#14 PAPER 18 - PERSONALITY TRAITS AS PREDICTORS OF AGGRESSIVE VIOLATIONS ON THE ROAD. DRIVING EXPERIENCE AS A MODERATOR

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Abstract
The present study attempts to understand which personality factors predict aggressive violation on the road. We hypothesized that the relation between personality factors and aggressive violation will be moderated by driving experience. A total of 219 young drivers completed measures of personality factors and aggressive violation in traffic. The results emphasized the importance of honesty, emotionality, agreeability, conscientiousness, and openness as negative predictors of aggressive violation. Moreover, driving experience moderated the relation between aggressive violation and two personality factors: honesty and conscientiousness. The implications of these findings for initiatives to reduce aggressive driving behavior are discussed.

Keywords: honesty; emotionality; extraversion; agreeability; conscientiousness; openness; driving experience; aggressive violation;

1. INTRODUCTION

The relation between the human factor and driving behavior represents the focus for many studies in the last years. Violations on the road represent an important category of driving behavior that can be divided into two distinctive classes: aggressive violations (which contain an interpersonally aggressive component) and ordinary violations (which are deliberate deviations from safe driving behavior, without a specifically aggressive aim) (Rowe, Roman, McKenna, Barker, & Poulter, 2015). The study of aggressive violations represents the aim of the present study. Because every driver is sometimes exposed to aggression-provoking situations on the road, but not every driver behaves aggressively (Dahlen, Edwards, Tubre, Zyzhur, & Warren, 2012), we decided to study the factors that predispose a driver to aggressive violation. Specifically, the individual differences in terms of personality traits are analyzed in relation to aggressive violations on the road.

Whereas the Big Five model of human personality (e.g., Goldberg, 1990) is the most familiar for researchers and psychologists, recent research within personality psychology has been critical of this paradigm because it does not include important facets related to morality, honesty, and ethicality. A variant and extension of the Big Five framework is the HEXACO model (Ashton & Lee, 2005), that added a new personality dimension, Honesty–Humility. This factor represents individual differences in tendencies to be sincere, fair, and unassuming versus manipulative, greedy, and pretentious (Ashton & Lee, 2007). Moreover, in HEXACO model, the facets related to sensitivity-versus-toughness transfer from agreeableness to a new form of neuroticism (called emotionality), and the facets that pertain to anger-versus-calm transfer from neuroticism to low agreeableness (Ashton, Lee, & De Vries, 2014). In respect to the three dimensions Extraversion, Conscientiousness, and Openness to Experience, the HEXACO model is similar to the classical Big Five model (Ashton & Lee, 2005).

Although HEXACO model was rarely used in previous studies, several authors have found associations between different personality factors and driving behavior (e.g., Berdoulat, Vavassori, & Sastre, 2013; Dahlen et al., 2012; Jovanovic, Lipovac, Stanovice, & Stanovice, 2011). Specifically, previous research supports the role of extraversion, neuroticism, and conscientiousness in predicting driving-related outcomes and behavior (Benfield, Szleme, & Bell, 2007; Dahlen et al., 2012). First, extraversion and neuroticism has been positively related to different traffic violations, aggression while driving, and traffic fatalities (Dahlen et al., 2012; Lajunen, 2001). However, the results regarding extraversion are not consistent, because other studies failed to find these results or the relations found were there small (Jovanovic et al., 2011). Second, conscientiousness was negatively
related to total crashes and aggressive driving (Jensen-Campbell, Knack, Waldrip, & Campbell, 2007; Jovanovic et al., 2011). The predictive role of agreeableness and openness is unclear, because many studies have failed to find relationships with driving outcomes or aggressive behavior (e.g., Jovanovic et al., 2011; Miles & Johnson, 2003).

We assume, based on previous studies, that neuroticism is positively related to aggressive violation, while conscientiousness is negatively related to aggressive violation on the road. Moreover, in line with its theoretical conceptualization and based on previous studies that linked Honesty–Humility to fair behavior in different contexts (Hilbig, Thielmann, Hepp, Klein, & Zettler, 2015), we hypothesized that a high score on this factor will be associated with a low level of aggressive violation. Previous results for extraversion, agreeableness and openness are not consistent, therefore it is possible that some other variables may moderate the relation between personality factors and driving behavior. Because driving experience could determine the level of the drivers’ aggressiveness (Jovanovic et al., 2011), both personality factors and driving experience are considered in this study. Specifically, we analyzed the role of driving experience as a moderator in the relation between personality dimensions and aggressive violation on the road, in a sample of young drivers. We chose this population, because previous studies showed that younger driver are more likely to exhibit aggressive driving behaviors (Wickens, Mann, Stoduto, Ialomiteanu, & Smart, 2011). Moreover, according to a meta-analysis, aggressive violations are very good predictors for self-reported accidents for young drivers, better than driving errors (de Winter & Dodou, 2010).

2. METHOD

2.1. Participants

A total of 219 young drivers (51.6 % women) took part in this study. The participants were between 18 and 25 years of age (M = 22.12 years, SD = 1.85) and they had been driving for 3.31 years on average (SD = 1.9 years). They drove an average of 55,714.32 km (SD = 25.807, 11). Participants reported that they had been involved in in 0.19 active accidents (range 0–8, SD = 0.63), and in 0.45 passive accidents (range 0–9, SD = 0.99) on average in a lifetime period.

2.2. Materials

Drivers Behaviour Questionnaire, Romanian version (Havârneanu, Gheorghiu, & Hohn, 2010), was used to assess self-reported aggressive violation on the road (7 items). Internal reliability of this subscale was reported as 0.84. Answers were made on a six point scale ranging from 0 (never) to 5 (nearly all the time).

The HEXACO Personality Inventory (Lee & Ashton, 2004) was used to assess six factors in the HEXACO personality model: honesty – humility, emotionality, extraversion, agreeability, conscientiousness, and openness. The short form with 60 item was used (10 items for each factor). Alpha Cronbach in our sample range from 0.71 to 0.84 for the six factors computed.

The demographic questionnaire contained 7 self-reported questions and asked participants to report their age, gender, their total mileage, and accident (passive and active) involvement since they obtained the driving license.

3. RESULTS

3.1. Preliminary analysis

Table 1 presents correlations of all study variables. Preliminary analyses, using Pearson correlation, showed that aggressive violation on the road are negatively correlated with honesty - humility (r = -.34, p < .001), emotionality (r = -.21, p = .002), agreeability (r = -.24, p < .001), conscientiousness (r = -.16, p = .017), and openness (r = -.15, p = .031). The results also showed that extraversion and mileage did not correlated with aggressive violation in traffic (r = .07, p = .284, respectively r = .07, p = .300).
Table 1. Pearson correlations of study variables.

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<td>Extraversion</td>
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<td>Consciousness</td>
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<td>Openness</td>
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<td>Mileage</td>
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Note. AV – aggressive violations; *** p < .001; ** p < .01; * p < .05; N = 219.

3.2. Testing for moderation

To test whether aggressive violations could be predicted by personality factors, as well as to test the role of mileage as a moderator in the relation between personality factors and aggressive violations, we used the bootstrapping method recommended by Shrout and Bolger (2002). The present data were sampled 5,000 times. To perform bootstrapping we used a macro developed by Preacher and Hayes (2008).

The results revealed that honesty – humility ($\beta = -0.34$, $p < 0.001$), emotionality ($\beta = -0.20$, $p = 0.002$), agreeableness ($\beta = -0.24$, $p < 0.001$), conscientiousness ($\beta = -0.17$, $p = 0.011$), and openness ($\beta = -0.14$, $p = 0.046$) are significant negative predictors of aggressive violation in traffic. Therefore, when the participants present a low level of these personality factors, they also report a high level of aggressive violation. The interactions between honesty – humility and mileage are significant in predicting aggressive violations (Figure 1a). Moreover, mileage interacted with conscientiousness in predicting aggressive violations (Figure 1b). Specifically, when the level of honesty and conscientiousness is high, the participants present the lower levels of aggressive violations, whatever their driving experience. On the contrary, when the level of honesty and conscientiousness is low, the participants with a high level of driving experience report a high level of aggressive violations compared to the participants with a low level of driving experience. Mileage did not interact with emotionality, extraversion, agreeableness, and openness in predicting aggressive violations on the road.

Figure 1. Presence of aggressive violation as a function of honesty - humility (a), respectively consciousness (b) and mileage Notes: M – mileage; C - conscientiousness. Simple effects were represented with honesty, conscientiousness, and mileage defined as at least +1 and -1 standard deviations from the mean, respectively.
4. DISCUSSIONS

The aim of the present study was to explore the relation between personality factors and aggressive violations on the road, and whether the effect of personality factors on aggressive violations is moderated by mileage. The results indicated that honesty, emotionality, agreeability, conscientiousness, and openness were significant predictors of aggressive violation, although the relations are slightly small. Thus, drivers who reported a high level of these personality factors were more likely to report a low level of aggressive violations on the road. These findings are in accordance with previous research results which highlighted that conscientiousness and emotionality are negatively linked to aggressive violation in traffic (Dahlen et al., 2012; Jovanovic et al., 2011). Moreover, the present study confirms the relation between aggressive behavior and other two personality dimensions, openness and agreeability. Many previous studies failed to find relations between these personality factors and aggressive behavior (e.g., Jovanovic et al., 2011). However, agreeableness measured with HEXACO Inventory differs from agreeableness from Big-five factor model, in that it takes on an anger component (Ashton et al., 2014). The relation between anger and aggressive driving is well studied and recognized (Sullman, 2015), therefore it is possible that this new component of agreeableness to explain the negative relation between this personality factors and aggressive violation in traffic. Another important result is on the relation between honesty and aggressive violations. The present study provides first evidence that the willingness to establish fairness shown by individuals high in Honesty–Humility is associated with a low level of aggressive violations on the road. Due to this finding, the present study adds to previous literature that highlights the positive relation between honesty and fair behavior (Hilbig et al., 2015), extending this literature for driving behavior.

Our results also showed that the relations between two personality factors, honesty – humility and conscientiousness, and aggressive violations were moderated by mileage. Considering honesty, drivers with a low level of this factor had the tendency to report more aggressive violations when they report a high level of driving experience. For participants with high honesty, the mileage did not influence the level of aggressive violation. The same pattern of results is observed regarding the interaction between conscientiousness and mileage. These results suggest that these two factors, honesty and conscientiousness, and mileage lead together to more aggressive violation in traffic when they have different levels: a low level of honesty and conscientiousness combined with a high level of mileage are associated with a high level of aggressive violation. Probably, a high level of driving experience offers to the young drivers the trust that they can control different traffic situation and can avoid unwanted incidents. This trust in combination with the tendency to be manipulative, greedy, pretentious, and to make decisions on impulse or with little reflection, that define a low level of honesty and conscientiousness (Ashton & Lee, 2005), facilitate the manifestation of aggressive behavior.

In conclusion, the present study provides evidence for the relation between the six personality factors from the HEXACO model and aggressive violations on the road. Because our results suggest the existence of some relatively small relations between the above presented variables, future studies on the relation between different facets of the six factors and driving aggressive violations are required. The identification of the antecedents of aggressiveness in traffic allows us to formulate adequate intervention methods of prevention the development of aggressive behavior, and also to develop educational driving programs for aggressive drivers.
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6. REFERENCES


