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# Forgivingness, anger, and hostility in aggressive driving



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#### ABSTRACT

This study was aimed at investigating the relationship between trait forgivingness, general anger, hostility, driving anger, and self-reported aggressive driving committed by the driver him/herself ("self" scale) and perceiving him/herself as an object of other drivers' aggressive acts ("other" scale). The Slovak version of questionnaires was administrated to a sample of 612 Slovak and Czech drivers. First, the factor structure of the Driver Anger Indicators Scale (DAIS) was investigated. Factor analyses of the self and other parts of the DAIS resulted in two factors, which were named as aggressive warnings and hostile aggression and revenge. Next, the results showed that from all dependent variables (scales of the DAIS), self-reported aggressive warnings (self) on the road were predicted best by chosen person-related factors. The path model for aggressive warnings (self) suggested that trait forgivingness and general anger were fully mediated by driving anger whereas hostility proved to be a unique predictor of aggressive behavior in traffic. Driving anger was found to be the best predictor of perceptions that other drivers behave aggressively.

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#### 1. Introduction

Traffic is interaction – a great number of road users share the roads and have to interact with other road users (Svensson and Hydén, 2006). Interactions between road users can be described as a continuum of events ranging from undisturbed passages through potential, slight and serious conflicts to accidents (Svensson and Hydén, 2006), which are described as rare events compared to passages or conflicts. Situations such as serious traffic conflicts (e.g., physical attacks) and crashes are perceived by drivers as too threatening and nobody wants to put him/herself into this situation deliberately (Hydén and Ståhl, 1979, citied in Svensson and Hydén, 2006). That might be one possible explanation why many conflicts and deviations from the norms in traffic are solved by road users before they develop into an accident (Houtenbos et al., 2005). However, there are still drivers who are more likely to escalate than avoid potential conflicts resulting from a provocative situation, whereas others are motivated to reduce their potential risk of engaging in a vicious cycle of aggression, and thus follow the tendency to forgive other road users' behavior.

# 1.1. Aggressive driving and driving anger

Driver aggression can be defined as "any form of driving behavior that is intended to injure or harm other road users physically

or psychologically" (Lajunen et al., 1998, p. 108). Aggressive driving includes behaviors varying from the less aggressive forms as flashing lights, honking, verbal threats, tailgating, blocking other drivers, cutting other cars off, to the most extreme aggressive driving behaviors such as car ramming or physical attacks (Özkan et al., 2010). When speaking about the nature of driving behavior, emotions cannot be ignored. Emotions in traffic can be evoked by the situation drivers experience prior to "hopping" in their vehicle as well as during traffic participation (SWOV, 2010). The most often examined negative emotion in driving research has been anger (Hennessy, 2011). Trait driving anger can be conceptualized as "person's general propensity to become angered frequently and intensively when driving" (Deffenbacher et al., 2003, p. 702).

Different forms of anger expression and aggressive tendencies while driving may not "only" result in a conflict situation, but may have other serious outcomes too. It can be expected that more forgiving drivers would be more tolerant to others' rude behavior and that may result in reduced anger and/or a decreased likelihood of expressing driving anger aggressively (Moore and Dahlen, 2008), which, consequently, could have a positive effect on road safety.

# 1.2. Hostility

Hostility is conceptualized as a tendency to behave antagonistically (behavior), to think cynically and attribute negative intentions to others (attitude), and to feel annoyance and anger frequently (affect) (Gidron et al., 2001, p. 2). In a study of the relationship between aggressiveness and self-reported aggressive driving, hostility was positively correlated with aggressive driving behaviors

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(Rošková and Kovácsová, 2012). And, hostility measured by the New-Buss correlated significantly with anger-in and anger-out (Gidron et al., 2001).

#### 1.3. Forgivingness

The concept of forgiveness, both as a response to a specific transgression and as an individual's tendency to forgive, has received increasing attention in social sciences in recent years (McCullough, 2000). McCullough (2000) suggested a motivational conceptualization of forgiving, which is based on two points - forgiving is a motivational and pro-social construct. Some researchers have emphasized forgiveness as an emotion-focused coping strategy, which people use to reduce a stressful reaction to perceived injustice or transgression (Worthington and Scherer, 2004). In the present study, we focus on forgiveness at dispositional level ("forgivingness") which is defined as an enduring tendency to forgive transgressions across situations (Berry et al., 2001, 2005). To prevent an accident, an offended driver should respond to an unfair or provoking event by tolerant behavior despite his/her possible negative thoughts and strong negative feelings. Offended people tend to respond in anger, resentment, or fear (Worthington, 2005). Anger is the most obvious emotion associated with transgression and it is described as an obstacle to forgiveness (Enright et al., 1992). Berry et al. (2001, 2005) provided empirical support for the relationship between trait anger and trait forgivingness. They found that the disposition to forgive was negatively correlated with trait anger. These results are consistent with those found in traffic environment; drivers high in forgivingness are less likely to become angry across a variety of potentially provoking situations and are more likely to use constructive coping methods to deal with the anger they experienced while driving (Moore and Dahlen, 2008). Next, Berry et al. (2001, 2005) found that the disposition to forgive was negatively associated with hostility. However, hostility was less strongly related to forgivingness than the trait anger was.

# 1.4. Aims of the study

Much research on aggressive driving has been conducted on factors which exacerbate risk, but only a small number of researchers have focused on the adaptive personality traits. This study is aimed at investigating the relationship between person-related factors and (i) self-reported aggressive driving committed by the driver him/herself and (ii) perceiving him/herself as an object of other drivers' aggressive acts. We expected that trait forgivingness would emerge as a significant predictor of aggressive behaviors committed by oneself and other drivers. Further, forgivingness, anger, and hostility might be related to both driving anger and aggressive driver behavior or, alternatively, only to anger or aggressive driving. Hence, the influence of these factors may be either direct or mediated by driving anger. Hierarchical regression analysis and path analysis were used to construct models for describing the relationships between risk-reducing (i.e., forgivingness), affective (i.e., anger), attitudinal (i.e., hostility), and background (i.e., sex, age, annual mileage) factors, driving anger and (i) self-reported aggressive driving and (ii) perceiving others' aggressive acts on the road.

## 2. Method

#### 2.1. Participants and procedure

Data for this study were collected as a part of an aggressive driving survey in the Slovak Republic. Data were gathered from two different ways of data collecting (web-based and paper-based

survey). First, we posted the link of the survey on drivers' discussion boards. Although our primary aim was to collect data from the Slovak drivers, Czech drivers also filled out the online questionnaires. Second, data were collected by psychology students from Comenius University in Bratislava in their hometowns with aim to collect data from female drivers, who do not take part on discussion boards and, secondly, to have better distribution of drivers' residence. Participation was voluntary; however they received extra points toward their psychology course. Students were trained in data collection and were instructed to question drivers over 18 years old who drive actively. To participate in this survey, having a driving license (group B) was obligatory. Participants had to be over 18 years of age and drive at least 5000 km per year. We decided to have this mileage restriction, because we wanted to limit responses from inactive drivers. However, several novice drivers who completed the survey and reported a lower mileage were not excluded. The response rate of the survey was 46.2% (22.6% and 23.6% for web-based and paper-based survey, respectively).

Participants were assured that their responses would be treated anonymously without saving any identification information and with strict confidentiality. Their participation was entirely voluntary and they could refuse or withdraw from the survey at any time without penalty.

618 drivers participated, but six male drivers were excluded because they had a lifetime mileage of 2.5 million km or more indicating that they were likely to be professional drivers and, thus, outliers. The sample consisted of 612 drivers, 532 Slovak drivers and 80 Czech drivers; 37.58% of the participants were females. The age ranged from 18 to 69 (M = 33.19, SD = 11.59). Participants had held a full car driving license on average for 13.38 years (SD = 10.32) and the mean annual mileage was 18 670 km (SD = 18 510 km).

# 2.2. Measures

All measures used in this study were translated to the Slovak language by at least one native Slovak speaker and one psychologist. The correctness of the scales for the Slovak versions was evaluated by using back translation.

## 2.2.1. Driver Anger Indicators Scale (DAIS)

The DAIS was developed by T. Lajunen and D. Parker with the aim of covering aggressive driving behaviors which measure aggressive driving more broadly than the aggressive violations subscale of the Driver Behaviour Questionnaire (Reason et al., 1990). The study in the four different countries showed a clear two-factor solution of two scales ("self" and "other") of DAIS (Özkan et al., 2010). The first factor was labeled as "aggressive warnings" (e.g., flashing lights) and it reflects mostly aggressive warnings on the road. The second factor was labeled as "hostile aggression and revenge" (e.g., ramming a vehicle) and it describes drivers' extremely aggressive actions.

The DAIS is a 13-item scale for assessing drivers' possible aggressive behaviors on the road. Drivers rate short descriptions of aggressive behaviors twice – once for themselves ("self") and once for other drivers ("other"). Responses were placed on a five-point scale (0 = never, 4 = nearly all the time), indicating how often they have committed each of given behaviors on the list (self) and how often another driver has done those behaviors to them (other). Özkan and his associates (2010) reported Cronbach's alpha for the subscales ranging from .59 to .86.

## 2.2.2. Driving Anger Scale (DAS)

The Driving Anger Scale (Deffenbacher et al., 1994) is a self-reported scale that assesses the propensity to become angry when driving. In the present study the 14-item short form of the DAS was used. Items describe potentially anger-provoking situations which

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