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E-Survey of Road users' Attitudes

Male & Female Road Users

ESRA3 Thematic report Nr. 12

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Male & Female Road Users

ESRA3 Thematic report Nr. 12

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List of abbreviations

Country codes (in accordance with ISO 3166-1 alpha-2 (International Organization for Standardization (ISO), 2024))

AM	Armenia	KG	Kyrgyzstan
AU	Australia	LV	Latvia
AT	Austria	LU	Luxembourg
BE	Belgium	MX	Mexico
BA	Bosnia and Herzegovina	NL	Netherlands
BR	Brazil	PA	Panama
CA	Canada	PE	Peru
CL	Chile	PL	Poland
CO	Colombia	PT	Portugal
CZ	Czech Republic	RS	Republic of Serbia
DK	Denmark	SI	Slovenia
FI	Finland	ES	Spain
FR	France	SE	Sweden
DE	Germany	CH	Switzerland
EL	Greece	TH	Thailand
IE	Ireland	TR	Türkiye
IL	Israel	UK	United Kingdom
IT	Italy	US	United States
JP	Japan	UZ	Uzbekistan
KZ	Kazakhstan		

Other abbreviations

ESRA	E-Survey of Road users' Attitudes
EU	European Union
ICW	Individual country weight used in ESRA3
GGGI	Global Gender Gap Index
GNI	Gross National Income
HIC	High income countries based on World Bank classification 2023 (The World Bank Group, 2023)
UMIC	Upper-middle income countries based on World Bank classification 2023 (The World Bank Group, 2023)
LMIC	Lower-middle income countries based on World Bank classification 2023 (The World Bank Group, 2023)
WEF	World Economic Forum

Executive summary

Objective and methodology

ESRA (E-Survey of Road users' Attitudes) is a joint initiative of road safety institutes, research centres, public services, and private sponsors from all over the world. The aim is to collect and analyse comparable data on road safety performance and road safety culture. The ESRA data are used as a basis for a large set of road safety indicators. These provide scientific evidence for policy making at national and international levels.

Vias institute in Brussels (Belgium) initiated and coordinates ESRA, in cooperation with ten steering group partners (BASt (Germany), DTU (Denmark), IATSS (Japan), ITS (Poland), KFV (Austria), NTUA (Greece), PRP (Portugal), SWOV (the Netherlands), TIRF (Canada), University Gustave Eiffel (France)). At the heart of ESRA is a jointly developed questionnaire survey, which is translated into national language versions. The themes covered include self-declared behaviour, attitudes and opinions on unsafe traffic behaviour, enforcement experiences and support for policy measures. The survey addresses different road safety topics (e.g., driving under the influence of alcohol, drugs and medicines, speeding, distraction) and targets car occupants, moped riders and motorcyclists, cyclists, pedestrians, and riders of e-scooters. In ESRA3 the questions related to vulnerable road uses (moped riders and motorcyclists, cyclists, pedestrians, and riders of e-scooters) have been expanded and questions on e-scooters and infrastructure have been added.

The present report is based on the third edition of this global survey, which was conducted simultaneously in 39 countries in 2023. In total this survey collected data from more than 37000 road users in 39 countries across five continents. An overview of the ESRA initiative and the project results is available on: www.esranet.eu.

The objective of this thematic report on ESRA3 data is to investigate gender-based differences in 39 countries, classified into three geographical regions. The analysis includes an examination of the determinants of self-declared risk behaviour and intention, disaggregated by mode of transport (car driver, motorcyclist, cyclist, pedestrian, and e-scooter rider). The scores of men and women were compared at the global level, as well as in each country and region. This report analysed the gender differences on a number of variables, including self-declared risk behaviour, personal and social acceptability of risk behaviour, self-efficacy and intention to comply, perceived safety of the mode used, support for road safety measures, crash involvement, perception of deterrence and of infrastructure, social desirability, and intention to comply with the law.

Key results of descriptive analysis

Gender differences in self-declared behaviours among frequent users

Among car drivers, gender differences in risk-taking behaviour can be observed in all three regions and in 23 of the 39 countries surveyed. Similarly, for pedestrians, gender-based differences were identified in all three regions and in 16 of the 39 countries included in the survey. Conversely, for cyclists, the observed differences were statistically significant in only five of the 39 countries and two of the three regions (Europe22 and America8). Furthermore, for moped riders and motorcyclists no significant differences were identified in any of the three regions, and only in America8 for e-scooters.

Gender differences in personal acceptability among frequent users

Significant gender differences were observed in all three regions for both car drivers and pedestrians. These differences were noted in 16 countries for pedestrians and in 22 of the 39 countries for car drivers. However, no significant differences between men and women in the personal acceptability of risky behaviour were identified in any of the three regions for moped riders and motorcyclists. Furthermore, only two countries (Sweden and Thailand) and two regions (Europe22 and America8) exhibited such differences for cyclists.

Gender differences in other attitudes related to road safety among frequent users

Some gender differences in driving are consistent across all regions, whereas others vary considerably. In 27 countries and three regions, males have higher self-efficacy. In 29 countries and all three regions, men perceived more frequent police checks. In 33 countries and all three regions, women support road safety policies more than men. Deterrence was seen as more prevalent among men in 13 countries and across all three regions, while in 20 countries women had a higher risk perception than men. In 13 countries and the Europe22 and America8 regions, women had a greater intention to comply than men. Social acceptability was seen as more prevalent among men in nine countries across Europe22 and America8.

Regular users show more pronounced gender differences among drivers and pedestrians than cyclists and motorcyclists. These discrepancies exist across countries and regions regarding self-declared behaviour, acceptability of risky behaviour, self-efficacy, deterrence, and support for policies. However, gender differences are observed in Europe22 and America8 but not in Asia-Oceania9 when considering risk perception, intention to comply and social acceptability. Nevertheless, while statistically significant, the magnitude of these differences is small.

Key results of Advanced analysis

To examine gender gaps in various cultural contexts, we used proxies like the GGGI (gender equality policies), road deaths, and the proportion of male road deaths.

GGGI is linked to increased risky driving, greater social and personal acceptability of risky behaviour, self-efficacy, and perceived risk of traffic violations. Conversely, it decreases perceived deterrence. The more men are over-represented in a country's fatal crashes, the more the country's participants perceive traffic offences as risky and support road safety policies. Gender equality policies appear to reduce or even reverse gender differences in perceptions and attitudes towards road safety. It would appear that, in all cases, gender equality policies do not result in a systematic reduction in gender differences in perceptions and attitudes towards road safety among frequent drivers.

The results concerning the demographic, cultural and psychological determinants of self-declared behaviours among men and women indicated that all attitudinal variables exert a significant influence on declared risky driving behaviours, with the exception of the social acceptability of risk behaviours among males. For both genders, a high personal acceptability of risky driving behaviour and high driving self-efficacy are significantly correlated with an increase in self-declared violations. Other variables (social acceptability, support for road safety policies, perceived deterrence) exert a positive but less significant influence. However, in contrast to the results for women, the results for men indicate that an elevated fatality rate is associated with an increase in self-declared risky driving behaviours. In contrast, the results for the women's group show that social acceptance of risky driving behaviours is associated with a increase in self-declared risky driving behaviours, while support for road safety policies is associated with a decrease in self-declared risky driving behaviours. This is not the case for the men's group.

The prevalence of self-declared risky driving behaviour is higher in countries with a high level of gender equality and with a higher fatality rate. Conversely, when all other factors are held constant, risky driving behaviour is less prevalent as the male fatality rate increases. The significant effects of gender and age on self-declared risky driving behaviour are likely to be mediated by attitudinal variables, but are only marginally influenced by cultural context.

Conclusion

Firstly, the results of the analysis demonstrate that the gender differences are contingent upon the mode of transport utilised. The gender gaps are more pronounced for frequent drivers and pedestrians than for cyclists, motorcyclists or e-scooter users. Secondly, it appears that gender equality policies do not consistently result in a reduction of gender differences in road safety behaviour and attitudes. Furthermore, the prevalence of road deaths and the proportion of male fatalities appear to encourage risky behaviour among men, whereas the social acceptability of violations seems to reinforce risky behaviour among women. Furthermore, the effect sizes were minimal in all instances, and the findings

indicated that the influences of gender, age, and culture on risky behaviour were also mediated by attitudinal variables. Additionally, these three demographic and contextual variables interacted in the explanation of attitudes and behaviours.

The analyses confirm that there are differences between men and women in terms of the attitudes and behaviours observed. However, these differences are not consistent across all modes of travel and countries. This suggests that contextual factors play a role in shaping gender differences in perceptions, attitudes and risky behaviour in road traffic. It is therefore important to tailor interventions to better address the risks and needs of men and women, especially as societies become more equal.

Key recommendations

Policy recommendations at national and regional level

- It is recommended that further study be conducted into the impact of gender on crash risk, with the objective of developing targeted programmes for those identified as being at the highest risk. The findings of this study indicate that males are more susceptible to risk than females. Even in Europe and North America, where the incidence of road traffic accidents is relatively low, males continue to be at a greater risk of involvement in such incidents than females. Politics of gender equality may also have negative consequences if it means that women also adopt risky driving behaviours and attitudes that are typically more common among men. It is therefore important **to tailor interventions to better address the risks and needs of men and women**, especially as societies become more equal.

- It is possible that the politics of gender equality may have adverse effects if they result in women adopting risky driving behaviours and attitudes that are more prevalent among men. It is therefore crucial to adapt interventions to more effectively address the specific risks and needs of men and women, **particularly as societies become increasingly egalitarian**.

- To reduce men's risk-taking behaviour, it is essential to target the attitudes that are the most significant determinants of violations. These include the **personal acceptability of violations and feelings of self-efficacy** in the face of violations. Both of these are far more commonly exhibited by male users.

Specific recommendations to particular stakeholders

- It is recommended that contributions be made to educational and awareness-raising campaigns and events with the objective of reducing risk behaviours, with a particular focus on males. The significant impact of individual perceptions on risk-taking behaviours underscores the necessity for a comprehensive approach to risk assessment and regulation. It is of particular importance to **target the "male" values** that influence individual behaviour, including among women in countries where gender equality is high.

- The objective is to develop research aimed at **understanding the psychological mechanisms** by which gender influences risk behaviours, as well as research aimed at **influencing this relationship**.

The ESRA initiative has demonstrated the feasibility and the added value of joint data collection on road safety performance by partner organizations all over the world. The intention is to repeat this survey every three to four years, retaining a core set of questions in every edition. In this way, ESRA produces consistent and comparable road safety performance indicators that can serve as an input for national road safety policies and for international monitoring systems on road safety performance.

1. Introduction

1.1 Gender differences in road crashes

Ranked 12th among the world's leading causes of death (WHO, 2023), road traffic crashes remain a significant public health problem, with an undeniable role for gender. Even when exposure is controlled, men are more likely than women to be involved in road crashes (GHE, 2016), including those involving a car, motorcycle, bicycle or on foot (Prati, Fraboni, De Angelis & Pietrantoni, 2019; Pulido et al., 2016; Stimpson, Wilson & Muelleman, 2013; Zhu, Zhao, Coben & Smith, 2013), especially when they are young (Twisk, Bos, Shope & Kok, 2013). Although women make up 51% of the world's population, they represent only 24% of road deaths (Rodrigues, Fonseca & Cardoso, 2015; Traffic Safety Basic Facts, 2016). Among those killed, women are also less likely to be the driver (31% compared to 70% of men) (Traffic Safety Basic Facts, 2016) and less likely to be considered responsible for the crash (ONISR, 2018). On the contrary, the mere presence of a male passenger is sufficient to increase the fatality rate for young drivers (Williams, Ferguson & McCartt, 2007).

Even when exposure is controlled for, men are more likely to be involved in road traffic crashes than women (WHO, 2016). For example, although men make up 49% of the 27-nation European Union's population, they account for 76% of road deaths (European Commission, 2022). Ninety per cent of road crashes are attributed to human factors (Alonso et al. 2002, cited in Gonzalez-Iglesias, Gomez-Fraguela, Luengo-Martin, 2012). Therefore, to better understand the impact of gender on road crash risk, the relationship between gender and attitudes towards driving skills and road safety measures has been the subject of much analysis.

1.2 Why are men over-represented in road crashes?

The observed gender differences in road crashes may be partly explained by males' greater involvement in risky and illegal behaviours (Barr et al., 2015; Butters, Mann, Wickens & Boase, 2012; Scott-Parker, Watson, King & Hyde, 2014), their greater sensation seeking (Cestac, Paran & Delhomme, 2011) and their lower use of safety measures that could protect them (e.g. seat belts, helmets) (Fernandes, Hatfield & Job, 2010; Jiménez-Mejías et al, 2014). Males make up 75% of the young risk-taking driver population and perceive crashes as external and therefore difficult to control (Lucidi et al., 2010). They tend to perceive themselves as immune to risks that threaten others and overestimate their driving skills (Glendon, Dorn, Davies, Matthews & Taylor, 1996), particularly in risky situations (Farrow & Brissing, 1990). Conversely, some studies suggest that women perceive greater overall risk on the road and feel less able to cope with the difficulties they may encounter compared to men (Farrand & McKenna, 2001; Glendon et al., 2014). For example, they perceive greater risks in speeding (Obst, Armstrong, Smith & Banks, 2011; Holocher & Holte, 2019) and using their phone while driving (Struckman-Johnson, Gaster, Struckman-Johnson, Johnson & May-Shinagle, 2015).

However, these observed gender differences may not be universal. According to Lund and Rundmo (2009), the fact that women are more risk-sensitive and perceive more risk in road traffic than men is only true in high-income countries. In fact, in Ghana, the perception of risk is similar between men and women because, as residents of developing countries, they are more accustomed to risk, which may influence their perception (Flynn, Slovic & Mertz, 1994). Other researchers found no gender difference in perceptions of crash frequency and probability (Cordellieri et al., 2016). Nevertheless, men perceive risky behaviour as less serious (DeJoy, 1992; Gonzalez-Iglesias et al., 2012), are less concerned about the risk of it happening to them (Cordellieri et al., 2016; Gonzalez-Iglesias et al., 2012) or injuring someone (Glendon et al., 2014). They may perceive driving as dangerous for other drivers but not for themselves (DeJoy, 1992). Thus, risk-taking among males is not explained by a lower perception of risk, but by a more detached attitude towards it, as risk-taking can be rewarding for this population (Guého, 2015). Conversely, women are concerned about all road safety issues (Butters et al., 2012).

There are also differences in the way men and women evaluate their skills. In relation to driving, two forms of competence can be distinguished: competence in relation to driving skills and competence in relation to safety (Sibley & Harré, 2009). Most people express a bias towards their skills, perceiving them to be superior to those of the average driver (Sibley & Harré, 2009). However, men value their skills more in terms of ability, whereas women value their caution, both overtly and implicitly, automatically (Sibley & Harré, 2009). However, it is interesting to note that men still perceive themselves

as safe drivers - even more than women - despite reporting riskier behaviour (Barr et al., 2015; Rodrigues et al., 2015). As a result, they express more negative attitudes towards traffic enforcement (e.g., Akaateba & Amoh-Gyimah, 2013; Bener et al., 2013; Butters et al., 2012; Corbett & Caramlau, 2006) and traffic laws (Møller & Haustein, 2014) and report more intentions to break traffic rules in the future (Scott-Parker et al., 2014). These attitudes may be partly explained by the fact that males typically experience arousal in traffic situations and vehicles that they find difficult to control (Redshaw, 2006). In general, men experience more positive emotions and interest in driving, which predicts risky driving (Harré, Field & Kirkwood, 1996; Rhodes & Pivik, 2010). Conversely, women have more positive attitudes towards safe driving and more satisfaction with obeying traffic rules than men (Rodrigues et al., 2015).

Many traffic offences increase the risk of road crashes, sometimes simultaneously, and males tend to commit more traffic offences than females (Barr et al., 2015; Butters et al., 2012; Scott-Parker et al., 2014). Males are also a more vulnerable population when it comes to driving while fatigued (Gonçalves et al., 2015; Obst et al., 2011), as they are more likely to report driving while fatigued and do not perceive it to be as risky as females (Obst et al., 2011). As a result, they are more likely to have narrowly escaped a collision when fatigue was a factor (Obst et al., 2011). In addition, men are less likely to use seat belts and less likely to require their passengers to use them (Barr et al., 2015), as shown in the study by Granié et al. (2019), in North America, Europe and Africa, but not in Asia-Oceania, where the proportion is the same. However, Obeng (2011) found that among those who had been in a car crash, women were less likely to wear a seatbelt than men.

Gender differences are even greater for crashes involving substance use (alcohol, illicit or licit drugs), where men are generally overrepresented (Amarasingha & Dissanayake, 2014; Romano, Peck & Voas, 2012). They are at greater risk of driving under the influence (Mouloua, Brill & Shirkey, 2007) and being arrested for substance use (Vaca, Romano & Fell, 2014). Thus, some authors have suggested that gender differences in road crashes may be explained by differences in alcohol consumption (Kelley-Baker & Romano, 2010). However, it appears that this gender gap has narrowed in recent decades, with a much greater increase in the proportion of women arrested for drink-driving than men (Vaca et al., 2014). This is partly explained by a change in women's behaviour (Vaca et al., 2014).

Distracted driving, another risky behaviour, has increased in recent decades with the widespread use of mobile phones. Among young adults, the frequency of texting or talking on a mobile phone while driving is 94% (Nemme & White, 2010). However, this frequency is higher among males in studies conducted in the United States (Barr et al., 2015) and Qatar (Bener et al., 2013), but not in those conducted in Australia (Nemme & White, 2010; Struckman-Johnson et al., 2015), demonstrating a cultural effect in this gender difference. Similarly, in the study by Pires, Areal and Trigoso (2019), mobile phone use is higher among men than women in Europe and Africa, but not in Asia-Oceania and South and North America. However, in Australian studies, more women think the behaviour is dangerous and should be prohibited (Struckman-Johnson et al., 2015).

Finally, speed is considered a major cause of traffic crashes: for example, it is the main cause of fatal collisions in France, accounting for 18% of deaths (OMS, 2018). Men and women behave differently towards speed cameras. For example, females are more compliant with speed regulations, whereas males show manipulative behaviour, avoiding speed cameras or slowing down as they pass (Corbett & Caramlau, 2006). As a result, men are twice as likely as women to be caught by a speed camera (Corbett & Caramlau, 2006). This male tendency to drive fast has been observed in many countries around the world, including Qatar (Bener et al., 2013), England (Corbett & Caramlau, 2006), Australia (Horvath, Lewis & Watson, 2012) and Ukraine (Sullman, Stephens & Hill, 2017), and was confirmed in an initial analysis of ESRA2 data. Across all regions, men consistently report more speeding than women, with varying regional differences (Granié et al., 2019). This is also reflected in their intentions to exceed the speed limit. Men are more willing than women to exceed the speed limit in a given situation (Horvath et al., 2012).

1.3 Why are men less risk-averse than women?

Classically, the tendency of males to take risks has been explained by a combination of biological and evolutionary theories (Granié & Papafava, 2011). Males are thought to have a higher rate of sensation seeking and to take more risks than females because they produce more androgens (Zuckerman, 1991).

According to evolutionary theory, this tendency would be the natural consequence of males' function to protect the community and reproduce their genetic heritage by competing to attract females (Daly & Wilson, 1987). Social relations between males would therefore be more competitive (Yagil, 1998), leading them to feel social pressure to drive fast, which is less the case for females (Cestac et al., 2011). However, these hypotheses do not seem sufficient to explain such differences and the sometimes-contradictory results discussed above. Some studies highlight the fact that gender differences in traffic behaviour are not explained by gender differences but by gender roles and would result from socialisation (Granié, Degraeve & Varet, 2019; Oppenheim, Oron-Gilad, Parmet & Shinar, 2016; Sibley & Harré, 2009). Gender roles and gender stereotypes refer to a set of social beliefs about what a man and a woman should be in a given society (Ashmore, Del Boca & Wohlers, 1986). As these stereotypes vary across cultures, the behaviours expected of men and women may also vary. For Simon and Corbett (1996), gender differences are simply a reflection of gender role differences, with the female role presented as passive, non-competitive and cautious, while the male role is risk-taking, competitive and non-compliant. Norms of masculinity even prescribe a minimisation of danger, coupled with reckless behaviour (Struckman-Johnson et al., 2015). Men then engage in risky behaviour to demonstrate their masculinity by adopting typical behaviours and thus deviating from feminine behaviour (Courtenay, 2000).

At the intersection of biological and social explanations, some authors suggest that an individual's level of risk-taking depends on two factors: endogenous tendencies on the one hand, and constraints and restrictions on risk-taking in the individual's culture (laws, norms, educational practices, etc.) on the other (Arnett, 1992). Recent research thus seeks to identify both biological and social origins - innate and acquired - of gender differences in risk-taking. For example, Brown (2013) identifies a double risk factor for the male population. Male gender leads to high levels of androgens, a reduced effect of alcohol on psychomotor performance and slower neurocognitive development, which reduces risk perception and increases impulsivity and sensation seeking in adolescence. The masculine psychosocial gender role confers a cultural, social and individual value on risk-taking, aggressiveness, competition and alcohol consumption, as well as greater exposure in terms of driving frequency. Females, on the other hand, have a double protective factor against the risk of an accident: both the female gender and the female gender role are barriers to the biological and social factors explaining risk-taking.

This last explanation suggests that gender differences may vary across countries and therefore cultures and gender roles that are socially expected for women and men. Although some studies have investigated cultural differences between road users from developed and developing countries (Üzümcüoğlu et al., 2018), and some others have investigated gender differences across countries and cultures (Schmitt et al., 2008), most of the research on gender differences to date has been based only on high-income countries. To our knowledge, no study has yet attempted to compare gender differences in driving behaviour across diverse geographical and cultural contexts. Such an approach might show that gender differences in driving behaviour vary across countries and geographical and cultural contexts, thus supporting psychosocial explanations of gender differences in driving behaviour. For example, some studies have shown that there are already differences within countries, with gender differences being more pronounced and women having even fewer car crashes in low-income regions than in wealthier regions (Al-Balbissi, 2003). The first analysis of gender differences in the ESRA2 data by Granié et al. (2020) found interactions between gender and culture – through the cultural clusters defined by the GLOBE survey – for four offences: drink driving, driving while using a phone, speeding and seatbelt use. However, these analyses only covered drivers and some of the attitudes measured in the ESRA2 survey.

1.4 Report objectives

The aim of this study is to build on the previous findings by analysing gender differences across the sample, by region, but also by comparing countries. In particular, this study will focus on examining the differences between these countries in terms of their level of gender equality policies and the extent to which men are overrepresented among road deaths. This ESRA thematic report aims to describe the differences between men and women in self-declared behaviour and attitudes related to transport, according to the most used travel mode for each individual in a sample of 39 countries worldwide. Further to the report on the gender aspects of the ESRA2 data, this report allows us to observe the gender differences on the different variables questioned, according to cultural but also mobility

differences. The factors influencing these self-declared behaviours and attitudes are examined within each of the three regions: Europe22, America8, Asia-Oceania9.

2. Methodology

ESRA (E-Survey of Road users' Attitudes) is a joint initiative of road safety institutes, research centres, public services, and private sponsors from all over the world. The aim is to collect and analyse comparable data on road safety performance, in particular road safety culture and behaviour of road users. The ESRA data are used as a basis for a large set of road safety indicators. These provide scientific evidence for policy making at national and international levels.

ESRA data are collected through online panel surveys, using a representative sample of the national adult populations in each participating country (aiming at n=1000 per country). A few exceptions exist. In four countries (Armenia, Kyrgyzstan, Luxembourg, and Uzbekistan) the targeted sample size was reduced to 500 respondents, as sample sizes of 1000 respondents were not feasible due to limitations of the national panel or too high costs.

At the heart of this survey is a jointly developed questionnaire, which was translated into 49 national language versions in ESRA3 (Appendix 1). The themes covered include self-declared behaviour, attitudes and opinions on unsafe traffic behaviour, enforcement experiences and support for policy measures. The survey addresses different road safety topics (e.g., driving under the influence of alcohol, drugs and medicines, speeding, distraction) and targets car occupants, moped riders and motorcyclists, cyclists, pedestrians, and riders of e-scooters. In ESRA3 the questions related to vulnerable road users (moped riders and motorcyclists, cyclists, pedestrians, and riders of e-scooters) have been expanded and questions on e-scooters and infrastructure have been added. The present report is based on the third edition of this global survey, which was conducted simultaneously in 39 countries in 2023. In total this survey collected data from more than 37000 road users in 39 countries, across five continents.

The participating countries in ESRA3 were:

- Europe: Austria, Belgium, Bosnia and Herzegovina, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Netherlands, Poland, Portugal, Republic of Serbia, Slovenia, Spain, Sweden, Switzerland, United Kingdom;
- America: Brazil, Canada, Chile, Colombia, Mexico, Panama, Peru, USA;
- Asia and Oceania: Armenia, Australia, Israel, Japan, Kazakhstan, Kyrgyzstan, Thailand, Türkiye, Uzbekistan.

Vias institute in Brussels (Belgium) initiated and coordinates ESRA, in cooperation with ten steering group partners (BASt (Germany), DTU (Denmark), IATSS (Japan), ITS (Poland), KFV (Austria), NTUA (Greece), PRP (Portugal), SWOV (the Netherlands), TIRF (Canada), and University Gustave Eiffel (France)). The common results of the ESRA3 survey are published in a Main Report, a Methodology Report and 13 Thematic Reports (Table 1). Furthermore, 39 country fact sheets, including different language versions, have been produced in which national key results are compared to a regional mean (benchmark). Scientific articles, national reports and many conference presentations are currently in progress. All common ESRA3 reports have been peer-reviewed within the consortium, following a pre-defined quality control procedure. An overview of the results and news on the ESRA initiative is available on: www.esranet.eu. On this website one can also subscribe to the ESRA newsletter.

Table 1: ESRA3 Thematic Reports

Driving under influence of alcohol, drugs and medication	Support for policy measures and enforcement	Pedestrians	Young and aging road users
Speeding	Subjective safety and risk perception	Cyclists	Male and female road users
Distraction (mobile phone use) and fatigue	Infrastructure	Riders of e-scooters	
Seat belt & child restraint systems		Moped riders and motorcyclists	

The purpose of this thematic report is to explore the differences between males and females in declared behaviour and attitudes related to transport. A more detailed overview of the data collection method and the sample per country can be found in the ESRA3 methodology report (Meesmann & Wardenier, 2023).

In this report, we wanted to study whether gender differences varied according to the mode of travel, and a number of questions are specific to a mode of travel, particularly concerning declared behaviour, personal acceptability and perception of the risk of the mode used. To analyse gender differences according to mode of travel, we selected, for each mode, participants with a high frequency of use of the mode of transport (Q12): 'at least 4 days a week'. This criterion is not exclusive. For example, 7763 frequent pedestrians are also frequent drivers (see Figure 1). This procedure makes it possible to target responses from frequent users and exclude occasional users. When the questions do not relate to a specific means of transport, we use a larger sample, including all frequent users. The overall sample thus analysed (N=27374) contains only frequent users of at least one of the modes surveyed and is detailed in the following tables (see Table 2)

As the aim of this report is to analyse gender differences in behaviour and attitudes among different types of users, an examination of each of the specific behaviours or attitudes measured in the survey was not conducted in this study[1]. In order to concentrate on the combined impact of gender and culture, we elected to construct aggregated scores for each of the constructs under examination, following verification of the acceptability of the Cronbach's alpha ($\alpha > .70$). These 10 factors are hypothetical and have not, however, been validated upstream by an exploratory factor analysis. The variables considered and the corresponding question number from the survey found in Appendix 1 are: Declared risky behaviour (Q14_1.3.4.5.6), Social acceptability of risky behaviour (Q15), Personal acceptability of risky behaviour (Q16_1.2.3.4), Perceived behaviour control (Q17_2.), Intention to comply (Q17_4.), Perception of risky behaviour (Q19), Road safety policy support (Q20), Perceived probability of enforcement (Q22), Enforcement perception (Q23), Infrastructure (Q25_a/b1.2.3.4).

As the effect of age on driver perceptions, attitudes and behaviour is already well demonstrated in the literature (Borowsky et al., 2010), age was also included in the analysis, in addition to gender and regional effects, to control for its effect. Analysis of variance (ANOVA) were carried out to assess the effect of gender, country/region and age on each aggregated score explained above. For each significant F test, we give eta squared (η^2) value as a measure of effect size. The scale of magnitude given by Cohen (1988) is as follows: small when η^2=.01, medium when η^2=.06, large when η^2=.14.

Note that a weighting of -the data was applied in the analyses. This weighting took into account small corrections with respect to national representativeness of the sample based on gender and six age groups: 18-2Axe4y, 25-34y, 35-44y, 45-54y, 55-64y, 65-74y (United Nations Statistics Division, 2023). The results are presented by country and region. The following regional means are used in the report: Europe22 (including 22 countries), America8 (including eight countries) and AsiaOceania6[2] (including six countries). For the regional means, the weighting also took into account the relative size of the population of each country within the total set of countries from this region (Appendix 2). The weighted sample size per region, country and main road user type are presented in Appendix 3. SPSS 29.0 (IBM Corp., 2022) and R 4.3.1 (R Core Team., 2023) were used for all analyses.

[1] *For a detailed analysis by item, readers can refer to the other ESRA 3 reports, in which gender differences are analysed for each item.*

[2] *Armenia, Kyrgyzstan, and Uzbekistan were not included due to different methodology in data collection – face-to-face CAPI*

Table 2: Distribution of the sample of frequent users over the three regions and five modes of transport studied, by gender and age category

Sample	ESRA Regions			Total	Transport Mode				
	America8	Asia-Oceania9	Europe22		Car Driver	Cyclist	E-scooter	Motorcyclist	Pedestrian
Gender group									
Men	2812	2538	8650	14000	8732	2294	383	1031	8873
Women	2433	2296	8645	13374	7299	1715	260	563	8768
Age									
18-24	667	694	1709	3070	1271	552	116	242	2224
25-34	1187	1212	3022	5421	3085	912	240	464	3480
35-44	1149	1142	3438	5729	3562	800	164	409	3576
45-54	1009	810	3670	5489	3567	719	70	252	3379
55-64	825	600	3222	4647	2859	631	38	163	2964
65-74	408	376	2234	3018	1687	395	15	64	2018
Total	5245	4834	17295	**27374**	16031	4009	643	1594	17641

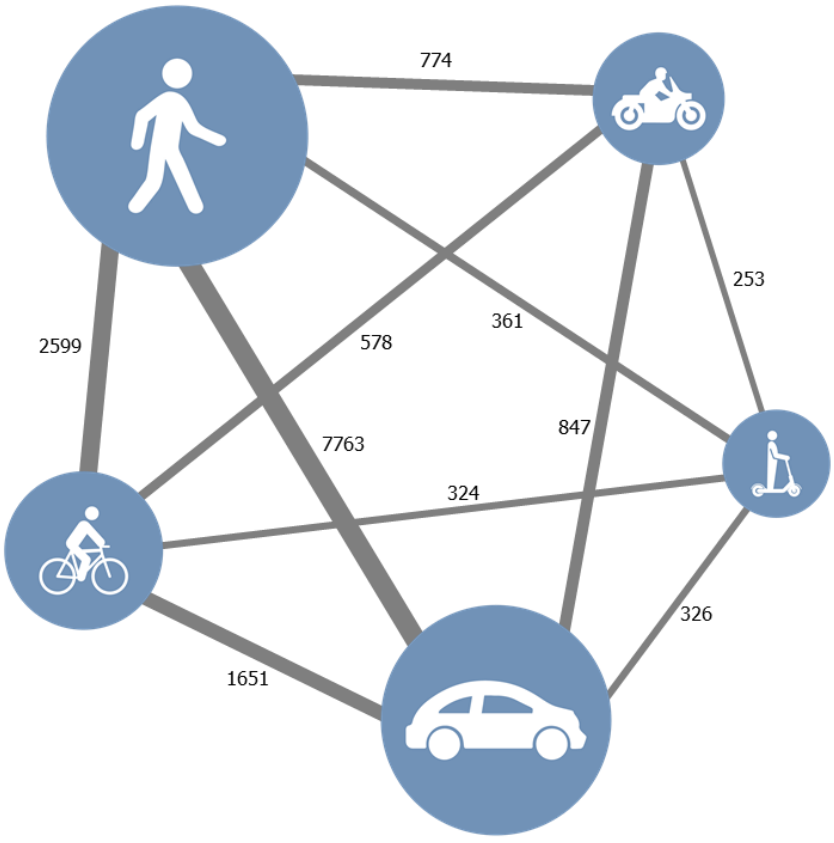

Figure 1: Relationship map - Frequency of transport mode

Table 3: Distribution of frequent users of each mode by gender, for each country and region, and significance of Khi²

	Frequent cyclists			Frequent PTW riders			Frequent e-scooter riders			Frequent pedestrians			Frequent drivers		
	Gender			Gender			Gender			Gender			Gender		
	Men	Women	Tot	Men	Women	Tot	Men	Women	Tot	Men	Women	Tot	Men	Women	Tot
Armenia	4	1	5	0	0	0	2	1	3	181	187	368	74***	14	88
Australia	39	30	69	27	17	44	13	10	23	169	151	320	211*	248	459
Austria	80	81	161	20	13	33	9	8	17	498	548	1046	449***	406	855
Belgium	144**	117	261	34	27	61	21	15	36	420	458	878	408*	405	813
Bosnia and Herzegovina	54	52	106	24***	7	31	8	5	13	161	200	361	246***	230	476
Brazil	69*	52	121	46*	32	78	6	4	10	169*	153	322	232***	185	417
Canada	55*	39	94	28***	12	40	18	7	25	338**	306	644	449***	388	837
Chile	46*	33	79	14**	3	17	4	0	4	225***	178	403	180***	123	303
Colombia	63*	46	109	68***	31	99	4	5	9	191***	147	338	124***	80	204
Czech Republic	46	35	81	7	3	10	7	3	10	276	282	558	192***	146	338
Denmark	110	97	207	18	14	32	7	7	14	194	212	406	216*	189	405
Finland	75	68	143	8*	2	10	10***	0	10	245	304**	549	211***	163	374
France	65***	29	94	29***	7	36	19*	8	27	200	189	389	241	219	460
Germany	64*	48	112	16*	6	22	8	7	15	187	188	375	184*	156	340
Greece	31	23	54	75***	23	98	4	3	7	224*	212	436	310***	244	554
Ireland	37***	13	50	11	6	17	11**	2	13	187	194	381	251	242	493
Israel	22*	11	33	8**	0	8	8	4	12	193**	153	346	295	278	573
Italy	78*	57	135	44***	14	58	10	4	14	277	246	523	357***	290	647
Japan	71	74	145	15**	3	18	0	1	1	265***	224	489	184**	154	338
Kazakhstan	42*	25	67	13**	3	16	5	3	8	213	198	411	120***	38	158
Kyrgyzstan	11	4	15	2	0	2	3	2	5	113	128	241	89***	18	107
Latvia	43*	31	74	8*	1	9	8	5	13	243	285	528	263***	192	455
Luxembourg	19*	7	26	8	2	10	1	0	1	117	103	220	165	143	308
Mexico	52*	34	86	28	19	47	6	5	11	220***	182	402	215***	183	398
Netherlands	161	155	316	32***	8	40	13**	2	15	292	315	607	183**	161	344

Panama	41***	21	62	11	9	20	6*	1	7	133	127	260	192***	157	349
Peru	53*	32	85	44***	17	61	6	6	12	186*	151	337	106***	54	160
Poland	92**	67	159	10*	2	12	6	8	14	312	326	638	238***	205	443
Portugal	23	8	31	19***	5	24	7	2	9	241	250	491	317***	291	608
Serbia	80	80	160	9	5	14	3	6	9	267	311**	578	283***	178	461
Slovenia	74***	28	102	32***	3	35	21***	5	26	247	245	492	321***	270	591
Spain	39*	24	63	19	15	34	20	12	32	337	346*	683	208*	198	406
Sweden	76**	47	123	14*	4	18	15*	5	20	194	194	388	174**	143	317
Switzerland	78*	53	131	22	12	34	12	10	22	278	300*	578	212	187	399
Thailand	98	86	184	173	145	318	28	20	48	131	109	240	178*	146	324
Türkiye	58***	24	82	31	19	50	15	13	28	290***	214	504	216*	176	392
United Kingdom	35	28	63	16	20	36	10	12*	22	226	260	486	185*	182	367
United States	48	51	99	39	51	90	23	43**	66	105	97	202	217	211	428
Uzbekistan	18***	4	22	9	3	12	6	6	12	128***	95	223	36***	6	42
Regions															
Europe22	1504***	1148	2652	475***	199	674	230***	129	359	5623	5968	11591	5614***	4840	10454
America8	427***	308	735	278***	174	452	73	71	144	1567***	1341	2908	1715***	1381	3096
Asia-Oceania9	363***	259	622	278***	190	468	80*	60	140	1683***	1459	3142	1403***	1078	2481
Total	2294***	1715	4009	1031***	563	1594	383***	260	643	8873***	8768	17641	8732***	7299	16031

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*

We have analysed the gender distribution of frequent users of the different modes for each country (see Table 3: Distribution of frequent users of each mode by gender, for each country and region, and significance of Khi^2). Several points emerge from this analysis. Firstly, some modes are used very infrequently in some of the countries in the sample. This is particularly true for e-scooters, which are frequently used by only 643 people out of the total sample, with the number of respondents per country ranging from 1 (for Japan and Luxembourg) to a maximum of 48 people for Thailand and a low total number of frequent users in the America8 (144) and in Asia-Oceania9 (140). Frequent users of motorised two-wheelers are also few in number (ranging from 0 respondents in Armenia to a maximum of 318 in the Thai sample). Samples of frequent users of bicycles, whether traditional or electric, are larger, particularly in Europe22 (2652 participants), but smaller in some countries, such as Portugal and Luxembourg (31 and 26 respondents respectively), Israel (33 respondents) and several Eastern European countries (Armenia, Kyrgyzstan, Uzbekistan).

Secondly, analyses of the distribution of men and women for each type of frequent user by country show significant differences in the frequency of use according to gender. The data show that men are more numerous among the frequent users of all the modes analysed, in all of the three regions, except for e-scooters (due to very small total samples) and for pedestrians in Europe22 where there are no significant differences between men and women in the number of frequent walkers. This is particularly the case for frequent moped riders and motorcyclists, for which the gender difference is significant in almost all countries and in all of the 3 regions observed. This is also the case for car drivers, where frequent users are significantly more likely to be men, in the 3 regions and in all of the countries, except in 6 (Switzerland, France, Ireland, Israel, USA, Luxembourg) of the 39 countries surveyed.

Thus, in some countries, the observed samples, overall and especially for women, for certain groups of frequent users are too small to allow reliable analyses of gender differences in the attitudes and behaviour of frequent users of these modes. Consequently, the descriptive analyses proposed in this report will focus only on the regional level for frequent users of motorized two wheelers and e-scooters and will be treated with caution for frequent users of bicycles, in particular in Portugal, Israel, Luxembourg, Armenia, Latvia, Kazakhstan, Kyrgyzstan, Türkiye, Uzbekistan and Panama. It is also worth noting the very low number of female riders in Armenia, Kazakhstan, Kyrgyzstan and Uzbekistan.

3. Results

3.1 Overall results

This chapter presents the results of the descriptive statistics for the survey questions, with the objective of identifying potential differences in responses according to the gender of the participant. The differences between men and women in the various aggregate scores constructed beforehand, for each type of frequent user, are analysed for the three regions and by country. The questions analysed are as follows: declared behaviour, social and personal acceptability of risky behaviour, perceived self-efficacy of risky behaviour, perception of risky behaviour, support for road safety measures, perceived deterrence and perception of infrastructure.

3.1.1 Gender differences in the declared risky behaviours

3.1.1.1 Among frequent car drivers

With regard to declared risk behaviour at the wheel, we have aggregated the following elements (α=.889) and calculated average scores, looking at the differences according to gender:
(Q14_1) Over the last 30 days. how often did you as a CAR DRIVER …?

- drive when you may have been over the legal limit for drinking and driving
- drive after drinking alcohol
- drive within 1 hour after taking drugs (other than prescribed or over the counter medication)
- drive within 2 hours after taking medication that may affect your driving ability
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive too fast for the road/traffic conditions at the time (e.g., poor visibility. dense traffic. presence of vulnerable road users)
- drive faster than the speed limit on motorways/freeways
- drive without wearing your seatbelt
- transport children under 150cm without using child restraint systems (e.g., child safety seat. cushion)
- transport children above 150cm without wearing their seat belt
- talk on a hand-held mobile phone while driving
- talk on a hands-free mobile phone while driving
- read a message or check social media/news while driving
- drive when you were so sleepy that you had trouble keeping your eyes open

A significant gender difference was observed in the global sample of frequent car drivers ($F(1, 16030) = 213.700$, $p<.001$, $\eta^2=.013$. Men declared a higher frequency of risky behaviours (M=22.53, SD=8.056) than women (M=20.78, SD=6.874).

As shown in Table 4, the tests of ANOVA showed significant gender differences for 23 out of the 39 countries of the ESRA sample. Gender difference was significant for Austria, Belgium, Bosnia and Herzegovina, Brazil, Canada, Colombia, Finland, Greece, Ireland, Israel, Italy, Japan, Latvia, Mexico, Netherlands, Panama, Peru, Portugal, Serbia, Slovenia, Spain, Sweden and United States. In all cases, the analyses show that men in all these countries report a higher frequency of risky behaviour than women.

For all regions, gender difference was significant. The analyses show that men in all 3 regions report a higher frequency of risky behaviour than women.

Table 4: Mean and standard deviation of risk behaviours declared by frequent drivers for men and women by country and by regions, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	25.41	8.226	22.62	7.730	.037
Australia	18.99	8.281	17.91	5.966	.007
Austria	24.15***	7.291	22.24	6.672	.022
Belgium	22.53*	7.769	21.78	8.023	.005
Bosnia and Herzegovina	23.98***	7.794	21.42	5.414	.034
Brazil	21.73*	7.928	20.36	8.438	.012
Canada	22.17***	9.467	20.26	6.754	.014
Chile	22.99	7.507	21.53	6.909	.011
Colombia	23.82**	8.223	20.68	4.980	.035
Czech Republic	22.74	6.501	21.58	7.539	.006
Denmark	21.61	9.009	20.87	9.602	.004
Finland	24.09*	7.173	22.97	5.461	.011
France	20.55	7.825	19.96	6.230	.007
Germany	20.18	6.912	20.59	7.680	.000
Greece	22.09***	6.300	20.39	5.241	.022
Ireland	21.66***	8.132	19.62	5.178	.032
Israel	23.51***	6.992	21.56	6.693	.021
Italy	21.56***	8.377	19.39	6.785	.018
Japan	20.10***	6.107	17.54	4.776	.032
Kazakhstan	21.49	8.280	20.80	6.183	.000
Kyrgyzstan	24.65	8.521	24.12	8.162	.000
Latvia	24.85***	7.034	21.49	5.954	.052
Luxembourg	24.11	6.111	23.70	6.386	.002
Mexico	24.93**	10.007	21.41	6.474	.020
Netherlands	23.12**	8.458	20.67	6.261	.030
Panama	24.34*	9.083	21.66	6.352	.016
Peru	23.49**	9.386	20.83	5.108	.062
Poland	22.49	7.510	21.36	6.262	.006
Portugal	23.08***	6.804	21.38	5.719	.036
Serbia	21.71***	6.090	19.50	5.377	.035
Slovenia	22.50***	7.059	20.50	4.911	.027
Spain	22.61**	9.378	19.87	6.308	.021
Sweden	23.78**	10.193	21.14	5.501	.030
Switzerland	21.57	7.910	21.05	6.458	.004
Thailand	24.90	11.071	23.71	10.813	.008
Türkiye	20.67	6.655	19.69	10.425	.003
United Kingdom	18.63	7.137	18.63	6.420	.000
United States	22.90***	11.824	18.58	7.318	.044
Uzbekistan	25.85	10.779	26.51	5.377	.003
Region [b]					
Europe22	21.36***	7.794	20.18	6.645	.008
America8	22.94***	10.535	19.67	7.933	.030
Asia-Oceania9	21.33***	8.197	19.65	8.500	.011

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight

3.1.1.2 Among frequent riders

Concerning the riding declared risky behaviours, we aggregate the following items (α=.833):
(Q14_3) Over the last 30 days. how often did you as a MOPED RIDER or MOTORCYCLIST …?

- ride when you may have been over the legal limit for drinking and driving
- ride faster than the speed limit outside built-up areas (except motorways/freeways)
- not wear a helmet on a moped or motorcycle
- read a message or check social media/news while riding
- ride within 1 hour after taking drugs (other than prescribed or over the counter medication)

- ride too fast for the road/traffic conditions at the time (e.g., poor visibility. dense traffic. presence of vulnerable road users)

For the global sample of frequent moped or motorcyclist riders, gender difference was significant (F(1, 1593) = 8.436, p=.004, η^2=.005). As a motorcyclist, men (M=10.18, SD=5.737) declared higher risky behaviour than females (M=9.34, SD=6.153).

As shown in Table 5, there was no significant difference between men and women in the frequency of declared risk behaviour on motorised two-wheeled vehicles in any of the 3 regions.

Table 5: Mean and standard deviation of risk behaviours declared by frequent riders for men and women by regions, and partial eta square value for the ANOVA tests

	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Region [a]					
Europe22	9.49	5.587	10.17	6.634	.000
America8	12.68	8.646	8.15	5.278	.008
Asia-Oceania9	9.65	5.550	9.46	5.814	.002

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by ESRA3 region weight

3.1.1.3 Among frequent cyclists

Concerning the cycling declared risky behaviours, we aggregate the following items (α=.701):
(Q14_4) Over the last 30 days. how often did you as a CYCLIST …?

- cycle when you think you may have had too much to drink
- cycle without a helmet
- cycle while listening to music through headphones
- read a message or check social media/news while cycling
- cycle within 1 hour after taking drugs (other than prescribed or over the counter medication)
- cross the road when a traffic light is red

For the global sample of frequent cyclists, gender difference was significant (F(1, 4008) = 29.846, p<.001, η^2=.007). Men cyclists (M=11.16, SD=4.831) declared higher risky behaviour than women cyclists (M=10.37, SD=4.038).

As shown in Table 6, the tests of ANOVA showed significant gender differences for 5 out of the 39 countries of the ESRA sample. Gender difference was significant for Greece, Japan, Kazakhstan, Peru and Sweden. For Kazakhstan, Peru and Sweden, men cyclists declared higher risky behaviour than females, whereas for Greece and Japan, women cyclists declared higher risky behaviour than men. As mentioned above (see Table 3), the number of women is very low in several of the countries surveyed, which may explain why some differences are not statistically significant.

Gender difference was significant for Europe22 and America8, where men cyclists declared higher risky behaviour than females.

Table 6: Mean and standard deviation of risk behaviours declared by frequent cyclists for men and women by country and by regions, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	11.50	3.876	14.00	-	.319
Australia	9.66	6.192	7.55	3.870	.033
Austria	10.73	4.897	9.75	3.671	.007
Belgium	11.68	5.167	10.30	4.192	.007
Bosnia and Herzegovina	9.16	2.958	10.52	2.871	.032

Brazil	11.45	5.667	10.62	3.938	.000
Canada	12.18	5.998	10.94	5.676	.009
Chile	11.07	5.644	11.79	4.184	.001
Colombia	12.28	4.557	10.65	3.556	.032
Czech Republic	10.71	3.746	10.66	4.427	.003
Denmark	11.91	5.342	12.06	6.179	.003
Finland	12.23	4.754	10.49	3.445	.024
France	9.74	5.264	9.85	3.730	.000
Germany	10.60	4.124	9.83	3.826	.006
Greece	8.49	3.354	9.69*	3.164	.089
Ireland	11.67	5.254	10.75	6.758	.021
Israel	9.27	3.786	8.27	2.530	.011
Italy	10.43	4.385	9.38	3.880	.003
Japan	9.40	2.990	10.16*	3.582	.036
Kazakhstan	12.92*	3.418	11.21	3.429	.093
Kyrgyzstan	12.29	3.289	11.53	2.050	.085
Latvia	11.61	3.185	10.50	2.657	.014
Luxembourg	9.21	3.633	9.69	3.875	.007
Mexico	13.44	6.723	10.99	4.634	.040
Netherlands	12.62	4.172	12.25	3.167	.000
Panama	11.96	5.066	10.68	3.744	.014
Peru	12.29*	5.073	9.35	3.542	.061
Poland	11.12	3.836	10.26	2.994	.001
Portugal	9.78	3.782	11.59	6.700	.120
Serbia	11.03	2.845	10.30	2.840	.024
Slovenia	10.08	4.103	10.02	2.483	.010
Spain	10.99	6.167	8.45	2.165	.026
Sweden	12.69*	5.730	9.80	2.851	.057
Switzerland	10.78	5.321	10.13	4.165	.001
Thailand	12.14	5.473	10.98	4.529	.018
Türkiye	9.16	3.518	8.28	2.855	.010
United Kingdom	9.19	4.566	7.66	3.760	.013
United States	12.27	8.016	8.21	4.006	.002
Uzbekistan	13.02	6.157	12.67	2.616	.001
Region [b]					
Europe22	10.76***	4.688	10.00	3.727	.004
America8	12.17**	6.970	9.53	4.745	.012
Asia-Oceania9	10.35	5.154	10.17	4.837	.000

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight
- Insufficient data to process the analysis

3.1.1.4 Among frequent pedestrians

Concerning the pedestrian declared risky behaviours, we aggregate the following items (α=.799):
(Q14_5) Over the last 30 days. how often did you as a PEDESTRIAN …?

- listen to music through headphones while walking down the street
- walk down the street when you think you may have had too much to drink
- read a message or check social media/news while walking down the street
- text a message while walking down the street
- cross the road when a pedestrian light is red
- cross the road at places other than at a nearby (distance less than 30m) pedestrian crossing

A significant gender difference was observed in the global sample of frequent pedestrians ($F(1, 17640) = 107.571$, $p < .001$, $\eta 2 = .006$). Men pedestrians exhibited a higher frequency of risky behaviour than women ($M = 4.01$, $SD = 2.067$ vs. $M = 3.69$, $SD = 1.979$).

As demonstrated in Table 7, the ANOVA tests revealed statistically significant gender differences in 16 out of the 39 countries included in the ESRA sample. Significant gender differences were observed in Austria, Belgium, Bosnia and Herzegovina, Finland, Japan, Latvia, Mexico, the Netherlands, Peru, Poland, Serbia, Thailand, Türkiye, the United Kingdom, the United States and Uzbekistan. Among those

who walk frequently, men were more likely to engage in risky behaviours than women, with the exception of Türkiye, where women were more likely to engage in risky behaviours than men.

Furthermore, the data indicated that the frequency of risky behaviours among men pedestrians was higher than that among women in all three regions.

Table 7: Mean and standard deviation of risk behaviours declared by frequent pedestrians for men and women by country and by regions, and partial eta square value for the ANOVA test

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	3.45	1.891	3.38	1.921	.000
Australia	3.75	2.255	3.39	1.792	.009
Austria	4.23***	2.139	3.67	2.025	.014
Belgium	4.04***	2.166	3.62	1.954	.014
Bosnia and Herzegovina	3.58**	1.938	2.98	1.334	.025
Brazil	4.43	2.122	3.93	1.834	.009
Canada	4.19	2.189	4.03	2.132	.004
Chile	4.83	2.227	4.43	1.966	.007
Colombia	4.45	2.000	4.23	1.986	.007
Czech Republic	3.90	1.934	3.52	1.889	.005
Denmark	4.72	2.519	4.46	2.383	.004
Finland	4.44*	2.240	4.06	2.017	.007
France	3.26	1.824	3.40	1.834	.001
Germany	3.44	1.917	3.37	2.020	.000
Greece	3.91	1.854	3.74	1.854	.000
Ireland	4.48	2.121	4.61	2.212	.000
Israel	3.97	2.117	4.08	2.008	.005
Italy	3.71	1.901	3.38	1.790	.002
Japan	3.34**	1.943	2.80	1.421	.017
Kazakhstan	4.43	2.091	3.72	1.928	.007
Kyrgyzstan	3.01	1.463	3.18	1.560	.004
Latvia	3.75**	1.811	3.13	1.611	.017
Luxembourg	3.90	1.905	4.01	2.205	.000
Mexico	4.57***	2.096	3.80	1.779	.029
Netherlands	4.02*	2.224	3.72	2.068	.009
Panama	4.29	2.132	3.85	1.685	.008
Peru	4.85*	1.997	4.26	1.929	.016
Poland	3.73***	1.939	3.19	1.602	.023
Portugal	4.00	2.145	3.75	1.896	.007
Serbia	3.48*	1.801	3.07	1.775	.010
Slovenia	3.40	1.915	3.11	1.697	.003
Spain	4.47	2.179	4.13	2.048	.004
Sweden	4.37	2.366	4.43	2.147	.000
Switzerland	4.38	2.157	4.07	2.134	.006
Thailand	4.26***	2.254	3.06	1.406	.047
Türkiye	3.82	1.803	3.94*	2.059	.011
United Kingdom	4.17**	2.102	3.67	1.986	.017
United States	3.94*	2.346	3.19	1.826	.029
Uzbekistan	4.64***	1.976	3.67	1.907	.050
Region [b]					
Europe22	3.88***	2.085	3.60	1.946	.005
America8	4.34***	2.004	3.73	1.747	.023
Asia-Oceania9	3.69***	2.171	3.27	1.879	.010

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight

3.1.1.5 Among frequent users of e-scooters

Concerning the risk behaviours declared by frequent e-scooter riders, we aggregate the following items (α=.822):
(Q14_6) Over the last 30 days. how often did you as RIDER OF AN E-SCOOTER …?

- ride with more than 1 person on board
- ride when you think you may have had too much to drink
- cross the road when a traffic light is red
- ride on pedestrian pavement/sidewalk
- ride without a helmet

For the global sample of frequent e-scooter riders, gender difference was significant ($F(1, 625) = 7.538$, $p=.006$, $\eta^2 =.012$). As frequent riders of an e-scooter, men (M=10.46, SD=5.627) declared higher frequency of risky behaviours than females (M=9.27, SD=4.791).

As demonstrated in Table 8, a significant gender difference was observed for America8, with men e-scooter riders reporting a higher frequency of risky behaviour than women. In contrast, no significant gender difference was identified for Europe22 and Asia-Oceania9.

Table 8: Mean and standard deviation of risk behaviours declared by frequent riders of e-scooter for men and women by regions, and partial eta square value for the ANOVA tests

	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Region [a]					
Europe22	9.77	5.731	8.46	4.753	.010
America8	11.59**	9.540	7.19	4.427	.055
Asia-Oceania9	8.91	4.519	9.35	5.256	.000

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by ESRA3 region weight

3.1.2 Social acceptability of risky behaviour among frequent car drivers

The social acceptability of behaviour was only surveyed for people who said they drove a car. The items used to construct the aggregate score (α=.825) are:
(Q15) Where you live, how acceptable would most other people say it is for a CAR DRIVER to …?

- drive when he/she may be over the legal limit for drinking and driving
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive without wearing the seatbelt
- talk on a hand-held mobile phone while driving
- read a message or check social media/news while driving

For the global sample of frequent car drivers, gender difference was significant ($F(1, 16030) = 46.055$, $p<.001$, $\eta^2 =.003$). Male drivers (M=8.49, SD=4.038) perceived higher social acceptability of risky behaviour than female drivers (M=8.06, SD=3.852).

As demonstrated in Table 9, ANOVA tests revealed statistically significant gender differences for nine of the 39 countries included in the ESRA sample. Significant gender differences were observed in Austria, Bosnia and Herzegovina, Canada, Israel, Kyrgyzstan, Luxembourg, the Netherlands, Sweden and the United States. In Austria, Bosnia-Herzegovina, Canada, Israel, Luxembourg, the Netherlands, Sweden and the United States, men exhibited a greater perception of social acceptability for risky behaviour than women. Conversely, in Kyrgyzstan, women demonstrated a greater perception of social acceptability for risky behaviour than men.

A significant gender difference was observed for Europe22 and America8. Men declared a higher social acceptability of risky behaviour than women. However, no significant gender difference was found for Asia-Oceania9.

Table 9: Mean and standard deviation of perceived social acceptability of risky behaviours for male and female drivers by country and by regions, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	9.10	3.642	8.09	4.246	.021
Australia	6.77	3.264	6.34	2.754	.007
Austria	11.11*	4.339	10.49	4.082	.006
Belgium	8.47	3.832	8.01	3.473	.005
Bosnia and Herzegovina	9.29*	5.029	8.64	4.075	.009
Brazil	7.55	3.764	7.28	3.781	.003
Canada	8.24**	4.150	7.46	3.240	.011
Chile	7.55	3.731	6.96	2.956	.009
Colombia	7.49	3.117	6.67	2.530	.006
Czech Republic	8.82	3.573	8.22	3.211	.010
Denmark	7.69	3.507	7.41	3.576	.003
Finland	10.06	3.700	9.61	3.064	.006
France	8.16	3.952	7.93	3.875	.002
Germany	8.61	4.025	8.78	4.213	.000
Greece	8.98	4.599	8.82	4.820	.000
Ireland	7.65	3.524	7.16	3.012	.007
Israel	8.86**	4.060	7.84	3.510	.015
Italy	8.41	4.024	7.92	3.843	.004
Japan	7.17	3.346	6.98	3.026	.000
Kazakhstan	7.23	3.293	8.95	5.870	.019
Kyrgyzstan	7.22	3.325	8.15*	5.169	.041
Latvia	9.85	3.992	8.98	3.755	.005
Luxembourg	10.31**	3.948	9.02	3.608	.036
Mexico	8.28	4.043	8.31	4.273	.003
Netherlands	8.18**	3.410	7.32	2.668	.022
Panama	7.57	2.985	7.49	3.617	.000
Peru	7.93	3.508	8.06	3.473	.000
Poland	10.31	4.663	9.54	4.098	.006
Portugal	7.63	3.321	7.33	3.085	.005
Serbia	9.12	4.573	8.37	4.451	.003
Slovenia	7.51	3.193	7.55	3.524	.002
Spain	7.51	3.732	6.90	2.933	.004
Sweden	9.92*	4.363	9.12	3.896	.014
Switzerland	8.57	4.006	8.45	3.623	.000
Thailand	9.46	4.833	9.54	4.551	.001
Türkiye	7.69	3.561	7.63	4.751	.002
United Kingdom	7.01	3.547	7.34	4.110	.000
United States	8.62***	4.722	7.00	3.178	.042
Uzbekistan	10.35	5.369	7.75	3.069	.024
Region [b]					
Europe22	8.42***	4.027	8.10	3.886	.003
America8	8.19***	4.371	7.30	3.770	.012
Asia-Oceania9	7.81	3.943	7.67	4.042	.001

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 Region weight

3.1.3 Personal acceptability of risky behaviour

3.1.3.1 Among frequent car drivers

With regard to personal acceptability of driving risky behaviour, we have aggregated the following elements (α=.877) and calculated average scores, looking at the differences according to gender:

Among frequent car drivers (Q16_1) How acceptable do you, personally, feel it is for a CAR DRIVER to …?

- drive when he/she may be over the legal limit for drinking and driving
- drive within 1 hour after taking drugs (other than prescribed or over the counter medication)
- drive within 2 hours after taking a medication that may affect the driving ability
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)
- drive faster than the speed limit on motorways/freeways
- drive without wearing the seatbelt
- transport children in the car without securing them (child's car seat, seatbelt, etc.)
- talk on a hand-held mobile phone while driving
- talk on a hands-free mobile phone while driving
- read a message or check social media/news while driving
- drive when he/she is so sleepy that he/she has trouble keeping their eyes open

For the global sample of frequent car drivers, gender difference was significant ($F(1, 16030) = 173.515$, $p<.001$, $\eta^2 = .011$). Men (M=21.63, SD=8.268) perceived higher personal acceptability of risky behaviour than females (M=20.01, SD=7.128).

As shown in Table 10, the ANOVA tests showed significant gender differences for 22 out of the 39 countries of the ESRA sample. In Australia, Austria, Belgium, Bosnia-Herzegovina, Canada, Chile, France, Ireland, Israel, Italy, Latvia, Luxembourg, the Netherlands, Peru, Poland, Portugal, Serbia, Slovenia, Sweden, Thailand and the United States, the gender difference was significant, with male drivers finding risky driving behaviour more acceptable than female drivers. In Kyrgyzstan, on the other hand, women are more accepting of risky behaviour than men.

For all regions, gender difference was significant. The male drivers perceived systematically higher personal acceptability of risky behaviour than the female drivers.

Table 10: Mean and standard deviation of personal acceptability of risky behaviours for male and female drivers by country and by regions, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	21.89	5.922	19.96	5.431	.031
Australia	18.47**	8.077	16.89	5.711	.015
Austria	25.69***	9.040	22.86	8.361	.027
Belgium	23.01*	8.381	22.06	7.406	.007
Bosnia and Herzegovina	21.05***	7.774	18.64	4.761	.033
Brazil	18.31	6.795	17.16	6.585	.008
Canada	22.23***	9.477	19.63	6.675	.029
Chile	19.06*	6.596	17.20	4.561	.020
Colombia	19.58	6.101	17.92	4.982	.004
Czech Republic	23.72	7.849	22.30	7.356	.009
Denmark	20.57	8.291	19.45	8.725	.007
Finland	26.20	7.581	24.76	6.154	.009
France	21.08*	8.910	19.96	6.940	.010
Germany	20.90	7.035	21.38	7.955	.000
Greece	20.26	6.968	18.85	6.415	.003
Ireland	21.06***	8.481	18.28	5.274	.044
Israel	21.82***	8.377	19.17	6.977	.028
Italy	20.90*	8.213	19.83	7.378	.007
Japan	20.71	7.888	19.62	7.497	.003
Kazakhstan	19.83	6.914	21.08	10.909	.001
Kyrgyzstan	18.04	6.539	19.51*	12.221	.060
Latvia	24.63***	7.796	20.52	5.592	.064

Luxembourg	24.36*	7.163	22.83	6.090	.016
Mexico	20.54	8.512	18.99	6.774	.002
Netherlands	23.38***	8.826	20.42	5.704	.039
Panama	19.03	6.848	18.01	5.109	.003
Peru	19.57*	8.605	18.65	5.636	.035
Poland	25.66*	9.512	23.42	8.533	.010
Portugal	21.43***	6.548	20.01	5.181	.028
Serbia	20.64***	6.316	18.78	5.776	.026
Slovenia	20.48**	6.781	19.51	5.860	.011
Spain	19.84	7.844	18.28	5.641	.006
Sweden	24.88**	9.688	21.92	6.879	.032
Switzerland	22.66	9.058	21.56	7.102	.006
Thailand	24.98*	10.955	22.70	9.374	.014
Türkiye	18.24	6.074	17.64	8.809	.001
United Kingdom	19.27	8.216	19.09	7.751	.001
United States	21.77***	10.427	17.67	5.954	.052
Uzbekistan	24.29	11.535	20.38	5.071	.014
Region [b]					
Europe22	21.47***	8.259	20.35	7.317	.007
America8	20.51***	9.312	17.88	6.676	.023
Asia-Oceania9	20.78***	8.686	19.42	8.339	.007

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 Region weight

3.1.3.2 Among frequent moped riders and motorcyclists

As mentioned above, the samples per country are too small for a detailed analysis. Gender differences will therefore only be analysed at the level of the three regions. We have aggregated the following elements (α=.90) and calculated average scores:

(Q16_2) How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to …?

- ride when he/she may have been over the legal limit for drinking and driving
- ride faster than the speed limit outside built-up areas (except motorways/freeways)
- not wear a helmet on a moped or motorcycle
- read a message or check social media/news while riding
- ride a motorcycle with more than 1 passenger

For the global sample of frequent moped or motorcyclist riders, gender difference was significant (F(1, 1593) = 6.972, p=.009, η^2 =.004), with male frequent PTW riders (M=6.87, SD=4.170) perceived higher personal acceptability of risky behaviour than female PTW riders (M=6.33, SD=3.631). As shown in Table 11, there is no significant difference between the genders in any of the 3 regions observed.

Table 11: Mean and standard deviation of personal acceptability of risky behaviours for male and female riders by region, and partial eta square value for the ANOVA tests

	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Region [a]					
Europe22	6.62	3.973	6.86	4.654	.001
America8	8.12	6.003	5.35	3.261	.007
Asia-Oceania9	6.71	4.295	6.57	4.101	.000

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by ESRA3 Region weight

3.1.3.3 Among frequent cyclists

We have aggregated the following items (α=.747):

(Q16_3) How acceptable do you, personally, feel it is for a CYCLIST to …?

- cycle when he/she may have had too much to drink

- cycle without a helmet
- read a message or check social media/news while cycling
- cross the road when a traffic light is red

For the global sample of frequent cyclists, gender difference was significant ($F(1, 4008) = 16.108$, $p<.001$, $\eta^2 = .004$). Male cyclists (M=7.78, SD=3.857) perceived higher personal acceptability of risky behaviour than female cyclists (M=7.31, SD=3.450).

As shown in Table 12, the ANOVA tests showed significant gender differences for 2 out of the 39 countries of the ESRA sample. In Sweden male cyclists perceived higher personal acceptability of risky behaviour than female, whereas in Thailand female cyclists perceived higher social acceptability of risky behaviour than male cyclists.

For Europe22 and America8, gender difference was significant, with men cyclists perceiving higher personal acceptability of risky behaviour than women. Gender difference was not significant for Asia-Oceania9.

Table 12: Mean and standard deviation of personal acceptability of risky behaviours for men and women cyclists by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	9.50	2.383	4.00	-	.510
Australia	6.50	4.601	5.59	3.853	.018
Austria	7.78	3.997	7.49	3.169	.000
Belgium	8.30	3.776	7.71	3.172	.002
Bosnia and Herzegovina	6.26	3.177	6.89	2.438	.006
Brazil	6.77	3.899	6.29	3.321	.006
Canada	7.62	3.956	7.46	4.287	.004
Chile	6.30	3.455	6.17	2.416	.003
Colombia	7.50	3.848	5.89	2.192	.016
Czech Republic	8.01	2.891	6.71	2.721	.046
Denmark	8.89	4.263	8.80	4.307	.000
Finland	9.65	3.483	8.94	3.343	.011
France	6.92	4.059	7.01	3.307	.001
Germany	7.46	4.136	6.51	3.066	.018
Greece	6.06	2.835	6.19	3.336	.002
Ireland	7.52	3.524	7.59	4.863	.010
Israel	7.05	4.093	5.54	1.814	.002
Italy	7.53	3.666	6.92	3.196	.000
Japan	6.01	3.208	6.66	3.474	.014
Kazakhstan	8.66	3.761	7.40	3.805	.045
Kyrgyzstan	6.82	1.968	6.52	1.876	.025
Latvia	8.46	3.031	6.89	2.788	.054
Luxembourg	8.82	3.300	7.27	3.053	.093
Mexico	7.81	4.294	6.83	3.752	.012
Netherlands	10.08	3.408	9.51	2.842	.004
Panama	6.84	3.639	5.44	1.872	.036
Peru	6.76	3.274	5.53	2.006	.013
Poland	8.13	3.483	7.14	2.546	.010
Portugal	6.68	3.274	7.04	4.108	.012
Serbia	6.89	2.355	7.07	2.376	.000
Slovenia	6.56	2.571	6.69	2.549	.015
Spain	6.49	4.065	5.17	1.873	.008
Sweden	10.21***	4.668	7.29	3.482	.096
Switzerland	7.92	4.401	7.33	3.399	.001
Thailand	8.50	4.022	9.16*	4.474	.040
Türkiye	6.61	3.730	5.78	2.182	.009
United Kingdom	7.50	5.128	5.79	3.934	.044
United States	8.04	5.533	5.78	3.409	.010
Uzbekistan	8.96	5.481	10.44	6.967	.001

Region [b]					
Europe22	7.82***	4.066	7.13	3.204	.006
America8	7.48*	4.789	6.09	3.745	.006
Asia-Oceania9	7.04	4.453	7.42	4.843	.002

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 Region weight
- Insufficient data to process the analysis

3.1.3.4 Among frequent pedestrians

We aggregated the scores of the following items (α=.725):
(Q16_4) How acceptable do you. personally. feel it is for a PEDESTRIAN to …?

- walk down the street when he/she may have had too much to drink
- read a message or check social media/news while walking down the street
- cross the road when a pedestrian light is red

For the global sample of frequent pedestrians, gender difference was significant ($F(1, 17640) = 40.433$, $p<.001$, $\eta^2 = .002$). Among frequent pedestrians, men (M=7.40, SD=3.308) perceived higher personal acceptability of risky behaviour than women (M=7.09, SD=3.142).

As shown in Table 13, the ANOVA tests showed significant gender differences for 14 out of the 39 countries of the ESRA sample. Gender difference was significant for Armenia, Austria, Belgium, Canada, Chile, Colombia, France, Italy, Kazakhstan, Spain, Latvia, Netherlands, Poland, Serbia, Thailand and United States. In these countries, men pedestrians perceived significantly higher personal acceptability of risky behaviour than women.

For all regions, gender difference was significant, with men pedestrians perceiving higher personal acceptability of risky behaviour than women.

Table 13: Mean and standard deviation of personal acceptability of risky behaviours for men and women pedestrians by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	7.20***	2.733	6.05	2.717	.037
Australia	6.19	3.388	6.27	3.230	.000
Austria	8.99*	3.183	8.40	2.957	.006
Belgium	7.91*	3.362	7.44	2.948	.007
Bosnia and Herzegovina	6.46	3.340	5.79	2.355	.009
Brazil	6.61	3.294	6.10	3.037	.003
Canada	7.60**	3.338	7.00	3.245	.015
Chile	6.65**	3.073	5.71	2.360	.020
Colombia	6.03*	2.743	5.28	2.488	.013
Czech Republic	7.78	3.038	7.22	2.850	.007
Denmark	9.43	3.452	9.54	2.889	.000
Finland	9.52	3.323	9.51	2.805	.000
France	6.97	3.377	7.54	2.994	.009
Germany	6.75	3.321	6.66	3.134	.000
Greece	7.22	2.873	6.94	2.935	.002
Ireland	8.65	3.207	8.60	3.182	.002
Israel	8.70	3.718	7.92	3.437	.009
Italy	7.31**	3.058	6.40	2.875	.019
Japan	6.10	2.882	5.73	2.534	.003
Kazakhstan	7.38**	2.911	6.57	2.968	.022
Kyrgyzstan	5.73	2.620	6.30	3.008	.010
Latvia	7.98*	2.957	7.01	2.764	.015
Luxembourg	8.82	3.061	8.87	2.978	.000
Mexico	5.87	2.882	5.52	2.449	.002
Netherlands	8.89**	3.270	8.33	2.903	.011
Panama	5.73	2.812	5.24	2.445	.006

Peru	5.89	2.534	5.86	2.767	.002
Poland	6.75*	3.236	6.12	2.793	.010
Portugal	7.20	3.011	7.32	2.777	.001
Serbia	6.67*	2.867	6.08	2.605	.009
Slovenia	7.13	3.136	6.89	2.984	.000
Spain	7.32	3.196	6.96	2.754	.002
Sweden	9.77	3.610	9.45	3.098	.001
Switzerland	7.94	3.533	7.48	3.234	.006
Thailand	6.16***	3.321	5.11	2.502	.053
Türkiye	5.73	2.693	5.46	2.740	.000
United Kingdom	8.47	3.445	8.12	3.135	.001
United States	6.70*	3.641	5.23	2.915	.030
Uzbekistan	7.18	3.689	6.40	3.226	.012
Region [b]					
Europe22	7.52***	3.399	7.20	3.050	.002
America8	6.45***	2.979	5.67	2.636	.014
Asia-Oceania9	6.13***	3.224	5.71	2.917	.005

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 Region weight

3.1.4 Self-efficacy in risky behaviour

3.1.4.1 Perceived behaviour control / Self-efficacy

The self-efficacy in risky behaviour was only surveyed for drivers. The items used to construct the aggregate score (α=.845) are:
To what extent do you agree with each of the following statements?

- (Q17_7) I trust myself to drive after drinking a small amount of alcohol.
- (Q17_8) I have the ability to drive when I am a little drunk after a party.
- (Q17_9) I am able to drive after drinking a large amount of alcohol.
- (Q17_10) I trust myself when I drive significantly faster than the speed limit.
- (Q17_11) I have the ability to drive significantly faster than the speed limit.
- (Q17_12) I am able to drive fast through a sharp curve.
- (Q17_13) I trust myself when I check messages on the mobile phone while driving.
- (Q17_14) I have the ability to write a message on the mobile phone while driving.
- (Q17_15) I am able to talk on a hand-held mobile phone while driving.

Gender difference was significant ($F(1, 19110) = 437.991$, $p<.001$, $\eta^2 = .022$). Men drivers (M=15.55, SD=7.887) declared higher self-efficacy in risky behaviour than women drivers (M=13.31, SD=6.750).

As shown in Table 14, the ANOVA tests showed significant gender differences for 27 out of the 39 countries of the ESRA sample. Gender difference was significant for Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Canada, Colombia, Czech Republic, Denmark, Finland, France, Greece, Ireland, Israel, Italy, Kyrgyzstan, Latvia, Luxembourg, Mexico, Netherlands, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Thailand and United States, where men drivers declared higher self-efficacy in risky behaviour than women drivers.

Gender difference was significant for all regions. Men drivers declared higher self-efficacy in risky behaviour than women.

Table 14: Mean and standard deviation of self-efficacy in risky behaviours for men and women drivers by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	17.67	10.516	12.83	5.424	.040
Australia	14.47***	6.960	12.63	5.486	.022
Austria	19.84***	8.360	16.87	6.830	.035
Belgium	15.71***	8.542	13.82	7.235	.013

Bosnia and Herzegovina	15.43***	7.951	12.86	5.870	.024
Brazil	14.40***	7.752	12.07	7.440	.022
Canada	16.45***	8.051	13.13	5.288	.049
Chile	13.30	6.985	12.06	6.052	.004
Colombia	13.04*	7.721	10.29	7.542	.011
Czech Republic	16.03**	7.694	12.91	6.997	.026
Denmark	14.62**	8.362	12.30	7.707	.017
Finland	17.85***	8.396	13.93	7.080	.061
France	14.52**	7.094	13.01	6.054	.018
Germany	16.06	7.446	14.96	6.929	.009
Greece	15.03**	6.571	13.55	5.388	.017
Ireland	15.67***	7.501	13.64	5.364	.026
Israel	16.27***	6.827	13.67	5.554	.040
Italy	16.99***	7.904	14.64	6.579	.028
Japan	10.59	6.339	8.96	6.304	.008
Kazakhstan	11.69	7.609	10.11	7.693	.005
Kyrgyzstan	13.33*	7.125	10.02	6.600	.032
Latvia	18.19***	8.370	13.64	5.967	.068
Luxembourg	15.62*	6.046	14.21	5.341	.012
Mexico	16.64***	8.735	13.35	6.473	.030
Netherlands	16.12***	8.784	12.71	7.357	.049
Panama	14.33	7.800	14.31	7.243	.000
Peru	13.00	8.916	11.48	7.202	.008
Poland	15.94***	6.793	13.39	6.311	.033
Portugal	17.39***	7.083	14.53	5.437	.068
Serbia	15.15***	7.255	11.63	6.713	.057
Slovenia	16.06***	7.633	14.03	5.749	.017
Spain	15.13*	7.393	12.76	5.879	.015
Sweden	15.93***	8.770	12.81	6.542	.040
Switzerland	16.71	8.305	15.46	7.524	.002
Thailand	13.36**	8.867	11.29	8.914	.015
Türkiye	14.59	6.769	13.50	7.079	.001
United Kingdom	13.61	6.449	12.97	5.485	.004
United States	15.05***	8.699	12.22	5.804	.037
Uzbekistan	15.44	9.922	9.40	7.394	.050
Region [b]					
Europe22	15.70***	7.469	13.75	6.382	.021
America8	15.02***	8.495	12.33	6.843	.030
Asia-Oceania9	12.68***	7.819	11.08	7.786	.012

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 Region weight

3.1.4.2 Intentions to comply among frequent drivers

For intention to comply, we aggregated (α=.653) the following item scores:
To what extent do you agree with each of the following statements?

- (Q17_19) I intend not to drive after drinking alcohol in the next 30 days.
- (Q17_20) I intend to respect speed limits in the next 30 days.
- (Q17_21) I intend not to use my mobile phone while driving in the next 30 days.

Gender difference was significant ($F(1, 19110) = 58.962$, $p<.001$, $\eta^2 = .003$). Women drivers (M=11.19, SD=4.482) declared higher intention to comply than men drivers (M=10.70, SD=4.325).

As shown in Table 15, the ANOVA tests showed significant gender differences for 13 out of the 39 countries of the ESRA sample. Gender difference was significant for Austria, Australia, Belgium, Canada, Greece, Ireland, Israel, Italy, Portugal, Slovenia, Switzerland and United States, where women drivers declared higher intention to comply than men drivers. Gender difference was also significant for Thailand, where men drivers declared higher intention to comply than women.

Gender difference was significant for Europe22 and America8. women drivers declared higher intention to comply than men drivers. Gender difference was not significant for Asia-Oceania9.

Table 15: Mean and standard deviation of intention to comply for men and women drivers by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	8.07	3.974	9.74	4.298	.023
Australia	11.00	4.288	12.52***	3.516	.038
Austria	10.42	3.925	11.67***	3.454	.022
Belgium	10.65	4.767	11.55**	4.308	.007
Bosnia and Herzegovina	9.35	4.538	9.50	4.299	.000
Brazil	11.41	4.323	11.84	4.707	.002
Canada	10.86	3.993	11.98***	3.651	.020
Chile	11.29	4.206	10.40	4.783	.004
Colombia	10.64	5.137	9.23	6.073	.008
Czech Republic	11.00	4.035	11.50	4.592	.006
Denmark	10.33	4.941	10.52	5.246	.002
Finland	10.91	4.025	10.88	4.380	.000
France	11.05	4.154	11.38	4.298	.003
Germany	10.82	4.533	11.26	4.083	.001
Greece	10.11	3.934	11.34***	3.683	.026
Ireland	11.24	3.885	12.29***	3.232	.027
Israel	11.33	3.470	12.11**	3.411	.012
Italy	12.09	3.643	12.89**	3.397	.014
Japan	9.87	5.486	9.56	6.038	.001
Kazakhstan	9.11	5.378	7.22	5.549	.018
Kyrgyzstan	10.30	4.981	7.14	5.668	.032
Latvia	10.12	4.140	10.40	4.598	.000
Luxembourg	11.01	3.426	11.61	3.111	.006
Mexico	11.05	4.330	11.46	4.252	.002
Netherlands	10.23	5.100	10.73	5.228	.001
Panama	11.31	4.109	11.37	4.161	.000
Peru	10.07	5.198	9.93	5.453	.003
Poland	11.47	3.675	11.37	4.242	.000
Portugal	11.13	3.463	11.94**	3.515	.015
Serbia	10.80	4.021	10.46	4.934	.002
Slovenia	11.04	4.074	12.13***	3.367	.018
Spain	11.35	4.115	11.63	4.046	.001
Sweden	10.76	4.284	10.71	4.689	.000
Switzerland	10.30	4.445	11.32**	4.344	.015
Thailand	8.34*	5.206	7.42	5.652	.009
Türkiye	10.26	3.871	10.63	4.314	.001
United Kingdom	11.49	4.379	11.95	3.801	.006
United States	10.72	4.317	11.87***	3.743	.024
Uzbekistan	6.39	4.824	4.12	3.544	.030
Region [b]					
Europe22	11.16	4.150	11.64***	4.070	.004
America8	10.96	4.422	11.65***	4.522	.008
Asia-Oceania9	9.67	5.231	9.51	5.836	.001

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 Region weight

3.1.5 Perception of driving risky behaviours as factors of road crashes

We aggregated (α=.929) the scores of the following items:
(Q19) How often do you think each of the following factors is the cause of a road crash involving a car?

- driving after drinking alcohol
- driving within 1 hour after taking drugs (other than prescribed or over the counter medication)
- driving faster than the speed limit
- using a hand-held mobile phone while driving

- using a hands-free mobile phone while driving
- inattentiveness or daydreaming while driving
- driving while tired

Gender difference was significant ($F(1, 16030) = 59.578$, $p<.001$, $\eta^2 = .004$). Among drivers, women (M=28.29, SD=10.536) perceive a greater crash risk associated with the behaviours mentioned than men do (M=27.02, SD=10.147).

As shown in Table 16, the ANOVA tests showed significant gender differences for 20 out of the 39 countries of the ESRA sample. Gender difference was significant for Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Denmark, Finland, France, Germany, Ireland, Israel, Latvia, Netherlands, Poland, Portugal, Serbia, Slovenia, Switzerland and Thailand. women perceive a greater crash risk associated with the behaviours mentioned than men do. Gender difference was significant for United States, where men declared higher crash risk than women.

Gender difference was significant only for the Europe22 region, where women perceived higher risk of crash associated with the behaviours presented than men. There was no significant gender difference for America8 and Asia-Oceania9.

Table 16: Mean and standard deviation of perceived risk of crash for men and women drivers by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	33.69	6.990	35.34	5.304	.011
Australia	24.69	11.727	26.32*	12.120	.011
Austria	27.43	8.007	29.58***	7.454	.013
Belgium	24.58	9.779	27.41***	9.054	.016
Bosnia and Herzegovina	30.10	8.665	31.66*	8.155	.010
Brazil	25.67	13.139	30.00**	12.796	.024
Canada	26.67	9.519	26.78	10.174	.000
Chile	28.00	12.038	30.37	11.351	.008
Colombia	29.19	11.246	30.49	11.390	.002
Czech Republic	27.33	8.348	28.80	8.568	.004
Denmark	25.40	9.342	28.83***	8.398	.035
Finland	27.42	7.859	29.52**	6.597	.025
France	22.57	11.316	26.10**	11.237	.016
Germany	25.47	9.672	27.31*	9.723	.013
Greece	29.38	9.388	30.20	9.939	.002
Ireland	27.59	8.204	29.78**	8.078	.017
Israel	30.07	8.825	32.02*	9.356	.009
Italy	28.24	10.466	29.56	10.932	.005
Japan	15.23	8.363	14.48	9.219	.001
Kazakhstan	31.55	7.955	29.50	10.051	.005
Kyrgyzstan	33.40	7.404	35.15	6.275	.030
Latvia	28.25	7.267	30.92***	7.030	.023
Luxembourg	27.81	6.676	28.73	7.030	.005
Mexico	28.45	11.525	27.48	12.810	.007
Netherlands	24.33	8.730	27.22***	8.213	.041
Panama	29.41	10.948	32.34	10.443	.007
Peru	27.67	11.764	28.03	11.510	.001
Poland	28.51	8.602	30.14**	8.604	.015
Portugal	28.44	9.005	31.03***	8.798	.026
Serbia	31.05	7.047	34.05***	6.728	.035
Slovenia	28.47	8.420	31.50***	7.486	.040
Spain	28.77	10.919	28.13	11.096	.004
Sweden	26.47	8.148	28.24	8.125	.011
Switzerland	25.55	10.015	27.49*	9.805	.010
Thailand	19.37	11.248	21.66**	12.397	.028
Türkiye	24.33	13.399	23.65	15.264	.000

United Kingdom	26.16	10.888	25.61	11.035	.000
United States	21.88*	12.631	19.11	12.548	.012
Uzbekistan	30.29	10.978	24.48	13.867	.051
Region [b]					
Europe	26.66	10.064	28.12***	10.167	.007
America	24.71	12.936	23.96	14.272	.001
Asia-Oceania9	20.43	11.988	20.76	13.062	.001

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight

3.1.6 Road safety policy support

These questions were asked to all ESRA3 participants. Here we have analysed the gender differences among frequent users of at least one of the modes surveyed. We aggregated the scores (α=.839) of the following items:
(Q20) Do you oppose or support a legal obligation …?

- forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0 ‰ (zero tolerance)
- forbidding all drivers of motorized vehicles to use a hand-held mobile phone while driving
- limiting the speed limit to 30 km/h in all built-up areas (except on main thoroughfares)
- requiring all cyclists to wear a helmet
- limiting the speed limit to a maximum of 80 km/h on all rural roads without a median strip
- forbidding all novice drivers of motorized vehicles (license obtained less than 2 years ago) to drive with a blood alcohol concentration above 0.0 ‰ (zero tolerance)
- installing an alcohol 'interlock' for drivers who have been caught drunk driving on more than one occasion (technology that won't let the car start if the driver's alcohol level is over a certain limit)
- requiring cyclists under the age of 12 to wear a helmet
- forbidding all cyclists to ride with a blood alcohol concentration above 0.0‰ (zero tolerance)

Gender difference was significant ($F(1, 27373) = 783.594$, $p<.001$, $\eta^2=.028$). Women (M=36.67, SD=7.209) declared higher support for policy measures than men (M=34.03, SD=8.319).

As shown in Table 17, the tests of ANOVA showed significant gender differences for 33 out of the 39 countries of the ESRA sample. Gender difference was significant for Armenia, Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Canada, Chile, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Kazakhstan, Latvia, Luxembourg, Mexico, Netherlands, Poland, Portugal, Serbia, Slovenia, Sweden, Switzerland, Thailand, Türkiye, United Kingdom, United States and Uzbekistan. In all these countries, women declared higher support for road safety policies than men.

The gender difference was significant in all regions. Women supported road safety policies more than men.

Table 17: Mean and standard deviation of support for road safety policies for men and women users by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	32.84	8.289	37.34***	7.641	.061
Australia	35.85	7.881	38.24***	5.947	.031
Austria	30.48	8.492	34.02***	7.414	.047
Belgium	32.30	8.642	34.39***	7.204	.018
Bosnia and Herzegovina	34.83	8.416	39.06***	6.329	.073
Brazil	36.36	8.115	39.46***	5.859	.021
Canada	34.39	7.416	36.74***	6.704	.024
Chile	38.23	5.964	40.07***	4.527	.034
Colombia	38.68	6.140	39.77	5.927	.000
Czech Republic	31.34	7.034	35.74***	5.917	.093
Denmark	30.73	8.949	33.62***	7.588	.032
Finland	30.56	7.845	34.59***	6.531	.076
France	33.78	9.048	35.32*	7.676	.008
Germany	31.88	8.920	35.52***	7.771	.048
Greece	35.00	7.799	38.00***	6.968	.040
Ireland	35.52	7.550	39.35***	5.779	.075
Israel	35.66	7.546	38.17***	5.999	.031
Italy	33.96	7.926	37.07***	6.813	.042
Japan	33.91	7.039	34.95	6.946	.003
Kazakhstan	32.86	8.025	36.60***	7.461	.031
Kyrgyzstan	42.31	7.645	42.64	6.887	.003
Latvia	29.52	7.199	35.12***	6.807	.111
Luxembourg	26.23	7.601	29.19***	6.536	.047
Mexico	37.77	7.013	39.93***	5.683	.020
Netherlands	29.77	8.396	32.75***	6.767	.048
Panama	37.55	6.690	38.53	6.211	.004
Peru	38.72	5.806	38.68	6.469	.000
Poland	32.09	7.985	34.99***	7.061	.031
Portugal	34.85	7.447	37.32***	6.074	.031
Serbia	35.56	7.278	39.16***	5.843	.063
Slovenia	32.26	7.846	35.95***	6.511	.054
Spain	37.32	7.000	38.36	6.792	.002
Sweden	33.05	7.836	37.28***	5.795	.088
Switzerland	30.66	9.016	34.18***	7.158	.046
Thailand	35.84	7.883	37.03*	7.872	.007
Türkiye	37.11	7.835	39.11***	6.441	.022
United Kingdom	35.82	8.095	38.41***	6.815	.033
United States	33.38	10.195	37.43***	8.570	.051
Uzbekistan	35.64	11.612	41.00**	10.930	.035
Region [b]					
Europe	33.60	8.437	36.34***	7.163	.029
America8	35.59	8.531	38.55***	7.155	.030
Asia-Oceania9	35.20	8.090	36.80***	7.489	.012

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight

3.1.7 Perception of deterrence among frequent car drivers

3.1.7.1 Perceived probability of enforcement

We aggregated (α=.852) the following scores:
(Q22) On a typical journey, how likely is it that you (as a car driver) will be checked by the police (including cameras or radars) for …?

- alcohol, in other words, being subjected to a breathalyser test
- the use of illegal drugs
- respecting the speed limits

- wearing your seatbelt
- the use of hand-held mobile phone to talk or text while driving

The gender difference was significant (F(1, 16030) = 111.006, p<.001, η^2=.007), with men (M=14.99, SD=8.174) reporting a higher perceived probability of enforcement than women (M=13.63, SD=8.055) on a typical trip.

As shown in Table 18, the ANOVA tests revealed significant gender differences for 13 of the 39 countries in the ESRA sample. The gender difference was significant for Austria, Brazil, Canada, Colombia, Czech Republic, Israel, Mexico, Panama, Poland, Slovenia, Thailand, Türkiye and the United States, where men drivers perceived a higher probability of enforcement on a typical journey than women. The gender difference was significant for the Netherlands, where women declared a higher perceived probability of enforcement on a typical journey than men.

The gender difference was significant in all regions. Men declared a higher perceived probability of enforcement on a typical journey than women.

Table 18: Mean and standard deviation of perceived probability of being checked by the police for men and women drivers by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	8.71	4.794	7.95	4.729	.008
Australia	17.44	8.446	17.18	8.690	.000
Austria	14.02**	7.530	12.46	7.239	.008
Belgium	14.83	7.076	14.89	7.912	.000
Bosnia and Herzegovina	15.67	8.646	13.57	7.970	.004
Brazil	14.27***	9.324	11.04	8.445	.030
Canada	13.92**	8.325	12.24	6.963	.011
Chile	17.00	8.623	14.85	7.961	.012
Colombia	16.31*	8.219	14.08	8.386	.021
Czech Republic	15.15*	8.542	12.96	7.869	.017
Denmark	12.83	7.439	12.11	7.672	.004
Finland	12.51	6.600	11.85	5.375	.003
France	13.82	8.241	12.64	7.968	.007
Germany	12.38	6.365	11.25	5.886	.007
Greece	14.97	7.774	14.09	8.596	.004
Ireland	13.40	7.000	13.72	7.815	.000
Israel	12.38*	7.137	11.06	7.294	.009
Italy	16.55	7.821	15.61	8.607	.004
Japan	17.92	8.819	17.38	8.643	.003
Kazakhstan	19.38	9.310	16.33	9.540	.016
Kyrgyzstan	23.84	8.899	21.34	8.672	.003
Latvia	16.72	7.798	15.81	8.431	.003
Luxembourg	12.83	7.231	12.80	7.054	.001
Mexico	17.56*	7.746	15.20	7.676	.016
Netherlands	15.37	6.965	17.43*	7.262	.019
Panama	16.16***	9.238	11.50	7.880	.032
Peru	15.90	7.600	17.47	7.958	.004
Poland	13.75***	7.661	10.98	6.104	.038
Portugal	14.51	7.941	13.63	7.831	.005
Serbia	16.74	8.511	14.98	8.791	.008
Slovenia	10.76**	7.067	9.24	5.329	.017
Spain	18.01	8.530	15.99	8.332	.006
Sweden	12.63	7.283	11.33	6.652	.011
Switzerland	14.25	7.984	12.94	7.518	.006
Thailand	18.52***	7.939	15.58	7.370	.042
Türkiye	19.93*	8.746	17.49	10.116	.017
United Kingdom	12.57	7.527	12.45	7.217	.000
United States	15.75*	7.970	14.16	7.625	.013
Uzbekistan	14.46	7.596	15.29	9.233	.000

Region [b]					
Europe22	14.47***	7.742	13.37	7.693	.005
America8	15.61***	8.609	13.55	8.492	.016
Asia-Oceania9	18.35***	8.770	16.72	8.861	.018

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight

3.1.7.2 Declared frequency of police checks among frequent drivers

We aggregated (r=.404) the two following scores:

(Q23) In the past 12 months, how many times have you been checked by the police for ...?
- using alcohol while driving a car (i.e., being subjected to a Breathalyser test)
- using drugs (other than prescribed or over the counter medication) while driving a car

The gender difference was significant (F(1, 16030) = 326.062, p<.001, η2=.020), with men (M=2.48, SD=.864) reporting more frequent police checks in the last 12 months than women (M=2.26, SD=.643).

As shown in Table 19, the ANOVA tests showed significant gender differences for 29 of the 39 countries in the ESRA sample. The gender difference was significant for Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Canada, Colombia, Czech Republic, Denmark, France, Germany, Greece, Ireland, Israel, Italy, Japan, Latvia, Luxembourg, Netherlands, Panama, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, Thailand and Türkiye. Men are more likely than women to report having been checked in the last 12 months.

The gender difference was significant in all regions. Men were more likely than women to report being checked by the police in the last 12 months.

Table 19: Mean and standard deviation of perceived frequency of being checked by the police for men and women drivers by country and by region, and partial eta square value for the ANOVA tests

Country [a]	Gender				η^2
	Men		Women		
	Mean	SD	Mean	SD	
Armenia	2.38	0.775	2.14	0.530	.001
Australia	2.72*	1.025	2.54	0.897	.009
Austria	2.43***	0.796	2.22	0.537	.024
Belgium	2.37*	0.725	2.26	0.564	.008
Bosnia and Herzegovina	2.84***	0.994	2.33	0.553	.077
Brazil	2.70*	1.073	2.46	0.834	.013
Canada	2.15**	0.619	2.05	0.232	.008
Chile	2.49	0.931	2.32	0.760	.008
Colombia	2.66**	0.976	2.23	0.644	.046
Czech Republic	2.86**	1.000	2.52	0.816	.021
Denmark	2.30*	0.823	2.14	0.579	.013
Finland	2.41	0.781	2.29	0.610	.004
France	2.36**	0.785	2.22	0.611	.015
Germany	2.33**	0.852	2.15	0.474	.030
Greece	2.45*	0.756	2.29	0.671	.010
Ireland	2.31**	0.785	2.14	0.439	.017
Israel	2.22**	0.559	2.11	0.394	.013
Italy	2.29**	0.663	2.13	0.439	.014
Japan	2.03*	0.209	2.00	0.000	.018
Kazakhstan	2.44	0.786	2.35	0.940	.012
Kyrgyzstan	2.54	0.908	2.39	0.783	.000
Latvia	2.79***	0.938	2.38	0.674	.058
Luxembourg	2.30*	0.667	2.14	0.518	.013
Mexico	2.74	0.980	2.66	1.006	.002
Netherlands	2.27*	0.678	2.11	0.344	.018
Panama	2.63**	0.961	2.23	0.628	.020
Peru	2.81	1.158	2.67	0.992	.005

Poland	2.76***	0.928	2.42	0.665	.027
Portugal	2.40***	0.695	2.14	0.402	.046
Serbia	3.00***	1.041	2.51	0.831	.057
Slovenia	2.61***	0.888	2.24	0.508	.046
Spain	2.71*	1.073	2.46	0.945	.016
Sweden	2.44*	0.757	2.25	0.532	.020
Switzerland	2.43***	0.807	2.17	0.514	.037
Thailand	2.42*	0.969	2.16	0.609	.015
Türkiye	2.91*	1.055	2.52	0.877	.013
United Kingdom	2.09	0.471	2.11	0.392	.000
United States	2.25	0.820	2.15	0.660	.004
Uzbekistan	2.42	0.883	2.00	0.000	.037
Region [b]					
Europe22	2.41***	0.814	2.22	0.588	.017
America8	2.47***	0.976	2.30	0.836	.008
Asia Oceania9	2.42***	0.883	2.24	0.665	.010

*Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean*
a Weighting by Individual country weight
b Weighting by ESRA3 region weight

3.2 Advanced analyses

The study of gender differences between the participating countries is not a primary objective of the ESRA project, which aims to collect comparable (inter)national data on the opinions, attitudes and behaviour of road users with regard to road traffic risks. This has a number of implications for the data available for the secondary analysis presented here to investigate the interactions between gender and culture on driver attitudes and behaviour, and it is worth highlighting some of the a priori limitations of the analysis.

In this secondary analysis, we have elected to examine the impact of the socio-economic and cultural context through the use of a variety of proxy indices, which are available for each of the 39 countries under observation.

The **Gender Gap Global Index** (GGG, WEF, 2023) is based on a global score derived from four indices. The GGGI and the fourth indices are calculated by the World Economic Forum and vary from 0 to 1. In the country sample under examination, the GGGI 2023 varies from 0.668 in Türkiye to 0.912 in Finland. The four indicators illustrate the advancements made in achieving gender equality in four domains. The gender gap indices (GGI) encompass health (GGI-health: the ratio of men to women at birth and the gender gap in healthy life expectancy; varying in our sample from 0.955 in Armenia to 0.980 in Brazil), political empowerment (GGI-polit: the ratio of men to women in ministerial and parliamentary positions and in the number of years in national executive power, from 0.057 in Japan to 0. .70 in Finland), educational attainment (GGI-edu: the ratio of men to women in primary, secondary and tertiary education, from 0.960 in Peru to 1.0 in 16 countries of our sample), and economic participation and opportunities (GGI-eco: wage levels and gender gaps in professional promotion, from 0.500 in Türkiye to 0.795 in Sweden). For these analyses, we will use only the global gender gap index (GGGI). It should be noted that no data is available for Uzbekistan since 2016.

In order to ascertain the socio-economic level of the country in question, the **Gross Domestic Product** per Capita (GDP) was employed as a measure, with the data sourced from the World Bank and expressed in US dollars (2015) for the year 2021. The gross domestic product (GDP) of the countries included in the sample varies considerably, with a minimum of $1123.37 in Kyrgyzstan and a maximum of $107792.19 in Luxembourg.

The total number of fatalities in road traffic crashes for the year 2021 was obtained from various databases, including the Care, OECD, and WHO 2018 and WHO 2023 databases. This figure was then used to calculate a rate of **fatalities per million inhabitants**, which ranged from 20.16 in Sweden to 236.83 in Thailand.

The numbers of male and female fatalities in road crashes were obtained from the same databases and employed to calculate a **male fatality rate**, which ranged from 58.33% in Luxembourg to 99% in

Uzbekistan. It should be noted that no data is available on fatalities by gender for Bosnia and Herzegovina.

However, the correlation matrix between these indices (see Table 20) demonstrates a markedly high correlation between GDP and a number of other indices included in the analyses, namely the number of fatalities per million inhabitants, the male fatality rate, and GGGI2023. Therefore, GDP will not be included in the analyses alongside the other indices.

Table 20: Bivariate correlations between the different cultural context indices

	Fatalities per million population	Rate of male fatalities	GGGI 2023
Gross Domestic Product per Capita	-.576****	-.499****	.409****
Fatalities per million population		.217***	-.266***
Rate of male fatalities			-.103***

3.2.1 The relationship between psychological determinants of declared behaviour, gender and cultural proxy indices

A series of linear regression analyses were conducted to examine the relationships between each psychological variable of interest, gender (coded as 1 for men and 2 for women), the global gender gap index, and gender ratio in fatalities, controlling for the effects of age (in years) and fatality level. Subsequently, the analyses were conducted on the entire sample of drivers, followed by a separate analysis on each gender group.

The linear regression analyses (see Table 21) demonstrate that the same significant factors were identified for the total sample and for both genders. Age remains the primary significant factor for the various constructs, with the exception of the perception of deterrence, which is more closely associated with the prevalence of fatal accidents within a given country.

Regardless of the age of the participants, the level of gender equality in the country and its accidentality context, gender is a significant factor influencing self-declared driving behaviour, personal acceptability and self-efficacy, with women reporting lower levels than men. Additionally, gender differences are observed in support for road safety policies, with women demonstrating higher levels of support than men.

The Gender Gap Global Index (GGGI) is found to be positively correlated with self-declared risky behaviour, social and personal acceptability, as well as self-efficacy. Self-declared risky behaviour and the social and personal norms associated with it also tend to increase as gender equality in a country increases. In addition, an increase in GGGI is associated with an increase in perceived risk associated with driving, but with a decrease in perceived deterrence.

It is also noteworthy that the proportion of males involved in fatal accidents is significantly associated with risk driving perception and support for road safety policies. The greater the over-representation of males in accidents, the more participants, comprising both males and females of all ages, perceived the driving violations as risky and express support for the measures, irrespective of the level of fatality in the country.

Table 21: Linear regression analyses of the psychological variables with age, fatalities per million of inhabitants, male fatality rates, GGGI and gender as tested factors for the total sample and for each gender group: standardized betas, R^2 and p-values

		Age	Fatalities per million	Male fatality rate	GGGI	Gender	R^2
Self-declared behaviour	Total	-.217***	.048***	-.024**	.031***	-.125***	.065***
	Males	-.218***	.059***	-.023*	.032***		.052***
	Females	-.220***	.031*	-.027*	.031*		.051***
Social acceptability	Total	-.186***	-.005	-.052***	.002	-.066***	.040***
	Males	-.197***	.010	-.066***	.005		.042***
	Females	-.171***	.002	-.035**	-.010		.030***
Personal acceptability	Total	-.214***	-.028***	-.086***	.051***	-.118***	.068***
	Males	-.223***	-.023*	-.097***	.059***		.062***
	Females	-.207***	-.037**	-.071***	.041***		.051***
Self-efficacy in driving	Total	-.170***	-.052***	.007	.057***	-.172***	.060***
	Males	-.184***	-.051***	-.009	.073***		.040***
	Females	-.159***	-.057***	.031*	.038**		.028***
Risk driving perception	Total	.139***	-.025**	.111***	.041***	.068***	.036***
	Males	.138***	-.006	.095***	.021		.027***
	Females	.142***	-.049**	.134***	.065***		.041***
Policy support	Total	.126***	.090***	.179***	-.027***	.164***	.086***
	Males	.130***	.095***	.182***	-.040***		.067***
	Females	.123***	.084***	.180***	-.010		.059***
Deterrence perception	Total	-.043***	.068***	-.040***	-.071***	-.082***	.021***
	Males	-.031**	.095***	-.029**	-.089***		.021***
	Females	-.057***	.036**	-.055***	-.049***		.009***

*Note: ***p < .001 **p < .01 *p < .05*

3.2.2 The interaction between gender and gender equality index on the psychological variable of interest

A series of analyses of covariance (ANCOVA) were conducted to evaluate the impact of gender, GGGI and the four sub-indices, as well as their interaction, on each aggregated score previously outlined. It is important to note that all analyses were conducted on individual raw data, rather than on country means. The analysis was caried out controlling for the effect of age (six modalities: 18-24, 25-34, 35-44, 45-54, 55-64, 65-74), country (38 modalities, to control for the effect of national sample sizes) and country income level (two modalities: 1 = Low- and Middle-Income Countries, 2 = Upper Middle-Income Countries and High-Income Countries), based on the World Bank's classification. It should be noted that a weighting of the data was applied in the analyses. This weighting took into account minor adjustments to ensure national representativeness of the sample with respect to gender and six age groups described above.

To carry out these analyses, the GGGI was transformed into categorical variables. The GGGI was divided into three categories, with low scores assigned a value of 1, medium scores a value of 2 and high scores a value of 3. Each category comprised approximately 30% of the total sample. Table 22 shows the distribution of the 38 remaining countries in the sample (excluding Uzbekistan) in the different categories for the GGGI.

Table 22: Distribution of the 38 Countries in the 3 GGGI categories

Country	GGGI
Armenia	1
Australia	3
Austria	1
Belgium	3
Bosnia and Herzegovina	1
Brazil	1
Canada	2
Chile	2
Colombia	2
Czech Republic	1
Denmark	3
Finland	3
France	2
Germany	3
Greece	1
Ireland	3
Israel	1
Italy	1
Japan	1
Kazakhstan	1
Kyrgyzstan	1
Latvia	3
Luxembourg	2
Mexico	2
Netherlands	2
Panama	1
Peru	2
Poland	1
Portugal	2
Serbia	2
Slovenia	2
Spain	3
Sweden	3
Switzerland	3
Thailand	1
Türkiye	1
United Kingdom	3
United States	2

Note. 1 = low level of equality, 2 = medium level of equality, and 3 = high level of equality.

The objective of this study was to analyse and evaluate the potential variation in the gender distribution of our sample of drivers according to the level of the GGGI. The chi-square analysis demonstrated that the proportion of women drivers exhibited a statistically significant variation according to the GGGI (see Table 23). The proportion of women increased with the level of GGGI.

Table 23: Proportion of Men and Women in the Sample Driving Frequently as a Function of the Level of the GGGI and the Four GGS, Chi-square Value and Significance

Indices	Levels	Gender		Chi-square
		Male drivers	Female drivers	
GGGI	Low	55.65	44.35	13.73*
	Medium	54.90	45.10	
	High	52.26	47.74	
Total		54.39	45.61	

*Note: ***p < .001 **p < .01 *p < .05*

The objective of the series of ANCOVAs was to examine the influence of gender group, the GGGI and their interaction on the seven variables of interest. Table 24 presents the mean values (and standard deviations) for the two gender groups and the three GGGI levels for the seven variables of interest, as well as the *F*-values for gender, GGGI, and their interaction for each ANCOVA, after controlling for age, country and country income level.

The analyses demonstrate a significant main effect of gender and GGGI level for all variables. The results indicate that men exhibit significantly higher levels of self-declared risky behaviour, social and personal acceptability, self-efficacy, and perceived deterrence than women. Conversely, women demonstrate significantly higher levels of support for road safety policies and risk perception than men.

As the GGGI level increases, the scores for self-declared risky behaviour, risk perception, and support for road safety policies decrease. Conversely, the scores for social and personal acceptability, self-efficacy, and perceived deterrence are lower for the medium GGGI level than for the low and high GGGI levels.

Table 24: Mean Values (and Standard Deviation) for the Two Gender Groups according to GGGI Levels for the Seven Variables of Interest, F-values (and η_p^2 when $p < .05$) for each ANCOVA, after Controlling for Age, Country and Country Income Level

Gender	GGGI Level	Self-decl. Risk. Beh.	Soc. Accept.	Pers. Accept.	Self-eff.	Risk Perc.	Sup. Road Saf. Pol.	Perc. Deterr.
Men	Low	22.83 (7.83)	8.87 (4.28)	21.74 (8.43)	16.43 (7.24)	27.38 (10.56)	22.20 (5.63)	15.66 (8.57)
	Medium	22.74 (8.40)	8.23 (3.94)	21.31 (8.14)	16.33 (7.15)	27.07 (10.23)	21.99 (6.04)	14.72 (8.15)
	High	21.99 (8.28)	8.39 (3.92)	22.08 (8.55)	16.81 (7.28)	26.32 (9.58)	21.27 (5.87)	14.45 (7.71)
	Total	22.56 (8.15)	8.52 (4.08)	21.70 (8.38)	16.51 (7.23)	26.97 (10.19)	21.86 (5.85)	15.01 (8.21)
Women	Low	20.98 (7.24)	8.53 (4.18)	20.16 (7.74)	14.55 (6.12)	28.60 (11.03)	23.85 (5.06)	13.55 (8.31)
	Medium	20.62 (6.27)	7.65 (3.51)	19.44 (6.14)	13.83 (5.43)	28.21 (10.60)	23.58 (5.32)	13.43 (7.71)
	High	20.52 (6.95)	7.89 (3.59)	20.29 (7.11)	14.43 (5.85)	28.08 (9.50)	23.33 (5.08)	13.93 (7.84)
	Total	20.72 (6.85)	8.05 (3.81)	19.97 (7.08)	14.28 (5.83)	28.31 (10.43)	23.60 (5.16)	13.63 (7.98)
Total	Low	22.03 (7.63)	8.72 (4.24)	21.05 (8.17)	15.61 (6.83)	27.91 (10.78)	22.92 (5.44)	14.75 (8.52)
	Medium	21.80 (7.59)	7.97 (3.76)	20.48 (7.36)	15.22 (6.55)	27.58 (10.41)	22.70 (5.78)	14.15 (7.98)
	High	21.31 (7.71)	8.16 (3.78)	21.24 (7.95)	15.70 (6.74)	27.14 (9.58)	22.23 (5.60)	14.21 (7.78)
	Total	21.74 (7.64)	8.31 (3.97)	20.93 (7.86)	15.51 (6.72)	27.57 (10.32)	22.64 (5.61)	14.39 (8.13)
F-value	Gender	253.80*** (.016)	73.60*** (.005)	241.05*** (.015)	517.85*** (.031)	83.37*** (.005)	423.29*** (.026)	91.21*** (.006)
	GGGI	3.85* (.0001)	63.44*** (.008)	12.42*** (.002)	9.23*** (.001)	6.46** (.001)	10.63*** (.001)	4.91** (.001)
	Interaction	2.66	1.86	0.84	4.01* (.001)	1.39	3.01* (.0001)	9.53*** (.001)

*Note: ***p < .001 **p < .01 *p < .05*

Furthermore, the analyses demonstrate a statistically significant interaction between gender and GGGI with respect to the self-efficacy, the support for road safety policies, and the perceived deterrence score. For the self-efficacy score, the gender gap is more pronounced in the medium GGGI category, as women's self-efficacy scores fall more sharply in this medium category (see Figure 2). For the support for road safety policies, the gender gap is higher in the high GGGI level than in the two other groups,

as the score decreases more for men than for women in the medium and high levels compared to low level (see Figure 3). For the perceived deterrence, the discrepancy between the gender groups is more pronounced in the low GGGI level than in the medium and the high GGGI level. This shift can be attributed to the decline in the perceived deterrence score for men and the corresponding increase in the deterrence score for women between the medium and high GGGI levels (see Figure 4).

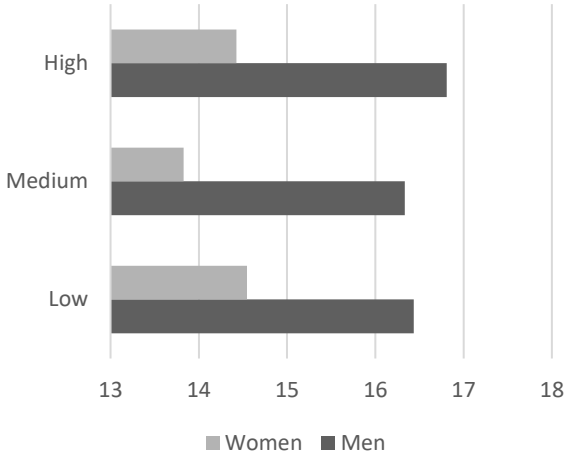

Figure 2: Mean score of self-efficacy among men and women according to the level of GGGI

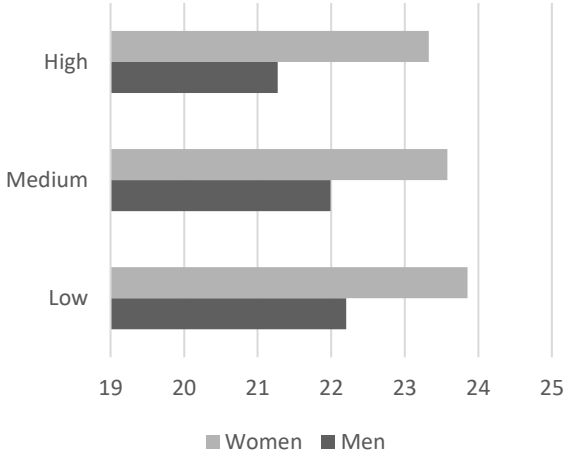

Figure 3: Mean score for support to policies among men and women according to the level of GGGI

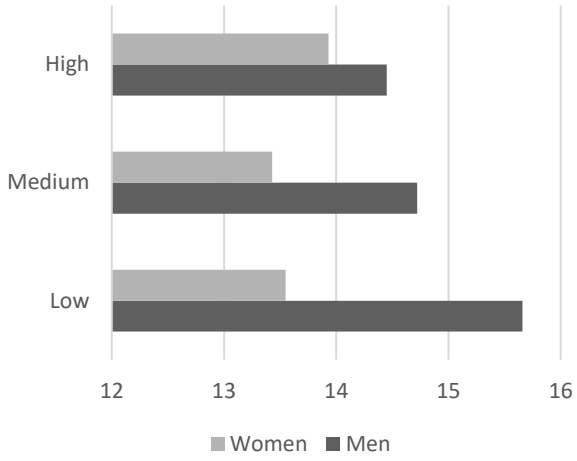

Figure 4: Mean score for perceived deterrence among men and women according to the level of GGGI

3.2.3 The determinants of self-declared behaviour according to gender

Subsequently, the impact of demographic and psychological variables, in addition to the influence of cultural factors, on self-declared risky driving behaviours was examined. In line with previous analyses, the culture of each country is operationalised using two proxies: the Global Gender Gap Index (GGGI), and the country's gendered context of fatal crashes, through the number of fatalities per million of inhabitant and the male fatality rate.

Table 25: Standardized betas and R^2 for the linear regression analyses of frequent drivers declared risky driving behaviours by demographic variables, perception and attitudes toward risky behaviours, gender equality index, country's income, and gender crash risk context

	For the total sample			By gender	
Variables included	Model 1	Model 2	Model 3	Model 3 for men	Model 3 for women
Gender	-.124***	-.123***	-.009		
Age	-.216***	-.213***	-.061***	-.052***	-.075***
GGGI		.034***	-.003	-.008	.004
Fatalities per million		.049***	.075***	.079***	.069***
Male fatality rate		-.028***	.009	.022**	-.010
Soc. acceptability			.019*	.004	.038***
Pers. acceptability			.451***	.485***	.404***
Self-efficacy			.333***	.321***	.346***
Perception of risk			.044***	.034***	.056***
Policy support			.001	.014	-.024*
Perc. of deterrence			.072***	.079***	.059***
Adjusted R^2	.060***	.063***	.548***	.557***	.520***

*Note: ***p<.0001, **p<.001, *p<.05*

First, this analysis was done on the overall sample by a series of hierarchical multiple linear regression analyses, using the "input" method. In a first model, only the two demographic variables (gender and age) were included. In a second model, cultural variables were added and in a third model, attitudinal variables were added. Table 25 presents the results for these three models. All three models are significant. The integration of the attitudinal variables greatly increases the share of variance explained by the model, compared to the demographic and cultural variables.

As shown in Table 25, gender and age are significant from Model 1, confirming higher declared risk behaviours among males and younger age groups. Their effects remain significant in the following model, but the betas decrease sharply in the third once the effect of the attitudinal variables is controlled for, suggesting that the effect of these two variables is mediated by the latter.

The second model also shows an effect of the cultural variables. The level of self-declared risky driving behaviours is higher in countries with a high level of Gender Equality, and with higher fatality rate, while all things being equal, risky driving behaviours decrease as male fatality rate increase.

With the exception of support for road safety policies, all attitudinal variables have a significant effect on self-declared risky driving behaviour after controlling for demographic and cultural variables. High personal acceptability of risky driving behaviours and high driving self-efficacy are strongly associated with an increase in self-declared violations. Other variables (social acceptability, road safety policy support, perceived deterrence) play a positive but less important role. Support for road safety policies is not significantly associated with self-declared behaviour once cultural and demographic variables are taken into account.

Multiple hierarchical linear regression analyses show similar effects for both gender groups. Table 25 shows that the same attitudinal variables play an important role (personal acceptability and self-efficacy reinforce), and that the same effects of crash risk context are observed. However, in contrast to the results for women, the results for men show that the fatality rate for men increases self-declared risky behaviour and the results for the women's group show that social acceptance of risky behaviour increases while political support decreases self-declared risky behaviour, which is not the case for the men's group.

3.3 Limitations of the data

In general, self-declared data are vulnerable to a number of biases (Choi & Pak, 2005; Krosnick and Presser, 2010): bias through misunderstanding of questions (e.g. questions with difficult words, long questions); or recall error – unintentional faulty answers due to memory errors; desirability bias – the tendency of respondents to provide answers which present a favourable image of themselves, e.g. individuals may over-report good behaviour or under-report bad, or undesirable behaviour. Women tend to have greater social desirability. However, in the specific area of driving behaviour, men may perceive social desirability in reporting risky behaviour that they may not have had, in order to display "typically male" behaviour.

One limitation of the results presented above is the fact that, even if gender differences are overall significant, they are also generally small in effect size (with some exceptions), which had to be considered. This is problematic as we have a large sample, which increases the probability to find significant differences.

Furthermore, the psychological constructs were only subject to separate factor analyses on each hypothetical construct identified in the questionnaire. An exploratory factorial analysis on the whole set of variables would be necessary in order to observe whether this set could be reduced to fewer constructs that are better differentiated from each other.

A further limitation of the aforementioned results is that, although gender differences are significant overall, they are also generally small in terms of effect size (with a few exceptions). By targeting the mode of transport that is used with the greatest frequency (four or more times a week), we have reduced the overall sample size. However, this ensures that the self-declared risk behaviour actually corresponds to actual regular behaviour, thereby limiting the risk of observing sample size effects.

4. Summary and discussion

The aim of this thematic report is to explore the influence of cultural context on gender differences in self-declared risk behaviour among frequent users of the different modes of transport studied in the ESRA3 survey. This thematic report on men and women analyses gender differences in self-declared data on behaviour, attitudes and beliefs by region, using cultural indicators of gender equality, income level and crash risk context by gender in each of the 39 countries participating in the survey.

The study concentrated on the most frequent users of each of the modes under investigation. However, the number of users of some of these modes was insufficient in some countries to allow for further analysis. For instance, the number of e-scooter users, moped riders and motorcyclists in some countries is insufficient to enable a comparison between men and women at such a disaggregated level. Consequently, the analyses were conducted at the level of the overall sample of frequent users of the mode and at the level of the three geographical clusters determined in ESRA3. However, the analysis revealed notable discrepancies in the number of male and female frequent users of the various modes under investigation. In a number of countries, men exhibited a greater propensity for using mopeds, motorbikes, and bicycles than women. Additionally, significant gender disparities were observed in the number of frequent drivers in 33 of the 39 countries surveyed, with males demonstrating a higher frequency of use than females.

Rather than going into detail about each of the behaviours included in the ESRA questionnaire, a Principal Component Analysis was performed on each psychological construct examined to calculate aggregate scores for each construct. The focus was on those items relating to psychological constructs where the literature suggests that gender differences might be expected. The variables considered and the corresponding question number from the survey can be found in Appendix 1:

- Declared risky behaviour (Q14_1.3.4.5.6)
- Social acceptability of risky behaviour (Q15)
- Personal acceptability of risky behaviour (Q16_1.2.3.4)
- Perception of risky behaviour (Q19)
- Road safety policy support (Q20)
- Perceived probability of enforcement (Q22)
- Enforcement perception (Q23)

The results demonstrate significant gender differences when considering the overall sample. Overall, men declared higher rates of risky behaviour, social and personal acceptability, and perceived deterrence. Conversely, female respondents exhibited a greater intention to comply, a heightened perception of risk-taking behaviour and a higher level of support for road safety policy. The gender difference in declared behaviour is observed in all groups of frequent users across all modes, including pedestrians, cyclists, e-scooter users, moped riders, motorcyclists and car drivers. The same gender difference is also significant concerning the personal acceptability of risky behaviour, where males perceive all risky behaviours as more acceptable than females for all groups of frequent users.

At a more disaggregated level, the analyses demonstrate that gender differences are contingent upon a number of factors, including region, country, mode of communication frequently used, and variables observed.

The analysis revealed that gender differences in risk-taking behaviour among car drivers can be observed in all three regions and in 23 of the 39 countries surveyed. Similarly, gender-based differences in self-declared pedestrian behaviour were identified in all three regions and in 16 of the 39 countries included in the survey. Conversely, the observed differences were statistically significant in only five of the 39 countries and two of the three regions (Europe22 and America8) for frequent cyclists. Furthermore, no significant differences were identified in any of the three regions for moped riders and motorcyclists, and only in America8 for e-scooters.

With regard to the personal acceptability of risk-taking behaviour, significant gender differences were observed in all three regions for both car drivers and pedestrians. These differences were noted in 16 countries for pedestrians and in 22 of the 39 countries for car drivers. However, no significant differences between men and women in the personal acceptability of risky behaviour were identified in any of the three regions for motorcyclists. Furthermore, only two countries and two regions (Europe22 and America8) exhibited such differences for cyclists.

The remaining questions pertained solely to car drivers and demonstrated that while some gender differences are consistent across all regions, others vary considerably. For example, self-efficacy is higher among men in 27 countries and across the three regions. The perceived frequency of control is higher among men in 29 countries and in all three regions. The level of support for policies is higher among women in 33 countries and across all three regions. The perception of deterrence is higher among men in 13 countries and in all three regions. However, in 20 countries, women exhibited a higher risk perception than men, with this phenomenon being exclusive to Europe22. In 13 countries and the Europe22 and America8 regions, women exhibited a greater intention to comply than men. Social acceptability was more prevalent among men in nine countries and in Europe22 and America8.

It appears that, among regular users, gender differences are more pronounced among drivers and pedestrians than among cyclists and motorcyclists. Furthermore, these differences are pervasive across countries and regions with regard to self-declared behaviour, personal acceptability of risky behaviour, self-efficacy, perception of deterrence and support for policies. However, these differences are less prevalent when considering risk perception, intention to comply and social acceptability. With regard to these latter variables, gender differences are observed in Europe22 and America8, but not in Asia-Oceania9. However, while these observed differences are statistically significant, the magnitude of these differences is typically small.

In order to examine the variation in gender gaps across cultural contexts, we used several proxy variables for culture. The Gender Gap Global Index (GGGI) was used to account for gender equality policies in education, health, the economy and politics. The aim was to analyse whether gender equality tends to reduce gender differences in the observed psychological constructs. The number of road deaths per million inhabitants and the proportion of men among road deaths were used to take account of the accident context of the country. Gross Domestic Product (GDP) per capita was considered to take into account the level of wealth in the country, but was not retained as it was too highly correlated with the other three cultural indicators.

Linear regression analyses of the role of the GGGI and accident context on each psychological construct studied show that the GGGI tends to increase the self-declared risky behaviour of frequent drivers, social and personal acceptability of risky behaviour, self-efficacy, and perceived risk of traffic violations while decreasing perceived deterrence. The fatality rate is associated with more frequent risky behaviour, lower personal acceptability of violations, lower self-efficacy, lower risk perception among women, but higher support for road safety policies and perceived deterrence. It is also noteworthy that the proportion of male fatalities is significantly associated with risk perception and support for road safety policies. The greater the over-representation of males in fatalities, the more participants, including both males and females of all ages, perceived the driving violations as risky and expressed support for the policies, regardless of the level of fatalities in the country. Irrespective of the age of the participants, the level of gender equality in the country and the crash context, gender is a significant factor influencing self-declared driving behaviour, personal acceptability and self-efficacy, with women reporting lower levels than men. In addition, gender differences are observed in support for road safety policies, with women showing higher levels of support than men.

Analyses of covariance were then carried out to observe the interactions between gender and cultural context in terms of gender equality, using the GGGI, while controlling the effect of age, and country's income. These interactions were few and of low intensity. They show that gender differences in self-efficacy are greatest at the medium level of the GGGI, but that gender differences in support for road safety policies are greatest at the highest level of the GGGI, while they are greatest in perceived deterrence at the lowest level of the GGGI. Thus, gender equality policies seem to have different effects on gender differences in perceptions and attitudes towards road safety, which are more or less important depending on the constructs observed. In all cases, it does not appear that gender equality

policies systematically reduce gender differences in perceptions and attitudes towards road safety among frequent drivers. It would be necessary to take these analyses further by examining the effect of the four-gender equality sub-indices.

Finally, we examined the importance of gender, age, gender equality policies and gender-specific accident context in determining the risky behaviours self-declared by frequent drivers. Linear regression analysis models show that gender and age influence self-declared risky behaviour, which is more frequent among men and younger drivers. These relationships are not affected by controlling for the gender context of the crash or by gender equality policies. On the other hand, these relationships are strongly influenced by attitudes and perceptions about road safety. This tends to show that gender does not directly influence declared risky behaviour and that gender differences in declared risky behaviour are related to gender differences in perceptions and attitudes towards road safety. The level of self-declared risky driving behaviour is higher in countries with a high level of gender equality and with a higher fatality rate, whereas, all things being equal, risky driving behaviour decreases as the male fatality rate increases. High personal acceptability of risky driving behaviour and high driving self-efficacy are strongly associated with an increase in self-declared violations. Other variables (social acceptability, support for road safety policies, perceived deterrence) play a positive but less important role. Support for road safety policies is not significantly associated with self-declared behaviour once cultural and demographic variables are taken into account. The same attitudinal variables play an important role (personal acceptability and self-efficacy increase) and the same effects of crash risk context are observed for men and women. However, in contrast to the results for women, the results for men show that the fatality rate for men increases self-declared risky behaviour, and the results for the women's group show that social acceptance of risky behaviour increases while political support decreases self-declared risky behaviour, which is not the case for the men's group.

Overall, the analyses confirm differences between men and women for the various psychological constructs observed. However, they show that these differences vary according to the mode of travel used and the countries observed. In this respect, the analyses confirm contextual variations in gender differences, which may support the hypothesis of a social construction of gender differences in perceptions, attitudes and risky behaviour in road traffic.

First, the analyses show that these contextual effects are related to the mode of transport used - the differences are more pronounced for frequent drivers and pedestrians than for cyclists, motorcyclists or e-scooter users. Further research is required to ascertain whether the observed differences between men and women in the use of two-wheeled vehicles, whether motorised or not, are associated with heightened risk aversion among men, which would bring them closer to the risk-taking behaviour observed among women drivers and pedestrians, or reduced risk aversion among women cyclists or motorcyclists, which would bring them closer to the risk-taking behaviour observed among men.

The analyses also show an effect of cultural context. First, gender equality policies do not seem to systematically reduce gender differences in road safety behaviour and attitudes. In addition, the number of road deaths and the proportion of men among road deaths seem to reinforce risky behaviour among men, while the social acceptability of violations reinforces risky behaviour among women. Thus, it appears that social norms that emphasise risk acceptance - and its consequences in terms of road deaths, especially among men - have a detrimental effect on the level of risky behaviour among frequent drivers of both genders studied.

One of the main findings of this research is that gender equality in this context can also have negative consequences if it means that women also adopt risky driving behaviours and attitudes that are typically more common among men. It is therefore important to tailor interventions to better address the risks and needs of men and women, especially as societies become more equal. In addition, the effect sizes were small in all cases and the results showed that the effects of gender, age and culture on risky behaviour also appeared to be mediated by attitudinal variables and that these three demographic and contextual variables interacted in explaining attitudes and behaviour. In addition, the seven psychological constructs used in this report are still hypothetical, as we did not perform an exploratory factorial analysis on all the items to identify the different dimensions that make up the questionnaire for the population surveyed. This should be explored in depth in future studies using these data.

The initial aim of ESRA was to develop a system for gathering reliable and comparable information about people's attitudes towards road safety in several European countries. This objective has been achieved and the initial expectations have even been exceeded. ESRA has become a global initiative which already conducted surveys in more than 60 countries across six continents. The outputs of the ESRA project have become building blocks of national and international road safety monitoring systems.

The ESRA project has also demonstrated the feasibility and the added value of joint data collection on road safety attitudes and performance by partner organizations in a large number of countries. The intention is to repeat this survey every three to four years, retaining a core set of questions in every wave allowing the development of time series of road safety performance indicators.

Lists of tables and figures

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Appendix 1: ESRA3 Questionnaire

Introduction

In this questionnaire, we ask you some questions about your experience with, and your attitudes towards traffic and road safety. When responding to a question, please answer in relation to the traffic and road safety situation in [COUNTRY]. There are no right or wrong answers; what matters is your own experience and perception.

Socio-demographic information

Q1) **In which country do you live? _____**

Q2) **Are you …** male – female - other

Q3) **How old are you (in years)?** [Drop down menu]

Q4_1) **Are you currently a student?** yes - no

Q4_2) **What is the highest qualification or educational certificate which you want to achieve?** primary education - secondary education - bachelor's degree or similar - master's degree or higher

Q4_3) **What is the highest qualification or educational certificate that you have obtained?** none - primary education - secondary education - bachelor's degree or similar - master's degree or higher

Q5) **Which of the descriptions comes closest to how you feel about your household's income nowadays?** living comfortably on present income - coping on present income - finding it difficult on present income - finding it very difficult on present income

Q6a) **Is the car you regularly drive equipped with seatbelts in the front seat?** yes – no
Only asked to LMIC countries.

Q6b) **Is the car you regularly drive equipped with seatbelts in the back seat?** yes - no
Only asked to LMIC countries.

Q7) **Are you using a carsharing organization (e.g., poppy or cambio[3])?** yes – no
Only asked to HIC/UMIC countries.

Q8) **Do you have to drive or ride a vehicle during your main professional activity?** yes, I transport mainly other person(s) (e.g., taxi, bus, rickshaw, …) - yes, I transport mainly goods (e.g., truck, courier, food delivery,…) - yes, I transport mainly myself (e.g., visiting patients, salesperson,…) - no, I drive or ride a vehicle only for commuting or private reasons

Q9) **Which phrase best describes the area where you live?** a farm or home in the countryside - a country village - a town or a small city - the suburbs or outskirts of a big city - a big city

Q10) **In which region do you live?** [List of regions per country]

Q11a) **How far do you live from the nearest stop of public transport?** less than 500 metres - between 500 metres and 1 kilometre - more than 1 kilometre

Q11b) **What is the frequency of your nearest public transport?** at least 3 times per hour - 1 or 2 times per hour - less than 1 time per hour

Mobility & exposure

[3] *The examples in brackets were adapted to national context.*

Q12) **During the past 12 months, how often did you use each of the following transport modes in [country]? How often did you ...?** at least 4 days a week - 1 to 3 days a week - a few days a month - a few days a year - never

Items_(random order): take the train - take the bus or minibus - take the tram/streetcar - take the subway, underground, metro - take a plane - take a ship/boat or ferry - be a passenger on non-motorized individual public transport mode (e.g., bike taxi, animal carriages,…) - be a passenger on motorized individual public transport mode (e.g., car-taxi, moto-taxi, tuk-tuk, auto rickshaw, songthaew,…) - walk or run minimum 200m down the street - cycle (non-electric) - cycle on an electric bicycle / e-bike / pedelec - drive a moped (≤ 50 cc or ≤ 4 kW) - drive a motorcycle (> 50 cc or > 4kW) - ride an e-scooter (electric-kick style scooter) - drive a car (non-electric or non-hybrid) - drive a hybrid or electric car - be a passenger in a car - be a passenger on a moped or motorcycle - use another transport mode

Q13) **Over the last 30 days, have you transported a child (<18 years of age) in a car?** yes - no

Items (random order): under 150cm - above 150cm[4]

Self-declared safe and unsafe behaviour in traffic

Q14_1a) **Over the last 30 days, how often did you as a CAR DRIVER ...?** You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.

Binary variable for most items: at least once (2-5) - never (1); only exception: items on protective systems: always wear/transport (1) – not always wear/transport (2-5)

Items (random order):

- drive when you may have been over the legal limit for drinking and driving
- drive after drinking alcohol
- drive within 1 hour after taking drugs (other than prescribed or over the counter medication)
- drive within 2 hours after taking medication that may affect your driving ability
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)
- drive faster than the speed limit on motorways/freeways
- drive without wearing your seatbelt
- transport children under 150cm[5] without using child restraint systems (e.g., child safety seat, cushion)
- transport children above 150cm[6] without wearing their seat belt
- talk on a hand-held mobile phone while driving
- talk on a hands-free mobile phone while driving
- read a message or check social media/news while driving
- drive when you were so sleepy that you had trouble keeping your eyes open

Q14_1b_1) **You said that you have driven a car when you may have been over the legal limit for drinking and driving. Was this ...?** **You can indicate multiple answers:** in the week during daytime - in the week during night-time - in the weekend during daytime - in the weekend during night-time - on motorways - on urban roads - on rural roads

Only asked to HIC/UMIC countries.

Q14_1b_2) **You said that you have driven a car within 1 hour after taking drugs (other than prescribed or over the counter medication). Was this ...?** **You can indicate multiple answers:** cannabis - cocaine - amphetamines (e.g., speed, extasy) - illicit opiates (e.g., morphine, codeine; not prescribed as medication) - other

Q14_1b_3) **You said that you have driven a car within 2 hours after taking medication that may affect your driving ability. Was this ...?** **You can indicate multiple answers[7]:** antihistamines and/or cough medicines (such as Claritin, Allegra, Benadryl) - antidepressants (such as Prozac, Zoloft, Wellbutrin) - prescription pain medicines (such as Tylenol with codeine, OxyContin, Percocet, Vicodin/ hydrocodone) - muscle relaxants (such as Soma, Flexeril) - sleep aids, Barbiturates, or Benzodiazapines

[4] *This question was adapted to national legal regulation.*
[5] *This question was adapted to national legal regulation.*
[6] *This question was adapted to national legal regulation.*
[7] *The examples in brackets were adapted to national context.*

(such as Ambien, Lunesta, phenobarbital, Xanax, Valium, Ativan) - amphetamines (such as Adderall, Dexedrine, phentermine) - other

Q14_2) **Over the last 30 days, how often did you as a CAR PASSENGER …? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.**

Binary variable for most items: always wear/transport (1) – not always wear/transport (2-5)
Items (random order):

- travel without wearing your seatbelt in the back seat
- travel without wearing your seatbelt in the front seat

Q14_3) **Over the last 30 days, how often did you as a MOPED RIDER or MOTORCYCLIST …?** You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.

Binary variable for most items: at least once (2-5) - never (1); only exception: items on protective systems: always wear/transport (1) – not always wear/transport (2-5)
Items (random order):

- ride when you may have been over the legal limit for drinking and driving
- ride faster than the speed limit outside built-up areas (except motorways/freeways)
- not wear a helmet on a moped or motorcycle
- read a message or check social media/news while riding
- ride within 1 hour after taking drugs (other than prescribed or over the counter medication)
- ride too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users) - Only asked to LMIC countries.
- ride a motorcycle with more than 1 passenger

Q14_4) **Over the last 30 days, how often did you as a CYCLIST …?** You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.

Binary variable for most items: at least once (2-5) - never (1); only exception: items on protective systems: always wear/transport (1) – not always wear/transport (2-5)
Items (random order):

- cycle when you think you may have had too much to drink
- cycle without a helmet
- cycle while listening to music through headphones
- read a message or check social media/news while cycling
- cycle within 1 hour after taking drugs (other than prescribed or over the counter medication)
- cross the road when a traffic light is red

Q14_5) **Over the last 30 days, how often did you as a PEDESTRIAN …?** You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.

Binary variable for most items: at least once (2-5) - never (1); only exception: items on protective systems: always wear/transport (1) – not always wear/transport (2-5)
Items (random order):

- listen to music through headphones while walking down the street
- walk down the street when you think you may have had too much to drink
- read a message or check social media/news while walking down the street
- text a message while walking down the street
- cross the road when a pedestrian light is red
- cross the road at places other than at a nearby (distance less than 30m[8]) pedestrian crossing

Q14_6) **Over the last 30 days, how often did you as RIDER OF AN E-SCOOTER (electric-kick style scooter) …?** You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.

Binary variable for most items: at least once (2-5) - never (1); only exception: items on protective systems: always wear/transport (1) – not always wear/transport (2-5)
Only asked to HIC/UMIC countries.

[8] *This question was adapted to national legal regulation.*

Items (random order):

- ride with more than 1 person on board
- ride when you think you may have had too much to drink
- cross the road when a traffic light is red
- ride on pedestrian pavement/sidewalk
- ride without a helmet

Acceptability of safe and unsafe traffic behaviour

Q15) **Where you live, how acceptable would most other people say it is for a CAR DRIVER to ….?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

Binary variable: acceptable (4-5) – unacceptable/neutral (1-3)
Items (random order):

- drive when he/she may be over the legal limit for drinking and driving
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive without wearing the seatbelt
- talk on a hand-held mobile phone while driving
- read a message or check social media/news while driving

Q16_1) **How acceptable do you, personally, feel it is for a CAR DRIVER to …?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

Binary variable: acceptable (4-5) – unacceptable/neutral (1-3)
Items (random order; instructed response item (trick item) as last item):

- drive when he/she may be over the legal limit for drinking and driving
- drive within 1 hour after taking drugs (other than prescribed or over the counter medication)
- drive within 2 hours after taking a medication that may affect the driving ability
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)
- drive faster than the speed limit on motorways/freeways
- drive without wearing the seatbelt
- transport children in the car without securing them (child's car seat, seatbelt, etc.)
- talk on a hand-held mobile phone while driving
- talk on a hands-free mobile phone while driving
- read a message or check social media/news while driving
- drive when he/she is so sleepy that he/she has trouble keeping their eyes open
- Please, select the answer option number 5 "acceptable". (Instructed response item (trick item))

Q16_2) **How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to …?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

Binary variable: acceptable (4-5) – unacceptable/neutral (1-3)
Items (random order):

- ride when he/she may have been over the legal limit for drinking and driving
- ride faster than the speed limit outside built-up areas (except motorways/freeways)
- not wear a helmet on a moped or motorcycle
- read a message or check social media/news while riding
- ride a motorcycle with more than 1 passenger - Only asked to LMIC countries.

Q16_3) **How acceptable do you, personally, feel it is for a CYCLIST to …?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

Binary variable: acceptable (4-5) – unacceptable/neutral (1-3)
Items (random order):

- cycle when he/she may have had too much to drink
- cycle without a helmet
- read a message or check social media/news while cycling
- cross the road when a traffic light is red

Q16_4) **How acceptable do you, personally, feel it is for a PEDESTRIAN to …?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

Binary variable: acceptable (4-5) – unacceptable/neutral (1-3)
Items (random order):

- walk down the street when he/she may have had too much to drink
- read a message or check social media/news while walking down the street
- cross the road when a pedestrian light is red

Attitudes towards safe and unsafe behaviour in traffic

Q17) **To what extent do you agree with each of the following statements?** You can indicate your answer on a scale from 1 to 5, where 1 is "disagree" and 5 is "agree". The numbers in between can be used to refine your response.

Binary variable: agree (4-5) – disagree/neutral (1-3)
Items (random order):
Behaviour believes & attitudes

- For short trips, one can risk driving under the influence of alcohol.
- I have to drive fast; otherwise, I have the impression of losing time.
- Respecting speed limits is boring or dull.
- Motorized vehicles should always give way to pedestrians or cyclists.
- I use a mobile phone while driving, because I always want to be available.
- To save time, I often use a mobile phone while driving.

Perceived behaviour control = self-efficacy

- I trust myself to drive after drinking a small amount of alcohol (e.g., one glass of wine or one pint of beer).
- I have the ability to drive when I am a little drunk after a party.
- I am able to drive after drinking a large amount of alcohol (e.g., a bottle of wine).
- I trust myself when I drive significantly faster than the speed limit.
- I have the ability to drive significantly faster than the speed limit.
- I am able to drive fast through a sharp curve.
- I trust myself when I check messages on the mobile phone while driving.
- I have the ability to write a message on the mobile phone while driving.
- I am able to talk on a hand-held mobile phone while driving.

Habits

- I often drive after drinking alcohol.
- I often drive faster than the speed limit.
- I often use my mobile phone while driving.

Intention

- I intend not to drive after drinking alcohol in the next 30 days.
- I intend to respect speed limits in the next 30 days.
- I intend not to use my mobile phone while driving in the next 30 days.

Subjective safety & risk perception

Q18) **How safe or unsafe do you feel when using the following transport modes in [country]?** You can indicate your answer on a scale from 0 to 10, where 0 is "very unsafe" and 10 is "very safe". The numbers in between can be used to refine your response.

Items (random) = Items indicated by the respondent in Q12 are displayed.

Q19) **How often do you think each of the following factors is the cause of a road crash involving a car**? You can indicate your answer on a scale from 1 to 6, where 1 is "never" and 6 is "(almost) always". The numbers in between can be used to refine your response.

Binary variable: often/frequently (4-6) - not that often/not frequently (1-3)
Items (random order):

- driving after drinking alcohol
- driving within 1 hour after taking drugs (other than prescribed or over the counter medication)
- driving faster than the speed limit
- using a hand-held mobile phone while driving
- using a hands-free mobile phone while driving
- inattentiveness or daydreaming while driving
- driving while tired

Support for policy measures

Q20) **Do you oppose or support a legal obligation …?** You can indicate your answer on a scale from 1 to 5, where 1 is "oppose" and 5 is "support". The numbers in between can be used to refine your response.

Binary variable: support (4-5) – oppose/neutral (1-3)
Items for all countries (random order):

- forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0 ‰ (zero tolerance)
- forbidding all drivers of motorized vehicles to use a hand-held mobile phone while driving
- limiting the speed limit to 30 km/h in all built-up areas (except on main thoroughfares)
- requiring all cyclists to wear a helmet
- limiting the speed limit to a maximum of 80 km/h on all rural roads without a median strip
- forbidding all novice drivers of motorized vehicles (license obtained less than 2 years ago) to drive with a blood alcohol concentration above 0.0 ‰ (zero tolerance)

Items only for HIC/UMIC countries (random order):

- installing an alcohol 'interlock' for drivers who have been caught drunk driving on more than one occasion (technology that won't let the car start if the driver's alcohol level is over a certain limit)
- requiring cyclists under the age of 12 to wear a helmet
- forbidding all cyclists to ride with a blood alcohol concentration above 0,0‰ (zero tolerance)

Items only for LMIC countries (random order):

- forbidding all professional drivers of motorized vehicles (e.g., taxis, vans, trucks, buses, …) to drive with a blood alcohol concentration above 0.0 ‰ (zero tolerance)
- requiring all moped and motorcycle riders and passengers to wear a helmet
- requiring all car drivers and passengers (front- and back seat) to wear a seatbelt
- making liability insurance mandatory for owners of cars

Q21) **Please think of the policy measure: "…" and indicate if you agree or disagree with the following statements about it. This policy measure would …?** disagree - agree

Random selection of one of the first 4 items in Q20 per respondent. All first 4 items in Q20 are be asked equally often in each country.
Items (random order):

- reduce the number of road crashes and injuries
- increase the safety feeling on the streets
- have negative side effects
- restrict people's individual freedom
- reduce the privacy of people
- limit people's mobility
- lead to discrimination
- be fair
- be expensive for people
- be easy to implement
- be difficult to enforce by the police
- be a burden for people
- be an unjustifiable intervention by the state
- be supported by many of my friends

Enforcement

Q22) **On a typical journey, how likely is it that you (as a car driver) will be checked by the police (including cameras or radars) for …?** You can indicate your answer on a scale from 1 to 7, where 1 is "very unlikely" and 7 is "very likely". The numbers in between can be used to refine your response.

Binary variable: likely (5-7) – unlikely/neutral (1-4)
Items (random order):

- alcohol, in other words, being subjected to a Breathalyser test
- the use of illegal drugs
- respecting the speed limits
- wearing your seatbelt
- the use of hand-held mobile phone to talk or text while driving

Q23_1) **In the past 12 months, how many times have you been checked by the police for using alcohol while driving a car (i.e., being subjected to a Breathalyser test)?** never - 1 time - at least 2 times - Binary variable: at least once - never

Q23_2) **In the past 12 months, how many times have you been checked by the police for using drugs (other than prescribed or over the counter medication) while driving a car?** never - 1 time - at least 2 times - Binary variable: at least once - never

Involvement in road crashes

The following questions focus on road crashes. With road crashes, we mean any collision involving at least one road vehicle (e.g., car, motorcycle, or bicycle) in motion on a public or private road to which the public has right of access. Furthermore, these crashes result in material damage, injury, or death. Collisions include those between road vehicles, road vehicles and pedestrians, road vehicles and animals or fixed obstacles, road and rail vehicles, and one road vehicle alone.

Q24a) **In the past 12 months, have you personally been involved in a road crash where at least one person was injured (light, severe or fatal crashes)?** yes - no

Q24b) **Please indicate the transport mode(s) YOU were using at the time of these crashes.** **You can indicate multiple answers:** as a car driver - as a car passenger - as a moped or motorcycle rider - as a moped or motorcycle passenger - as a cyclist - as a pedestrian - as a rider of an e-scooter (electric-kick style scooter) - other

Infrastructure

Q25_1_a) **As a CAR DRIVER, what type of roads do you regularly use in [country]?** You can indicate multiple answers: inter-city motorways - thoroughfares and high-speed roads within cities - rural roads and roads connecting towns and villages - other streets and roads in urban areas

Q25_1_b) **As a CAR DRIVER, how would you rate the roads that you regularly use in terms of safety?** You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

Binary variable: safe (5-7) – unsafe/neutral (1-4)
Items (random order):

- inter-city motorways
- thoroughfares and high-speed roads within cities
- rural roads and roads connecting towns and villages
- other streets and roads in urban areas

Q25_2_a) **As a MOPED RIDER or MOTORCYCLIST, what type of roads do you regularly use in [country]?** You can indicate multiple answers: thoroughfares and high-speed roads within cities - rural roads and roads connecting towns and villages - other streets and roads in urban areas

Q25_2_b) **As a MOPED RIDER or MOTORCYCLIST, how would you rate the roads that you regularly use in terms of safety?** You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

Binary variable: safe (5-7) – unsafe/neutral (1-4)
Items (random order):

- thoroughfares and high-speed roads within cities
- rural roads and roads connecting towns and villages
- other streets and roads in urban areas

Q25_3_a) **As a CYCLIST, what type of roads/cycle lanes do you regularly use in [country]?** You can indicate multiple answers: rural roads and roads connecting towns and villages with cycle lanes - rural roads and roads connecting towns and villages without cycle lanes - streets and roads in urban areas with cycle lanes - streets and roads in urban areas without cycle lanes

Q25_3_b) **As a CYCLIST, how would you rate the roads/cycle lanes that you regularly use in terms of safety?** You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

Binary variable: safe (5-7) – unsafe/neutral (1-4)
Items (random order):

- rural roads and roads connecting towns and villages with cycle lanes
- rural roads and roads connecting towns and villages without cycle lanes

- streets and roads in urban areas with cycle lanes
- streets and roads in urban areas without cycle lanes

Q25_4_a) **As a PEDESTRIAN, what type of roads/sidewalks do you regularly use in [country]?** You can indicate multiple answers: rural roads and roads connecting towns and villages with sidewalks - rural roads and roads connecting towns and villages without sidewalks - streets and roads in urban areas with sidewalks - streets and roads in urban areas without sidewalks

Q25_4_b) **As a PEDESTRIAN, how would you rate the roads/sidewalks that you regularly use in terms of safety?** You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

Binary variable: safe (5-7) – unsafe/neutral (1-4)
Items (random order):

- rural roads and roads connecting towns and villages with sidewalks
- rural roads and roads connecting towns and villages without sidewalks
- streets and roads in urban areas with sidewalks
- streets and roads in urban areas without sidewalks

Social desirability scale

Introduction: The survey is almost finished. Some of the following questions[9] have nothing to do with road safety, but they are important background information. There are no good or bad answers.

Q26) **To what extent do you agree with each of the following statements?** You can indicate your answer on a scale from 1 to 5, where 1 is "disagree" and 5 is "agree". The numbers in between can be used to refine your response.

Items (random order; instructed response item (trick item) as last item):

- In an argument, I always remain objective and stick to the facts.
- Even if I am feeling stressed, I am always friendly and polite to others.
- When talking to someone, I always listen carefully to what the other person says.
- It has happened that I have taken advantage of someone in the past.
- I have occasionally thrown litter away in the countryside or on to the road.
- Sometimes I only help people if I expect to get something in return.
- Please, select the answer option number 5 "agree". (instructed response item (trick item))

Closing comment: Thank you for your contribution!

[9] *Q26 is asked together with some last questions on sociodemographic information, which have already been listed in the beginning of the questionnaire.*

Appendix 2: ESRA3 weights

The following weights were used to calculate representative means on national and regional level. They are based on UN population statistics (United Nations Statistics Division, 2023). The weighting took into account small corrections with respect to national representativeness of the sample based on gender and six age groups (18-24y, 25-34y, 35-44y, 45-54y, 55-64y, 65-74y). For the regions, the weighting also took into account the population size of each country in the total set of countries from this region.

Individual country weight	Individual country weight is a weighting factor based on the gender*6 age groups (18-24y, 25-34y, 35-44y, 45-54y, 55-64y, 65-74y) distribution in a country as retrieved from the UN population statistics.
Europe22 weight	European weighting factor based on all 22 European countries participating in ESRA3, considering individual country weight and population size of the country as retrieved from the UN population statistics.
America8 weight	American weighting factor based on all 8 North and Latin American countries participating in ESRA3, considering individual country weight and population size of the country as retrieved from the UN population statistics.
AsiaOceania6 weight	Asian and Oceanian weighting factor based on the 6 Asian and Oceanian countries participating in ESRA3 with data collected through online panel (Australia, Israel, Japan, Kazakhstan, Thailand, Türkiye - Armenia, Kyrgyzstan, and Uzbekistan were not included due to different methodology in data collection – face-to-face CAPI), considering individual country weight and population size of the country as retrieved from the UN population statistics.

Appendix 3: Sample size

Table 26: Weighted sample size by region and country.

Country	All road users	car drivers, at least a few days a year	car drivers, at least a few days a month	motorcyclists/ moped riders, at least a few days a month	cyclists, at least a few days a month	pedestrians, at least a few days a month
Armenia	467	140	122	8	41	441
Australia	953	828	809	280	392	757
Austria	1804	1506	1420	194	876	1682
Belgium	1795	1391	1346	222	852	1583
Bosnia and Herzegovina	914	644	597	96	369	716
Brazil	947	721	657	299	508	788
Canada	1904	1464	1385	221	611	1429
Chile	923	635	576	105	401	793
Colombia	909	557	472	284	510	805
Czech Republic	965	641	597	75	406	845
Denmark	874	689	647	115	520	729
Finland	993	769	683	97	554	889
France	965	801	769	190	409	768
Germany	832	649	618	133	457	678
Greece	978	814	754	200	325	843
Ireland	901	736	706	62	259	744
Israel	965	836	796	33	120	764
Italy	1007	921	906	266	549	885
Japan	986	603	570	84	365	740
Kazakhstan	845	336	250	49	245	707
Kyrgyzstan	468	176	166	7	69	429
Latvia	911	674	621	43	378	777
Luxembourg	471	433	424	44	141	411
Mexico	932	692	647	196	437	789
Netherlands	905	740	700	145	744	856
Panama	855	606	542	84	318	705
Peru	843	475	401	216	434	765
Poland	927	772	723	94	584	864
Portugal	1032	902	844	91	260	917
Serbia	982	724	676	72	488	893
Slovenia	945	824	805	146	464	849
Spain	935	748	710	159	381	865
Sweden	922	690	633	88	446	727
Switzerland	979	803	776	200	522	910
Thailand	870	620	586	632	482	592
Türkiye	897	738	692	264	405	830
United Kingdom	921	668	644	179	327	823
United States	938	823	782	407	468	644
Uzbekistan	433	103	82	30	86	287
Europe22	22000	17710	16900	3732	10650	19119
America8	8000	6331	5894	2650	3967	6187
AsiaOceania6*	6000	4180	3931	1708	2524	4705

** Not including Armenia, Kyrgyzstan, Uzbekistan (different methodology).*