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Attitude, perceived behavioral control, and intention to adopt risky behaviors

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ABSTRACT

The theory of planned behavior (TPB, Ajzen, 1985) has proved its efficiency in predicting different behaviors among road users (Sheeran & Orbell, 2000). The present study examined the TPB factors explaining risk taking among vulnerable road users (e.g., cyclists). We presumed that attitude, social norms, and perceived behavioral control (PBC) would predict cyclists' intention to adopt a risky behavior in two traffic contexts considered as risk-conducive (i.e., run the red-light, turn left).

Participants ($N = 224$, $M_{age} = 23.34$) filled in an online scenario-based questionnaire describing two traffic situations conducive to risk taking and including measures for cyclists' intentions to adopt risky behaviors in these specific contexts, TPB factors, and self-perceived efficacy.

TPB factors explained 49% and 65% of the variance in the intention to cross the red light, respectively the intention to turn left, with positive attitude and high PBC as the best predictors. Implications of the results were discussed.

1. Introduction

The theories of reasoned action (TRA; Fishbein & Ajzen, 1975) and planned behavior (TPB; Ajzen, 1985, 1991) have been successfully used to examine the relation between intention and behavior and to explain a wide range of risky behaviors (e.g., Ajzen, 1991; Dohnke, Weiss-Gerlach, & Spies, 2011; Drossaert, Boer, & Seydel, 2003; Duncan, Forbes-Mckay, & Henderson, 2012; Hutching, Lac, & LaBrie, 2008; Sheeran & Orbell, 2000; Trafimow, Sheeran, Conner, & Finlay, 2002). Both models are based on the assumption that human behavior is the result of a rational process in which individuals systematically consider, process, and use the available information in order to make a behavioral decision (Ajzen, 2012). TRA promotes attitude and personal norms as the main predictors of a person's intention to display certain behaviors while TPB considers perceived behavioral control (PBC) also as a primary predictor. According to these models, the intention to perform specific behaviors results from a positive evaluation of the advantages and disadvantages of that behavior *(attitude)*, the perceived approval of significant persons when performing the behavior *(social norms)* as well as the expected control one has over performing the behavior *(perceived behavioral control*; Ajzen, 1991).

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The two models have been used in a significant number of empirical researches on traffic psychology to examine and predict risky behaviors such as *seatbelt use* (Ali, Haidar, & Maryam, 2011; Tavafian, Aghamolaei, & Madani, 2011), *general driving violations* (Castanier, Deroche, & Woodman, 2013; Chorlton, Conner, & Jamson, 2012; Elliott, 2012), *speeding* (Conner, Smith, & McMillan, 2003; Elliott, 2010; Elliott, Armitage, & Baughan, 2005; Newnam, Watson, & Murray, 2004; Paris & Broucke, 2008), *drinking and driving* (Marcil, Bergeron, & Audet, 2001; Moan & Rise, 2011; Rivis, Abraham, & Snook, 2011), *texting while driving* (Gupta, Burns, & Boyd, 2016), or *crossing the yellow lights* (Palat & Delhomme, 2012).

TPB has also been applied to pedestrian violations (Moyano Díaz, 2002; Xu, Li, & Zhang, 2013) such as *crossing behavior* (Holland & Hill, 2007; Zhou, Horrey, & Yu, 2009) or *drinking and walking* (Gannon, Rosta, Reeve, Hyde, & Lewis, 2014; Haque et al., 2012). In regard to cyclists, most of the studies using TPB factors were focused solely on *helmet use* (Ahmed, Ambak, Raqib, & Sukor, 2013; Lajunen & Räsänen, 2004). To our knowledge, there are some studies examining cyclists' risky behaviors and electric bikes (e.g., Guo, Liu, Bai, Xu, & Chen, 2014; Wu, Yao, & Zhang, 2012) and none investigating the factors that might predict these behaviors.

In light of the environmental sustainability campaigns promoting eco-friendly means of transportation, the percentage of road users choosing cycling as main mode of transportation has significantly increased. For example, urban cycling has doubled between 2001 and 2010 in Paris with cycling accounted for approximately 650.000 daily journeys (ONISR, 2014).

The general objective of this study was to examine cyclists' risky behaviors; more precisely, we were interested in investigating the factors that might predict cyclists' intention to adopt risky behaviors in two specific risk-conducive situations by using the extended TPB model. Studies show that attitudes, social norms, and PBC toward risky behaviors are significant predictors of behavioral intentions (Tavafian et al., 2011; Zhu, Zhang, & Bao, 2011) therefore, we assumed that positive attitudes, social norms, and high-perceived behavioral control would predict cyclists' intention to adopt risky behaviors in risk-conducive traffic situations.

Additional factors (e.g., risk judgments, general self-perceived efficacy) were also taken in consideration. Previous studies showed that young drivers perceive themselves as being less vulnerable to road crashes as compared to peer drivers (Causse, Delhomme, & Kouabenan, 2005). In addition, self-efficacy has been identified as a significant predictor for texting while driving (Benson, McLaughlin, & Giles, 2015). Thus, we assumed that lower risk judgments and high self-efficacy would also predict cyclists' intention to adopt risky behaviors in risk-conducive traffic situations.

2. Method

2.1. Participants

Participants were selected based on their availability and cycling experience. More specifically, a cyclist was defined as a person using a personal or rented bike at least twice a week independently of the purpose of their cycling activity (e.g., commute, leisure). A link describing the study was posted on several French cycling forums and associations inviting their members to take part to a survey about the interactions between cyclists. A sample of 224 participants (56.3% men) aged between 19 and 27 years old ($M = 23.34$, $SD = 2.27$) cycling between 2 and 6 times per week) responded to our invitation.

2.2. Procedure

We selected two traffic situations (i.e., run the red-light and turn left into an intersection) conducive to risky behaviors among cyclists. These situations were selected based on previous findings showing that the main factors leading to accidents among cyclists relate to running the red-light when going straight, no entry signs, poorly negotiated turns to left and, low light and visibility conditions (ONISR, 2009; Wu et al., 2012). Furthermore, two scenarios corresponding to each of the two situations were created and validated (Cristea & Delhomme, 2016). Each scenario was accompanied by a self-explanatory image.

Run the red light: "*You are riding to the university on a two-way road with double lanes and heading towards an intersection with traffic lights. 10 m before the crossing sign, the light turns red. You are late for your class so, you decide to run the red light and go on.*"

Turn left into an intersection: "*It is Sunday afternoon and you are riding towards your favorite restaurant to have lunch. You are riding on a two-way road with double lanes, going into an intersection where you need to turn left. There is a car on the opposite lane arriving in the intersection. You are now 5 m away from the intersection; you grip more to the left and express your intention to turn left with your hand. You are very hungry so you decide to turn left hoping that you will have the time to do so before the car in front of you gets into the intersection.*"

2.3. Measures and instruments

Participants were invited to carefully read each scenario and fill in an online scenario-based questionnaire. The choice of scenario-based questionnaire was carefully considered and supported by several previous studies about *driving* (e.g., Delhomme, Cristea, & Paran, 2014; Horvath, Lewis, & Watson, 2012; Lennon, Watson, Arlidge, & Fraine, 2011), *cycling* (e.g., Cristea & Delhomme, 2016) or *pedestrians*' behaviour (e.g., Zhou et al., 2009).