage in driving- related aggression fall between the ages of 18 and 26 years. The greatest likelihood is for young males with little education. Many have criminal records and a history of committing violent acts. While this may be the case, there

is no standard profile for individuals who are susceptible to road rage (Mizell, 1996).

According to statistics compiled for the American Automobile Association, the two most common weapons used during road rage incidents are firearms and the vehicle itself. In 37% of the cases reported, a firearm was used. In 35% of the cases the vehicle was the weapon of choice (Mizell, 1996). Other favorites are fists and baseball bats. In many cases the perpetrator will use a weapon which is most accessible such as a tire iron or a jack handle.

Joint (1995) found that close to 90% of motorists reported that they had been victims of road rage during the previous 12 months. He found that the most common form of road rage was aggressive tailgating (62%). The next most common form was flashing of headlights (59%). Only one percent of the drivers surveyed claimed to have been physically assaulted by another driver (Joint, 1995).

While many of the survey takers were quick to report that they had been victims of some form of road rage, they were not as likely to admit that they had engaged in it themselves. Sixty-two percent reported that they had been the victims of aggressive driving but only six percent admitted to being the aggressor. Joint (1995) also found it is not only men who are committing road rage. Fifty-four percent of women claimed to have engaged in various road rage behaviors.

Many have speculated on the causes of road rage. Possible causes range from domestic violence and racism to sheer anger and other mental or emotional disturbances (Mizell, 1996). As mentioned earlier, increasing traffic congestion is also thought to be a factor

contributing to flaring tempers on the road ways. Approximately 50% of drivers become irritated when caught in heavy traffic or traffic jams.

Incidents of driving related aggression often occur for seemingly minor reasons. For instance, one vehicle may unknowingly cut too close in front of another driver or drive too slowly in the fast lane when their speed may be better suited for the slow lane. Other incidents have been touched off when the driver of a vehicle has forgotten to turn off his lane change signal or paused in one place for too long. In a case reported by Mizell (1996) a female driver grew impatient while waiting for a van that was blocking traffic to move. Angry, she drove on to the sidewalk, killing a woman who had been talking to the van driver.

Another reported incident of road rage occurred in Virginia during January of 1998. The incident was apparently sparked when one individual cut in front of another driver. A 31 year old male passenger, alleged that a 46 year old male cut in front of him. The 31 year old male threw a beer can at the offending driver. When both cars stopped at a red light, the 31 year old left his car and began punching and stabbing the other driver (Glod, 1998).

During an incident in Seattle, a driver was attempting to make a lane change. When it was realized that another driver was already in the lane, the driver swerved back into the original lane. The driver who was almost cut off drew a nine millimeter handgun and began firing into the other car, hitting that driver in the arm (Murphy, 1998).

Mizell (1996) found that one of the main reasons for aggressive driving behavior is mood. The inability of some drivers to control their moods may cause them to act irrationally when behind the wheel. Joint (1995) found that drivers who are considered unsafe are more affected by the actions of other drivers when on the road than are safe drivers.

Adults are not the only victims of road rage. While adults may be the intended targets of rage from other drivers, children are often unintended victims. According to Mizell (1996), from January 1990 to September 1996 there were approximately 94 children below the age of 15 who were either injured or killed as a result of road rage incidents. For example, in Hesperia, California a two year old child was shot in the head and killed while strapped in his car seat. Apparently, the offenders cut in front of the car in which the child was riding, firing a round of shots into the vehicle. Officials are not sure what triggered the incident (James, 1997).

In some of the incidents reported by Mizell (1996) the individual driving aggressively did not have an altercation with another driver but rather with objects or uninvolved people. Some drivers use their automobiles as battering rams, driving into buildings and, in some instances, crowds of people. In one reported case, a man drove his car into a crowd of individuals who were blocking the exit to a parking lot.

According to Mizell (1996), law enforcement agents are often the targets of aggressive driving incidents. There have been many cases in which a vehicle was used to attack an officer. Between 1990 and 1996 there were 221 reported cases where motorists used their

vehicles to attack members of law enforcement. In the 221 cases recorded, 86 people were either wounded or killed. Of these 86 people were 48 officers who were killed (Mizell, 1996).

The majority of the perpetrators in the cases in which an officer was attacked had some sort of criminal involvement. Of all of the categories of offenses committed by aggressive drivers, crimes against officers had the highest percentage of women offenders. Fourteen percent of the criminals were females (Mizell, 1996). Mizell (1996) reviewed over 10,000 incidents during his research. Of the approximately 10,000 cases, around 400 of them involved a female offender. Women, like men, use a variety of weapons. However, the weapon of choice for women is the vehicle.

The tempers of drivers across the nation are being set off at an increasingly alarming rate. Mizell (1996) believes that part of the cause may be that the structure of the automobile lends the driver a sense of anonymity and control. If some specific event has occurred during the day to upset the driver prior to entering the vehicle, operating the vehicle may restore a sense of control.

Based on the increasing rate of occurrence of these incidents, there is a strong desire to develop measures which can be used to predict individuals who may be predisposed to engage in driving related aggression. This information may be of particular interest to businesses which rely heavily on capable drivers, such as trucking and other delivery companies. Measures of this type could help employers screen out potential employees who are prone to commit road rage behavior. One purpose of this study is to determine

whether the Five Factor Model of personality can be used to detect such individuals. The idea is that individuals who may be susceptible to road rage display a particular pattern on the Five Factor personality dimensions.

Development of the Five Factor Model

According to Goldberg (1992), it was Cattell's early examinations of personality traits that helped lead to the eventual development of the Big Five Factors by Tupes and Christal. Cattell (Wiggins & Trapnell, 1997) came up with numerous personality trait factors throughout the development of his theory. In 1943, Catell performed investigations using the Alport-Odbert lexicon which consisted of 4500 descriptive trait terms. Through his investigations, Catell found that many of the terms were similar in meaning. He was thus able to narrow the list of 4500 terms down to 171 synonym groups (Wiggins & Trapnell, 1997).

Once Catell narrowed down the list of trait terms he used ratings on bipolar scales to represent the groups of characteristics. Upon completion, peer rating studies were conducted in order to determine any inter-correlations between the variables. As a result of this research, 35 standard clusters were developed. From these 35 clusters Catell found what he believed were 12 primary factors.

Twenty-two of Catell's bipolar rating scales were later used in the Michigan VA Selection Research Project. This project was designed to study the process of selection of graduate students to a clinical psychology program. The rating scales were administered in order to gather a wide variety of ratings from different sources.

Fiske (1949) studied the findings from the study in order to determine the consistency of the primary factors. He determined that the factors remained constant across different sources and that there was evidence of five rather than the 12 primary factors as Catell thought.

During subsequent research on Air Force Academy cadets, Tupes and Christal used 20 of Catell's 22 bipolar rating scales. Through assessments done on the cadets and reanalysis of the information gathered by Catell, they found that only five of his factors showed any real consistency. It is these five factors that most closely resemble today's Big Five Factors (Catell, 1996). The five factor model consists of five main components of personality. They are traditionally referred to as Surgency or Extraversion, Agreeableness, Conscientiousness, Emotional Stability or Neuroticism, and Openness (Goldberg, 1992).

Descriptions of the Five Factors

One of the five factors is Openness. Openness refers to an individual's ability to adjust to new situations. It is the component of personality that encompasses how well a person reacts to change and new experiences. Individuals who have a high level of openness can adapt well to new experiences with little or no difficulty. They tend to be curious and less judgmental than those with a lower level of Openness.

Conversely, individuals with a low level of openness are generally resistant to change. They do not react well to new experiences. Closed individuals like the predictability of a routine and they tend to be more conventional and close-minded in their thinking (Antonioni, 1998).

Hogan and Ones (1997) found that Conscientiousness refers to the level of control which a person exhibits in order to comply with social ideals. Individuals who have a high level of Conscientiousness pay attention to detail. They are good workers and tend to appreciate and adhere to rules. These individuals conform to the group norm and do not like to challenge authority. They do not anger easily, preferring instead to avoid arguments. (Hogan & Ones, 1997). Conscientious people incline towards being cautious and do not react impulsively due to their high level of self control.

Individuals who are not conscientious tend to be disorganized. They are not considered to be very dependable. Individuals who are low in Conscientiousness are viewed by others as being lazy and indecisive (Antonioni, 1998). They do not work well alone or in groups. When working alone these individuals tend to need constant supervision. They tend not to be detail oriented which can cause them problems in the workplace.

The next factor in the five factor model of personality is called Extraversion (Watson & Clark, 1997). According to Antonioni (1998), extraversion refers to the level of sociability and assertiveness versus the level of reserve which an individual has. Extraversion is a factor associated with rational thinking and action. When faced with stressful situations, rather than reacting irrationally, extraverts tend to respond with effective problem solving methods (Dorn & Matthews, 1992). Extraverts tend to be more positive thinkers and are more likely to exercise restraint when faced with difficult situations or perceived threats (McCrae & Costa, 1986). They are sociable, outgoing, perform well and seem to thrive in large group settings.

Extraverts are energetic and tend to have many friends. They prefer to be around others rather than alone and enjoy taking leadership roles. They are often seen as being adventure seekers. According to Antonioni (1998), when faced with a problem or conflict, extraverts are more likely to work with others in order to find a solution which is satisfactory to everyone involved.

Those who score low on the Extraversion scale are termed introverted. They prefer to work alone and do not do well in large group settings. They can be given instructions and sent off to complete a task without the need to be monitored. Introverts are viewed by others as being reserved. They appear to be less energetic and not as sociable as those who score high on this scale. Unlike extraverts, they tend not to use effective problem solving methods when faced with conflict.

The concept of the Extraversion and Introversion traits was developed by Jung (Watson & Clark, 1997). Jung believed that Extraversion and Introversion were different views and attitudes that an individual could have towards the world. Introverts are introspective and tend to look within themselves for answers they may seek. Extraverts tend to place their focus on the external. They are more concerned with the thoughts and actions of others.

Research by Matthews et al. (1991) reveals evidence that extraverts and introverts will respond differently when confronted with stressful events. Extraverts are much less susceptible than introverts to stress. The former do not become overwhelmed when faced with stressful situations since they use more effective coping strategies than introverts.

According to Costa and McCrae's (as cited in Suis, Martin & David, 1998), Agreeableness is the level of positive or negative orientation an individual has towards others. Agreeable individuals tend to be helpful and less skeptical or suspicious in their way of thinking. They are usually trustful and cooperative when dealing with others (Suis et al.,1998). When faced with a conflict, agreeable individuals will negotiate rather than escalate the problem with a response or show of power or aggression (Antonioni, 1998). Agreeable individuals often find it difficult to defend or assert themselves during conflict situations (Antonioni, 1998).

Disagreeable individuals are very skeptical about the intentions and motives of others. They are critical thinkers and tend to be more competitive than those who are agreeable. According to Antonioni (1998) a low level of Agreeableness is related to being rude, undisciplined, harsh and unsympathetic. They are more likely to respond with aggression or an assertion of power when faced with a conflict. Disagreeable individuals are viewed by others as being uncompromising, difficult and unyielding (Antonioni, 1998).

Perry and Perry (1974) found that disagreeable children tend to react with higher levels of emotion when confronted with different stimuli. They become more distressed when faced with stressful situations and it takes them much longer than agreeable individuals to return to a less emotional state. Graziano and Eisenberg (1997) found that disagreeable individuals usually react more aggressively to perceived threats than agreeable individuals. They also seem to have a need for their victims to go through a greater amount of suffering before putting an end to their aggressive response. It is possible that it is this

response to perceived threat that is at the root of road rage behavior.

Neuroticism is the last of the five factors of personality. Neuroticism refers to the level of maladjustment versus the level of emotional stability an individual has (Costa & McCrae as cited in Suis, Martin and David, 1998). The same research showed that a high level of Neuroticism is associated with increases in the use of hostile and overly aggressive reactions. Individuals with high levels of Neuroticism may react with higher amounts of stress to certain stimuli or events than those with low levels of Neuroticism (Matthews et al, 1991). Neurotic individuals often have greater feelings of insecurity, tension and irritability (Antonioni, 1998).

Matthews et al. (1991) found that individuals who score high on scales measuring Neuroticism are generally predisposed to driver stress. They also tend to use ineffective coping strategies when faced with stressful situations which may account for their sometimes hostile reactions (Dorn & Matthews, 1992). Neurotic individuals are often described as being moody overly anxious, irrational and frequently depressed (Martin, 1985). Unlike those with low Neuroticism scores, neurotic individuals are prone to suffer from emotional distress when faced with demanding circumstances (Parkes, 1986).

Martin (1985) found that individuals who score high on the Neuroticism scale take longer than others to return to a less agitated state after becoming emotionally aroused. Individuals who are not neurotic tend to be calm and are less likely to respond with hostility when faced with a conflict. According to Antonioni (1998) those low in Neuroticism typically have a high level of self confidence unlike neurotic individuals who

tend to be insecure. People who are not neurotic are viewed as being patient individuals.

Big Five Development

Norman (as cited in Wiggins & Trapnell, 1997) took the information gathered by Tupes and Christal from the re-analysis of research conducted by Cattell and determined which four variables had the highest factor loading on each of the five factors. He used a total of 20 variables. While the method that Norman developed is less time consuming than Cattell's, researchers such as Goldberg were still interested in developing a method which would take even less time (Goldberg, 1992).

One of Goldberg's primary concerns was that for each of the factors, Norman only used the four items which loaded the highest. This meant that some items of the domain were not covered (Goldberg, 1992). This fueled his interest in developing a set of five factor markers which would not take as long to administer, would not have too many variables, would be more representative of each domain and would closely resemble the results derived from the Big Five Factor structure. In the interest of representing each factor of each domain, Goldberg created the 100 Factor Markers Scale. Each factor has two poles. There are 10 positive markers on one pole and 10 negative markers on the other. The exception is Neuroticism which has six positive markers on one pole and 14 negative markers on the other (see Appendix A).

Propensity for Angry Driving

At present, there is one measure that predicts who may be at risk for engaging in road rage. It is called the Propensity for Angry Driving Scale and was developed by Depasquale, Geller, Clarke and Littleton (1999, see Appendix B).

According to Depasquale et al. (1999) the purpose of the measure was to identify individuals who may have a propensity to become angry enough to commit road rage. Some of the aggressive driving behaviors that Depasquale et al. (1999) made note of are weaving in and out of traffic, speeding and ignoring stop signs. It is these behaviors and similar ones which may have the potential to cause some drivers to react recklessly.

The researchers chose to define the construct of hostility, a concept which is similar to anger since it carries with it a propensity to become aggressive enough to injure other objects or people. It is these types of individuals that they hoped to identify through the use of the propensity measure (Depasquale et al., 1999).

The measure is composed of 22 different driving scenarios, each with four possible responses. According to Depasquale et al. (1999), the scenarios were derived during a process of several brainstorming sessions, discussions with individuals in focus groups and through a literature research.

The next step in the development of the scale was to create a scoring method. Developers asked 51 undergraduate students to read through each scenario and rate each of the four corresponding responses using a seven point Likert-type scale (1 = a very mild reaction, 7 = a very extreme reaction). Developers then figured the mean score for each

response and used these scores as the item response values. Of the 22 available scenarios, only the responses to19 of them were summed together in order to provide the final score. Once the final score was obtained it was then used to predict the possibility of a driver exhibiting anger or displaying hostile aggression due to road rage. Since each of the possible responses has a different weight associated with it, the maximum possible score for the propensity scale is 104.3 and the minimum score is 23.5. The alpha is .89.

Through different trials, the test was found to predict the frequency with which an individual verbally confronted other drivers and used obscene gestures as a means of showing displeasure with other drivers. The measure was shown to have a test retest reliability of .99. It was also found to have a positive correlation with the Buss-Durkee Hostility Index and as well as a positive correlation with the trait subscale of the State Trait Anger Scale (Depasquale et al., 1999).

Hostility and the Five Factors

Hostility is a construct used by Depasquale et al. (1999) to measure an individual's propensity to commit angry driving behaviors. According to Matthews et al. (1991), personality characteristics which are aggressive in nature are most associated with a tendency to become involved in driving accidents. If the driver is predisposed to aggression and hostility this may play a role in determining if he or she will display anger on the road. It is this anger which can lead to aggressive and often dangerous driving behavior.

Research conducted by Deffenbacher et al. (2000) has shown that there are individuals who become very angry while driving. They allow their emotions to overcome them and as a result are more likely to engage in aggressive and often violent altercations with other drivers or objects. Their behavior can result in or even cause other drivers to respond with anger as well.

Of all the five factors of personality, Neuroticism is the one most linked to hostility. According to Costa and McCrae (1986), Neuroticism deals directly with an individuals level of emotional instability. One characteristic of Neuroticism is the display of hostile reactions in response to everyday stressors (Costa & McCrae, 1997).

One of the subscales of Neuroticism on the NEO scales measures hostility (Costa & McCrae, 1986). This measure assesses the inclination an individual has to experience anger. Watson and Clark (1997), found that Neuroticism is positively correlated with negative affect, a construct used to refer to mood states such as anger and disgust. Based on this information, the first hypothesis was that individuals high in Neuroticism would be more likely to have a higher propensity for driving anger. Therefore there would be a positive correlation between scores on Neuroticism and scores on the Propensity for Angry Driving Scale.

Agreeableness is the factor which is associated with characteristics such as helpfulness and a concern for the needs of others. Agreeable individuals tend to be trustful and cooperative. This factor has shown no direct link to the construct of hostility. According to research conducted by Costa et al. (as cited in Graziano & Eisenberg, 1997)

there are two different ways to view hostility. There is the expression of hostility and the experience of hostility. During the study, self reports were collected from approximately 200 college students on the experience of anger and the expression of anger. The research revealed that both were negatively correlated with the agreeableness factor. In light of this information, the second hypothesis was that Agreeable individuals would be less likely to have a propensity for driving anger. As a result, there would be a negative correlation between scores on Agreeableness and the Propensity for Angry Driving Scale.

Extraversion is the factor which is associated with being sociable, outgoing and assertive. According to Watson and Clark (1997), Extraversion is positively correlated with positive affect. Positive affect is a construct which is composed of mood states such as happiness, joy and being energetic. Extraversion has been found to have a negative correlation with negative affect, a construct previously shown to be related to feelings of anger. While extraverts may be assertive, this factor has shown no significant link to hostility or acts of aggressive driving behaviors. According to Costa and McCrae (1986) Extraversion is associated with rational action, warmth and restraint. Based on this information, the third hypothesis was that individuals high in Extraversion would be less likely to have a propensity for driving anger. For that reason there would be a negative correlation between scores on Extraversion and scores on the Propensity for Angry Driving Scale.

Conscientiousness is a factor which is associated with being dependable, organized and cautious. One of the facets of Conscientiousness is called deliberation (Costa & McCrae, 1986). Individuals high on this facet tend to think things through before acting.

According to Deffenbacher et al. (2000), some drivers who engage in dangerous and aggressive driving behaviors do so because they seem to have a propensity to become very angry when behind the wheel. These types of individuals are classified as high anger drivers. They tend to become more angered than others by non driving situations as well. Research by Hogan and Ones (1997) reveals that conscientious individuals are not easily angered and prefer to avoid arguments and confrontations. Therefore it is highly unlikely that a conscientious person would have such an extreme reaction when faced with stress while driving. Based on this information the following hypothesis was been formed; Conscientious individuals would be less likely to have a propensity for angry driving. Consequently, there would be a negative correlation between scores on Conscientiousness and scores on the Propensity for Angry Driving Scale.

Openness is a factor which is associated with curiosity and a willingness to experience new ideas and situations. According to Costa et al. (1986) subscales of the openness factor measure feelings, values and ideas. In their research they found a positive correlation between openness and the use of humor as a coping mechanism for dealing with stress. Costa and McCrae (1986) also examined hostility as a method of coping. Results demonstrated that there is no significant relationship between openness and the use of hostility. Open individuals prefer to use more effective means of coping

with stress. As a result of the information gathered, the hypothesis is that individuals high in Openness are less likely to have a propensity for driving anger. Thus, there will be a negative correlation between scores on Openness and scores on the Propensity for Angry Driving Scale.

Aggressive driving is becoming more prevalent in today's society. Drivers are becoming increasingly angry with each other over seemingly innocent or careless acts. One reason may be mounting congestion on roadways which are incapable of keeping up with the surge in traffic. Other reasons may be associated with the personality types of each driver. If a link can be found between the five factors of personality and aggressive driving behaviors then it may become possible to predict which individuals may have a propensity to commit road rage. This information could be very important to a variety businesses who may find it useful in their hiring practices. It may also be used to develop preventive measures or programs.

According to the literature review, neurotic individuals possessed the strongest link to road rage and therefore would have a higher propensity for angry driving. The literature review also showed that most individuals who engage in driving related aggression fall between the ages of 18 and 26 years and tend to be males. Therefore two hypotheses were that younger individuals would have a higher propensity for driving anger than older individuals and males would be more likely to have a higher propensity for driving anger than females.

Information gathered about Agreeableness showed that individuals who scored low on this personality factor tend to have high tendencies towards aggression. They do not react well to conflict and have ineffective problem solving skills. Disagreeable individuals often become very emotional when faced with stressful situations. For these reasons the hypothesis stated that agreeable individuals would be less likely to have a propensity for driving anger.

Information from the literature review showed that Extraversion did not possess a link to hostility or anger. Extraverts tend to be more positively oriented and use effective problem solving methods. They tend to be rational thinkers and exercise restraint when faced with conflict. Therefore, the hypothesis stated that individuals high in Extraversion would be less likely to have a propensity for angry driving.

The remaining personality factors of Openness and Conscientiousness showed no direct link with hostility either. Open individuals are more likely to look at other alternatives than aggression when faced with a conflict. They would rather resolve a stressful situation through the use of methods such as humor than anger.

Like open individuals, those high in Conscientiousness prefer to avoid arguments and confrontations as well. They are not easily angered and deliberate prior to taking action. Therefore, the hypothesis for each stated that individuals high on these factors would be less likely to have a propensity for angry driving.

Method

Participants

The sample consisted of 107 participants (30 men and 77 women) enrolled in psychology courses at the campus of Auburn University Montgomery. The median age was 26 years. (SD = 8.98). The minimum age was 18 years and the maximum was 67 years.

Procedure

Participants were asked to sign a statement of informed consent (Appendix C). On the statement participants were asked to provide their age and gender. Upon signing the statement, participants were asked to complete Goldberg's 100 factor marker scale (Appendix A). The measure consisted of ten positive markers on one pole and ten negative markers on the other for each factor except for factor four (Neuroticism) which had six positive markers on one pole and fourteen negative markers on the other. Participants were asked to read each trait and using a Likert- type scale (1 = extremely inaccurate to 9 = extremely accurate) write the number which designated how closely the trait described them in the space provided. To score the measure it was necessary to sum the raw scores of the traits which corresponded to a particular factor. Scores on traits reflecting the negative pole were reversed. The maximum possible score for each scale is 180. The lowest possible score on each scale was 20. Higher scores on each scale indicate greater levels of Openness, Conscientiousness, Extraversion, Agreeableness or Neuroticism. Lower scores on each factor indicated lower levels of these traits.

The reliability for Factor I (Extraversion) ranges from .90 to .92, for Factor II (Agreeableness) .84 to .97, Factor III (Conscientiousness) .88 to .94, Factor IV (Neuroticism) .82 to .88 and for Factor V (Openness) .82 to .94 (Goldberg, 1992).

The second measure that participants were asked to complete was the Propensity for Angry Driving Scale (Depasquale et al.,1999; see Appendix B). The scale consisted of 22 different driving scenarios. Each scenario had four possible responses. Participants were asked to read through each response and select the one that best described their reaction to the given situation. Each of the responses had a different weight associated with it. Since the responses of only 19 of the scenarios were counted, the total score was the sum of the weighted options over 19 of the 22 possible items. The maximum possible score was 104.3 and the minimum score was 23.5 with a reliability of .91. A high score denoted an individual with a greater propensity for angry driving. A low score indicated that a person was less likely to have a propensity for angry driving. Each participant was given the 100 factor marker scale first and the Propensity scale second. The order of administration remained the same for each participant. The entire session took approximately 25 minutes to complete.

Results

The sample characteristics, means and standard deviations of the variables in this study are presented in Table 1.The coefficient alphas for the big five variables and the Propensity for Angry Driving scores are presented in Table 2. For the big five variables the alphas ranged from .82 to .85, suggesting reasonable internal consistency. These fall within the range suggested by Goldberg (1992) whose coefficient alphas ranged from .82 to .97. The coefficient alpha for the propensity items was .83. The alpha listed by Depasquale et al. (1999) for this measure was .91.

The Pearson Product Moment Correlation was used to examine the relationship between age, gender, the variables of the big five and the Propensity for Angry Driving scores. The correlation coefficients are presented in Table 3. For purposes of statistical analysis, the number one was used to code male participants and the number zero was used to code female participants. Results show that gender was not related with scores on the Propensity for Angry Driving Scale, $r(105) = .17, p < .009$, which does not support the hypothesis that males would be more likely to have a propensity for angry driving. Age correlated negatively with driving anger, $r(105) = -.39, p < .0001$, indicating that older individuals were less likely to have a propensity for angry driving.

Results show a significant positive correlation between the scores on Neuroticism and scores on the Propensity for Angry Driving Scale, $r(105) = .21, p < .02$. This supports the hypothesis that individuals high on Neuroticism are more likely to have a propensity for driving anger than are those low in Neuroticism.

The scores on Agreeableness, $r(105) = -.25, p < .009$, were negatively and significantly correlated with Propensity for Angry Driving scores. These findings support the hypothesis that agreeable individuals are less likely to have a propensity for angry driving.

Though not significant, there was a positive correlation between the Extraversion scores and driving anger, $r(105) = .11, p < .23$. This does not support the hypothesis that extraverted individuals are less likely to have a propensity for angry driving. Scores on Openness and Conscientiousness were unrelated with scores on the Propensity for Angry Driving Scale, $r(105) = -.02$ and $-.12$, respectively.

Results of the regression analysis and standardized beta coefficients are presented in Table 4 and Table 5, respectively. The Propensity for Angry Driving scores were regressed on the predictor variables. Analysis of variance indicated a significant relationship, $R^2 = .31$, $F(7, 99) = 6.47$, $p < .0001$. The analysis also showed that the predictor variables accounted for 31 percent of the variance in the dependent variable.

Standardized beta coefficients were examined in order to determine the direct effect of each predictor variable on the dependent variable of driving anger. Standardized betas showed that the variables of Neuroticism, $\beta(99) = .19, p < .04$, and Extraversion, $\beta(99) = .21, p < .007$, are positively correlated with a propensity for driving anger. The analysis also found a significant negative correlation between Agreeableness, $\beta(99) = -.33, p < .007$, and a propensity for driving anger as well as with older individuals $\beta(99) = -.36, p < .0001$, and driving anger. Gender correlated positively, $\beta(99) = .19, p < .04$, with driving anger, with males showing a greater propensity.

The other variables showed no significant correlations. Openness and Conscientiousness were unrelated with scores on the Propensity for Angry Driving Scale.

Discussion

Aggressive driving is becoming more prevalent in today's society. Drivers are becoming increasingly angry with each other over seemingly innocent or careless acts. There are a variety of reasons being offered as to why this trend is escalating, such as increasing congestion on roadways which are incapable of keeping up with the surge in traffic. Stressful life events and inadequate coping strategies are also possibilities. The reason explored in this study was the personality type of the individual driver. Examining the possibility of a link between the five factor personality model and aggressive driving may one day make it possible to predict which individuals may have a propensity to commit road rage. This information could be very important to a variety of businesses who may find it useful in their hiring practices. It may also be used to develop preventive measures or programs.

The purpose of the study was to determine if certain types of personality have a propensity for angry driving. Results were both expected and unexpected. Findings support the prediction that individuals with high levels of Neuroticism are more likely to have a higher propensity for angry driving than individuals with low levels of this personality trait. However, findings also show that individuals who are extraverted are more likely to have a propensity for angry driving as well, disproving the hypothesis that the opposite would be the case. Scores on Agreeableness had a significant negative relationship with scores from the propensity scale, supporting the hypothesis that individuals high in Agreeableness would be less likely to have a propensity for angry

driving. Scores on Openness and Conscientiousness were unrelated with scores on the Propensity for Angry Driving Scale.

Results show that males have a higher likelihood of becoming angry while driving than do females. Also, younger drivers are more likely than older drivers to become angry when faced with everyday occurrences on the road. Matthews et al. (1991) found that older drivers tend to report lower levels of aggression and driving stress. They usually do not become upset or react negatively to being overtaken by other drivers. Findings from this study suggested that the type of individual who was more likely to have a propensity for angry driving was a young, male, disagreeable extravert.

There is interest in finding a connection between the five factors of personality and aggressive driving. Neuroticism, a factor with a subscale on the NEO-PI scales, has a hostility facet which measures an individual's inclination to experience anger (Costa & McCrae, 1986). Matthews et al. (1991) found that different events which occur in life may produce higher levels of stress in individuals who possess a high level of Neuroticism. This can serve to elevate the stress which is already felt while driving. Neuroticism is thought to be the strongest predictor of driver stress which has been associated with aggression-hostility (Matthews et al., 1991).

According to Wiebe and Smith (1997) neurotic individuals tend to experience chronic negative emotions and as a result, they have more negative views of the world and themselves. This view supports the findings of this study. With regards to a relationship between Neuroticism and age, Matthews et al., (1991) found that older drivers tended to have lower levels of this factor. Findings of this study show a negative correlation between

age and Neuroticism as well, $r(105) = -.26$, $p < .006$. They also reported lower amounts of general stress and aggression.

Agreeableness had a significant negative correlation with scores on the propensity scale. On the NEO-PI scale, altruism, compliance, modesty and tender-mindedness are facets of this factor (Costa & Widiger, 1994). Individuals high in Agreeableness tend to express feelings of empathy and have a concern for the welfare of others. They are non-aggressive and not interested in becoming involved in conflicts or uncomfortable situations. These individuals tend to be humble and giving. According to Graziano et al. (1997) the expression of hostility is negatively related to Agreeableness.

Standardized betas showed that Extraversion had a positive relationship with angry driving. On the NEO-PI scale, facets of Extraversion include gregariousness and assertiveness. High levels of self confidence are also associated with this factor.

The two most powerful predictors on scores for the Propensity for Angry Driving Scale were Extraversion and Agreeableness. The literature review showed that a high level of Extraversion combined with a low level of Agreeableness are the characteristics of the Narcissistic personality type. This study suggests similarities in the descriptions of individuals with a propensity for angry driving and individuals suffering from Narcissism. Research has been conducted (Shreer, McLeod & Suarez, 2002) on whether there is a link between the personality disorder of Narcissism and road rage. Narcissism is defined by Schreer et al. (2002) as a pattern of grandiosity used to bolster and enhance a fragile sense of self esteem. This personality disorder is characterized by a high level of Extraversion and a low level of Agreeableness (Paulhus, 2001). These characteristics are similar to

those which were determined in this study to be the make up of individuals who are more likely to have a propensity for angry driving..

The most important characteristic of Narcissism is a low level of Agreeableness. Characteristics associated with low Agreeableness are arrogance, conceit, exploitation and self-centeredness. Narcissistic individuals are low in empathy and can react to criticism from others with thoughts of shame and or rage. They have an exaggerated sense of self importance. When frustrated, disagreeable individuals tend to respond with aggressive anger (Graziano & Eisenberg, 1997). Narcissists are sometimes referred to as disagreeable extraverts who have a strong desire to seek rewards and react with aggression when this need is not fulfilled (Paulhus, 2001). They feel superior to others and expect their accomplishments, regardless of how small, to be recognized. Narcissists are often condescending in the way that they speak and relate to others suggesting underlying feelings of disdain.

Unlike the findings of this study, a low level of Neuroticism is also included as a characteristic of Narcissism. However, there is evidence that a low level of Neuroticism is not necessarily vital to a diagnosis of Narcissism (Costa & Widiger, 1994). In fact narcissistic individuals may present with low levels of Neuroticism due to the denial of feelings of vulnerability, self consciousness, anxiety and or depression (Costa & Widiger, 1994). Narcissists tend to feel as if common occurrences are threats to their ego. This may be why they tend to react aggressively when confronted with typical driving occurrences such as tailgaiting.

Narcissistic individuals have a fragile sense of self-esteem and are unlikely to admit to possessing any faults or vulnerabilities. They feel that faults are a sign of weakness or imperfection. Narcissists tend to be conceited and self-centered and do not want to open themselves up to criticism from others. According to Costa et al. (1994) narcissists are overly self-confident and arrogant. The narcissistic individual can not empathize with the problems and complaints of other people. These characteristics may be what leads the narcissist to score low on scales designed to measure Neuroticism.

Matthews et al. (1991) feel that certain types of personalities are more likely to respond negatively to stress. They also believe that these individuals are more likely to become involved in traffic accidents. Everyday stressors such as those that occur while driving can trigger an angry or aggressive response. This type of characteristic is typical of the narcissist since they are prone to responses of aggressive anger when frustrated. The narcissistic personality type closely resembles the type of individual found during this study to be more likely to engage in aggressive driving behavior. Further study of the possible link between the two may be warranted.

A possible limitation of this study was the sample size and the fact that it was limited to college students. A larger sample may have yielded different or more statistically significant results on some of the variables. Sampling from a more varied group may have been more representative of the population as a whole. Another likely limitation was the number and variation of the choices assigned to each of the 22 scenarios. Some of the participants may have found it difficult to identify with any of the choices that corresponded to the scenarios on the Propensity for Angry Driving Scale.

Self report measures such as the ones used in this study may also be the source of some limitations. Unlike a behavioroid measure, where participants actually have to engage in some type of behavior rather than just report on what they would do if faced with a particular situation, self report measures generally do not require as much obligation. Participants are less likely to report the negative and as a result may act differently than what they said in the scale response. In Table 1, the range of medians for scores on the Big Five Factors are skewed, indicating that some participants may have been trying to show themselves in a more positive way. According to Aronson, Brewer and Carlsmith (1985) the difference between a self report measure or questionnaire and a behavioroid measure is the level of commitment which a participant must make. When completing a questionnaire the participants realize that they do not actually have to follow through with any of the choices they have selected.

Finally, another possible limitation of the study is the fact that there were only 30 male participants as opposed to 77 female participants. The correlations between the scores from the 100 Factor Markers Scale and the scores from the Propensity for Angry Driving Scale may be lower than they might be if there had been a more evenly selected sample.

This study has uncovered evidence of a relationship between the Five Factors of Personality and the Propensity for Angry Driving Scale. Future research that takes these limitations into consideration may be necessary. Expanding on this research may help to aid in the development of more advanced measures that can be used to detect aggressive drivers such as ones that make use of driving simulators or actual behind the wheel assessment.

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Appendix A

Goldberg's 100 Factor Marker Scale

How Accurately Can You Describe Yourself ?

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age.

Before each trait, please write a number indicating how accurately that trait describes you, using the following rating scale.

Inaccurate					**Accurate**			
Extremely	Very	Quite	Slightly	Neither	Slightly	Quite	Very	Extremely
1	2	3	4	5	6	7	8	9

1._____ Active	26._____ Extraverted	51._____ Negligent	76._____ Trustful
2._____ Agreeable	27._____ Fearful	52._____ Nervous	77._____ Unadventurous
3._____ Anxious	28._____ Fretful	53._____ Organized	78._____ Uncharitable
4._____ Artistic	29._____ Generous	54._____ Philosophical	79._____ Uncooperative
5._____ Assertive	30._____ Haphazard	55._____ Pleasant	80._____ Uncreative
6._____ Bashful	31._____ Harsh	56._____ Practical	81._____ Undemanding
7._____ Bold	32._____ Helpful	57._____ Prompt	82._____ Undependable
8._____ Bright	33._____ High-strung	58._____ Quiet	83._____ Unemotional
9._____ Careful	34._____ Imaginative	59._____ Relaxed	84._____ Unenvious
10._____ Careless	35._____ Imperceptive	60._____ Reserved	85._____ Unexcitable
11._____ Cold	36._____ Imperturbable	61._____ Rude	86._____ Unimaginative
12._____ Complex	37._____ Impractical	62._____ Self-pitying	87._____ Uninquisitive
13._____ Conscientious	38._____ Inconsistent	63._____ Selfish	88._____ Unintellectual
14._____ Considerate	39._____ Inefficient	64._____ Shallow	89._____ Unintelligent
15._____ Cooperative	40._____ Inhibited	65._____ Shy	90._____ Unkind
16._____ Creative	41._____ Innovative	66._____ Simple	91._____ Unreflective
17._____ Daring	42._____ Insecure	67._____ Sloppy	92._____ Unrestrained
18._____ Deep	43._____ Intellectual	68._____ Steady	93._____ Unsophisticated
19._____ Demanding	44._____ Introspective	69._____ Sympathetic	94._____ Unsympathetic
20._____ Disorganized	45._____ Introverted	70._____ Systematic	95._____ Unsystematic
21._____ Distrustful	46._____ Irritable	71._____ Talkative	96._____ Untalkative
22._____ Efficient	47._____ Jealous	72._____ Temperamental	97._____ Verbal
23._____ Emotional	48._____ Kind	73._____ Thorough	98._____ Vigorous
24._____ Energetic	49._____ Moody	74._____ Timid	99._____ Warm
25._____ Envious	50._____ Neat	75._____ Touchy	100._____ Withdrawn

Appendix B

Propensity for Angry Driving Scale

The items below describe a variety of situations one could encounter while driving. Each scenario is followed by four potential responses. Please read each scenario and then circle the response that is closest to how you would react if you were to encounter the events described.

1. You are driving your car down a two-lane road. Without warning, another car pulls out in front of you from a parking lot. You had to brake suddenly to avoid hitting it. How do you respond?

a) Let out a sigh of relief and drive on.

b) Lean out your window and yell at the other driver.

c) Honk your horn to let the other driver know they almost caused an accident.

d) Follow the other car to its destination so you can give him a piece of your mind.

2. You are driving your car down the interstate in the passing lane. You come up to a car driving much slower than you are in the passing lane. Even though you flash your high beams as a signal for the other car to move over, it does not. How do you respond?

a) Make an obscene gesture at the driver as you pass on the right.

b) Shrug your shoulders and continue to wait for the other car to move to the side.

c) Start driving right on the rear bumper of the other car and lay on your horn.

d) Continue flashing your high beams at the car hoping the behavior will cause them to move to the side.

3. You are driving on a single lane road. For no apparent reason the car in front of you is constantly braking and accelerating causing you to drive in the same manner. How do you respond?

a) Honk your horn and loudly curse at the driver.

b) Honk your horn and make a mean face at the driver causing the disturbance.

c) Slow down a little and keep a safe distance.

d) Deliberately tailgate the car and occasionally lay on the horn.

4. You are in a full parking lot. You see a driver leaving and you put on your blinker to indicate you intend to take the parking space. As the other driver pulls out, a second driver cuts in front of you from the other side and takes the parking space. How do you respond?

a) Glare angrily at the other driver as you move on to find another parking space.

b) Shrug your shoulders and look for another space to park.

c) Wait for the other driver to get out of the car and then scream out your window at him/her for being an inconsiderate jerk.

d) Stop your car and approach the other car to express your anger to the driver.

5. You are driving your vehicle in a traffic jam in the far right hand lane. Out of nowhere, a car comes up from behind on the shoulder and attempts to squeeze in front of you. How do you respond?

a) Nothing, let the car squeeze in.

b) Make obscene gestures, or yell "jerk" at the other driver as you close ranks on the car in front of you to prevent the driver from cutting in front of you.

c) Let the car squeeze in but honk your horn to demonstrate your disapproval to the other driver.

d) Honk your horn and close ranks on the vehicle in front of you to prevent the car from getting in front of you.

6. You are sitting in your car at a light controlled intersection. A car pulls up next to you with it's windows rolled down and the stereo playing music way too loud. How do you respond?

a) Yell out your car at the other vehicle occupants asking them to turn the music down.

b) Ignore it, the light will change shortly.

c) Honk you're the horn to get the other driver's attention and then angrily yell at the driver for disturbing the peace.

d) Turn your own music up loud so you don't have to listen to the music from the other vehicle.

7. You are driving in the passing lane at 75 mph. The speed limit is 55 mph. A car comes up behind you very quickly. Soon the other vehicle is right on your bumper and the driver flashes his/her headlights and honks the horn. How do you respond?

a) Stay in the passing lane at your current speed intentionally preventing the other car from passing.

b) Give the other driver the finger and purposely slow down to aggravate the driver behind you.

c) As soon as possible change lanes and let the other car pass.

d) Give the other driver the finger and stay in the passing lane at your current speed.

8. You are driving on the interstate when another vehicle pulls up alongside your car. You look over and see a total stranger making obscene gestures at you. How do you respond?

a) Ignore the other driver by looking straight ahead and minding your own business.

b) Look at the other driver and shake your head in disbelief, then slow down and wait for the other car to drive on.

c) Glare back at the driver with a menacing face.

d) Make obscene gestures back to the driver in the other vehicle.

9. You have been sitting in your car in a traffic jam for over 20 minutes. Suddenly, a car lightly bumps you from behind. How do you respond?

a) Step out of your car and yell at the other driver for being a horrible driver and not paying attention.

b) Ignore it, the bump was not hard enough to cause any damage.

c) Yell out your window at the other driver to pay more attention.

d) Yell out loud in your vehicle, but not to the other driver.

10. You are driving on the interstate. One of the cars in front of you keeps switching lanes preventing other cars from passing efficiently. Thus traffic is being slowed. How do you respond?

a) Yell obscenities in your car and honk your horn numerous times to show your displeasure.

b) Pull up next to the other car so that you can honk your horn and scream obscenities at the driver for blocking traffic.

c) Let out a sigh and slow down with the rest of the traffic.

d) Yell out obscenities in your car.

11. You are driving on a city street. Without warning, a pedestrian suddenly runs in front of your car nearly causing you to hit him/her. How do you respond?

a) Do nothing except feel grateful no one was injured.

b) Actually stop your car and get out to yell at the pedestrian for being careless and stupid.

c) Yell at the pedestrian out your window telling them to watch where they are going.

d) Curse loudly at the pedestrian out your window telling them next time your not going to stop.

12. You are driving home during rush hour traffic. The roads are extremely congested and traffic is moving very slowly. Not too far in front of you is a car trying to exit a parking lot. Because of the traffic, the car is having a hard time pulling out of the parking lot. How do you respond?

a) Pretend you don not see the car, just keep on driving.

b) Make sure there is no chance the car will be able to get in front of you you want to get home as soon as possible.

c) Let the car into traffic.

d) Drive by the car, smile and wave at the driver as you pass by.

13. You are trying to exit off the highway. However, a car coming on to the highway has failed to acknowledge a yield sign and their behavior has caused you to miss the exit. How do you respond?

a) Honk your horn at the other driver to demonstrate your displeasure.

b) Throw your hands in the air in disbelief and drive to the next exit.

c) Tailgate the car for a while then drive up next to the car, honk your horn, yell obscenities at the other driver.

d) Drive up next to the car that cut you off, honk your horn, and give the driver a mean look.

14. Your off ramp is quickly approaching. The driver next to you is driving in a manner that is preventing you from changing lanes. You may miss your exit. How do you respond?

a) Honk your horn and yell out your window at the driver telling them to get out of your way.

b) Hit the gas to get in front of the other car, yell obscenities as you pass the other car.

c) Cursing under your breath, reduce your speed as necessary to make the lane change.

d) Follow the car to it's destination so you can yell obscenities the other driver.

15. You are driving your car to work when you come upon another vehicle stalled in the middle of the intersection. How do you respond?

a) Drive around the car and continue to your destination.

b) Pull up next to the other car, roll down your window and offer to call for help.

c) Pull your car to the side of the road, get out and offer to help the other driver move the vehicle out of the intersection.

d) Drive around the other vehicle, honk your horn at the other driver for getting in your way.

16. You are driving on the highway. The driver in the car in front of you throws a cup of coffee out his/her car window. The cup hits your windshield. How do you respond?

a) Honk your horn and yell at the other driver from within your car.

b) Speed up next to the car and make obscene gestures at the other driver.

c) Shake your head in disbelief and turn on your windshield wipers.

d) Speed up so that you pass the car and then throw something out your window to hit the other car.

17. While making a left-hand turn you accidentally cut off another car. In response, the other driver follows you to the next intersection at which point he/she pulls up to your car and proceeds to yell obscenities at you until the light turns green. When the light turns green the other driver takes off in a hurry. How do you respond?

a) Follow the car to the next intersections that you can yell obscenities back.

b) Sigh in relief that the whole ordeal is over.

c) Get behind the car and tailgate it to the next intersection, then pull up next to the car and yell obscenities back at the other driver.

d) Yell back at the other driver telling him to relax because it was an accident.

18. You have been stuck in a traffic jam for nearly forty minutes. While not paying attention you accidentally bump the car in front of you. The driver in the car in front of you leans out the window and curses at you very loudly. How do you respond?

a) Shrug your shoulders to indicate it was not intentional.

b) Intentionally ram the car again.

c) Yell back at the other driver telling him to relax because it was unintentional and there is no damage.

d) Give the other driver the finger and yell back.

19. While driving down the interstate you see a car on the side of the road with a flat tire. You notice the driver of the car is having some difficulty changing the flat. How do you respond?

a) Pull up next to the car and ask the driver if he/she would like you to call for help.

b) Pull off the road , get out of your car and help the driver change the tire.

c) Keep on driving.

d) Pull up next to the car and ask the driver if he/she would like a ride to the nearest town so he/she can get help.

20. You are driving on the highway in the passing lane. You come up behind another car in the passing lane. You flash your headlights as an indicator for the other car to move over. Instead of moving over, you see the driver in the other car give you the finger and remain in the passing lane. How do you respond?

a) Start flashing your lights with greater frequency hoping to influence the driver to move over.

b) Get right on the rear bumper of the car, flash your lights and honk your horn in order to intimidate the other driver into moving over.

c) Roll your eyes in disbelief and wait for the car to move over or exit.

d) Get right on the rear bumper of the other car and lay on your horn.

21. You are in the left-hand lane behind another vehicle. When the left turn light is given, the vehicle does not move because the driver is not paying attention. You tap on your horn to get her attention and she gives you the middle finger in her rearview mirror. How do you respond?

a) Tap on your horn again.

b) Fume inside a bit, but do nothing.

c) Lay on your horn.

d) Lay on the horn and return the finger gesture.

22. You are driving on a winding country road. There is a bicyclist riding in front of you. Because the road is fairly busy and there are many blind turns you have been unable to pass the bicyclist. The bicyclist shows no intentions of pulling to the side of the road to let you pass. How do you respond?

a) Tap your horn hoping the bicyclist will acknowledge you and move to the side.

b) Lay on the horn and lean out your window and loudly curse at the bicyclist telling him to move or get run over.

c) Lay on the horn until the bicyclist moves out of the way.

d) Grind your teeth and hope the bicyclist eventually pulls to the side or turns off.

Appendix C

Statement of Informed Consent

You are invited to participate in a psychological study of the propensity to become angry while driving. You were selected as a possible participant because you are enrolled in a psychology course at Auburn University Montgomery.

If you decide to participate, you will be asked to complete two separate survey instruments. We should take no more than 25 to 30 minutes to complete the entire session. Once the entire study is completed, you can receive information on the nature and findings of the study if you wish. Moreover, the results of this study may provide information that might be used to improve road safety. Additionally, your instructor may provide you extra credit for participation, so you should check with your instructor to verify whether this extra credit is available to you. However, there is no guarantee that you will obtain all of these benefits if you do choose to participate. Participating in this study poses no foreseeable risk to you.

Any information concerning your identity will remain confidential. There will be no way to connect your identity to your responses. All of your responses will be anonymous.

Your decision whether to participate will not prejudice your future relations with Auburn University Montgomery or the Psychology Department. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you decide later to withdraw from the study, you may also withdraw any information that has been collected about you.

If you have questions, I expect you to ask me. If you have additional questions later, I will be happy to answer them. All inquiries can be addressed to Sembenea Baker or to Dr. Sadowski, the faculty supervisor, at (334)244-3306.

YOU ARE MAKING A DECISION WHETHER TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION PROVIDED ABOVE.

_____ _____

Date Time Print Name

_____ _____

Witness signature Participant's signature

Table 1

Descriptive Statistics for Variables in the Study

Variable	*M*	*SD*
Age	26.30	8.98
Sex	.28	.45
Neuroticism	99.89	19.03
Extraversion	116.02	19.50
Openness	135.28	17.72
Conscientiousness	131.57	18.37
Agreeableness	136.28	16.83
Propensity for Angry Driving	40.67	11.65

Note. $N = 107$.

Table 2

Cronbach Coefficient Alpha Reliabilities for Scaled Variables

Variables	Raw Alpha
Openness	.85
Conscientiousness	.85
Extraversion	.85
Agreeableness	.84
Neuroticism	.82
Propensity for Angry Driving	.83

Table 3

Pearson Product Moment Correlation Coefficients Between the Variables

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. Age	—	.07	-.26[F]	-.03	-.008	-.04	-.07	-.39[I]
2. Sex		—	-.28[D]	-.06	.02	-.23[A]	-.32[K]	.17[C]
3. Neuroticism			—	-.06	.02	-.09	-.04	.21[B]
4. Extraversion				—	.37[I]	.24[A]	.25[G]	.11
5. Openness					—	.34[J]	.27[E]	-.02
6. Conscientiousness						—	.70[I]	-.12
7. Agreeableness							—	-.25[H]
8. Propensity for Angry Driving								—

Note. $N = 107$. Sex is coded as male = 1, female = 0.
[A] $p < .01$. [B] $p < .02$. [C] $p < .07$. [D] $p < .002$. [E] $p < .004$. [F] $p < .006$. [G] $p < .007$. [H] $p < .009$.
[I] $p < .0001$. [J] $p < .0002$. [K] $p < .0007$.

Table 4

Analysis of Variance of Variables in the Study

Dependent Variable: Driving Anger

Source	DF	SS	MS	*F*	R^2
Model	7	4520.84	645.83	6.47	.31
Error	99	9874.62	99.74		

Table 5

Contribution of Individual Variables to Regression Analysis

Demographic Variables	β	$t(99)$	p
Age	- .36	- 4.26	<.0001
Sex	.19	2.07	.04
Big Five Variables			
Agreeableness	- .33	- 2.75	.007
Extraversion	.21	2.30	.02
Neuroticism	.19	2.06	.04
Conscientiousness	.13	1.09	.27
Openness	- .07	- .78	.43