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## Anger, aggression, risky behavior, and crash-related outcomes in three groups of drivers

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### Abstract

High anger drivers who acknowledged problems with driving anger and were interested in treatment were compared to high and low anger drivers who did not acknowledge problems with driving anger or want treatment. Although high anger drivers who acknowledged problems reported greater anger on two measures than high anger drivers who did not acknowledge problems, both high anger groups tended not to differ from one another and were more frequently and intensely angered when driving, reported more aggressive and less adaptive/constructive forms of expressing anger while driving, engaged in more aggressive and risky behavior on the road, and experienced more of some accident-related outcomes than low anger drivers. High anger groups did not differ from each other, but reported more trait anxiety and anger and more outward negative and less controlled general anger expression than the low anger group. The two groups of high anger drivers, however, require different types of interventions given their state of readiness for driving anger reduction. Results were also interpreted as supportive of the state–trait model of anger and construct validity of the Driving Anger Scale.

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## 1. Introduction

At one time or another, every driver has been endangered by the erratic behavior of an angry, aggressive driver. Although some of the constructs employed are loosely defined, anger and aggression appear to be a problem on the highways. For example, the most violent cases of assault and mayhem or 'road rage' in the U.S. increased 7% per year from 1990 through 1995 with an estimated 200 people killed and another 12,000 injured (American Automobile Association, 1997). Recent research shows that court- and self-referred aggressive drivers evidence a high incidence of intermittent explosive disorder and other psychopathology (Galovoski, Blanchard & Veazey, *in press*), and drivers with histories of altercations with other drivers also have greater incidence of traffic violations and crashes (Hemenway & Solnick, 1993). However, for every serious vehicular crash, assault, or injury, there are thousands, if not tens of thousands of angry drivers. Some angry drivers aggress (e.g. yell at another driver or intimidate with their vehicle) and act out in other ways (e.g. speed or drive recklessly), whereas other angry drivers aggress little and drive fairly normally. Nonetheless, both types of angry drivers experience strong angry emotionality and upset (e.g. mad, angry, or furious) and accompanying physiological arousal. Moreover, anger's effects are not limited to the highway as anger experienced while commuting carries over and impacts post-commute work and family relations (Novaco, Stokols, Campbell, & Stokols, 1979; Novaco, Stokols, & Milanese, 1990). Thus, a driver's anger may not only lead to negative consequences for him/herself and the people who share the vehicle or the road with them, but others who are not even there at the time (e.g. coworkers or family members later).

Social and environmental factors such as congestion, anonymity, hostile messages, and type of situations encountered contribute to anger while driving (e.g. Deffenbacher, Deffenbacher, Richards, Lynch, & Oetting, 2001; Deffenbacher, Huff, Lynch, Oetting, & Salvatore, 2000; Doob & Gross, 1968; Kenrick & MacFarlane, 1986; Potter, Govern, Petri, & Figler, 1995). However, dispositional factors appear to contribute as well. For example, drivers high in trait driving anger or the propensity to become angry behind the wheel become more frequently and intensely angered and engage in more aggressive and risky behavior on the road (Deffenbacher et al., 2000, 2001; Deffenbacher, Lynch, Oetting and Swaim, *in press*). In adult British samples, aspects of trait driving anger tended to correlate positively with traffic violations generally (Underwood, Chapman, Wright, & Crundall, 1999) and with driving violations involving both aggressive or non-aggressive incidents (Lajunen, Parker, & Stradling, 1998). Angry states appear involved as well. For example, anger was the only mood state associated with high speed driving in adolescents (Arnett, Offer, & Fine, 1997), and elevated state anger was associated with increased aggression and risky driving in college students (Deffenbacher, Lynch, Oetting, & Yingling, 2001). Such findings suggest that state–trait anger theory can be adapted to driving anger (Arnett et al., 1997; Deffenbacher, Oetting, & Lynch, 1994). Trait anger refers to a disposition to become angry more frequently and intensely across situations, whereas state anger is a transitory emotional–physiological condition characterized by physiological arousal and subjective feelings ranging from annoyance to rage (Spielberger, 1988; Spielberger, Reheiser, & Sydeman, 1995). Adapted to anger while driving, trait driving anger refers to the propensity or tendency to become angry when driving, whereas state anger refers angry feelings and physiological arousal in response to a specific driving event.

A recent study (Deffenbacher et al., 2000) compared high anger drivers who self-identified

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