Article

The HEXACO Model of Personality and Risky Driving Behavior

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Abstract
This research tested the association between the HEXACO personality model and risky driving behavior as well as the predictive power of the HEXACO model in explaining risky driving behavior compared with the Big Five model. In Sample 1, 227 undergraduate students completed measures of the HEXACO personality model, the Big Five model, and driving aggression. In Sample 2, 244 community respondents completed measures of the HEXACO personality model, the Big Five model, and driving styles. Results showed that the Honesty–Humility factor is an important addition to personality models that aim to explain risky driving behavior as being related to all forms of driving aggression as well as to maladaptive and adaptive driving styles and having incremental validity in predicting verbally aggressive expression, risky driving, high-velocity driving, and careful driving. Moreover, compared with the Big Five model, the HEXACO model had better predictive power of aggressive driving.

Keywords
HEXACO personality model, Big Five, risky driving behavior, driving aggression, driving styles, personality domain

Introduction

Unsafe and risky driving is one of the main predictors of road accidents (Mesken, Lajunen, & Summala, 2002). In the attempt to understand and explain risky driving behavior, many researchers aimed to establish the

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causes of deviant driving behavior. In addition to the demographic variables such as gender and age, research has demonstrated that personal characteristics are important predictors of risky driving behavior. Personal characteristics related to unsafe driving are mostly represented by personality factors covered by the Big Five model. Low Emotional Stability has been related to accident involvement (Lajunen, 2001; Smith & Kirkham, 2011), verbal driving aggression, and physical driving aggression (Dahlen, Edwards, Tubre, Zyphur, & Warren, 2012; Dahlen & White, 2006). High levels of Extraversion have been associated with driving violations (Loo, 1979), departure from the road (Verwey & Zaidel, 2000), risky driving (Renner & Anderle, 2000), and physical driving aggression (Benfield, Szlemko, & Bell, 2007). Low levels of Agreeableness were associated with verbal and physical driving aggression (Dahlen & White, 2006; Jovanovic, Lipovac, Stanojevic, & Stanojevic 2009), and low Conscientiousness has been associated with traffic accident involvement (Arthur & Doverspike, 2001; Arthur & Graziano, 1996) and aggressive driving (Dahlen et al., 2012).

Many of the studies on the relation between personality and risky driving used the Big Five personality model because it was argued that the factors contained by this model encompass the most important individual differences in the personality domain (John, Nauman, & Soto, 2008). However, this assumption was criticized by some personality researchers which argued that the Big Five personality model does not include all the relevant individual differences related to the personality (Paunonen & Jackson, 2000; Veselka, Schermer, & Vernon, 2011). In order to establish to what extent the Big Five model covers the most important individual differences in personality, new models of personality were recently proposed to bring increments in explaining the variance in the personality domain.

One of the most important new models is the HEXACO model of personality (Lee & Ashton, 2004). This model contains six personality factors and was developed based on the lexical hypothesis, as in the case of the Big Five model. Analyzing the data from many lexical studies, the authors of the model obtained a factorial structure that contains six personality factors: Honesty–Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness (O). Despite the fact that, at first sight, the model resembles to a great extent the Big Five model, the authors have shown that the model is characterized by some important content differences compared with the Big Five. Of the six factors, three of them are very similar to the Big Five: Extraversion, Openness to Experience, and Conscientiousness. The most important difference is the addition of a new empirically validated factor called Honesty–Humility (H) which encompasses individual differences in tendencies to be sincere, modest, and fair versus manipulative, pretentious, and greedy (Lee & Ashton, 2004). Another important difference is the one between the factors Agreeableness and Emotional Stability

contained by the two models. In the HEXACO model, Irritability is a dimension of Agreeableness, whereas in the Big Five model, it was a component of Emotional Stability. Therefore, HEXACO Agreeableness refers to individual difference in the tendency to be cooperative, patient, and lenient versus critical, irritable, and unforgiving. The Sentimentality facet, which in the Big Five was associated with Agreeableness, in the HEXACO model is associated with Emotionality instead of Agreeableness. As a consequence, HEXACO Emotionality encompasses individual differences in the tendency to be anxious, sentimental, and empathetic versus to be fearless, detached, and independent (Lee & Ashton, 2004). Lee and Ashton (2008) have demonstrated that the HEXACO model of personality is cross-culturally valid in over 12 languages, being a robust model of personality.

The differences mentioned above may have some implications for the ability to explain variance in risky driving behavior. Surprisingly, little is known about how risky driving behavior is related to the Honesty–Humility dimension and other HEXACO dimensions. Compared with the Big Five model, it is expected that there will be some changes in the relations with risky driving behaviors due to content differences regarding Agreeableness and Emotionality.

Some research tested the association between the Honesty–Humility factor and unethical and risky behaviors. Empirical findings indicate that the Honesty–Humility dimension is negatively related to dishonest behavior (Hilbig & Zettler, 2015), counterproductive academic behavior (Schwager, Hulsherger, & Lang, 2015), counterproductive work behaviors (Chirumbolo, 2015), workplace delinquency (De Vries & Van Gelder, 2015), immoral behavior (Hilbig, Moshagen, & Zettler, 2015), criminal decision making (Van Gelder & De Vries, 2014), criminal behavior (Rolison, Hanoch, & Gummerrum, 2013), unethical activities (Ashton & Lee, 2008), risk-taking behaviors (De Vries, De Vries, & Feij, 2009), risk-taking behaviors as a function of gain or loss (Weller & Thulin, 2012), and health/safety and ethical risk-taking behaviors (Weller & Tikir, 2011). Considering this evidence, we expect that the Honesty–Humility factor will offer incremental variance in the prediction of risky driving behaviors.

To sum up, this study examined the relation between risky driving behaviors and the HEXACO model of personality. The HEXACO model was compared with the Big Five model with regard to risky driving behaviors with the aim to establish if the HEXACO model outperforms or not the Big Five model in the prediction of risky driving behaviors. Moreover, we examined whether the dimension Honesty–Humility brings incremental variance in the prediction of risky driving behaviors. To test these relations, we conducted a study consisting of two samples. In the first sample, the HEXACO PI (Lee & Ashton, 2004) was administrated together with the International Personality Item Pool-50 (IPIP-50; Goldberg, 1999), driving anger expression inventory (DAX) (Deffenbacher, Lynch, Oetting, & Swaim, 2002), and a demographic questionnaire. In the second sample, we administrated together the HEXACO PI, the IPIP-50,

the Multidimensional Driving Styles Inventory (Taubman-Ben-Ari, Mikulincer, & Gillath, 2004), and a demographic questionnaire.

Method

Samples and procedures

Sample 1. A total of 227 undergraduate psychology students (86.6% women), with a mean age of 24.75 years ($SD = 7.64$) filled out the HEXACO PI 60-item version, IPIP-50, the DAX, and a demographic questionnaire. All participants were informed about the research aim in a classroom setting. As a reward for participation, they were told that every one of them will receive an individual personality report. Students who showed interest regarding participation received an email with all the measures via an online link. Before completing the measures, participants were informed about the goal of the study and were asked to check the "I agree with terms" box within the online informed consent form. All participants had a valid driving license when completing the questionnaires.

Sample 2. A total of 244 community respondents (72.2% women), with a mean age of 26.75 years ($SD = 8.27$) filled out the HEXACO PI 60-item version, IPIP-50, multidimensional driving styles inventory, and a demographic questionnaire. The respondents were recruited via various social media platforms in return for the possibility to obtain a personality profile. The measures were applied via an online link. We chose a non-student sample in order to enhance the research generalizability. As in Sample 1, before completing the measures, participants were informed about the goal of the study and were asked to check the "I agree with terms" box within the online informed consent form. All participants had a valid driving license when completing the questionnaires.

Measures

HEXACO-60. The HEXACO personality inventory 60-item version is a questionnaire operationalization from the HEXACO six-dimensional model of personality (Ashton & Lee, 2009). The 60-item version is divided among four facets for each of the main factors: Honesty–Humility (e.g., "I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed"; "I think that I am entitled to more respect than the average person is"), ($\alpha = .70$, $M = 3.30$, $SD = .66$), Emotionality (e.g., "I would feel afraid if I had to travel in bad weather conditions"; "When it comes to physical danger, I am very fearful") ($\alpha = .71$, $M = 2.82$, $SD = .61$), Extraversion (e.g., "I feel reasonably satisfied with myself overall"; "I prefer jobs that involve active social interaction to those that involve working alone") ($\alpha = .75$, $M = 3.50$, $SD = .55$), Agreeableness (e.g.,

"I rarely hold a grudge, even against people who have badly wronged me"; "I tend to be lenient in judging other people") ($\alpha = .72$, $M = 3.02$, $SD = .61$), Conscientiousness (e.g., "I plan ahead and organize things, to avoid scrambling at the last minute"; "I often push myself very hard when trying to achieve a goal") ($\alpha = .69$, $M = 3.67$, $SD = .50$), and Openness to Experience (e.g., "I would be quite bored by a visit to an art gallery"; "I'm interested in learning about the history and politics of other countries") ($\alpha = .68$, $M = 3{,}57$, $SD = .50$). All items were rated on a 1–5 (*strongly disagree–strongly agree*) scale. The total score for each main personality factor is obtained by summing the four dimensions corresponding to each factor. Correlation coefficients regarding convergent validity between HEXACO PI 60 and NEO-FFI reported by the authors ranged between .51 and .80 and correlations between self-reports and observed reports ranged from .47 to .62 (Ashton & Lee, 2009).

International personality item pool. The Big Five factors were assessed with the IPIP questionnaire which consists of 50 items (Goldberg, 1999). Each personality factor contains 10 items, each with five response options (1 = *very inaccurate*, to, 5 = *very accurate*). The total score for each personality factor is obtained by summing the 10 items corresponding to each factor. The first factor, Emotional Stability, consists of items that measure changes in mood states (e.g., "I am always relaxed"; "I am easily disturbed") ($\alpha = .73$, $M = 3.06$, $SD = .64$). The second factor, Extraversion, is composed of items that assess the degree of sociality (e.g., "I am the life of the party"; "I don't talk a lot") ($\alpha = .81$, $M = 3.44$, $SD = .64$). The third factor is Openness, and measures the degree to which people are interested in new things, abstract ideas, and values (e.g., "I have a rich vocabulary"; "I have difficulty understanding abstract ideas") ($\alpha = .78$, $M = 3.87$, $SD = .85$). The fourth factor is Agreeableness, and it evaluates the extent to which someone is interested in other people and is empathetic and attentive to the needs and feelings of others (e.g., "I am interested in people"; "I feel little concern for others") ($\alpha = .76$, $M = 3.90$, $SD = .59$). The last factor is Conscientiousness, which measures the degree to which people are organized and follow rules (e.g., "I am always prepared"; "leave my belongings around") ($\alpha = .83$, $M = 3.77$, $SD = .66$) Intercorrelations among factors reported by the author ranged from .06 to .37 (Goldberg, 1999).

Driving anger expression inventory. The DAX contains 49 items with four response options (1 = *almost never*; 4 = *almost always*). High scores reflect different ways of expressing anger behind the wheel (Deffenbacher et al., 2002). The dimensions of the instrument are Verbally Aggressive Expression (e.g., "I call the other driver names aloud"; "I make negative comments about the other driver") consisting of 12 items, ($\alpha = .89$ $M = 1.95$, $SD = .68$), Physically Aggressive Expression (e.g., "I give the other driver the finger"; "I try to get out of the car and tell the other driver off") consisting of 11 items, ($\alpha = .93$, $M = 1.27$,

$SD = .53$), Using the Vehicle for Aggressive Expression (e.g., "I drive right up on the other driver's bumper"; "I try to cut in front of the other driver") consisting of 11 items, ($\alpha = .89$, $M = 1.66$, $SD = .59$), and Adaptive/Constructive Expression (e.g., "I pay even closer attention to being a safe driver";" I think about things that distract me from thinking about the other drivers") consisting of 15 items ($\alpha = .86$, $M = 2.93$, $SD = .57$). Intercorrelations among aggressive driving dimensions reported by the author ranged between .39 and .48. The author reported that Aggressive forms of anger expression correlated positively with driving-related anger, aggression, and risky behavior, suggesting good convergent validity (Deffenbacher et. al, 2002).

Multidimensional driving styles inventory. The Multidimensional Driving Styles Inventory (Taubman-Ben-Ari et al., 2004) consists of 44 items, divided among eight driving styles: Dissociative Driving Style (e.g., "Misjudge the speed of an oncoming vehicle when passing") consisting of eight items ($\alpha = .85$, $M = 1.77$, $SD = .80$), Anxious Driving Style (e.g., "Feel nervous while driving") consisting of seven items ($\alpha = .70$, $M = 2.26$, $SD = .81$), Risky Driving Style (e.g., "Enjoy the excitement of dangerous driving") consisting of five items ($\alpha = .82$, $M = 2.21$, $SD = 1.06$), Angry Driving Style (e.g., "Swear at other drivers") consisting of five items ($\alpha = .83$, $M = 2.19$, $SD = 1.15$), High-velocity Driving Style (e.g., "In a traffic jam, I think about ways to get through the traffic faster") consisting of six items ($\alpha = .71$, $M = 2.46$, $SD = .88$), Distress-reduction Driving Style (e.g., "Use muscle relaxation techniques while driving") consisting of four items ($\alpha = .64$, $M = 2.28$, $SD = 1.03$), Patient Driving Style (e.g., "Base my behavior on the motto 'better safe than sorry"') consisting of four items ($\alpha = .71$, $M = 4.32$, $SD = 1.06$), and Careful Driving Style (e.g., "Tend to drive cautiously") consisting of five items ($\alpha = .75$, $M = 4.89$, $SD = .85$). All items were rated on a 1–6 (*not at all* to *very much*) scale. Significant associations were found by the authors between the eight factors, on the one hand, and gender, age, driving history, and personality measures of self-esteem, need for control, impulsive sensation seeking, and extraversion, on the other, suggesting good convergent validity (Taubman-Ben-Ari et al., 2004).

Demographic questionnaire. Participants completed a demographic questionnaire developed for the purpose of this study. They reported age, gender, period of time since they possess a driving license, and number of kilometers driven/year.

Results

Sample 1

Table 1 presents bivariate correlations between driving aggression and personality factors, and the multiple correlations achieved by the Big Five factors and

Table 1. Driving anger expression correlations with personality factors (Sample 1).

Variable	Verbal agg.	Physical agg.	Using vehicle	Adaptive
Big Five factors				
Emotional stability	−.22*	−.12	−.15	.09
Extraversion	−.02	−.03	−.02	.12
Openness	.06	−.09	−.01	.35**
Agreeableness	−.23**	−.31**	−.28**	.38**
Conscientiousness	−.28**	−.27**	−.28**	.17*
	$R = .41$	$R = .40$	$R = .39$	$R = .45$
HEXACO factors				
Honesty–Humility	−.33**	−.29**	−.33**	.16
Emotionality	.06	.13	−.02	.06
Extraversion	−.11	−.17	−.10	.11
Agreeableness	−.32**	−.27**	−.29**	.27**
Conscientiousness	−.21*	−.23**	−.25**	.29**
Openness	−.09	−.25**	−.16	.32**
	$R = .44$	$R = .43$	$R = .45$	$R = .50$

Verbal agg. = verbally aggressive expression; Physical agg. = physical aggressive expression; Using vehicle = using the vehicle for aggressive expression; Adaptative = adaptive/constructive expression.
*$p < .05$; **$p < .01$.

the HEXACO factors in predicting aggressive driving. Regarding the Big Five model, Emotional Stability was negatively related to Verbally Aggressive Expression whereas Agreeableness and Conscientiousness were negatively related to all forms of driving aggression. Big Five Openness was positively related to Adaptive/Constructive Expression. In the case of the HEXACO model, Honesty–Humility was negatively related to Verbally Aggressive Expression, Physical Aggressive Expression, and Using the Vehicle for Aggressive Expression. As in the case of the Big Five model, Agreeableness and Conscientiousness were negatively related to all forms of driving aggression. Openness was positively related to Adaptive/Constructive expression.

In order to test the incremental validity of the Honesty–Humility dimension in predicting risky driving behavior, a series of hierarchical regressions were conducted. Demographic characteristics were entered in Step 1, the Big Five personality factors were entered in Step 2, the HEXACO factors (without Honesty–Humility) were entered in Step 3, and Honesty–Humility was entered in Step 4. Honesty–Humility predicted Verbally Aggressive Expression over and above of what was predicted by demographic variables, the Big Five model, and the rest of HEXACO personality factors ($\Delta R^2 = .03$, $p < .05$). It is important to

Table 2. Driving styles correlations with personality factors (Sample 2).

Variable	Dissociative driving	Anxious driving	Risky driving	Angry driving	High-velocity driving	Distress reduction driving	Patient driving	Careful driving
Big Five factors								
Emotional stability	−.08	−.11	−.17*	−.10	−.16	−.05	−.01	.11
Extraversion	−.18*	−.23**	.10	.06	.10	.12	.07	.12
Openness	−.27**	−.22**	−.05	.11	.10	.01	.21*	.32**
Agreeableness	−.34**	−.24**	−.26**	−.24**	−.21*	.01	.32**	.43**
Conscientiousness	−.34**	−.18*	−.29**	−.29**	−.31**	−.04	.30**	.36**
	$R = .43$	$R = .32$	$R = .43$	$R = .42$	$R = .44$	$R = .15$	$R = .41$	$R = .53$
HEXACO factors								
Honesty–Humility	−.29**	−.20*	−.38**	−.19*	−.23**	−.06	.26**	.42**
Emotionality	.15	.22*	−.16	−.09	−.14	.11	.01	−.16
Extraversion	−.23**	−.23**	−.07	−.09	.05	.07	.14	.30**
Agreeableness	−.14	−.15	−.21*	−.16	−.22**	−.08	−.09	.18*
Conscientiousness	−.38**	−.27**	−.30**	−.14	−.21*	−.01	.39**	.46**
Openness	−.31**	−.14	−.11	−.05	−.02	.18*	.19*	.28**
	$R = .47$	$R = .37$	$R = .48$	$R = .26$	$R = .37$	$R = .26$	$R = .42$	$R = .56$

*$p < .05$; **$p < .01$.

compare the predictive abilities of the HEXACO and Big Five models. To compare the two models, we ran a series of hierarchical regressions (Table 3). With the effects of the Big Five model controlled, the HEXACO model still predicted 10% of the variance in Adaptive/Constructive Expression. With the effects of the HEXACO model controlled, the Big Five model failed to predict any form of driving aggression. Therefore, these analyses show that the HEXACO model has some advantages over the Big Five model in predicting aggressive driving.

Sample 2

Table 2 presents bivariate correlations between driving styles and personality factors, and the multiple correlations achieved by the Big Five factors and the HEXACO factors in predicting maladaptive and adaptive driving styles. Regarding the Big Five model, the strongest negative relation with maladaptive driving styles (Dissociative, Anxious, Risky, Angry, and High velocity) was achieved by Agreeableness and Conscientiousness. The strongest correlates of Adaptive Driving Style (Patient and Careful) were Openness, Agreeableness,

Table 3. Hierarchical regression models: Risky driving behavior regressed on the Big Five and HEXACO models.

	Model 1		Model 2	
	Step 1: Big Five	Step 2: HEXACO	Step 1: HEXACO	Step 2: Big Five
Sample 1	R^2	ΔR^2	R^2	ΔR^2
Verbal agg.	.17**	.07	.20**	.05
Physical agg.	.15**	.08	.18**	.05
Using vehicle	.16**	.07	.20**	.03
Adaptive	.20**	.10*	.24	.06
Sample 2				
Dissociative driving	.19**	.07*	.22**	.04
Anxious driving	.10**	.06	.13**	.03
Risky driving	.18**	.09**	.22**	.05
Angry driving	.18**	.01	.06	.13**
High-velocity driving	.19**	.04	.13**	.09**
Distress reduction driving	.02	.07	.06	.03
Patient driving	.17**	.06	.18**	.04
Careful driving	.28**	.11**	.31**	.09**

Verbal agg. = verbally aggressive expression; Physical agg. = physical aggressive expression; Using vehicle = using the vehicle for aggressive expression; Adaptive = adaptive/constructive expression.
*$p < .05$; **$p < .01$.

and Conscientiousness. Regarding the HEXACO model, the strongest negative correlates of maladaptive driving styles were Honesty–Humility and Conscientiousness. The strongest correlates of adaptive driving styles were Honesty–Humility, Conscientiousness, and Openness. Honesty–Humility predicted Risky Driving ($\Delta R^2 = .06$, $p < .05$), High-velocity Driving ($\Delta R^2 = .03$, $p < .05$), and Careful driving ($\Delta R^2 = .03$, $p < .05$) over and above of what was predicted by demographic variables, the Big Five model, and the rest of HEXACO personality factors. Again, to compare the two models, we ran a series of hierarchical regressions (Table 3). With the effects of the Big Five model controlled, the HEXACO model still predicted Dissociative Driving, Risky Driving, and Careful Driving. With the effects of the HEXACO model controlled, the Big Five model still predicted Angry Driving, High-velocity driving, and Careful Driving. Therefore, none of the two models present advantages in predicting risky or adaptive driving styles, each model predicting driving styles in a very similar manner.

Discussion

This article investigated how the HEXACO model of personality relates to risky driving compared with the Big Five model. Regarding the correlations between personality factors and risky driving behavior, the negative relations between Agreeableness and Conscientiousness and driving aggression and maladaptive driving was consistent with previous findings (Dahlen et al., 2012; Dahlen & White, 2006; Jovanovic et al., 2009). Therefore, despite different construct definitions, both HEXACO Agreeableness and Big Five Agreeableness related to risky driving behavior but in a different manner. Big Five Agreeableness was related to more maladaptive driving styles, such as Dissociative Driving, Anxious Driving, and Angry Driving as opposed to HEXACO Agreeableness. A possible explanation for this finding may be that there are differences in the content of HEXACO Agreeableness, Irritability being one of its dimensions, instead of being one of Emotional Stability, as in the case of the Big Five model. Moreover, the Sentimentality facet associated in the Big Five model with Agreeableness, is associated in the HEXACO model with Emotionality. Therefore, there is only a moderate overlap ($r = .51$) between the HEXACO Agreeableness and the Big Five Agreeableness (Ashton & Lee, 2009). As a consequence, individual differences tapped by HEXACO Agreeableness are not as important in explaining risky driving behavior as individual differences tapped by the Big Five Agreeableness. Despite the well-known fact that Emotional Stability is negatively related to risky driving (Dahlen et al., 2012), HEXACO Emotionality failed to relate to any form of risky driving behavior. An explanation of this finding may rely on the nature of Emotionality which refers mostly to individual difference in Empathy, Sentimentality, Fearfulness, and Anxiety and not to individual difference in Irritability, as in the case of the Big Five Emotional Stability. Therefore, the core of Emotionality represented by Sentimentality, Anxiety, and Empathy is not important in explaining risky and maladaptive driving. The Honesty–Humility factor was negatively related to all forms of driving aggression and maladaptive driving styles and positively related to adaptive driving styles. It seems that the Honesty–Humility factor is an important addition to personality models in explaining risky driving behavior. An explanation of this finding may be that people with low levels of Honesty–Humility tend to adopt risk-taking behavior (De Vries et al., 2009). By their nature, aggressive driving and maladaptive driving styles refer to activities that are risky and even life threatening for the driver as well as for other traffic participants. As a consequence, people characterized by low scores on Honesty–Humility are greedy, manipulative, and arrogant, and are prone to risk-taking behavior such as driving aggression and maladaptive driving styles.

Another explanation of this finding may be the relation between Honesty–Humility and the Dark Triad personality model. Empirical findings indicate that the opposite pole of the Honesty–Humility factor shares common variance with

the Dark Triad variables, especially with Machiavellianism and Psychopathy (Ashton, Lee, & Son, 2000; Book et al., 2016; Lee & Ashton, 2014; Lee et al., 2013). Therefore, individuals characterized by low Honesty–Humility have a great desire to risk, low empathy, and anxiety (Paulhus & Williams, 2002); proclaim a social dominance orientation (Hodson, Hogg, & MacInnis, 2009); manipulate and exploit; are characterized by cold affect and a lack of sincerity or ethical concern (Baughman, Jonason, Lyons, & Vernon, 2014); maximize self-interests via deception and disregard for others; and use tactics such as aggression to get what they want (Jonason & Webster, 2010). When these characteristics are expressed in a driving context, they may result in risky and maladaptive driving.

Honesty–Humility showed incremental validity in predicting Verbally Aggressive Expression, Risky Driving, High-velocity Driving, and Careful Driving. Despite the fact that Honesty–Humility did not predict most of the dimensions of risky and maladaptive driving, these may be considered encouraging finding regarding the independence of the Honesty–Humility factor. Some researchers (McCrae & Costa, 2008) have argued that Honesty–Humility factor can be explained by the Five-factor-model Agreeableness, with Honesty and Humility being just more introverted aspects of Agreeableness. This assumption does not seem to be sustained by evidence. Ashton and Lee (2005) showed that Honesty–Humility was only moderately correlated with the Five-factor-model Agreeableness. The incremental validity of Honesty–Humility in predicting some of the risky driving behaviors contributes to the evidence that sustain the independence of the Honesty–Humility factor and its predictive power in explaining various outcomes after the effects of other personality traits are controlled.

Comparing the Big Five model and the HEXACO model in predicting risky driving behavior, we found that the HEXACO model of personality had some advantages in predicting driving aggression compared with the Big Five model. In this regard, when the effects of the Big Five model were controlled, the HEXACO model still predicted Adaptive/Constructive expression. Conversely, when the effects of the HEXACO model were controlled, the Big Five model did not predict any form of driving aggression. The explanation of this finding may rely on the nature and content of the Honesty–Humility factor. Individuals characterized by high levels of Honesty–Humility are sincere, fair, and unassuming, and engage more in prosocial (Hilbig & Zettler, 2009) and cooperative behaviors (Hilbig, Zettler, Leist, & Heydasch, 2013). As a consequence, when driving, individuals high in Honesty–Humility tend to behave in an adaptive and cooperative manner. Therefore, the emergence and inclusion of the Honesty–Humility factor in the HEXACO model helps to enhance the predictive power of the model regarding driving aggression, compared with the Big Five model. Regarding driving styles, both the Big Five model and the HEXACO model predicted maladaptive and adaptive driving styles in a similar manner, none of them presenting advantages compared with the other in predicting driving styles.

Practical implications

The results of this research are useful for traffic safety and accident prevention. To reduce the risk of traffic accidents, scientists need to know what the causes of accidents are in order to develop programs to increase traffic safety. Over time, empirical findings indicate that aggressive driving leads to accident involvement (Mesken, Lajunen, & Summala, 2002). Drawing on this, researchers have tried to establish the main causes of aggressive driving to be able to prevent it. Researchers have shown that beyond demographic variables, aggressive driving is predicted by individual differences in personality, represented mostly by the Big Five factors. This research introduces new individual differences tapped by the HEXACO personality factors, especially by the Honesty–Humility Factor, which are important in explaining driving aggression over and above the Big Five Factors, such as modesty, fairness, sincerity, and greed-avoidance. These findings are encouraging because driving aggression is an intentional behavior that can be modified through intervention programs and counseling. In this way, psychologists can assess individual differences specific to the HEXACO model in order to identify maladaptive dispositions and design behavioral or cognitive interventions to deal with them. The usefulness of behavioral psychotherapies in addressing maladaptive and destructive behaviors is well-known, so it is likely that these therapies will be successful in reducing driving aggression (Galovski & Blanchard, 2002). However, researchers and practitioners should be cautious when using the findings of this study in applied contexts because the samples consisted mostly of women. Therefore, due to the fact that the findings cannot be generalized to men and women, the inferences being made when the targeted population consists mostly of men have to rely on multiple sources of information regarding driver personality and aggressive driving.

Limitations

This research had a number of limitations. The characteristics under consideration were assessed using single indices and relied on self-report measures. It has been shown that self-report instruments may capture individual difference variance associated with the construct under consideration (Westhead & Egan, 2015). Although the use of this technique can produce social desirability and concealment phenomena, the results of previous studies demonstrate the utility of using such tools in assessing involvement in accidents (see Arthur et al., 2005). To eliminate the limitations of self-report instruments, future research could use driving simulators where the driver is faced with challenging traffic situations. Another limitation of this research is the fact that research samples consisted mostly of women. It is known that relying on unbalanced samples may lead to construct irrelevant variance (Haladyna & Downing, 2004). In this case,

construct irrelevant variance may affect driving aggression scores of women due to possible differences in driving frequency and driving attitude between men and women. Further studies may consider more balanced samples in order to replicate and to extend to findings of this research.

Declaration of Conflicting Interests

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