



# Do people change behind the wheel? A comparison of anger and aggression on and off the road



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## ABSTRACT

The question of whether “we drive as we live” or whether “we are transformed behind the wheel” generates discussion at all levels from the scholarly to the popular. To shed light on this issue, this study measured the personality traits of general anger and driving anger and four modes of expression common to both contexts (verbal, physical, displaced and adaptive) in a sample of 198 drivers. The results showed a moderate correlation between the two measured traits and indicated that each mode of expression correlated better with its equivalent mode in the other context than it did with the other modes of expression. Next, three hypotheses about the multivariate relationship were tested through five path models. These models confirmed that general anger and driving anger, although related to each other, are two different traits: a propensity to general anger and a propensity to driving anger. However, it was observed that when someone experiences anger, either on or off the road, it is expressed in the same way, given that each mode of expression behind the wheel is associated to both the propensity to driving anger and the equivalent mode of expression in a general context. Finally, the study’s implications are discussed.

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## 1. Introduction

Anger is one of the most studied emotions because people experience it so commonly. Berkowitz’s theory considers that anger is a relatively stable syndrome of feelings, cognitions and physiological reactions, which are associated with the intention to punish whoever caused the individual’s anger (Berkowitz & Harmon-Jones, 2004). In the same way, anger has also been considered a personality trait that is stable over time and across different situations (Spielberger, Krasner, & Solomon, 1988). This assumption underlies the famous sentence, “man drives as he lives” (Tillmann & Hobbs, 1949). On a related point, it has been indicated that aggression on the road may be only part of a general deviant tendency (MacMillan, 1975). From this point of view, anger would constitute a single trait that carries over to all situations, including the driving context, and anger, therefore, would determine aggressive behavior in all environments.

However, it has also been proposed that degrees of anger differ in different contexts based on the relevance of the goal sought (Kuppens & Mechelen, 2007). For example, one study revealed that anger differed across three different contexts: work environment, domestic environment and free-time environment (Bongard & Al’Absi, 2003). The research showed that less anger was expressed in the work environment than was expressed in the domestic environment. Furthermore, another study verified that anger happens more often during driving than it does during the performance of other activities (Parkinson, 2001). From this viewpoint, it might be expected that there is no association between anger on and off

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the road, because general trait extends throughout a lot of situations, while the specific dimension of the driving includes one only context.

Correlational analyses of the relationship between trait driving anger and trait general anger have shown that they are weakly to moderately correlated. Therefore, it has been concluded that trait driving anger is different from but related to trait general anger (Deffenbacher, Deffenbacher, Lynch, & Richards, 2003a; Deffenbacher, Filetti, Richards, Lynch, & Oetting, 2003b; Deffenbacher, Lynch, Oetting, & Swaim, 2002; Deffenbacher, White, & Lynch, 2004; Esiyok, Yasak, & Korkusuz, 2007; Lajunen & Parker, 2001). Another, more statistically sophisticated study showed a path model in which the observed variables (general and driving anger measures) fit satisfactorily as two latent variables, labeled “general aggression” and “road rage,” rather than only one variable. These two variables were positively associated (van Rooy, Rotton, & Burns, 2006). Therefore, trait driving anger has been defined in terms of the degree to which anger is experienced in specific contexts related to driving behavior (Deffenbacher, Oetting, & Lynch, 1994). Different explanations have been proposed for this definition. On one hand, it has been argued that interactions with others during driving activities are brief and anonymous, whereas in other contexts, interactions are usually more prolonged and the person is more identifiable (Beirness, 1993; Ellison-Potter, Bell, & Deffenbacher, 2001; Lightdale & Prentice, 1994; Parkinson, 2001). On the other hand, it has been verified that driving anger is mixed with other emotions less frequently than general anger is, and that it is less likely to be influenced by negative affect preceding anger (Parkinson, 2001).

However, anger must be studied not only as an emotional experience but also as a behavioral expression. In this respect, the amount of research on the relationship between anger expression on and off the road is insignificant, and the methodology for measuring the variables has differed across studies. In general, four modes of expressing anger have been identified: verbal, physical (Buss & Perry, 1992; Vigil-Colet, Lorenzo-Seva, Codorniu-Raga, & Morales, 2005), displaced (Denson, Pedersen, & Miller, 2006), and adaptive (Spielberger, Sydeman, Owen, & Marsh, 1999). The same modes of expression have been detected for the road context, apart from expression specifically related to vehicle use (Deffenbacher et al., 2002; Esiyok et al., 2007; Herrero-Fernández, 2011b). In any context, verbal aggression includes behaviors such as yelling and name-calling; physical aggression can be expressed through direct threats and fighting; displaced aggression consists of directing aggression at a different target from the one that provoked the anger; and adaptive expression consists of constructively expressing anger, for example, through assertiveness or self-control.

The relationship between anger experience and aggressive expression is not clear. Several studies have concluded that anger does not always trigger an aggressive response and can be inhibited (Baron & Richardson, 1994). However, in contrast to this theory, other results suggest that the expressed desire to show anger is one of the best predictors of aggression in any context (Parkinson, 2001). In accordance with this last assertion, studies have found positive correlations between trait general anger and verbal, physical (García-León et al., 2002; Santisteban & Alvarado, 2009), and displaced (Denson et al., 2006) modes of expression, and a negative correlation with the adaptive mode of expressing anger (Miguel-Tobal, Casado, Cano-Vindel, & Spielberger, 2001). Moreover, several studies have found positive correlations between trait driving anger and different modes of aggressive expression in this context and a negative correlation with the adaptive mode of expression (Dahlen & Ragan, 2004; Deffenbacher, Kemper, & Richards, 2007; Deffenbacher, Lynch, Deffenbacher, & Oetting, 2001; Deffenbacher et al., 2002, 2004; Herrero-Fernández, 2011b; Lajunen & Parker, 2001).

This research aimed to analyze the association between anger and aggression on and off the road. To attain this objective, correlation coefficients will be calculated among the two assessed traits and their respective modes of expression. Next, three hypotheses will be empirically tested through structural equation modeling of the multivariate relationship among these variables. The first hypothesis will test the theory of a single, general predisposition to experience anger, which includes all specific anger traits and aggressive responses, both in general and on the road. The second hypothesis will test the theory of independence between the general and driving contexts with regard to the propensity to feel and express anger. Finally, the third hypothesis will test the theory of the interaction among the propensity to anger, both in general and behind the wheel, and the different modes of expression.

## 2. Method

### 2.1. Participants

A convenience sample of 198 participants was taken from the University of Deusto and from the author's personal environment. A total of 129 (65.2%) participants were female, and 69 (34.8%) were male. Their ages ranged from 19 to 73 years ( $M = 27.74$ ;  $SD = 10.42$ ). To take part in the study, the only requirements were to have a driver's license and to drive at least once a week. Participants were not remunerated.

### 2.2. Instruments

*Driving Anger Scale (DAS)*: The DAS questionnaire is a five-point Likert scale (1 = Not at All to 5 = Very Much) that assesses trait driving anger by measuring the level of anger a driver experiences in the situations the items describe. The DAS is associated to aggressive tendencies behind the wheel. The 14-item short form of the DAS (Deffenbacher et al., 1994) was adapted with a Spanish sample (Herrero-Fernández, 2011a) and showed a good fit for three factors: Impeded Progress by Others

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