



Individualism, collectivism and pedestrian safety: A comparative study of young adults from Iran and Pakistan



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ABSTRACT

Pedestrian fatalities contribute substantially to the total road traffic fatality burden in developing countries. There are few comparative studies which have examined differences in attitudes and risk behaviour amongst pedestrians in such countries. Empirical studies regarding the role of cultural factors as precursors of such attitudes and behaviour are also scant. The aim of this study was to examine differences in attitudes towards pedestrian safety, risky pedestrian behaviour and cultural dimensions in samples of young adults (18–25 years) from Iran and Pakistan. We also tested a theoretical model where the cultural dimensions predicted risky pedestrian behaviour through attitudes towards pedestrian safety in the two samples. The results were based on a survey conducted amongst young adults from Iran ($n = 131$) and Pakistan ($n = 161$). The findings revealed that Iranians reported more transgression risk behaviour than the Pakistanis, whereas the latter reported substantially more attention violations and aggressive behaviour. Multi-group structural equation modelling showed that an unconstrained model was better fitted to the data than a constrained model. Vertical individualism was related to unsafe attitudes towards pedestrian safety in both countries, but more strongly in the Pakistani sample. Vertical collectivism was associated with safe pedestrian attitudes only in Iran. Male gender predicted more risk taking pedestrian behaviour in both countries, and safe attitudes predicted less risk taking pedestrian behaviour in both samples. Interventions aimed at reducing risky pedestrian behaviour amongst young adults in Pakistan and Iran may benefit by focusing on cultural factors in addition to enforcing traffic regulations.

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1. Introduction

Pedestrian fatalities contribute substantially to the global road traffic fatality burden. In 2013, 27% of all road traffic fatalities in the world involved pedestrians or bicyclists (WHO, 2013). According to the WHO report, pedestrian fatalities are disproportionately distributed across countries and regions. Particularly developing countries with emerging economies are carrying the largest burden, mainly because of less focus on promoting safe walking. In the Iranian capital Tehran, for instance, analysis of fatalities showed that almost 50% of all killed road users were pedestrians (TTTO, 2013), and rather similar figures have been reported in the Pakistani capital Islamabad (Zia-ul-Islam et al., 2014). In contrast, pedestrians account for a considerably lower proportion of road fatalities in Europe. In 2013, for instance, 19% of the killed road users in high income European countries were pedestrians (WHO, 2013). Without taking appropriate actions in rapidly

developing countries with high motorization rates, such as Iran and Pakistan, pedestrian fatalities may be expected to increase even more in the coming years. Therefore, it is prudent to conduct studies which examine underlying precursors of pedestrian risk in these countries.

Although a substantial amount of pedestrian accidents are caused by external risk factors such as aberrant driving behaviour, a lack of separation between vulnerable road users and cars in the road system as well as poor walking facilities, pedestrians' own risk taking behaviours (e.g. walking on red signals, not using zebra crossings, etc.) also contribute to accidents (Rosenbloom et al., 2008; Zhou and Horrey, 2010). Previous studies that examined precursors of risky pedestrian behaviour reported that components in the Theory of Planned Behaviour (TPB) (Ajzen, 1991), such as attitudes towards pedestrian safety (i.e. safe or unsafe cognitive evaluations of various rule violations in the system), were important predictors of pedestrian risk taking behaviour (Díaz, 2002; Nordfjærn and Simsekoglu, 2013; Schwebel et al., 2009). Some studies also suggested that pedestrian risk taking behaviour may be related to personality traits, such as sensation-seeking

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(Schwebel et al., 2009), empathy and conformity (Simsekoglu, 2015; Zhou and Horrey, 2010). Meir et al. (2015a) further showed that hazard perception skills are also related to pedestrian risk taking. Further, there is evidence that young age increases pedestrian risk taking behaviour (Avineri et al., 2012; Meir et al., 2015b). Male gender is also a well-known risk factor for risk behaviours, and this also seems to apply to pedestrian risk taking behaviour (Rosenbloom et al., 2004). This gender difference particularly applies for slight and severe injuries amongst young individuals, while women are at higher risk than males in older age (e.g. 65 years and onwards for severe injuries) (Santamariña-Rubio et al., 2014).

However, there are very few studies which have examined attitudes towards pedestrian safety and pedestrian risk taking behaviour across samples from different countries. The few comparative studies that have been carried out were performed in European countries (e.g. Papadimitriou et al., 2013). In order to inform policy makers and action plan developers in traffic safety, however, it is crucial to examine the validity of established theories from countries with high safety performance (e.g. Western European countries and the United States) also in developing countries. The present study will expand previous work by investigating pedestrian risk taking behaviour and some of its underlying factors in two potential high risk settings for pedestrian accidents; Iran and Pakistan. Within these settings, young adults (18–25 years, e.g. Ch'ng et al., 2007) represent a high risk group that walk frequently, and thus experience a high risk exposure of being accident-involved as pedestrians (Zhou and Horrey, 2010; Schwebel et al., 2009). In addition, young adults are in general more prone to take risks in the traffic system (Avineri et al., 2012; Meir et al., 2015b; Rhodes and Pivik, 2011; Rosenbloom et al., 2004). Therefore, the current study focused specifically on samples of young adults in the two countries.

The authors are not familiar with any studies which have incorporated cultural factors as potential predictors of attitudes towards pedestrian safety and corresponding risk taking behaviour across country samples. There are several theoretical approaches which have been utilized in predicting risk taking behaviour, such as Culture as Social Organization (Douglas, 1970) and Culture as Symbol Use (Geertz, 1973). However, the basic assumptions in these theories have received limited empirical support (Oltedal and Rundmo, 2007; Rundmo et al., 2012). A theory, which has shown some promise, is the multidimensional refinement of Hofstede's (1984) Culture's Consequences, where individualism (i.e. to perceive the self as unique and separated from others) and collectivism (to perceive and define the self as interrelated to others) are central constructs. In the refinement of the theory, Singelis et al. (1995) empirically demonstrated that both individualism and collectivism segment

into horizontal and vertical dimensions (see Fig. 1). As shown, horizontal individualism is a cultural factor where the self is considered as unique and separated from others, but not with a focus on competition with others or guided by a strive for social status. Those with a strong vertical individualism have a similar interpretation of the self, but tend to focus more strongly on competition and hierarchical status. Persons with high horizontal collectivism tend to focus on the self in relation to others, but generally reflect low conformity to hierarchy and authorities. Individuals who score high on vertical collectivism have a similar view on the self, but with a strong focus on conformity to authority and important persons in the social hierarchy.

There are very few comparative studies which have incorporated cultural factors in research on pedestrian safety. As such, comparative research on pedestrian safety could benefit from a stronger anchoring in established cultural theory. In one non-comparative study conducted in an urban Turkish setting, Nordfjærn and Simsekoglu (2013) showed that vertical collectivism was related to less risk taking behaviour, whereas horizontal collectivism was associated with more pedestrian risk taking behaviour. The findings also suggested that these cultural factors were more strongly related to attitudes towards pedestrian safety than behaviour, and the cultural factors explained 60% of the variance in the attitude construct. A similar study, which focused on self-reported driver behaviour, showed that vertical individualism was associated with more risk taking (i.e. driver violations and errors), whereas vertical collectivism was associated with fewer driver violations (Nordfjærn and Simsekoglu, 2014). Le and Kato (2006) also found that vertical individualism could be a predictor of other risk taking behaviours, such as risky sexual behaviour. In sum, very few studies have examined cultural factors in relation to attitudes towards pedestrian safety and risky pedestrian behaviour. The studies which have been carried out also showed rather inconsistent findings. To the best of our knowledge there are no comparative studies which have included and measured cultural factors as predictors of attitudes towards pedestrian safety and pedestrian risk taking behaviour.

The present study contributes to investigating the role of cultural and attitudinal factors on risk taking behaviour amongst young adult pedestrians in Iran and Pakistan, as two potentially high risk settings for pedestrian incidents. The countries were selected for comparison because of their similarities and differences. Iran and Pakistan are both Muslim and neighbour countries with around 900 km of common border. The countries have a high rate of motorization, with a high proportion of young individuals and substantive population figures. Religion, culture, language and historical backgrounds have similarities in the countries. Such similarities could have effects on cultural and social factors addressed in the present study. However, it should also be noted that the countries have been found to differentiate in many important aspects. Pakistan has more than twice the population of Iran, a Gross Domestic Product (GDP) of \$4700, and is ranked as number 146 on the Human Development Index (HDI). Iran has a GDP of \$17,400 and is ranked number 75 on the HDI (CIA World Factbook, 2015). Although there are societal challenges in both countries, Pakistan could be argued to have a more substantial risk profile than Iran.

1.1. Aims and hypotheses of the study

The aim of this study is to investigate differences in attitudes towards pedestrian safety, risk taking pedestrian behaviour and cultural dimensions across samples of young adults from Iran and Pakistan. In addition, the study aims to test a theoretical model (Fig. 2) where the cultural dimensions predict attitudes towards pedestrian safety in line with reasoning in the contextual model

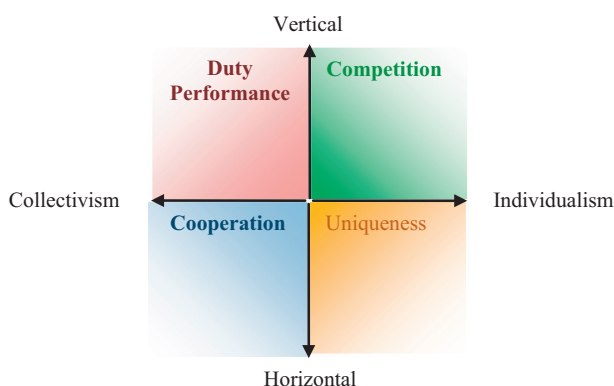


Fig. 1. Cultural dimensions applied in the current study.

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