



Cultural values and random breath tests as moderators of the social influence on drunk driving in 15 countries

Julien Cestac, * Sami Kraïem, ¹ Jean-Pascal Assailly ²

IFSTTAR, AME, LPC, F-78000 Versailles, France

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ABSTRACT

Introduction: The social influence on drunk driving has been previously observed in several countries. It is noteworthy, however, that the prevalence of alcohol in road fatalities is not the same in all countries. The present study aimed to explore whether cultural values and the number of roadside breath tests moderate the link between the perceived drunk driving of one's peers and self-reported behavior.

Methods: Based on the European survey SARTRE 4, the responses of 10,023 car drivers from 15 countries were analyzed. Two cultural values, "tradition" and "conformism," were identified as possibly being linked to social influence. Country scores for these values were taken from the European Social Survey. The number of random roadside breath tests per inhabitant was used as an indicator of drunk-driving enforcement in each country.

Results: A hierarchical multilevel modeling analysis confirmed the link between friends' drunk driving and one's own drunk driving in all countries, but the strength of the link was much stronger in some countries (e.g., Italy, Cyprus, and Israel) than in others (e.g., Finland, Estonia, and Sweden). Both the measured value of "tradition" and the number of alcohol breath tests were found to moderate the link between friends' and one's own drunk driving.

Practical Applications: European stakeholders should take into account cultural specificities of target countries when designing campaigns against drunk driving.

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1. Introduction

Driving under the influence of alcohol is an important factor in road fatalities in Europe (SafetyNet, 2009). Despite a long history of road safety measures and campaigns, 25% of all road deaths in Europe are still linked to drunk driving (Ecorys, 2014; International Transport Forum, 2008). However, an important significant heterogeneity among countries was found regarding this issue. The percentage of road fatalities linked to drunk driving varies from 5% in Bulgaria to 30% in France, Slovenia, and Ireland (International Transport Forum, 2008). More recently, corrected and estimated figures (Ecorys, 2014) confirmed this heterogeneity (from 8% for Poland's low estimate to 45% for Romania's high estimate). Why is such a discrepancy found among countries? Can country specificities explain the differences? Several specificities might explain the differences, such as enforcement practices, cultural values, or drinking patterns.

The level of alcohol consumption in a country has been found to be correlated with the overall accident mortality rate. According to Skog (2001, p.544), "An increase in alcohol consumption of 1 l is, on average, accompanied by an increase in average accident mortality rates across age groups of 2.65 deaths per 100,000 among males, and 0.61 deaths among females." Moreover, according to a study conducted within the Driving Under the Influence of Drugs (DRUID) project in 13 European countries (Houwing et al., 2011), at any time, an average of 3.48% of all European drivers on the road have alcohol in their blood. Again, a large variation was found between countries, with 0.15% of drivers in Hungary found with alcohol in their blood and 8.59% in Italy. This variation may explain the large differences found between countries regarding alcohol-related road fatalities. We must understand why some countries have more drunk drivers than do others.

A known predictor of drunk driving is social influence (Fernandes, Hatfield, & Soames Job, 2010). The influence of peers on risky behaviors has been shown in several countries, and it may thus be considered a "universal" process. However, some studies showed that cultural values may moderate the relation between peers' and individuals' behaviors (Gazis, Connor, & Ho, 2009). It is thus possible that the discrepancy among countries regarding alcohol-related road fatalities is linked to differences in the level of peer influence on drunk driving. Finally, the context of driving, such as traffic laws, infrastructures, or enforcement levels, depends on the country, and one could expect that these factors

* Corresponding author at: IFSTTAR, AME, LPC—Mobility and Behavior Psychology Lab, 25, Allée des Marronniers, 78000 Versailles, France. Tel. +33 1 30 84 39 57.

E-mail addresses: julien.cestac@ifsttar.fr (J. Cestac), sami.kraiem@ifsttar.fr (S. Kraïem), jean-pascal.assailly@ifsttar.fr (J.-P. Assailly).

¹ +33 1 30 84 39 59

² +33 1 30 84 39 37

influence drunk driving and moderate the peer influence on drunk-driving behaviors.

Therefore, we decided to explore the effects of cultural values and the context of driving on friends' influence. These three variables can be regarded as three kinds of norms. Peer influence is the result of a social norm at the individual level (what significant others are expecting or doing). This individual-level effect may be moderated by more general normative influences. Cultural values in a country carry some moral norms (what is morally acceptable in the country), and the context of driving in a country implies some legal norms (the driving laws, infrastructures, or education). These three kinds of norms may not always be consistent across individuals and situations; some conflict may thus occasionally occur between them (Engel, 2007). The present research's objective is to investigate the extent to which general norms affect the relation between individual norms and drunk driving. We will begin by reviewing research related to the social influence on drunk driving (individual level), and then we will review the literature about cultural and contextual effects on drinking and driving and on peer-influence (general level).

1.1. Social influence on drunk driving

Most behaviors are influenced by the social context in which they are performed, and both alcohol consumption and driving behavior are notably sensitive to others' expectations and behaviors. The mere presence of a passenger in a car can influence one's driving style. For example, it has been found that young drivers drive faster when their passengers are same-age male peers (Simons-Morton, Lerner, & Singer, 2005), but they drive more slowly when their parents are passengers (Delhomme & Delgery, 2006). Driving behavior is also influenced by surrounding traffic and the behaviors of other drivers (Åberg, Larsen, Glad, & Beilinson, 1997), following an imitation process (Connolly & Åberg, 1993).

The descriptive norm (i.e., "what I think others do") and its relationship with behavior has been widely studied since Deutsch and Gerard (1955). For example, Forward (2009) showed that descriptive norms influenced speeding and dangerous overtaking. Moreover, alcohol consumption is also linked to peers' drinking behaviors, and numerous studies in the field of addictions showed a direct relationship between one's own drinking and her/his friends' drinking (see, for example, Larimer, Turner, Mallett, & Geisner, 2004). It is thus not surprising that personal drunk-driving behavior has also been found to be influenced by friends' drunk driving (Brown, 1998; Fernandes et al., 2010). Cialdini, Reno, and Kallgren (1990) showed, however, that this effect may depend on the level of focus considered, stating, "Our view is that what is normative (i.e., most often done or approved or both) in a society, in a setting, and within a person will, in each case, have demonstrable impact on action, but that the impact will be differential depending on whether the actor is focused on norms of the culture, the situation, or the self."

Though the relation between one's own behaviors and her/his friends' behaviors has often been interpreted as a social influence, some authors have argued that it could be the result of a selection bias, that is, people being more attracted to others who behave like them (Curran, Stice, & Chassin, 1997; Lau, Quadrel, & Hartman, 1990). Nevertheless, the desire for conformity is linked with the motivation to be integrated in the group and is reinforced by the fear of social sanction. It is thus probable that socialization and selection operate simultaneously. Moreover, when studying the link between self-reported behavior and friends' declared behavior with correlation analysis, one cannot presume the direction of the causality. It is possible that one's evaluation of friends' behavior might be biased by a false consensus effect (Perkins, 2007; Ross, Greene, & House, 1977). However, several studies using experimental settings showed a direct influence of descriptive norms on behavior (Rimal & Real, 2003; Smith & Louis, 2008; Stok, Ridder, Vet, & Wit, 2014), and the social influence process

has been well established since the early works of Sherif (1936); Asch (1951), and Deutsch and Gerard (1955).

Though the social influence on drunk driving has been studied extensively, the cultural effects are less known. Cross-cultural research on driving behavior compared different countries in terms of their driving style but provided little information to explain how a culture may influence drunk driving (Antonopoulos et al., 2011; Özkan, Lajunen, Chliaoutakis, Parker, & Summala, 2006; Warner, Özkan, Lajunen, & Tzamalouka, 2011). One aim of this study is to examine the ways in which culture and national contexts affect drunk driving, particularly the ways in which they affect social influence. It has been found that the strength of descriptive norms' influence on one's behavior varies across cultures (Ando, Ohnuma, & Chang, 2007).

1.2. Cultural effects

Culture can be defined as a collective state of mind shared among members of a specific population (e.g. Fischer, 2009, Hofstede, 2001, Rohner, 1984). It includes a set of norms, values, and beliefs that varies among groups of populations (e.g., Lehman, Chiu, & Schaller, 2004). Several cross-cultural researchers identified differences between driving styles in countries or groups of countries. A comparison of driving behaviors in six European and Middle Eastern countries showed that Western/Northern European countries reported slightly more ordinary violations (i.e., speeding on a motorway) but less aggressive violations (get angry, give chase) and errors (e.g., nearly hit cyclist while turning right) than did Southern European and Middle Eastern countries (Özkan et al., 2006). These driving behaviors also mediated the relationship between the culture and the number of accidents. The differences were recently confirmed by a comparison of Northern European countries (i.e., Finland and Sweden) and Southern European countries (i.e., Greece and Turkey), and the authors reported significant differences in drunk driving across these countries (Warner et al., 2011). Nevertheless, differences have also occasionally been found within Southern European countries. A comparison of Italian and Greek students' risky behaviors revealed that the Italian students were more compliant with safety measures but reported more drunk-driving behaviors (Antonopoulos et al., 2011).

Another framework focused on the relationships between cultural values and traffic fatalities. Principally based on the conceptualization of Hofstede's (1980, 2001) and Schwartz's (1994, 2004) systems of values, previous studies showed a link between traffic risk and cultural values (Gaygisiz, 2009, 2010; Hofstede, 2001; Melinder, 2007; Özkan & Lajunen, 2007). Some of these cultural values refer to the regulation of interpersonal relations in a society. For example, individualist cultures value independence and self-sufficiency more than social norms, while collectivist cultures behave according to social norms to maintain harmony among members of the group (Hofstede, 2001). According to Schwartz (1994), individuals in embedded cultures are seen as entities integrated in the collectivity. The meaning of life is provided largely through social relationships and identifying with the group, with an emphasis on avoiding any action that might disrupt in-group solidarity or the traditional order. It could be assumed that when cultural values are emphasized in group solidarity and conformism, people's compliance tends to be more motivated by group pressure than by respect for the law.

Stankov (2011) explored the cultural differences in values and social norms. He showed that the values of tradition and conformity (two values of embedded cultures) and social norms (e.g., in-group collectivism) have the greatest variability across countries. Brauer and Chaurand (2010) studied the role of cultural values in the relationship between injunctive norms and behavior. In collectivist countries, people tend to exert more social control when they see highly deviant behavior than do people in more individualist countries. Another study showed that injunctive norms were strong predictors of job turnover in Japanese but not British workers (Abrams, Ando, & Hinkle, 1998). One

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