The Effects of Trait Driving Anger, Anonymity, and Aggressive Stimuli on Aggressive Driving Behavior

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We examined the effects of trait driving anger, aggressive stimuli, and anonymity on aggressive driving behavior in a driving simulation task. High and low driving anger participants were randomly assigned to one of four conditions: (a) anonymous vs. identifiable driver; and (b) exposure to aggressive stimuli versus nonaggressive stimuli. Participants drove more aggressively when they were anonymous (d = .28) and exposed to aggressive stimuli (d = .05). Males drove more aggressively than did females (d = .06). No main or interaction effects were found for trait driving anger. Results suggest that situational factors affecting other forms of aggression are also important in aggressive driving.

Over the last several years, there has been a growing concern about aggressive driving and an increased level of apprehension among the motoring public about this traffic safety problem, as evidenced by self-report surveys and national media attention. It is possible that aggressive driving (e.g., excessive horn honking, red-light running, traffic weaving, tailgating, headlight flashing, excessive braking) is a contributing factor in some fatal crashes. Consequently, behavioral researchers, safety organizations, and law-enforcement agencies have turned their attention to this issue.

Evidence from both the empirical literature (e.g., Marsh & Collett, 1986; McDonald & Wooten, 1988) and news headlines suggests that aggression occurs among motorists on a regular basis. Incidents of violence on the highways have increased by 51% from 1990 through 1995, for a total of 10,037 violent clashes on the road since 1990 (American Automobile Association, 1997). While media sources are speculative at best, and the prevalence of aggressive driving is not yet known, it has become clear that the perception of this problem has increased significantly.

Despite the public perception of aggressive driving as a very real traffic-safety problem, experts have not come to a consensus on the definition of
aggressive driving. Yet, in order for consistent and effective research on this problem to be carried out, an operational definition is critical. *Aggression* may be defined as the intentional infliction of some form of harm on others (Geen, 1991). *Aggressive driving*, therefore, may be defined as any driving behavior that intentionally (whether fueled by anger or frustration or as a calculated means to an end) endangers others psychologically, physically, or both. Examples of aggressive driving include behaviors such as tailgating, horn honking, traffic weaving, excessive speeding, profanity, obscene gestures, headlight flashing, red-light running, and blocking the passing lane. Many times, aggressive driving includes more than one of these behaviors. For example, excessive speeding alone may not constitute aggressive driving, but in combination with traffic weaving, horn honking, and headlight flashing, it would be considered an aggressive act.

Although the terms *aggressive driving* and *road rage* are often used interchangeably, we make a distinction between the terms. *Road rage* refers to the more extreme cases of aggressive driving, involving assaultive behavior with the intent of bodily harm and possible homicide. Road-rage incidents are rare, although they are sensationalized by the media. Aggressive driving, conversely, involves more common and less extreme reactions on the road that many of us have witnessed. Road rage is a criminal offense; aggressive driving is a traffic offense, although aggressive-driving events may culminate occasionally in a single road-rage event (Goehring, 1999). Aggressive driving is the focus of the present research. Note that risk-taking driving behavior also differs from aggressive driving in that risk-taking behaviors (e.g., speeding, not wearing a seatbelt, driving while intoxicated) do not involve the intention component that one would find with aggressive driving.

McDonald and Wooten (1988) have pointed out that driving a car is an extremely stressful task in and of itself, but exactly why aggression is so closely related to automobile driving is still unclear. Perhaps aggressive driving behavior is related to dependence on the automobile (Gammage & Jones, 1974; Gregory, 1985; Huttman, 1973; Marsh & Collett, 1986; Reser, 1980; Toffler, 1970). This dependence has been explained via many variables, several of which involve the mobility/freedom that the automobile provides (Marsh & Collett, 1986; Reser, 1980; Toffler, 1970), the media’s encouragement of such dependence (Marsh & Collett, 1986; Reser, 1980), the convenience of having a car for social reasons, and the status afforded to the automobile owner (Toffler, 1970). All of these factors may contribute to the aggressive connotations that surround driving. They have helped to instill the belief that driving is a right, rather than a privilege, and therefore a sacred behavior that must be protected at all costs—in effect, a post hoc explanation of increased aggressive driving. Yet, research on other forms of human aggression shows that situational and dispositional factors are strong predictors of aggression.
Situational Versus Dispositional Causes of Aggression

In examining the extant research on aggression, situational factors play at least as significant a role as do dispositional factors in observed violence. Perhaps aggressive driving follows the same pattern: Circumstances, as well as personality characteristics, lead people to drive aggressively. That is, perhaps some individuals are more predisposed to behave aggressively in response to frustrating situations on the road, but will not do so unless the right environmental characteristics are present. Specifically, many individuals may anger more easily on the road than others, but will not manifest this anger through aggression unless the situation prompts it. Hence, it is the combination of situational and dispositional attributes that is of interest in the present research. The present study focuses on situational variables (i.e., anonymity and aggressive stimuli) and dispositional variables (i.e., trait driving anger) with respect to aggressive driving behavior.

Anonymity, Aggressive Cues, Trait Anger, and Aggressive Driving Behavior

Several researchers have examined aggressive driving (i.e., aggression in a naturalistic setting) with respect to status of the automobile owner (Doob & Gross, 1968); gender of the frustrating agent (Deaux, 1971); incompatible responses as a countermeasure for aggression (Baron, 1976; McDonald & Wooten, 1988); anonymity (Ellison, Govern, Petri, & Figler, 1995); heat (Kenrick & MacFarlane, 1986); territoriality (Marsh & Collett, 1986); aggressive stimuli (Turner, Layton, & Simons, 1975); victim visibility (Turner et al., 1975); and duration of traffic signals, time pressure, and traffic congestion (Shinar, 1997). These field studies, however, were limited to using horn honking as the dependent measure.

The method of these horn-honking studies entailed the experimenter pulling up to a red traffic light, with the potential subject located directly behind the experimental car. Once the light turned green, the experimenter remained stationary, looking straight ahead, giving no indication of recognizing that the light had turned green. Aggression was operationalized as latency for the subject to honk his or her horn, duration of the horn honks, and frequency of horn honks in a specified time period. While this method is resourceful, there are several flaws. First, this method operationally defines aggressive driving as horn honking, and, in some cases, the horn honking may not be considered appropriate or aggressive. This is largely dependent not only on geographical region, but also on the context of the driving situation. That is, horn honking in New York city is not unusual, nor is it considered aggressive in some cases. In other regions, however, horn honking is considered extremely rude, inappropriate, and aggressive. Horn honking can convey a number of different meanings, ranging from a polite beep to let others know that a car is continuing through an intersection to an obnoxious honk that expresses anger and frustration at another driver. In short, the horn-honking
method fails to provide adequate internal validity. The present study focuses on a methodology that does not employ horn honking and explores the effects of driver anonymity and anger level, as well as exposure to aggressive stimuli.

Anonymity has long been conceptualized as a central input variable to a deindividuated state and, ultimately, to subsequent aggression (Diener, 1976; Diener, Beaman, Fraser, & Kelem, 1976; Donnerstein, Donnerstein, Simon, & Ditrichs, 1972; Rehm, Steinleitner, & Lilli, 1987). An individual becomes anonymous when he or she cannot be identified by others and, therefore, cannot be evaluated, criticized, judged, or punished (Zimbardo, 1969). Anonymity may be related to aggressive driving behavior in several ways. A vehicle may provide a feeling of anonymity to those sitting in it. Support for this assertion can be found in anecdotal reports of motorists' behaviors in their vehicles that society deems inappropriate in many social situations (e.g., talking loudly to oneself, picking one's nose, sexual acts), as well as in the empirical literature (Ellison et al., 1995). Individuals in anonymous situations often lose respect for self as well as others (Zimbardo, 1969); such anonymity may result in courtesy on the highway becoming somewhat less apparent. Moreover, a field study (Ellison et al., 1995) showed that anonymous drivers (e.g., in convertible vehicles with the tops up) engage in more aggression (horn honking) than do identifiable, nonanonymous drivers (e.g., in convertible vehicles with the tops down).

Aggressive cues may also trigger aggressive impulses on the highways. Berkowitz and LePage (1967) provided evidence for a weapons effect, with a classic study where male participants demonstrated elevated aggression (i.e., ostensibly shocking a confederate) after being provoked and after being exposed to a .38-caliber revolver and a 12-gauge shotgun that were lying on a table nearby. This effect has been demonstrated in a naturalistic setting as well. Turner et al. (1975) found that drivers who were stalled at a green stoplight honked their horns significantly faster if they were located behind a pickup that had a gun rack and an aggressive bumper sticker. Furthermore, they found that hostile bumper stickers dealing with vengeance were most effective in eliciting an aggressive effect (e.g., "Don't Get Mad, Get Even"). It is not clear from this study, however, if aggressive driving was cued by the gun rack, the bumper stickers, or even the pick-up truck. Further research should attempt to resolve these confounds. Nevertheless, aggressive cues (e.g., hostile bumper stickers, billboards with weapons) are fairly salient stimuli in the natural environment, and hence may be a significant contributor to aggressive driving behavior.

Trait driving anger, a predisposition to experience more frequent and intense state anger across a large variety of driving situations (Deffenbacher, Oetting, & Lynch, 1994), is another dimension that might influence driving behavior. There is evidence that emotional arousal can significantly influence perception and performance. When emotionally aroused (i.e., angered) while behind the wheel of a vehicle, an individual's abilities in attention, perception, information processing,
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and motor performance may be adversely affected, increasing the individual's propensity for engaging in aggression or high-risk behavior (Deffenbacher, Huff, Lynch, Oetting, & Salvatore, 2000; Lynch, Deffenbacher, Oetting, & Yingling, 1995). Thus, those high in trait anger would be expected to engage in more aggressive driving.

With respect to the point that many angered individuals do not always directly aggress, the vehicle in which the individual feels more anonymous provides a safe opportunity for the individual to aggress in more subtle ways. For example, horn honking in many situations can be considered an aggressive act (e.g., Deaux, 1971; Doob & Gross, 1968; Ellison et al., 1995; Kenrick & MacFarlane, 1986; McDonald & Wooten, 1988; Turner et al., 1975). Also, in the Ellison et al. study on anonymity and aggressive driving behavior, several participants did not honk their horns in response to the manipulation, but instead revved their engines excessively. In the context of that situation, the engine revving was interpreted as an aggressive act. Other ways to retaliate against a frustrating driver might be swearing loudly to oneself or even out the window, the sudden cutting off of the offending driver, or giving the offending driver the "look," operationalized as pulling up alongside the offending driver and overtly staring in a hostile manner at the individual as the "victim" drives past. It may be that these alternative forms of aggressive responding are differentially expressed by those high versus low in trait driving anger and that these differences interact with situational factors, such as anonymity and the presence of aggressive stimuli. The current laboratory simulation is designed to examine these potential relationships. It is hypothesized that participants assigned to the anonymous or aggressive stimuli condition or participants scoring higher on trait driving anger will exhibit greater aggressive driving tendencies than participants in control conditions or participants low in trait driving anger.

Method

Participants and Design

Participants included 289 (133 males, 156 females) introductory psychology students. Ages ranged from 18 years to approximately 35 years. Participants received one of three required research credits for their time. Participants high or low on trait driving anger (determined by a median split on the Driving Anger Scale; Deffenbacher et al., 1994) were randomly assigned to anonymous/nonanonymous and aggressive/nonaggressive conditions, resulting in a $2 \times 2 \times 2 \times 2$ (Gender $\times$ Anger $\times$ Anonymity $\times$ Aggressive Stimuli) design.

The Driving Anger Scale

The Driving Anger Scale (Deffenbacher et al., 1994) is a 33-item scale on which participants rate on a 5-point Likert scale the degree of anger experienced
Driving anger correlates positively with numerous self-report measures of driving anger, with the frequency and intensity of anger while driving, as well as the frequency of aggressive and risky driving and crash-related variables (Deffenbacher et al., 2000; Lynch et al., 1995).

**Apparatus**

The Low-Cost Driving Simulator, manufactured by STISIM, Inc., was used in the present study. This is a computer-based simulation with a 17-in. (43.18-cm) monitor, complete with a steering column, brake, and accelerator, that allows for specific scenarios to be programmed into the simulation. The driving-simulation task was designed to take approximately 7 min to complete. The simulation program was animated, had a mountain vista as a backdrop, had stick figures for pedestrians, and had on-screen vehicles identically designed with a hardtop roofs. The colors of the vehicle were randomly generated by the computer program. The actual simulation task was programmed to include several potentially frustrating events (e.g., jaywalking, slow vehicles ahead, tailgating, general traffic congestion). The simulation included nine incidents of jaywalking involving 52 pedestrians, seven traffic lights, all of which were programmed to turn red when the subject approached them, and 116 other vehicles on the road. Hence, participants had the opportunity to hit pedestrians 9 times, run a red light 7 times, and hit another vehicle 116 times. Opportunities for off-road collisions were unlimited. The computer recorded values for longitudinal velocity every 100 ft (30.48 m) during the simulation. Means were obtained by averaging these scores for each participant. Other measures taken by the computer included number of red lights run, number of collisions, and number of pedestrians killed.

The laboratory used was approximately $2.44 \times 3.05$ m, in an L-shaped pattern. The experimenter unobtrusively observed the participant from around the corner and was present at all times.

**Procedure**

Participants signed up for the experiment at a table at which research projects were presented. The experiment was described as a one-credit study taking approximately 45 min. Upon arriving at the lab, participants were greeted, the experiment was described, and informed-consent forms were signed. Participants were then taken to and seated in front of the simulator. Participants were randomly assigned to either an anonymous condition (i.e., participants were told, “You are to imagine that you are driving a convertible with the top up, and other motorists can identify your car, but no one can personally identify you”) or to an identifiable condition (i.e., participants were told, “You are to imagine that you
are driving a convertible with the top down, and other motorists can personally identify you”), and either to an aggressive-stimuli condition (i.e., aggressive text was displayed on the computer screen throughout the simulation in the form of banners, billboards, and signs on buildings), or to a no-aggressive-stimuli condition (i.e., neutral text was displayed throughout the simulation). Aggressive text included statements such as, “I’m out of estrogen and I have a gun”; while neutral text included statements such as “Dave’s Drycleaners.” The experimenter also recorded the gender of the participant.

All participants completed the Driving Anger Scale (Deffenbacher et al., 1994) after the simulator task to avoid potential demand effects. Participants were divided into high versus low trait-anger groups using a median split. After participants completed the procedure, they were fully debriefed as to the nature of the experiment, were given course credit, and were free to leave.

Results

In order to assess the relationship between average speed, number of red lights run, number of collisions, number of pedestrians killed, and driving anger, a correlation matrix was calculated for these five measures. The driving outcomes were moderately correlated with each other ($r = .39$ to $.67$), but only weakly correlated with driving anger ($r = .06$ to $.21$).

Data were analyzed in a $2 \times 2 \times 2 \times 2$ (Gender $\times$ Anger $\times$ Anonymity $\times$ Aggressive Stimuli) factorial MANOVA. There were no significant multivariate interaction effects. Main-effect means are presented in Table 1. For this analysis, driving anger was scored as low or high based on a median split of the scores from the Anger Driving Scale (Deffenbacher et al., 1994; $Mdn = 104$). Consistent with the primary hypothesis, an anonymity main effect was detected ($\lambda = .72$), $F(4, 270) = 25.73, p = .000, \eta^2 = .28$. Participants in the anonymous conditions (i.e., those who were told that they were driving a convertible with the top up) exhibited significantly greater average speeds, $F(1, 273) = 98.70, p = .000, \eta^2 = .27$; ran more red lights, $F(1, 273) = 20.63, p = .000, \eta^2 = .07$; were involved in more collisions, $F(1, 273) = 22.51, p = .000, \eta^2 = .07$; and killed more pedestrians, $F(1, 273) = 11.62, p = .001, \eta^2 = .04$, than did participants in the identifiable conditions (i.e., those who were told that they were driving a convertible with the top down).

A significant multivariate main effect was also detected for aggressive stimuli ($\lambda = .95$), $F(4, 270) = 3.53, p = .008, \eta^2 = .05$. Univariate tests showed that the aggressive-stimuli conditions produced more aggressive driving on average speed, $F(1, 273) = 9.29, p = .003, \eta^2 = .03$; number of red lights run, $F(1, 273) = 5.20, p = .023, \eta^2 = .02$; and number of pedestrians killed, $F(1, 273) = 7.24, p = .008, \eta^2 = .03$. There was only a weak difference detected between groups with respect to number of collisions, $F(1, 273) = 3.40, p = .066, \eta^2 = .01$. 

Table 1

Main Effect Means and Standard Deviations for All Dependent Measures by Aggressive Stimuli, Anonymity, Trait Driving Anger, and Gender

<table>
<thead>
<tr>
<th>Measures</th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive stimuli</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Present (n = 144)</td>
<td>46.42</td>
<td>8.27</td>
<td>36.87</td>
<td>5.27</td>
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<td>(74.71)</td>
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<td>(59.34)</td>
<td>(8.48)</td>
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<tr>
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<td>1.50</td>
<td>0.64</td>
<td>0.79</td>
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<td>Red lights run</td>
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<td>4.91</td>
<td>0.54</td>
<td>0.88</td>
</tr>
<tr>
<td>Pedestrians killed</td>
<td>0.18</td>
<td>0.55</td>
<td>0.01</td>
<td>0.08</td>
</tr>
<tr>
<td>Anonymous (n = 144)</td>
<td>43.28</td>
<td>8.99</td>
<td>40.11</td>
<td>7.53</td>
</tr>
<tr>
<td>(69.65)</td>
<td></td>
<td></td>
<td>(64.55)</td>
<td>(12.12)</td>
</tr>
<tr>
<td>Speed</td>
<td>1.22</td>
<td>1.43</td>
<td>0.85</td>
<td>1.04</td>
</tr>
<tr>
<td>Red lights run</td>
<td>2.24</td>
<td>4.27</td>
<td>1.23</td>
<td>3.03</td>
</tr>
<tr>
<td>Pedestrians killed</td>
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<td>0.53</td>
<td>0.03</td>
<td>0.20</td>
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<tr>
<td>High (n = 146)</td>
<td>40.38</td>
<td>7.90</td>
<td>43.04</td>
<td>8.75</td>
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<td>(69.27)</td>
<td>(14.08)</td>
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<tr>
<td>Speed</td>
<td>1.11</td>
<td>1.33</td>
<td>0.96</td>
<td>1.20</td>
</tr>
<tr>
<td>Red lights run</td>
<td>2.18</td>
<td>4.43</td>
<td>1.30</td>
<td>2.84</td>
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<tr>
<td>Pedestrians killed</td>
<td>0.08</td>
<td>0.37</td>
<td>0.12</td>
<td>0.44</td>
</tr>
<tr>
<td>Low (n = 143)</td>
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<td></td>
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</tr>
<tr>
<td>Male (n = 133)</td>
<td>44.91</td>
<td>9.22</td>
<td>39.95</td>
<td>6.56</td>
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<td>(72.28)</td>
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<td></td>
<td>(64.29)</td>
<td>(10.56)</td>
</tr>
<tr>
<td>Speed</td>
<td>1.22</td>
<td>1.49</td>
<td>0.88</td>
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</tr>
<tr>
<td>Red lights run</td>
<td>2.38</td>
<td>4.56</td>
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<td>2.74</td>
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<tr>
<td>Pedestrians killed</td>
<td>0.16</td>
<td>0.53</td>
<td>0.04</td>
<td>0.24</td>
</tr>
<tr>
<td>Female (n = 156)</td>
<td></td>
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</table>

Values expressed are in miles per hour (kilometers per hour are in parentheses).
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Figure 1. Number of pedestrians killed in the aggressive stimuli conditions as a function of anonymity.

A gender multivariate main effect was also found ($\lambda = .94$), $F(4, 270) = 4.27$, $p = .002$, $\eta^2 = .06$. Univariate tests showed more aggressive driving by males in terms of average speed, $F(1, 273) = 13.20$, $p = .001$, $\eta^2 = .05$.

A weak anonymity by aggressive stimuli interaction was also found ($\lambda = .96$), $F(4, 270) = 2.32$, $p = .057$, $\eta^2 = .03$. Univariate analysis showed an effect only for number of pedestrians killed, $F(1, 273) = 6.10$, $p = .014$, $\eta^2 = .02$. Figure 1 shows that the mean number of pedestrians killed was higher in the anonymous, aggressive-stimuli condition than in the identifiable conditions. No significant multivariate main effects were detected for trait driving anger, $F(4, 270) = 0.99$, $p = .40$.

Discussion

The present analysis yielded significant multivariate main effects on the simulator measures of aggressive driving for anonymity, aggressive stimuli, and gender, but not for trait driving anger. The largest effect occurred for anonymity ($d = .28$).

Consistent with the expectations, participants in the anonymous conditions displayed significantly greater average speeds, more red-light running, more collisions, and more killing of pedestrians than did participants in the identifiable conditions. Past research examining anonymity and aggression has obtained effect sizes of approximately .01 (Donnerstein et al., 1972; Ellison et al., 1995),
as opposed to the .28 effect size in the present study. Perhaps this effect has been exaggerated as a result of demand cues that were present in the laboratory simulation. It would have been relatively easy for participants to infer that their behavior was expected to be more aggressive when they were anonymous (i.e., driving a convertible with the top up). On the other hand, identifiability has a major impact on social behavior, such as social loafing (Williams, Harkins, & Latané, 1981), and it may be that the large effect size for anonymity is a result, in part, of a strong decrease in aggressive driving in the identifiable condition.

It can also be suggested that the anonymity manipulation was not strong enough. Even with the top down on a convertible, the motorist is still relatively unidentifiable; the probability of him or her being recognized and associated with a specific identity is small, even in a fairly small city. A stronger manipulation of anonymity might possibly yield a stronger effect.

Results also show a modest (d = .05) main effect for aggressive stimuli, consistent with previous research (Berkowitz & LePage, 1967; Turner et al., 1975). Experimental evidence (Berkowitz, 1964; Berkowitz & LePage, 1967; Turner et al., 1975) that has corroborated a weapons effect (Berkowitz & LePage, 1967) suggests that if the aggressive stimuli were even more salient (e.g., more text in the simulation, posters on walls in laboratory, or actual weapons in plain sight on laboratory tables), a larger main effect for aggressive stimuli might have been found. On the other hand, however, it is again possible that this aggressive-stimuli effect was a result of demand cues present during the testing. After reading aggressively connotated text in the simulation screen, participants may have been able to infer that they were expected to drive aggressively. Whether a result of demand cues or not, the results for anonymity and aggressive stimuli suggest that countermeasures—identifying marks on vehicles or safe-driving bumper stickers, for example—may be effective real-world deterrents to aggressive driving.

Results also suggest that the anonymity effect was largely independent of other effects, although there was a small anonymity by aggressive stimuli interaction for only one dependent measure (number of pedestrians killed) that should be interpreted with caution. Anonymity appears to have had a large effect (d = .28), while aggressive stimuli had a small effect (d = .06). Even though aggressive stimuli did make a unique contribution to the model in and of itself, the interaction effect size was even smaller (.02) and occurred for only one dependent measure.

Although not a specific focus of the present study, a gender main effect was also found (d = .06). Specifically, males displayed more aggression than did females on average speed during the simulation. This is not a surprising effect, however, in light of the plethora of evidence documenting higher levels of aggression in males than in females with respect to physical aggression (Bogard, 1990; Deffenbacher et al., 2000; Eagly & Steffen, 1986; Harris, 1992). Females typically engage in higher levels of indirect aggression (e.g., treating someone
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condescendingly), whereas males tend to engage in higher levels of direct physical aggression (e.g., physical assault; Bettencourt & Miller, 1996; Harris, 1992). The simulator dependent measures of the present study only tested forms of direct aggression on the simulated road, so it follows that males would display greater aggression than females. It is informative to note that no interactions with gender occurred, such that the effects of anonymity and aggressive cues were independent of gender. This suggests that ameliorative interventions would not need to differ for men and women.

Although the number of pedestrians killed yielded a significant interaction effect for anonymity and aggressive stimuli, it did not yield a significant main effect for either independent variable. Perhaps the base rate for this measure is so low that in order for this measure to yield a significant effect, it would require conditions of direct provocation from either other vehicles or the pedestrians presented in the simulation.

The most surprising result is that trait driving anger did not affect the driving simulator measures. Averill (1983) has stated that there is an inconsistent link between anger and aggression. That is, many individuals may be quick to anger, but will not manifest this anger in subsequent aggression. The hostile attribution bias, the perception of others’ behavior as personally vindictive, may play a role here. Specifically, individuals scoring higher on trait anger may display greater aggressive tendencies than individuals scoring lower on trait anger because high trait-anger individuals may be more prone to perceive others’ behavior as personally vindictive, and thus would participate in more reactive aggression (i.e., retaliatory behavior) if exposed to the frustrating stimulus for prolonged periods of time. The present simulation also did not present a direct provocation to participants (e.g., tailgating or getting cut off by other drivers). Perhaps if direct provocation was involved, participants scoring high on trait driving anger would have displayed significantly more aggressive driving, as reported in other studies (Deffenbacher et al., 2000; Lynch et al., 1995).

Speed as an outcome measure for this study needs to be interpreted with caution. Average speed as an outcome measure is a somewhat reasonable measure for aggression. Certainly, some individuals may speed when angry. Many people, however, speed and are not angry or aggressive. Additionally, with average speeds ranging in this study from approximately 36 to 46 mph (57.94 to 74.03 km/hr), some caution with interpretation is recommended.

In conclusion, the present study suggests that situational variables such as anonymity and aggressive stimuli may be better predictors of aggressive driving than are dispositional variables such as trait anger. These findings suggest that effective interventions to reduce aggressive driving may address situational factors, such as using signs warning that “camera radar” is being used (which would reduce anonymity) or using billboards that encourage courteous driving to reduce the impact of aggressive stimuli.
References


