The Relationship Between Driver Aggression, Violence, and Vengeance

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A distinction is made between mild driver aggression and driver violence as unique constructs that differ mainly in frequency of occurrence and severity of outcome. Drivers completed questionnaires assessing the likelihood of engaging in mild driver aggression, the frequency of past driver violence, driving vengeance, and willful violations. Violence was predicted by the interaction of mild aggression and vengeance, such that violence was greater among aggressive drivers, but only for those with elevated levels of vengeance. Driver violence was also predicted by the interaction of mild aggression and violations. Specifically, violence was greater among aggressive drivers reporting traffic violations. The present findings suggest that mild driver aggression and driver violence are linked within a small group of drivers that hold other dangerous driving attitudes and behaviors as part of their typical driving repertoire.

While there is no universal operationalization of driver aggression, historically, aggression has been viewed as any behavior that is intentionally harmful (see Aronson, 1980; Baron, 1977; Berkowitz, 1984; Buss, 1961; Geen, 1995; Goranson, 1970). Following this model, driver aggression has been defined as any behavior intended to physically, psychologically, or emotionally, harm another within the driving environment, including drivers, passengers, and pedestrians (Hauber, 1980; Hennessy & Wiesenthal, 1999; McGarva & Steiner, 2000). In contrast, the public perception of aggressive driving generally includes any risky or dangerous driving behaviors regardless of whether they produce harm or not, such as speeding, weaving through traffic, running red lights, and using the shoulder to pass (Lencero, 2000). According to Hennessy (2000), the latter may be more accurately defined as assertive driving, which involves time urgent and self-oriented actions that can be dangerous or illegal, and in some cases may lead to unintended harm of others, but lack the harmful intent characteristic of aggression. Consistent with Aronson (1980), to ultimately understand the causes and consequences of true aggression, the “assertive aspects of the popular definition must be separated from the destructive aspects” (p. 161). Accidental harm as a consequence of selfish actions is qualitatively different than purposeful harm. In this respect, research evidence suggests that
drivers that intentionally cause other motorists harm may be different in important ways than those that drive in a selfish and risky manner (Hennessy, 2000; Lajunen & Parker, 2001; Lawton, Parker, Manstead, & Stradling, 1997; Stradling & Meadows, 2000).

While both aggression and assertiveness pose a legitimate threat to motorists, there is growing support for the notion that they are distinct categories of driving behavior. For example, James and Nahl (2000) have suggested that a motorist's emotional impairment can lead to specific types of actions considered by observers to be "aggressive." Impatience and inattention may produce risky or assertive actions that comprise the lay notion of aggression (e.g., speeding, advancing through red lights, and weaving through lanes), while power struggles yield harmful actions similar to the psychological model of aggression (e.g., tailgating to punish another driver, swearing, and yelling). Further, Lawton and associates (1997) have argued that interpersonal aggression, involving acts of mild aggression toward other drivers, are distinguished from highway code violations, such as speeding and running red lights (see also Parker, Lajunen, & Stradling, 1998; Stradling & Meadows, 2000). Finally, Tasca (2000) noted that risky actions, including weaving, using the shoulder to pass, and running stop signs, should not be equated with displays of hostility, such as horn honking, making obscene gestures, and yelling at other drivers.

Hennessy (2000) has also differentiated mild driver aggression (e.g., horn honking, swearing, or hand gestures) from driver violence (e.g., fighting, shooting, or purposeful contact). While both involve actions intended to harm others, they differ mainly in frequency and severity. Mild aggression is typically more common, but the immediate outcome is less severe than with violence. Novaco (1991) has raised legitimate concerns over the predominant use of milder actions (i.e., horn honking) to operationally define driver aggression. Due to their limited severity, they generally represent minimal immediate threat, and are of less concern to drivers than violent behaviors. The enduring danger in mild driver aggression may come from its potential for escalation to more frequent and severe forms of driver aggression (Novaco, 1991). According to Novaco (1991) drivers that frequently engage in horn honking, for example, are more likely to report using obscene gestures, yelling, or tailgating other drivers. The frequency of mild aggression has also been found to increase under frustrating driving conditions (Hennessy & Wiesenthal, 1999), especially among highly stressed drivers (Hennessy & Wiesenthal, 2001b). Further, Hennessy (2000) found that drivers more likely to engage in mild aggression were also more prone to report past acts of driver violence.

DRIVING VENGEANCE: A LINK BETWEEN AGGRESSION AND VIOLENCE

Hennessy (1999) has suggested that mild aggression may be more likely to escalate to violence among drivers holding vengeful attitudes. Driving vengeance has been defined as the purposeful infliction of harm, including physical pain, emotional harm, humiliation and annoyance, on other roadway users in response to a perceived injustice (Gibson & Wiesenthal, 1996; Wiesenthal, Hennessy, & Gibson, 2000). Vengeance typically involves extreme and often dangerous actions in response to seemingly minor infractions (Daly & Wilson, 1988; Stuckless & Goranson, 1992). The objective of vengeance is typically to exert power and control over a rival or to provide relief from physical and emotional discomfort caused by the target of revenge (Black, 1983; Cramerus, 1990; Daly & Wilson,
ent in important ways to motorists, there is driving behavior. For emotional impairment to be "aggressive," that comprise the lay and weaving through psychological model of (and yelling). Further, action, involving acts of way code violations, (e.g., horn honking, rooting, or purposeful "difficult" mainly in fre- ut the immediate outcome concerns over tionaly define driver immediate danger in to more frequent and lovaco (1991) drivers likely to report using of mild aggression has nessy & Wiesenthal, 2001b). Further, aggression were also likely to escalate to vio- has been defined as tial harm, humiliation, injustice (Gibson & ice typically involves f act on minor infractions (Daly & peace is typically to al and emotional dis-990; Daly & Wilson, 1988; Lane, Hull, & Foehrenbach, 1991; Stuckless & Geranson, 1992). Individuals holding a vengeful attitude are more prone to overreact to minor infractions and experience anger or irrational thoughts (Gibson & Wiesenthal, 1996; Stuckless & Geranson), which can further heighten the likelihood of aggressive or violent behaviors (Deffenbacher, Oetting, & Lynch, 1994; Stuckless, Ford, & Vitelli, 1995).

Vengeful drivers have been found to display elevated levels of mild aggression in both hypothetical and actual driving situations (Wiesenthal & Hennessy, 1999; Wiesenthal et al., 2000) and to report greater frequency of previous driver violence. Lajunen and Parker (2001) reported that the perception of hostility on the part of other drivers can lead to increased levels of physical aggression. Further, anecdotal and media reports of roadway aggression typically depict revenge motivated scenarios, in which one driver feels unjustly treated by another driver and responds in an aggressive manner (Hennessy, 1999; James & Nahl, 2000; Maluuro, 1998). Often the aggressive actions are reciprocated between the two parties and, in more extreme cases, mild aggression escalates to more extreme acts of violence, with destructive, harmful, or fatal outcomes.

WILLFUL VIOLATIONS AND DRIVER AGGRESSION

Another factor that might facilitate the escalation of mild driver aggression to violence is the willingness to commit traffic violations. Violations have been defined as deliberate defiance of safe driving patterns and traffic rules (Reason, Manstead, Stradling, Baxter, & Campbell, 1990). Such actions are in contrast to errors and minor lapses, which can also lead to negative consequences, but are not deliberate infractions (Parker, Reason, Manstead, & Stradling, 1995). Driving performance research has demonstrated that willful violations are more likely to lead to traffic collisions than errors or minor lapses (Evans, 1991; Parker, Reason, et al., 1995; Parker, West, Stradling, & Manstead, 1995; Simon & Corbett, 1996).

While many drivers sporadically violate driving rules, there are some that maintain such actions as part of their typical driving behavior pattern (Hennessy, 2000; Lablale, 1988; Reason et al., 1990). These violations pose a danger to the driver and surrounding motorists, particularly in relation to their greater probability for producing accidents. Similarly, Hennessy (2000) found that violent driving behaviors were more prevalent among drivers who received greater numbers of demerit points (defined as sanctions issued for past traffic offenses). Those who choose to chronically violate driving rules may be more accepting of their own risky or dangerous driving practices, which may become ingrained as part of their typical driving behavior repertoire (Reason et al., 1990). As a result, it is possible that drivers willing to commit more traffic violations may also be more willing to tolerate the escalation of mild aggression to more extreme and dangerous acts of driver violence.

Hypotheses

1. Driver violence will be predicted by the interaction of mild driver aggression and driving vengeance. Among highly aggressive drivers, driver violence will be greater for those that also report elevated vengeance.

2. Driver violence will be predicted by the interaction of mild driver aggression and violations. Violence will be greater for drivers that report elevated aggression, but only in combination with high levels of willful traffic violations.
METHOD

Participants

The present study included 130 female and 74 male participants from the student and employee populations of York University, as well as from the general metropolitan Toronto population. Fifty-three participants were recruited from the undergraduate research participant pool at York University, which consisted of first-year undergraduate psychology students from day and evening classes, who received one experimental credit for their involvement. All others were obtained as voluntary participants through posted signs, personal contact, and snowball recruiting. Overall, the ages ranged from 18-67 years, with an average of 27.0 years (M = 25.50 for females and M = 29.59 for males). The University sample was comprised of 40 females and 13 males, and ranged in age from 19-46 (M = 22.79 years, SD = 5.38). The non-University sample was comprised of 90 females and 61 males, and ranged in age from 19-67 (M = 28.48 years, SD = 12.19).

All participants were regular daily commuters in the metropolitan Toronto area, with an average of 9.6 years of driving experience (M = 7.73 for females and M = 12.82 for males). The average driving time ranged from 20 to 300 minutes per day, with an average of 94.5 minutes per day (M = 94.90 for females and M = 93.71 for males).

Measures

1. The Driving Vengeance Questionnaire. The Driving Vengeance Questionnaire (DVQ; Wiesenthal et al., 2000) was developed to evaluate a general susceptibility toward vengeful driving reactions. Items represented common driving situations in which a participant might be irritated, or feel unjustly treated by another driver. Participants were required to select a response from a series of four options involving decreasing levels of aggression. Response alternatives ranged from displays of extreme aggression (e.g., forcing the other vehicle off the road) to nonaggressive reactions (e.g., do nothing). Scoring consisted of assigning a rank to each item based on the level of aggression involved in the chosen response option. The first, and most extreme, option was assigned a rank of 4, while subsequent options, which decreased in their level of aggression, were assigned ranks of 3, 2, and 1 respectively. All items also included an open-ended response option, to which participants could indicate an alternate response to those provided. All alternate responses were independently rated as to their level of aggressiveness in relation to the options provided for that item. For example, those deemed equivalent in aggression to the most aggressive option for that item were given a rank of 4, while those considered equivalent to the nonaggressive option were given a rank of 1. Alternate responses were summed with existing options when such multiple responses were made. A vengeance score was calculated as the sum of all individual item ratings with higher scores indicating a more vengeful driving attitude. The DVQ has been a reliable measure of vengeful driving attitudes (α = 0.83), and predicts the likelihood of mild driver aggression and violence (Hennessy & Wiesenthal, 2001a; Wiesenthal et al., 2000).

2. Self Report Driver Aggression Questionnaire. The Self Report Driver Aggression Questionnaire was developed to evaluate the likelihood of engaging in mild aggressive behaviors while driving (Hennessy & Wiesenthal, 1997, 1999, 2001a). Aggressive items included horn honking out of frustration, purposeful tailgating, swearing/yelling, using hand gestures, and flashing high beams out of frustration. Responses ranged from 0 = "not at all" to 5 = "nearly all the time," indicating how frequently participants generally
engaged in each item when driving. An aggregate driver aggression score was calculated as the mean response to the five individual items. Higher scores indicated a greater likelihood of engaging in mild aggressive driving behaviors.

3. Violent Driving Questionnaire. The Violent Driving Questionnaire was designed to evaluate the frequency of initiating previous acts of violent driving behavior (Hennessy & Wiesenthal, 2001a). Items included physical roadside confrontations, chasing other vehicles, throwing objects at other vehicles, drive-by shootings, purposeful contact with another vehicle, verbal roadside confrontations, and vandalizing another vehicle. Participants were asked to indicate the frequency of previously initiating each of the violent driving behaviors. An aggregate violence score was calculated as the mean response to the individual violence items. Higher scores indicated a greater frequency of past acts of driver violence. Confidentiality of all responses was stressed prior to item presentation.

4. Driving Behavior Questionnaire—Violation Subscale. The Driving Behavior Questionnaire—Violation subscale (DBQ; Parker, Reason, et al., 1995) has been developed as a self-report measure of the frequency of violations, lapses, and errors while driving. Violations represent deliberate deviation from safe vehicle operation, while lapses characterize unwitting deviations from safe vehicle operation and errors being a departure from planned driving actions. The present study used only the violation subscale, in which participants were asked to indicate the extent to which they generally engaged in various traffic violations. Responses ranged from 0 = “never” to 5 = “nearly all the time.” Scoring consisted of the mean response to the individual items. Higher scores indicated a greater likelihood of committing willful traffic violations. The DBQ—Violation subscale has been found to have high reliability, with an alpha of 0.84 (Hennessy, 2000) and a test-retest reliability of 0.81 (Parker; Reason, et al., 1995).

Procedure

Participants completed the Driving Vengeance Questionnaire (DVQ), Self Report Driver Aggression Questionnaire, Violent Driving Questionnaire, and Driving Behavior Questionnaire (DBQ)—Violation subscale. Due to the sensitive nature of the present driving measures, all questionnaires were completed anonymously, with instructions emphasizing that all responses would be held in strict confidence.

RESULTS

Intercorrelations, means, standard deviations, and alpha reliabilities for the Driving Vengeance Questionnaire (DVQ), Driver Aggression Questionnaire, Violent Driving Questionnaire, and Driving Behavior Questionnaire (DBQ) appear in Table 1.

A hierarchical entry stepwise multiple regression was calculated to determine the predictors of driver violence. The main effects included mild driver aggression, driving vengeance, willful violations, driver age, and gender. In addition, all cross-product interactions were also generated. On the first run, all main effects were entered forcibly and all interaction terms were added stepwise. On the second run, all significant interactions from the first run, along with their constituent main effects, were entered forcibly, while all other significant main effects (i.e., those not part of interaction effects) were added stepwise. This strategy has been reported in greater detail elsewhere (e.g., Hennessy, Wiesenthal, & Kohn, 2000; Kohn, Gurevich, Pickering, & Macdonald, 1994; Kohn & Macdonald, 1992a, 1992b). Table 2 contains the final regression model for driver violence.
TABLE 1. Intercorrelations, Means, Standard Deviations, and Alpha Reliabilities for Driver Vengeance (DVQ), Driver Aggression, Violent, Driving, Driver Violations (DBQ), Age, and Gender

<table>
<thead>
<tr>
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<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>1. Driving Vengeance (DVQ)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Driver Aggression</td>
<td>.63*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3. Violent Driving</td>
<td>.39*</td>
<td>.39*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Violations (DBQ)</td>
<td>.56*</td>
<td>.62*</td>
<td>.50*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. Age</td>
<td>.33*</td>
<td>-.28</td>
<td>-.14</td>
<td>-.29</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6. Gender</td>
<td>.19</td>
<td>.09</td>
<td>.22</td>
<td>.22</td>
<td>.17</td>
<td>-</td>
</tr>
<tr>
<td>Mean</td>
<td>55.23</td>
<td>1.84</td>
<td>1.43</td>
<td>0.96</td>
<td>27.00</td>
<td>-</td>
</tr>
<tr>
<td>SD</td>
<td>11.74</td>
<td>4.50</td>
<td>0.84</td>
<td>0.61</td>
<td>11.10</td>
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<tr>
<td>Minimum</td>
<td>31.0</td>
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<td>0.0</td>
<td>0.0</td>
<td>19.0</td>
<td>-</td>
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<tr>
<td>Maximum</td>
<td>89.0</td>
<td>41.0</td>
<td>4.4</td>
<td>2.7</td>
<td>67.0</td>
<td>-</td>
</tr>
<tr>
<td>Cronbach alpha</td>
<td>0.79</td>
<td>0.79</td>
<td>0.69</td>
<td>0.75</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

\( n = 204. \)

*\(p < .01\).

Driver violence was predicted by the three way interaction of mild driver aggression × driving vengeance × driver gender and the two-way interaction of mild driver aggression × willful violations \( (R^2 = .347; F(6; 186) = 16.465, p < .01) \). Hypothesis 1 was partially confirmed in that driver violence was linked to the interaction of mild driver aggression and driving vengeance. However, this was found only among male drivers. Figures 1 and 2 present the interaction of mild driver aggression × vengeance across male and female drivers respectively. Figure 1 demonstrates that for male drivers, driver violence increased with mild driver aggression, but only among those with moderate and high levels of driving vengeance. According to Figure 2, this pattern did not hold for female drivers. Violence remained relatively unchanged across levels of mild aggression and vengeance among female drivers.

The present study also confirmed hypothesis 2 in that driver violence was predicted by the interaction of mild driver aggression and willful violations. Figure 3 demonstrates that reported driver violence increased with mild driver aggression, but predominantly among drivers that also reported high levels of willful traffic violations.

It should be noted that, as should be expected, the distribution of violence scores was positively skewed, due largely to the low base rate of driver violence. Despite this limitation, the present study was still able to find significant predictors at the upper levels of violence, where relationships are underestimated by multiple regression analysis, and no predictors at the lower limits of violence scores, where relationships are overestimated (see Tabachnik & Fidell, 1989).

DISCUSSION

One criticism against the use of mild actions, particularly honking, as evidence of driver aggression has been that they represent minimal immediate danger to drivers compared to violence (Novaco, 1991). Although this may be true when considering immediate consequences, the present study demonstrated that mild driver aggression can represent a more enduring threat through the potential for escalation to more severe and dangerous
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TABLE 2. Significant Predictors of Driver Violence

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( b )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression ( \times ) Vengeance ( \times ) Gender</td>
<td>-0.0015</td>
<td>-2.44*</td>
</tr>
<tr>
<td>Aggression ( \times ) Violations</td>
<td>1.193</td>
<td>2.48*</td>
</tr>
<tr>
<td>Aggression</td>
<td>-0.438</td>
<td>-0.591</td>
</tr>
<tr>
<td>Vengeance</td>
<td>0.0029</td>
<td>0.937</td>
</tr>
<tr>
<td>Violations</td>
<td>0.741</td>
<td>0.764</td>
</tr>
<tr>
<td>Gender</td>
<td>-1.45</td>
<td>-1.463</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.336</td>
<td></td>
</tr>
</tbody>
</table>

\( R^2 = .347, F(6, 186) = 16.465, p < .01. \)

*\( p < .01. \)

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**Male Drivers**

**Figure 1.** Frequency of Driver Violence as a Function of Mild Driver Aggression and Driving Vengeance Among Male Drivers.

**Female Drivers**

**Figure 2.** Frequency of Driver Violence as a Function of Mild Driver Aggression and Driving Vengeance Among Female Drivers.
driving behaviors. Specifically, acts of driver violence were more prevalent among a minority of drivers that typically exhibit elevated levels of mild driver aggression in combination with other dangerous driving attitudes and behaviors as part of their driving repertoire.

**Mild Aggression and Driving Vengeance**

As expected, driver violence was predicted by the interaction of mild driver aggression and driving vengeance. This was true only for male drivers, however, which is consistent with previous research indicating that males were more violent and vengeful than females (Hennessy & Wiesenthal, 2001a; McGruder-Johnson, Davidson, Gleaves, Stock, & Finch, 2000; Stuckless & Goranson, 1992; Wiesenthal et al., 2000). Specifically, the present study found that violence was more prevalent among male drivers that exhibited elevated levels of mild aggression in combination with heightened driving vengeance. Driving vengeance represents a desire to harm others in the driving environment that are perceived as the source of some previous wrongdoing, incompetence, or injustice (Wiesenthal et al., 2000). While vengeful drivers have been found to exhibit greater aggression and violence in the driving environment (Hennessy & Wiesenthal, 2001a), a vengeful attitude has also been linked to other forms of violent and destructive behaviors, including homicide (Daly & Wilson, 1988), spousal abuse (Hyden, 1995), vandalism (Wiesenthal, 1990), arson (Bradford & Dimock, 1986), suicide (Croske, 1982), and gang violence (Cusson, 1989).

According to Rothe (1994), driving represents a unique social setting with distinct rules and norms that are expected to be obeyed by all road users. When normative rules are openly disobeyed, others often become angry and expect swift punishment of violators (Oldenquist, 1988). Vengeful drivers are more likely than others to perceive such infractions as purposeful and intentional (Wiesenthal et al., 2000), which heightens the likelihood of aggression (Ohibuchi & Kambara, 1985; Stuckless et al., 1995). The vengeful response is often more extreme than the instigating action, in an attempt to exert control and power over their perceived antagonist (Black, 1983; Daly & Wilson, 1988; Elster, 1990; Stuckless & Goranson, 1992). In this respect, the escalation of mild aggression to violence may occur among highly vengeful drivers that believe extreme measures are needed to rectify personal and social injustice. Such encounters may commence with mild aggression but quickly escalate to violence in order to terminate the dispute.
Mild Aggression and Willful Violations

As hypothesized, driver violence was also predicted by the interaction of mild driver aggression and violations. Violent actions were greater among highly aggressive drivers, but only in association with elevated levels of willful violations. According to Reason and colleagues (1990), violations represent deliberate deviations from safe or normative driving practices. By nature these acts are generally illegal and a danger to the actor and other motorists. Lawton and associates (1997) found that willful violators are more prone to exhibit outward irritability or anger toward other drivers. Similar previous research has found that driver violence is more common among those with extreme levels of demerit points (defined as sanctions issued against a driver's license as a result of traffic violations [Hennessy, 2000]). In this respect, chronic violators appear to demonstrate a persistent willingness to engage in illegal driving practices despite their consequences.

According to Wilde (1982), drivers typically engage in risky driving behavior because they believe the benefits of such actions balance or outweigh the potential costs. These subjective risk assessments do not necessarily represent the true risks in a given driving situation. As the perceived rewards of willful violations increase in relation to their costs, they can become ingrained as habitual driving practices despite their inherent danger (Evans, 1991). Chronic violators have been found to experience less regret when committing violations and to underestimate the adverse consequences of their actions (Parker, Manstead, & Stradling, 1993; Parker, Manstead, & Reason 1992; Parker, Manstead, Stradling, Reason, & Baxter, 1992). Similarly, chronic acts of mild aggression can desensitize drivers to their true risk or costs, leading over time to a reduction in the restraints against harming other drivers (Novaco, 1991). As a result, drivers that consistently display elevated levels of driver aggression in association with habitual tendencies to commit risky violations, may be more likely to misperceive the true costs of engaging in violent actions, resulting in a greater willingness to allow mild aggression to escalate to violence.

Limitations of the Present Study

One major limitation of the present study was that only the behavioral component of aggression and violence was measured. According to Buss and Perry (1992), in addition to the expression of harm, trait aggression also involves affective and cognitive characteristics. In particular, the present study did not measure intentions or motivations for driver aggression and violence. There was no conclusive evidence that such actions were, in fact, intended to harm others. Further research is needed to investigate motivation behind mild driver aggression and driver violence. Another consideration was the fact that self-report measures of behavior were used, lacking contextual information present in actual driving situations. Driver aggression and violence do not occur in isolation, but are partially determined by aspects within the instigating environment, such as traffic congestion and provocation from other drivers (Hennessy, 2000; McGarva & Steiner, 2000; Parker, Lajunen, & Summala, 2002; Shinar, 1998). As a result, responses may not have accurately reflected true behavioral tendencies that occur in actual traffic situations. Finally, the female sample was slightly younger and less experienced than the male sample in the present study. Previous research has found that age is negatively related to driver aggression, vengeance, and willful violations (Aberg & Rimmo, 1998; Gibson & Wiesenthal, 1996; Hauber, 1980; Lawton et al., 1997; Wiesenthal et al., 2000). While the differences were small, they may account for slightly elevated aggression among the female drivers. Hauber (1980) has found that younger females are more likely than older males to exhibit driver aggression.
In the present study, however, a younger female sample should have generally served to limit gender differences and minimize the interactive relationship found between violence, vengeance, aggression, and gender. Despite this restraint, a gender effect was found. Nonetheless, future research should employ a more equivalent age sample in order to present a clearer analysis of driver aggression and violence.

REFERENCES


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