



The role of personality traits and driving experience in self-reported risky driving behaviors and accident risk among Chinese drivers



Da Tao, Rui Zhang, Xingda Qu*

Institute of Human Factors and Ergonomics, College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, China

ARTICLE INFO

Article history:

Received 13 July 2016

Received in revised form 7 December 2016

Accepted 8 December 2016

Available online 13 December 2016

Keywords:

Personality traits
Driving experience
Driving behaviors
Accident risk
Gender

ABSTRACT

The purpose of this study was to explore the role of personality traits and driving experience in the prediction of risky driving behaviors and accident risk among Chinese population. A convenience sample of drivers ($n=511$; mean (SD) age = 34.2 (8.8) years) completed a self-report questionnaire that was designed based on validated scales for measuring personality traits, risky driving behaviors and self-reported accident risk. Results from structural equation modeling analysis demonstrated that the data fit well with our theoretical model. While showing no direct effects on accident risk, personality traits had direct effects on risky driving behaviors, and yielded indirect effects on accident risk mediated by risky driving behaviors. Both driving experience and risky driving behaviors directly predicted accident risk and accounted for 15% of its variance. There was little gender difference in personality traits, risky driving behaviors and accident risk. The findings emphasized the importance of personality traits and driving experience in the understanding of risky driving behaviors and accident risk among Chinese drivers and provided new insight into the design of evidence-based driving education and accident prevention interventions.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Traffic accidents and fatalities represent a serious social and public management problem worldwide. According to World Health Organization (WHO), 1.25 million people lost their lives due to traffic accidents in 2015 (WHO, 2015). In China, it is reported that there were 58,523 fatalities and 211,882 people got injured among 196,812 recorded traffic accidents in 2014 (National Bureau of Statistics of China, 2014). These accidents led to an estimated direct economic costs (e.g., property damage, emergency services, medical costs, and rehabilitation costs) of USD 161 million (National Bureau of Statistics of China, 2014).

In light of the severe consequences caused by traffic accidents, efforts have been put on the investigation of causes of the accidents. A number of factors that are capable of explaining root causes of traffic accidents have been documented, such as vehicular and roadway factors and individual factors. Personality traits have long been recognized as important individual factors that are closely linked with risky driving behaviors and traffic accidents (Beanland et al., 2014; Berdoulat et al., 2013; Evans, 1991; Hilakivi et al., 1989;

Parr et al., 2016; Starkey and Isler, 2016; Taubman-Ben-Ari et al., 2016). In 1960s, researchers already noted the role of personality in traffic accidents (Andersson et al., 1970; Fine, 1963), and found that extraversion and neuroticism were positively correlated with accident involvement (Fine, 1963). Some later concerns had much of an effort to examine the personality-risky driving behaviors association. For example, studies examining the five-factor personality traits found that higher levels of extroversion and neuroticism, and lower levels of agreeableness and conscientiousness were associated with aggressive driving, and angry and anxious driving styles (Guo et al., 2016; Jovanović et al., 2011; Sümer et al., 2005; Taubman-Ben-Ari and Yehiel, 2012). Sensation seeking was found to be an effective predictor of aggressive driving, speeding and other traffic violations (Burns and Wilde, 1995; Dahlen et al., 2012; Dahlen and White, 2006; Ge et al., 2014; Guo et al., 2016; Sümer, 2003; Yang et al., 2013). A personality trait with high sensitivity to reward was directly associated with speeding and ordinary violations (Constantinou et al., 2011; Harbeck and Glendon, 2013; Scott-Parker et al., 2013). Drivers with an impulsive personality were more likely to be involved in driving violations (Wickens et al., 2008). Personality traits such as antagonism and negative affectivity (Beanland et al., 2014), depression (Scott-Parker et al., 2013), and normlessness and altruism (Yang et al., 2013) were also effective in predicting speeding, aggressive and ordinary violations in driving.

* Corresponding author at: Institute of Human Factors and Ergonomics, Shenzhen University, 3688 Nanhai Avenue, Shenzhen City, Guangdong Province, China.
E-mail address: quxd@szu.edu.cn (X. Qu).

Although Furnham and Saipe (1993) argued that personality traits did not predict accident involvement directly, many researchers found they affected accident involvement indirectly through some potential mediators, such as driving styles, attitudes towards driving safety, perceived risk and driving behaviors (Beirness, 1993; Elander et al., 1993; Harbeck and Glendon, 2013; Jinnah and Stoneman, 2016; Ulleberg and Rundmo, 2003). A number of models were proposed to explain mediated personality-accident associations. For example, Ulleberg and Rundmo (2003) suggested that the link between personality traits and risky driving behaviors was mediated by attitudes towards traffic safety. Jovanović et al.'s study showed that driving-related anger played a mediating effect between personality traits and aggressive driving behaviors (Jovanović et al., 2011). Sümer and his colleagues argued that personality traits were distal factors that affected road accidents via their effects on proximal factors, such as aberrant driver behaviors and dysfunctional drinking (Sümer, 2003; Sümer et al., 2005). Their findings were largely verified by some more recent studies, which found that a variety of personality traits affected accident risk indirectly through mediating effects of risky driver behaviors (Constantinou et al., 2011; Harbeck and Glendon, 2013; Mallia et al., 2015).

Despite the amount of literature on the relationship between personality traits and accident involvement, there are several points that should be addressed before the research evidence could be applied to traffic prevention and in a specific cultural context. First, inconsistent evidence existed in previous studies relating personality to risky driving behaviors and accidents (Elander et al., 1993). Some personality traits yielded different effects on risky driving behaviors and road accidents in different studies in terms of significance and magnitude (Clarke and Robertson, 2005; Greaves and Ellison, 2011; Seibokaitė et al., 2014). This may be due to methodological limitations and lack of systematic models when examining the personality-accident association. Second, the links between personality and driving behaviors/accidents might vary in different countries, as personality could be culturally dependent (Heine and Buchtel, 2009). Most of previous studies were conducted in Western countries, with few empirical studies in China (Ge et al., 2014; Guo et al., 2016; Yang et al., 2013). In addition, compared to Western countries, China has a more complex traffic environment due to people's poor adherence to traffic regulations, low traffic safety awareness and inadequate traffic laws (Huang et al., 2006; Zhang et al., 2006). Evidence-based guidelines from Western countries may not be applicable to China due to differences in cultural, social and traffic environment. Finally, few studies have been conducted to explore an integrated model that explore the predicting effects of both personality traits and driving experience on risky driving behaviors and accident risk. There is increasing evidence that driving experience is also an important factor that is closely correlated with driving risk perception, accidents and crashes (Constantinou et al., 2011; Deery, 2000; Wells-Parker et al., 2002), and should be considered in the examination of personality-accident associations.

The present study aimed to empirically examine a mediated personality-driving behaviors-accident association model that assessed both direct and indirect effects of personality traits and driving experience on self-reported accident risk among Chinese drivers. A secondary aim of the study was to assess the relationship between gender and age with the self-reported risky driving behaviors and accident risk.

1.1. The relationship between personality traits, driving behaviors and accident risk

Personality trait refers to a consistent and stable pattern of feelings, thoughts and behaviors that an individual holds (McCrae and

Costa, 2003). A considerable body of studies have shown that personality traits are associated with risky driving behaviors and traffic accidents (Chen, 2009; Harbeck and Glendon, 2013; Hassan and Abdel-Aty, 2013; Sümer, 2003; Scott-Parker et al., 2013).

While many studies adopted the Big Five personality traits (Jovanović et al., 2011; Sümer et al., 2005) or used a set of unsystematic personality measures (Constantinou et al., 2011), our study measured personality traits using Eysenck Personality Questionnaire (EPQ), which is based on one of the most popular theories of personality, i.e., Eysenck's Personality Theory (Eysenck, 1993). Previous studies from a wide range of fields have consistently confirmed the validity and reliability of the Eysenck's Personality Theory as dimensions of personality, which are able to measure individual differences effectively (Boduszek et al., 2013; Dunlop et al., 2012; Eysenck, 2012; Eysenck and Eysenck, 2013). However, previous evidence regarding the relationships between Eysenck's personality traits and traffic accidents have been limited (Beirness, 1993; Elander et al., 1993; Lajunen, 2001), calling for more research efforts on this topic.

Eysenck's Personality Theory describes personality with a three-factor model (i.e., extraversion, neuroticism, and psychoticism) and a fourth component, termed lie scale. Extraversion reflects a sociable and active personality, and a tendency to experience positive emotions (Eysenck, 2012). A positive correlation between extraversion and risky driving has been well documented in previous studies (Lev et al., 2008; Renner and Anderle, 2000; Smith and Kirkham, 1981; Taubman-Ben-Ari and Yehiel, 2012). For example, Lev et al. (2008) reported that people who are more extraverted are more likely to violate traffic regulations. High scores on extraversion are also associated with motor vehicle accidents and traffic mortalities (Fine, 1963; Lajunen, 2001; Martin and Boomsma, 1989; Renner and Anderle, 2000; Smith and Kirkham, 1981).

Neuroticism is characterized by a tendency to be engaged in negative emotions and to experience difficulty in solving problems. Neurotic individuals are more likely to show anxiousness, impatience, depression, tension, moodiness and irrationality (Eysenck, 2012). A number of studies have demonstrated that neuroticism is positively correlated with risky driving (Bone and Mowen, 2006; Booth-Kewley and Vickers, 1994; Dahlen and White, 2006), accident involvement and traffic mortality (Kirkcaldy and Furnham, 2000).

Psychoticism is a personality trait that reflects a tendency to show aggressiveness, impulsiveness, unempathic behavior, coldness, and egocentricity (Eysenck, 2012). Previous studies have indicated that psychoticism is related to traffic convictions rather than directly to traffic accidents (Furnham and Saipe, 1993). Psychoticism is also closely related to sensation seeking, a trait defined by "the seeking of varied, novel, complex, and intense sensations and experiences and the willingness to take physical, social, legal, and financial risks for the sake of such experiences" (Zuckerman, 1994). Sensation seeking is positively associated with risky driving intention, attitude and behaviors (Cestac et al., 2011; Chen, 2009; Dahlen and White, 2006; Iversen and Rundmo, 2002; Jonah, 1997).

Lie is originally used to detect the "faking good" of scores on other scales in EPQ and to measure the degree at which an individual would intentionally manipulate his/her scores. Later studies suggest that the lie scale also measures an important personality dimension reflecting social conformity (Francis, 1991), which means that people might respond in a socially desirable way by deliberately presenting themselves in a more positive self-image than is accurate (Paulhus, 1984). Whether such faking behaviors would have impact on self-reported driving behaviors and accident risk seems unknown and is of interest. In addition, evidence shows that lie is strongly correlated with other personality traits, such as neuroticism, openness, and conscientiousness (Jackson and Francis, 1998), all of which are potential predictors of risky driving

Download English Version:

<https://daneshyari.com/en/article/4978879>

Download Persian Version:

<https://daneshyari.com/article/4978879>

[Daneshyari.com](https://daneshyari.com)