Road Rage Unleashed

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Abstract

Road rage has been a growing concern for many decades and the issue continues to escalade.

Research has found many factors that correlate or predict instances of road rage, such as, gender,

personality type, distance driven on average, types of roads driven on, and vehicle type. We

designed this study to determine if empathy or perspective taking correlated with road rage

predictors like, aggressive driving behaviors and driving attitudes. We also wanted to determine

if larger vehicles driven by participants can predict road rage behaviors and attitudes.

Participants in this study consisted of Angelo State University students who were enrolled in a

psychology course for the 2015 fall semester. To test our hypotheses, we designed a packet of

questionnaires that measured participant's empathy level, driving behaviors, and driving

attitudes. A correlation test was used to determine if empathy was negatively correlated with

driving attitudes and driving behaviors and a regression test to determine if larger vehicles can

predict aggressive driving behaviors and attitudes. After analyzing the data, no correlation

between empathy and driving behaviors or attitudes was found. Additionally, the data concluded

that vehicle size did not predict negative driving behaviors or attitudes. Future research could

perform more longitudinal studies to investigate possibly predisposed road rage factors.

Aggressive driving, or road rage, is an issue that will not be going away anytime soon and

determining predictors could possibly lead to solutions to reduce the number of road rage

instances.

Road Rage Unleashed

Researchers in Canada (Tasca, 2000; Smart & Mann, 2002), Australia (Harding et al.

1998), the United Kingdom (Joint, 1995), and the United States (Batten et al., 2000;

Fumento,1998; Rathbone & Huckbee, 1999) have addressed their concern about road rage for

many years now (as cited in Smart, Stoduto, Mann, & Adlaf, 2004, p. 343). It was estimated that

each year 1.8 billion driving incidents were due to aggressive driving episodes in the United

States (Nerenburg,1997), with 25% of drivers surveyed admitting to be the perpetrator of

aggressive driving at some point. Additionally, shocking estimates of 28,000 deaths were the

result of road rage episodes in the years of 1990-1996 (Miles & Johnson, 2002, p. 147). My

research group decided to use Smart and Mann's definition of road rage, which states that road

rage is the "attempt to intimidate, threaten, injure, or kill other drivers, passengers, or pedestrians

(as cited in Smart et al., 2004, p. 343).

Many studies have been conducted to find possible relationships between certain factors

and road rage. In a cross-cultural study conducted by Özkan, Lajunen, Parker, Sumer, and

Summala (2010), it was found that being male correlated positively with aggressive driving

behaviors in most of the countries analyzed in their research; therefore, illustrating sex and road

rage are related (p. 232). Multiple studies have also analyzed attributes and personality as a

predictor of road rage. For instance, Britt and Garrity (2006) examined the ability of attributes

and personality variables such as openness, conscientiousness, agreeableness, narcissism, and

extroversion as predictors for aggressive driving or road rage behaviors. They found that hostile

and blame attributes, along with the personality variables conscientiousness, agreeableness,

narcissism, and extroversion reliably predicted road rage response. They also found that these

attributes predicted road rage response after exposure to specific scenarios (p. 141). In an

additional study, Type-A personality behavior patterns were assessed with aggressive driving

behaviors and found that individuals who scored higher on the Type-A behavior pattern items

were violators of aggressive driving (Miles & Johnson, 2003). Furthermore, Smart, et al. (2004)

analyzed driving exposure (kilometers traveled in a normal week), driving factors (driving on

busy roads), and type of vehicles against road rage experience and behavior. They found that

drivers of high performance vehicles were involved in more road rage perpetration behaviors

than any other vehicle type, but vehicle type was not significantly related to the number of times

participants reported being the victims of road rage (pp. 345-347).

There are several reasons why drivers with different empathy levels would react

To date, research on individual's empathy levels as a predictor for road rage is lacking.

Although many studies have been conducted measuring attributes and personality types or traits,

empathy has yet to be examined. Reniers, Corcoran, Drake, Shryane, and Völlm (2011)

conducted a self-report study to create an effective way to measure empathy. They were

successful in developing a 31-item questionnaire. Although they found an effective way to

measure empathy, they suggested that more research needs to be done to predict performance in

the real world. Considering their suggestion, we used the 31-item Questionnaire of Cognitive and

Affective Empathy (QCAE) to assess participant's empathy in the present study.

There are several reasons why drivers with different empathy levels would react

differently towards aggressive driving behaviors and attitudes. As the definition implies, those

who score high on the empathy scale try to understand a situation from the other person's

perspective; therefore, individuals with increased empathy will exhibit less aggressive driving

behaviors and attitudes than those with decreased empathy levels because they are more likely to

perceive aggressive driving from the other persons perspective. Additional evidence to support

that individuals with increased levels empathy are more likely to perceive aggressive driving

behavior from the other person's perspective comes from Reniers et al., (2011).Their questionnaire included perspective taking as a component of empathy, and items such as "other people tell me I am good at understanding how they are feeling and what they are thinking" correlate the highest in terms of perspective taking (p. 88).

Previous research, conducted in Canada, determined that high performance vehicles are involved in more road rage perpetration incidences (Smart, et al. 2004). However, there has been no previous research that addresses vehicle size as an indicator of aggressive driving; therefore, we wanted to explore if driving behaviors and attitudes are predicted by the size of the vehicle driven. In sum, the present study, we predicted that empathy would be negatively correlated with aggressive driving behaviors and aggressive driving attitudes. We also explored whether size of vehicle predicted aggressive driving behaviors and attitudes. Therefore, driving behaviors, driving attitudes, level of empathy, and vehicle size will be the center focus for this research.

Method

Participants

In this study, participants included Angelo State University students who were enrolled in psychology courses for the semester of fall 2015. These participants were recruited through the University's Sona-systems Department of Psychology and Sociology research data base. Our participants consisted of 31% males and 69% females. Of those participants, 50% were Caucasian, 6% African-American or Black, 38% Hispanic or Latino, and 6% selected to be more than one race. Lastly, the ages of our participants ranged from 18 years old to 22 years old ($M = 19.8$, $SD = 2.04$).

Design and Procedure

This study was a within-subjects design. A within-subjects design is when all participants are being exposed to the same variables. Therefore, all of the participants were asked to complete the questionnaires given to them, which were the same and presented in the same order.

Questionnaires were administered to measure participants' empathy levels, driving attitudes, driving behaviors, and demographic information including age, gender, and race. The empathy questionnaire included 31 items measuring participant's level of empathy (Renier, et al., 2011). A few examples include: "*I can usually appreciate the other person's viewpoint, even if I do not agree with it,*" and "*I am good at predicting how someone will feel*". All items included four response choices ranging from 1 = "strongly disagree" to 4 = "strongly agree". Aggressive driving behavior was measured using a 10-item questionnaire (Miles & Johnson, 2002) with items scaled on a 5-point scale with 1 = "never" and 5 = "very frequently." A few examples include: "*I make insulting gestures to other drivers,*" and "*I yell at other drivers.*" To measure aggressive driving attitude a 7-item questionnaire was used (Miles & Johnson, 2002). A few examples include: "*I am the most important driver on the road,*" and "*police officers should arrest drivers for going too slow,*" These items were scaled on a 5-point scale with 1 = "strongly disagree" to 5 = "strongly agree." At the end of driving attitudes questionnaire we additionally asked participants to provide the year, make, and model of the vehicle they normally drive. Please see Appendix for complete scales.

Procedures during every data collecting session, each researcher followed the same script to allow for each session to be as identical as possible. Each session was run this way to avoid any additional biases amongst the participant's answers. At the beginning of each session I asked participants to turn off all electronic devices to prevent distractions and gave them time to do so. Once participants had time to put away their devices, I reminded them what the study was about

and told them that they would be asked to answer a few questionnaires. Furthermore, I told

participants that the study would take no longer than 30 minutes, and they would receive a half

research credit toward the psychology course they selected in sona-systems. Before giving

participants specific instructions, I asked them to read and sign the study's consent form. I then

gave each participant a consent form, time to read and sign it, and then collected the signed

forms and placed them in an envelope for the confidentiality of each participant. Next, I told the

participants that they would be given a packet of questionnaires to answer and once they were

finished to place them in an envelope. At this point, I asked if anyone had any questions for me.

After answering any questions, I informed participants of the debriefing sheet that contained

more information about the study if they were interested. This sheet was located on a table next

to the door for participants to take once they completed the study. Before I handed out

questionnaires, the participants were informed that all the information gathered would be used

for research purposes only. Their names would never be associated with their responses and all

information would remain within the research team. Next, I handed out the questionnaires and

individuals were given as much time as they needed to finish. Once all surveys were placed into

the envelope, I thanked participants for their time and participation and again asked if they had

any questions. Once all questions were answered, I reminded participants about the debriefing

sheet and dismissed them.

Results

To test our hypothesis that empathy would negatively correlate with aggressive driving

behaviors and attitudes, I created an averaged variable. This means all empathy questions

answered were averaged into one value to attain an average empathy level for each participant.

The same method was used to create two more variables, aggressive driving behaviors and

aggressive driving attitudes. This means that all driving behavior questions answered were averaged into one variable for each participant, and all driving attitude questions were averaged into one variable for each participant. Then I used a correlational test to analyze the data between empathy, driving behaviors, and driving attitudes. The results showed no correlation between empathy and driving behaviors $r = .08$, $p = .77$. The results also showed no correlation between empathy and driving attitudes $r = -33$, $p = .22$. The only significant correlation found was a positive correlation between driving behaviors and driving attitudes $r = .54$, $p = .03$.

Participants also provided the year, make, and model of their vehicle. Once all the data was collected, we coded the vehicles into 5 categories: 1 = compact car, 2 = sedan, 3 = minivan, 4 = SUV, and 5 = truck. We coded the vehicles this way to indicate that the higher the number, the larger the vehicle. To test if vehicle size predicts driving behavior and driving attitudes, I used a regression test. This test regressed the vehicle size onto driving behaviors and driving attitudes variables. After running the regression test it is apparent that vehicle size did not predict driving behavior, $\beta = -.12$, $t(14) = -.86$, $p = .4$. The regression test also did not present evidence to show that vehicle size predicts driving attitudes, $\beta = -.03$, $t(14) = -.26$, $p = .8$. Thus, I found no evidence to support my predictions.

Discussion

The purpose of this study was to test the hypotheses predicting that empathy would negatively correlate with aggressive driving behaviors and driving attitudes. Additionally, we tested if vehicle size would predict aggressive driving behaviors and driving attitudes. The results show no correlation or relationship between empathy and driving behaviors and no relationship between empathy and driving attitudes. Perhaps, our hypothesis was not confirmed due to the type of procedures used in the study. Self-report questionnaires can be very biased and

sometimes individuals choose answers that are not always true. The results may also suggest that empathy is not a personality trait that predicts aggressive driving. Miles and Johnson (2002) conducted a study looking at Type-A personality behavior patterns and aggressive driving behaviors and attitudes. Instead of looking at specific personality types, our study selected a specific trait, which shows no correlation or relationship with aggressive driving behaviors or attitudes. The second hypothesis tested was also not confirmed by our results. The prediction was that vehicle size would predict aggressive driving behaviors and aggressive driving attitudes. This finding was surprising because Smart, et al. (2004) found in their study that high performance vehicles were involved in significantly more road rage perpetration incidences (p. 347). Our results could have been due to the fact that we explored vehicle size instead of vehicle type like in the previous study (Smart, et al., 2004). Additionally, vehicle size may not be a reliable predictor of road rage because vehicles could be driven for work purposes, family needs, and personal preference instead of aggressive driving purposes.

This study contributes to the field of psychology because it takes another look at behavior and personality. This study honed in on a narrow-band personality trait instead of broad-band traits. Since our hypotheses were not confirmed, the field can benefit by either testing these variables again using different designs and procedures or changing certain variables. Although this study is beneficial, it also had many limitations. The first limitation is that we had three weeks to collect data and had only sixteen participants. The benefit for having a larger sample would allow for the results to be more representative of the population and limit the influence for outliers. The second limitation of this study is the use of self-report questionnaires. Although self-report questionnaires are widely used in behavioral studies they create room for the possibility that individuals will not answer truthfully, which allows for faulty results.

Aggressive driving is an issue that has only become more severe throughout the years. I would like to see future research observe driving behaviors through longitudinal studies. For example, observe whether participants driving behaviors and attitudes evolve throughout the years. This could possibly pin point other predictors for road rage, such as at what point does an individual develop those aggressive behaviors and attitudes. Another future research idea would be to see if individuals who are receiving emotion regulation therapy have different driving behaviors and driving attitudes than those who are not receiving this therapy. This study could be a useful tool in determining if therapy is assisting those receiving it. Additionally, this study would be a good tool to determine if inability to regulate one's emotions is a predictor of road rage responses.

Finally, cross-cultural studies show that road rage is seen all over the world and has been an issue for many years. Research to find possible predictors or causes of road rage could benefit drivers because one can either avoid situations where road rage is likely to occur or possibly reduce the overall affect it is having on highways.

References

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Appendix

Empathy Measure (Renier et al., 2011); 1 = strongly disagree to 4 = strongly agree

1. I sometimes find it difficult to see things from the "other guy's" point of view.
2. I am usually objective when I watch a film or play, and I don't often get completely caught up in it.
3. I try to look at everybody's side of a disagreement before I make a decision.
4. I sometimes try to understand my friends better by imagining how things look from their perspective.
5. When I am upset at someone, I usually try to "put myself in his shoes" for a while.
6. Before criticizing somebody, I try to imagine how I would feel if I was in their place.
7. I often get emotionally involved with my friends' problems.
8. I am inclined to get nervous when others around me seem to be nervous.
9. People I am with have a strong influence on my mood.
10. It affects me very much when one of my friends seems upset.
11. I often get deeply involved with the feelings of a character in a film, play, or novel.
12. I get very upset when I see someone cry.
13. I am happy when I am with a cheerful group and sad when the others are glum.
14. It worries me when others are worrying and panicky.
15. I can easily tell if someone else wants to enter a conversation.
16. I can pick up quickly if someone says one thing but means another.
17. It is hard for me to see why some things upset people so much.
18. I find it easy to put myself in somebody else's shoes.
19. I am good at predicting how someone will feel.
20. I am quick to spot when someone in a group is feeling awkward or uncomfortable.
21. Other people tell me I am good at understanding how they are feeling and what they are thinking.
22. I can easily tell if someone else is interested or bored with what I am saying.
23. Friends talk to me about their problems as they say that I am very understanding.
24. I can sense if I am intruding, even if the other person does not tell me.
25. I can easily work out what another person might want to talk about.
26. I can tell if someone is masking their true emotion.
27. I am good at predicting what someone will do.
28. I can usually appreciate the other person's viewpoint, even if I do not agree with it.
29. I usually stay emotionally detached when watching a film.
30. I always try to consider the other fellow's feelings before I do something.
31. Before I do something I try to consider how my friends will react to it.

Aggressive Driving Behaviors (Miles & Johnson, 2002); 1 = never to 5 very frequently

1) I flash my lights and tailgate slower drivers in front of me in order to get them to change lanes or drive faster

2) Even though I do not have the right-of-way, I will go if the other drivers are too slow at a four-way stop

3) I have driven over the median if the line is too long to wait in at a light

4) I have driven on the shoulder of the road to avoid congested traffic

5) I tend to clench my fist, use the horn frequently, or bang my fist when other drivers do not react the way I want them to

6) I have made a turn from the wrong lane

7) I make insulting gestures to other drivers

8) I yell at other drivers

9) I will not let cars enter onto the highway, if it is going to slow me down

10) I shout obscenities at other drivers

Aggressive Driving Attitudes (Miles & Johnson, 2002); 1 = strongly disagree to 5 = strongly agree

1. There are too many road rules
2. Police officers should take into account the skill of the drivers when issuing a ticket
3. Police officers should arrest drivers for going too slow
4. The driver who has the most time should be the one who yields
5. I am the most important driver on the road
6. People who do not work should not be on the road during rush hour
7. Driving empowers me