



Risky behavior in young adult pedestrians: Personality determinants, correlates with risk perception, and gender differences

David Herrero-Fernández^{a,b,*}, Patricia Macía-Guerrero^a, Laura Silvano-Chaparro^a, Laura Merino^a, Emily C. Jenchura^c

^a University of Deusto, Bilbao, Spain

^b Heltzen – Basque Foundation for Road Safety, Spain

^c Arizona State University, Tempe, AZ, USA

ARTICLE INFO

Article history:

Received 30 April 2013

Received in revised form 21 October 2015

Accepted 20 November 2015

Available online 14 December 2015

Keywords:

Perceived risk

Risky behavior

Psychophysiology

Skin conductance level

Conscientiousness

Impulsiveness

ABSTRACT

Based on the risk homeostasis theory, the aim of this study was to assess acceptable risk, measured by personality factors, and risk perception, measured by physiological arousal, as predictors of risky behavior in young adult pedestrians, as well as to assess for gender differences. Eighty-two young adults, aged 18–30, completed self-report measures about risky pedestrian behaviors and these personality traits: impulsiveness, conscientiousness and openness to experience. Sixty-four of these participants then took part in an experimental task designed to assess their perception of the level of risk in situations involving different interactions between cars and pedestrians. Risk perception was assessed by these physiological responses: heart rate, skin conductance level, and skin conductance response. Results showed that risky behavior had significant correlations with impulsiveness, conscientiousness, and skin conductance level. Gender differences also emerged in risky behavior, impulsiveness, conscientiousness, and skin conductance level. Finally, a structural equation model showed that impulsiveness, conscientiousness and the difference in skin conductance level between risky and neutral situations predicted risky pedestrian behaviors, and explained 23.6% of the its variance, after controlling the effect of gender. Implications for evaluation, prevention, and intervention for risky pedestrian behaviors are discussed.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

Traffic accidents involving pedestrians represent an important cause of death and severe injuries in Spain. According to official 2011 data, 10,865 pedestrians were injured and 380 pedestrians died in traffic accidents, which represent 18% of the total number of traffic accident deaths. Moreover, nearly 30% of the pedestrians who were run over had committed a traffic violation before the accident (DGT, 2012). Several observational studies support the severity of traffic accidents resulting in pedestrian injury. A diary study conducted in Oxford demonstrated that pedestrians report greater incidents of risk per mile traveled (.20) compared to car drivers (.02), defining these incidents as those events provoked by other users and road

* Corresponding author at: DeustoPsych I+D+i en Psicología y Salud, Universidad de Deusto, Avda. De las Universidades, 24, 48007 Bilbao, Spain.
E-mail address: d_herrero@psicologos.com (D. Herrero-Fernández).

conditions which cause to take avoiding action and/or worry or annoyance, being close related to near-misses (Joshi, Senior, & Smith, 2001). With respect to the causes of pedestrian accidents, human factors have been emphasized more than vehicle and road factors, which is similar to what occurs in car accidents (Evans, 1991). Nevertheless, there are also environmental factors that have shown a strong association with the probability of suffering an accident, such as infrastructure design (Badea, Furonés, Pérez, & González, 2010).

Risk perception is the most studied human factor, and has consistently been found to associate with risky behaviors and with having an accident (Granié, 2009; Horswill & McKenna, 2004; Quimby, Maycock, Carter, Dixon, & Wall, 1986; Zhou, Horrey, & Yu, 2009). This trend has been found both among drivers and pedestrians (Castanier, Paran, & Delhomme, 2012; Moyano & Mladinic, 2001; Nordfjærn, Jørgensen, & Rundmo, 2011). Different theories have posited that risk perception is a predictor of risky traffic behaviors. One such theory that has been widely supported in the literature is the risk homeostasis theory (Wilde, 1982, 1988). It states that there are two main dimensions that determine the risk of an action: risk perception and acceptable risk. Risk perception depends on a person's perceived ability and on environmental characteristics of time and space (e.g., speed, perceived trajectory of the car, and a person's own perceived trajectory). The level of acceptable risk an individual is willing to assume depends on a cost-benefit analysis of the risk. For a pedestrian, the benefit might be less time en route, while the cost might be having an accident. In this way, people are inclined to achieve homeostasis, or a balance between the level of perceived risk and the level of acceptable risk.

In experimental studies of drivers' behaviors, risk perception has frequently been measured by physiological arousal due to its covariation with electrodermal activity (Crundall, Chapman, Phelps, & Underwood, 2003; Hashimoto, 1970; Kinnear, Kelly, Stradling, & Thomson, 2013; Taylor, 1964; Wickramasekera, Pope, & Kolm, 1996). According to information processing theory (Kahneman & Frederick, 2002), risk is processed in two separate ways: risk as analysis and risk as affect or feeling. The differences found between subjective (self-reported) and objective (physiological arousal) risk perception support the idea that physiological arousal could reflect automatic processes of risk assessment (Crundall et al., 2003; Kinnear, Stradling, & McVey, 2008), which could be unrelated to the conscious analysis of risk (Slovic, Finucane, Peters, & MacGregor, 2002, 2004).

Consistent with this idea, studies on the distinguishing features of emotions have shown that fear, an emotion associated with perceived risk, has a specific and unique pattern of electrodermal activity that is different from other emotions like anger or dislike (Williams et al., 2005). However, more commonly used physiological indices (e.g., respiration rate, heart rate, electromyography) have shown less support in this area. Only one study with drivers found that self-reported perceived risk correlated with heart rate (Mesken, Hagenzieker, Rothengatter, & de Waard, 2007). There have been no studies to date that analyze the relation between physiological arousal and risk perception among pedestrians.

The level of acceptable risk an individual is willing to assume has links to personality traits. One of the most important traits to consider is impulsiveness because of its close association with risky behaviors among drivers (Dahlen, Martin, Ragan, & Kuhlman, 2005), and among pedestrians (Bagley, 1992). Indeed, some studies have shown that impulsiveness is the personality trait with the strongest relation to risky pedestrian behaviors (Briem & Bengtsson, 2000; Langley, McGee, Silva, & Williams, 1983). In line with these findings, children who have been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), which involves symptoms of impulsivity, have been found to take more risks as pedestrians and to be more often involved in car accidents than children without a diagnosis of ADHD (Stavrinos, 2009). Additionally, long waiting times at pedestrian crosswalks has been shown to associate with violations in crossing the road (Guo, Gao, Yang, & Jiang, 2011), which could be partially explained by impulsiveness. Age and gender have also been shown to play a role in crosswalk violations, such that young adult male pedestrians tend to commit more crosswalk infractions than young adult females, older males, and older females (Brosseau, Zangenehpour, Saunier, & Miranda-Moreno, 2013). Finally, larger groups of waiting pedestrians may also provoke an increase of violations among young adult pedestrians, even in crosswalks where the waiting time is not long (Rosenbloom, 2009).

Conscientiousness and openness to experience are two other personality traits to consider in determining the level of acceptable risk an individual is willing to assume. Both conscientiousness and sensation-seeking, a trait closely related to openness to experience, have been linked to displays of risky behaviors (Aluja, Garcia, & Garcia, 2003). Specifically, conscientiousness has been negatively associated with risks taken by drivers (Dahlen, Martin, Ragan, & Kuhlman, 2004; Dahlen et al., 2005; Schwebel, Severson, Ball, & Rizzo, 2006), and by pedestrians (Evans & Norman, 2003). Several studies have highlighted that just observing other pedestrians wrongly crossing the road makes people more likely to cross unsafely (Hughes, 2002; Meng, Liao, Wang, & Tan, 2009; Yagil, 2000). For example, one study found that people are 1.5–2.5 times more likely to wrongly cross the road if they observe their neighbor wrongly cross (Faria, Krause, & Krause, 2010). One explanation for this phenomenon is diffusion of responsibility (Harrell, 1991), which suggests that pedestrians lower their level of conscientiousness and take more risks when in the company of other pedestrians. Similarly, attention control, which is a facet of conscientiousness and is defined as the capacity to focus and shift attention, has been associated with safe pedestrian behaviors (Barton, 2006; Schwebel, Stavrinos, & Kongable, 2009). Research has also found that duty awareness and rule following (sometimes called together in scientific literature as “dutifulness”) are two dimensions of conscientiousness that most strongly associate with risky behaviors (MacLaren, Best, Dixon, & Harrigan, 2011; Ross, Canada, & Rausch, 2002). A meta-analytic review pointed to the inverse relation between dutifulness and risky driving (Bogg & Roberts, 2004). Furthermore, this negative relation between dutifulness and risky behavior has been explained by a sense of righteousness and compliance with standards (Hertler, 2014), emotional and behavioral self-regulation (Chow, Berenbaum, & Flores, 2013; Fein & Klein, 2011), and the ability to delay gratification (Forstmeier, Drobetz, & Maercker, 2011). Openness to experience has been strongly related, both theoretically and empirically, to sensation seeking (Costa & McCrae, 1992; Zuckerman, 1979). Indeed,

Download English Version:

<https://daneshyari.com/en/article/897683>

Download Persian Version:

<https://daneshyari.com/article/897683>

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