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E-Survey of Road users' Attitudes

Driving under the influence of alcohol, drugs or medication

ESRA3 Thematic report Nr. 10

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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

BAC	Blood Alcohol Concentration
CI	Confidence Intervals
DUI	Driving Under Influence
ESRA	E-Survey of Road users' Attitudes
EU	European Union
HIC	High income countries based on World Bank classification 2023 (The World Bank Group, 2023)
ICW	Individual country weight used in ESRA3
KPIs	Key Performance Indicators
KSE-G	Social Desirability–Gamma Short Scale (Nießen et al., 2019)
LMIC	Lower-middle income countries based on World Bank classification 2023 (The World Bank Group, 2023)
NGO	Non-Governmental Organizations
NQ–	minimizing negative qualities
PBC	Perceived Behaviour Control
PQ+	exaggerating positive qualities
Q	Question
OR	Odds Ratio
r	Pearson Correlation Coefficient
TPB	Theory of Planned Behaviour
UMIC	Upper-middle income countries based on World Bank classification 2023 (The World Bank Group, 2023)
y	Year

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 (DUI) of alcohol, drugs or medication, 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.

This thematic ESRA3 report on driving under influence (DUI) of alcohol, drugs or medication describes the self-declared behaviour and attitudes on driving under influence of road users in 39 countries. It includes comparisons amongst the participating countries as well as results in relation to age and gender. The aspects analysed in this thematic report cover: self-declared behaviour (last 30 days), personal and perceived social acceptability of DUI of alcohol, drugs or medication, attitudes, intention and perceived behaviour control related drink-driving, support for policy measures against drink-driving, and experiences with enforcement and perceived likelihood for getting checked by the police for DUI of alcohol or drugs. The report mainly focusses on car drivers, but results of other road user groups are also presented.

Key results

The countries with the highest and lowest rates of self-declared DUI of alcohol, drugs, or medication are the following:

- The highest reported DUI rates are in Luxembourg (24.1%), Thailand (23.2%), and Mexico (20.5%) for drink-driving above the legal limit, in Thailand (37.0%) and the U.S. (17.3%) for drug-driving, and in Thailand (34.8%) and Peru (24.0%) for DUI of medication.
- The lowest rates are in Kyrgyzstan (1.2%), Armenia (3.4%), and Japan (3.5%) for drink-driving above the legal limit, in Serbia (1.3%) and Armenia (1.6%) for drug-driving, and in Armenia (1.6%) and Kyrgyzstan (6.2%) for DUI of medication.

There are strong differences of self-declared DUI of alcohol, drugs or medication across countries and regions:

- In Europe22, percentages range from 4.2% (Poland) to 24.1% (Luxembourg) for drink-driving above the legal limit, from 1.3% (Serbia) to 10.1% (UK) for drug-driving, and 6.8% (Slovenia) to 21.4% (Spain) for DUI of medication.

- In America8, percentages range from 10.5% (Canada) to 20.5% (Mexico) for drink-driving above the legal limit, from 6.0% (Panama) to 17.3% (U.S.) for drug-driving, and 12.4% (Brazil) to 24.0% (Peru) for DUI of medication.
- In AsiaOceania6, Thailand has notable higher rates across all categories, with other countries showing much lower rates ranging from 1.2% (Kyrgyzstan) to 15.8% (Uzbekistan) for drink-driving above the legal limit, from 1.6% (Armenia) to 13.6% (Uzbekistan) for drug-driving, and from 1.6% (Armenia) to 12.4% (Kazakhstan) for DUI of medication.

The personal acceptability of DUI of alcohol, drugs, or medication is low in all countries and regions:

- The rates range in Europe22 from 0.4% to 6.8%, in America8 from 1.0% to 6.3%, and in AsiaOceania6 from 0.2% to 9.3%.
- The countries with the highest personal acceptability rates for impaired driving are Thailand (drink-driving above the legal limit: 5.6%; drug-driving: 8.8%; DUI of medication: 9.3%), the United States (5.3%, 5.9%, 6.3%, respectively), and Austria (5.0%, 4.1%, 6.8%, respectively).
- The national results show a strong positive correlation between personal acceptability and perceived social acceptability (r = 0.778). In almost all countries, more respondents believe that others accept DUI of alcohol above the legal limit than they themselves do.

Attitude, intention, and perceived behaviour control regarding drink-driving differ across countries and regions:

- In almost all countries, very few car drivers agree with the statement that for short tips one can risk drink-driving above the legal limit, ranging from 0.8% (Poland) to 7.0% (Uzbekistan)[1].
- Most car drivers have the intention not to drink and drive in the next 30 days across all regions. The according rates range from 29.4% (Uzbekistan) to 84.7% (Czech Republic).
- The majority of car drivers across all regions are aware of the risks of drink-driving and do not believe they can safely drive after consuming alcohol. As expected, the degree of perceived ability to drive a car after drinking alcohol depends on the amount of alcohol.

The support for policy measures against drink-driving is very high across all regions and countries, with at least 62% respondents in favour:

- The policy measures with the strongest support are: 'installing an alcohol interlock for drivers who have been caught drunk driving on more than one occasion' and a 'zero tolerance of alcohol for all novice drivers'.
- The least supported measure against drink-driving for drivers is a 'zero tolerance for all drivers of motorized vehicles'. Even less supported in all regions is a 'zero tolerance of alcohol for all cyclists' (drink-cycling).

Across all regions and countries more car drivers experienced alcohol checks compared to drug tests:

- The proportion of car drivers who have been checked for drink-driving in the last 12 months ranges from 0.8% (Japan) to 41.6% (Serbia), and those who have been checked for drug-driving ranges from 0.5% (Japan) to 12.6% (Peru).
- There is a slight tendency for increased enforcement of DUI of alcohol or drugs to be associated with a higher perception likelihood of being checked for DUI (alcohol checks: r = 0.348; drug checks: r = 0.353).

The results show gender and age group differences with respect to self-declared DUI of alcohol, drugs or medication and related opinions, attitudes and enforcement experiences:

- More male respondents reported DUI of alcohol, drugs, or medication and displayed riskier attitudes than female respondents. Additionally, more men reported police checks for DUI.

[1] *Thailand is with 24.8% an outlier in this comparison.*

These differences are statistically significant in all related ESRA3 survey questions for Europe22 and America8. In AsiaOceania6, the trend is similar, but not always statistically significant.

- The patterns related to age group differences are less clear. In Europe22, a general trend emerges: the older the respondents, the less likely they are to report DUI of alcohol, drugs, or medication, being checked by the police, or displaying risky opinions or attitudes on the topic. In America8, this trend is observed only for the declared intention not to drink and drive in the next 30 days and for experienced enforcement. In AsiaOceania6, it is seen only for experienced enforcement. The patterns regarding age group differences in Perceived Behaviour Control (PBC) and perceived likelihood of being checked are less clear in all regions.

The identified explanatory variables associated with self-declared DUI of alcohol above the legal limit differ by region. Those identified in all three regional logistic regression models were: male gender; strong personal and perceived social acceptability of drink-driving above the legal limit; strong perceived behaviour control (trust in being able to drive after drinking alcohol); low intention to not drink and drive and low support of policy measures against drink-driving.

The identified explanatory variables associated with self-declared DUI of drugs also differ by region. Those identified in all three regional logistic regression models were: male gender; strong personal and perceived social acceptability of drink-driving above the legal limit and experienced drug check, which might be explained by selectivity of the police checks.

A comparison between observed (Baseline) and self-declared drink-driving behaviour (ESRA3) was also done. The comparison of the seven countries which participated in Baseline (observed behaviour) and in ESRA3 (self-declared behaviour) shows that the national mean prevalence rates of driving above the legal limit for BAC (observed behaviour) is positively and strongly correlated with both the self-declared behaviour of driving over the legal limit in the last 30 days ($r = 0.933$) and the general habit to drive after drinking alcohol ($r = 0.829$).

Comparison over time (ESRA2-ESRA3):

- Overall, the comparison of countries which participated both in ESRA2 and ESRA3 shows a significant decrease of reported driving after drinking alcohol (12 out of 24 countries), but no significant changes in reported DUI of alcohol above the legal limit between ESRA2 and ESRA3 (except for the Netherlands).
- Furthermore, the proportion of drivers who were checked by the police for drug-driving in the last 12 months, increased in 8 out of 24 countries. The proportion of respondents who reported alcohol checks significantly increased in 4 countries, decreased in 6 countries and showed no significant change in 16 countries.

Key recommendations

Ongoing efforts to decrease road casualties caused by DUI of alcohol, drugs or medication should continue. The effectiveness of these efforts in reducing traffic accidents varies significantly between countries. One of the key principles to combat DUI is to work with a comprehensive set of different measures which are tailored to the specific needs of the country, the target group or involved stakeholders. Key recommendations against DUI include:

Policy recommendations at national and regional level

Regional and national DUI strategy

- Develop comprehensive strategies against DUI which combines legislation, enforcement, education, and research, and which is tailored to each country's needs.

Strengthening legislation & enhanced enforcement

- Lower BAC limits, especially for novice and professional drivers and consider a zero-tolerance for drugs.
- Require alcohol interlocks for convicted offenders and consider for professional drivers.

- Implement nationwide random breath testing and random drug testing of drivers.
- Test all drivers involved in fatal crashes for alcohol and drugs.
- Prohibit the reporting of exact locations of police checks via online applications.

Awareness and education

- Run continuous public campaigns on the dangers of DUI, targeting high-risk groups like young drivers and older adults using medications.
- Involve NGOs in awareness campaigns and ensure physicians/pharmacists warn patients about drug impairments (see for more details below).

Research and data

- Conduct more research on the prevalence of DUI of drug and medication over time, especially given the ageing population in many countries, which might lead to an increase of drivers impaired by medication.
- Encourage cross-border data sharing on DUI prevalence to standardize data collection, enhance comparability (benchmarking), and improve trend monitoring across regions.
- Encourage more research assessing factors associated with DUI and evaluating counter-measures.

Technological solutions

- Encourage development of affordable in-vehicle technologies to detect impaired driving.
- Encourage the use of alcohol interlocks (i.e., for professional drivers and convicted offenders).

Specific recommendations to particular stakeholders

- *[To Non-Governmental Organizations (NGOs)]* Contribute to education and public awareness rising campaigns and events, focusing on the dangers of impaired driving.
- *[To physicians and pharmacists]* Always explicitly mention the risks of DUI of prescribed or over-the-counter medications.
- *[To pharmaceutical companies]* Improve patient information leaflets to include clear warnings about the potential impact of medications on driving ability.
- *[To vehicle manufacturers and other companies]* Develop low-cost solutions to be incorporated in vehicles that can detect or prevent impaired driving.

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

Driving under the influence (DUI) of alcohol, drugs, or medication is a major cause of road casualties. Consuming impairing substances leads to slower reaction time, reduced alertness, impaired judgment, and diminished vision. In its latest Global status report on road safety the WHO estimates that around 20% of drivers involved in fatal crashes in high-income countries have blood alcohol concentration (BAC) exceeding legal limits. In low- and middle-income countries, research shows that alcohol consumption before crashes was found in 33% to 69% of fatally injured drivers and 8% to 29% of nonfatally injured drivers (World Health Organization, 2023). The WHO also highlights the lack of comprehensive drink-driving data in many countries, which often relies on crash reports that underrepresent the issue. Moreover, how countries define and record alcohol-related deaths varies significantly (ETSC, 2019; World Health Organization, 2018, 2023). Concerning drug-driving, the WHO estimated in a report published in 2016 that of the 1.25 million road deaths worldwide in 2013, over 39,600 were linked to illicit drug use, accounting for 3% of the total. Amphetamines were detected in approximately 51% of these fatalities, followed by cannabis at 22%, and opioids and cocaine each contributing about 13%. In comparison, deaths resulting from alcohol-impaired driving were significantly higher, with over 188,000 fatalities, representing about 15% of all road deaths in 2013 (World Health Organization, 2016). This comparison suggests that alcohol poses a greater overall threat to road safety than drugs. However, it should be noted that alcohol is also tested more frequently than drugs. The *European Road Safety Observatory's* 2023 report further confirms that around 25% of all road deaths in the EU are alcohol-related, and about 1.5 to 2% of kilometres driven in the EU are by someone with illegal BAC levels. The report indicates that even at a BAC of 0.5g/L, the crash risk is about 1.4 times higher, while at 1.5g/L, it is up to 20 times higher. For drugs, the crash risk associated with amphetamines, or a combination of drugs and alcohol, can be at least five times higher (European Commission, 2023). Assessing the role of drugs in road traffic accidents is more complex than evaluating alcohol's impact. Various drugs and medications, each with distinct effects, can impair driving, and the introduction of new substances adds further complications. This diversity makes detecting drugs in drivers more challenging, and studies on this subject complex. The influence of these substances on driving ability is influenced by factors such as the method of administration, the user's age, health condition, and the duration of use. Additionally, other medications can compound these effects. In the case of prescription drugs (medication), it is often difficult to differentiate between the symptoms of the underlying illness and the side effects of the medication. Medication can either enhance driving ability by treating symptoms or hinder it through adverse effects.

To better understand the magnitude of the problem of DUI of alcohol, drugs, or medication, to monitor the situation and to evaluate the impact of prevention measures, the collection of reliable data is critical. Recently conducted roadside surveys in Europe (i.e., Trendline, Baseline; Yannis & Folla, 2022), as well as other studies based on observed or self-reported behaviour in other regions of the world (AAA Foundation for Traffic Safety, 2023; Achermann Stürmer et al., 2019; Barrett et al., 2023; Beirness, 2023; Vanlaar et al., 2023), have shown that the prevalence of DUI of alcohol, drugs or medication varies widely between countries. Several reasons have been suggested for these disparities (e.g., Earle et al., 2020; Potard et al., 2018; World Health Organization, 2016). These could be due to differences in attitudes toward the use of alcohol, drug or medication in the general population, varying perceptions of DUI of alcohol, drugs, or medication in particular (i.e., differences in acceptability, social norms, or perceived behaviour control related to these behaviours) or differences in the legal frameworks regarding DUI. Furthermore, the enforcement intensity and people's perceptions of the likelihood of being caught while DUI might play a key role in these disparities.

The ESRA (E-Survey of Road Users' Attitudes) data allows for the study and comparison of different countries regarding the topics and themes mentioned above. This report presents the results on DUI of alcohol, drugs, or medications from the third edition of ESRA (ESRA3). In ESRA3, data were collected in 39 countries across five continents in 2023. In total, more than 37000 road users answered the online survey. This report updates two previous thematic reports, which summarized the results on DUI of alcohol, drugs, or medication based on the previous ESRA editions in 2015-2017 (ESRA1) (Meesmann et al., 2018) and 2018-2022 (ESRA2) (Achermann Stürmer, 2016; Achermann Stürmer et al., 2019; Meesmann, Wardenier, et al., 2022).

The ESRA3 findings are used to answer following research questions:

- Which countries and regions have the highest and lowest rates of self-declared DUI of alcohol, drugs, or medication, and do these behaviours differ across countries and regions?
- Does personal acceptability of DUI of alcohol, drugs, or medication differ across countries and regions, and does the personal acceptability match with the perceived social acceptability in a country?
- Do attitude, intention, and perceived behaviour control regarding drink-driving differ across countries and regions?
- Does the support for policy measures against drink-driving differ across countries and regions?
- Which countries and regions have the highest and lowest rates of car drivers which have experienced enforcement for DUI of alcohol or drugs, and does the perceived likelihood of enforcement match the actual frequency of enforcement?
- What is the influence of gender and age on these behaviours, related opinions, attitudes and enforcement?
- Which explanatory variables are associated with self-declared DUI of alcohol above the legal limit?
- Which explanatory variables are associated with self-declared DUI of drugs?
- Are national drink-driving rates based on self-declared behaviour correlated with observed behaviour?
- How did self-declared DUI of alcohol evolve over time?
- How did experienced enforcement for DUI of alcohol or drugs evolve over time?

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. 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.

Table 1: ESRA3 Thematic Reports

Driving under influence of alcohol, drugs or 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 present report summarizes the ESRA3 results with respect to DUI of alcohol, drugs or medication. A more detailed overview of the data collection method and the sample per country can be found in the ESRA3 methodology report (Meesmann & Wardenier, 2024).

This report assesses three different topics: DUI of (1) alcohol, (2) drugs, and (3) medication. It focuses on car drivers, but results of other road user groups (i.e., moped riders/motorcyclists, cyclists, and pedestrians) are also presented in Appendix 4. The results of other road user groups are presented in less detail, as there are specific ESRA reports focussing on these road user groups. The report includes the analysis of several aspects related to driving under influence: self-declared behaviour (last 30 days), personal and perceived social acceptability of DUI of alcohol, drugs or medication, attitudes and beliefs towards drink-driving, experience with enforcement and perceived likelihood of enforcement for DUI of alcohol or drugs, and support for policy measures against drink-driving.

Most of the questions of the ESRA3 survey were presented on Likert scales, which were dichotomized for the analysis. Description of the scales, the correspondent dichotomization and the reference population for each question are described in the beginning of each section in the results.

All the results are presented separately for the three ESRA3 regions: Europe22, America8, and AsiaOceania6. The AsiaOceania6 mean does not include Armenia, Kyrgyzstan, and Uzbekistan due to different methodology in data collection in these countries (face-to-face CAPI). The report also includes results by gender and by age group within each region, and by country. A weighting of the data was applied in the descriptive analyses. This 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) (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.

Due to the nominal nature of the data, the Chi-square Test for Independence was used to assess if the answers depend significantly on the region, on the gender and on the age group. Pairwise comparisons were used to identify the pairs of groups (region, gender, age groups) that differ significantly. The strength of the association between variables, also described as effect size, was assessed through the Cramer's V coefficient. The following thresholds were considered to classify the effect size (Cohen, 1988): association with region (2 degrees of freedom) – small=0.07, medium=0.21, large=0.35; association with gender (1 degree of freedom) – small=0.10, medium=0.30, large=0.50; association with age group (5 degrees of freedom) – small=0.05, medium=0.13, large=0.22. Logistic regression models were carried out to study the factors that influence the self-declared behaviours of DUI of alcohol or drugs. Odds ratios (OR), and the respective 99% Confidence Intervals (CI 99%), were used to

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

measure the strength of association between the variables. Pearson Correlation Coefficient (r) was used to assess the association between variables at a country level.

SPSS 29.0 (IBM Corp., 2022) and R 4.3.1 (R Core Team, 2023) were used for the analyses. Because of the large sample size, only differences with a p-value less than 0.01 are considered statistically significant in section 3.1 with overall results. In other sections, depending on the type of analysis, also some results with higher p-values (up to 0.05) are considered.

3 Results

3.1 Overall results

3.1.1 Self-declared DUI of alcohol, drugs or medication (last 30 days)

Four questions on self-declared impaired driving in the last 30 days were asked in the survey. Two questions were about alcohol, one on drugs and one on medication that may affect driving ability (see Appendix 1, question Q14_1a for precise formulations). Car drivers had to respond on a 5-points scale ranging from 1 'never' to 5 '(almost) always'. For the analysis, a value of 1 was coded as 'never', and values 2 to 5 were coded as 'at least once in the last 30 days'.

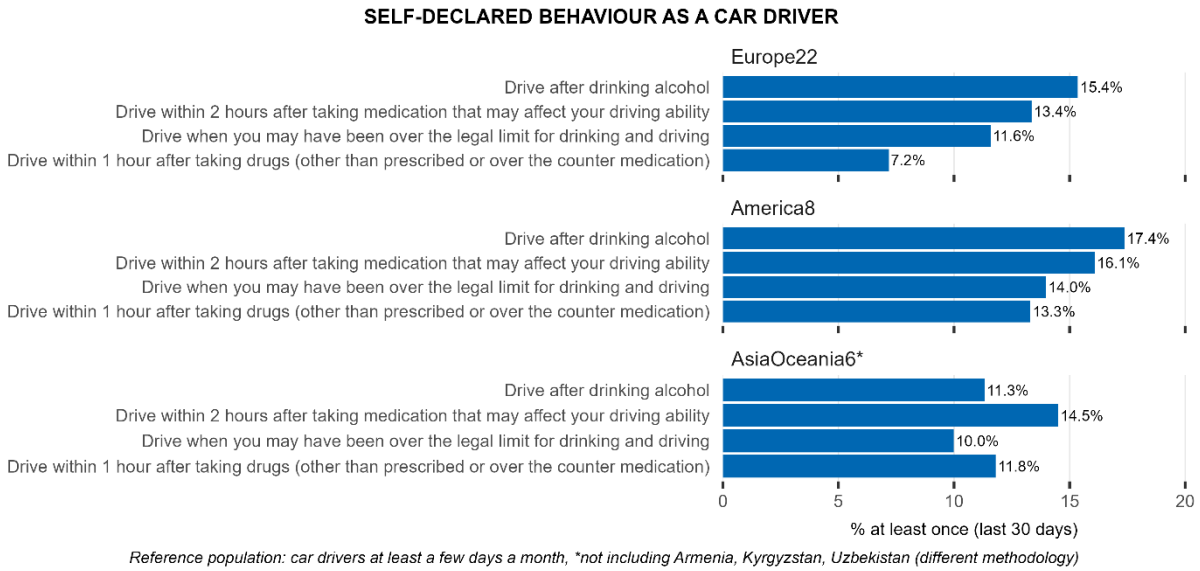


Figure 1: Self-declared behaviour as a car driver, by region (% at least once in the last 30 days).

Figure 1 shows the percentage of car drivers who reported DUI of alcohol, drugs, or medication by region. In Europe22 and America8, the percentage of car drivers who DUI is higher for alcohol compared to medication and drugs, while in AsiaOceania6 the percentage of car drivers who DUI is higher for medication followed by drugs and lowest for alcohol.

The percentage of car drivers who reported driving after drinking alcohol is significantly more often reported in Europe22 (15.4%) and America8 (17.4%) compared to AsiaOceanian6 (11.3%) (p-value < 0.001, Cramer's V = 0.050). The percentage of car drivers who stated that they had been drinking and driving when they may have been over the legal limit is significantly higher in America8 (14.0%) than in the two other regions (p-value < 0.001, Cramer's V = 0.039).

Car drivers who reported driving while they may have been over the legal limit for drinking and driving were also asked during which period in the week this was and on which types of roads (see Appendix 1, Q14_1b_1). In all regions car drivers reported drink-driving mostly during weekend nights and the least on motorways compared to other road types.

Significantly less European car drivers (7.2%) reported driving 1 hour after taking drugs (other than prescribed or over-the-counter medication) compared to American (13.3%) and Asian Oceanian car drivers (11.8%) (p-value < 0.001, Cramer's V = 0.093). Car drivers who reported drug-driving were also asked which drugs they used before driving (see Appendix 1, Q14_1b_2). In all regions, the most reported substance involved in drug-driving was cannabis.

Significantly more car drivers reported driving 2 hours after taking medication that may affect driving ability in America8 (16.1%) compared to Europe22 (13.4%) (p-value < 0.01, Cramer's V = 0.032). Car drivers in AsiaOceania6 are in the median position (14.5%). Car drivers who reported driving after taking

medication were also asked which type of medication (see Appendix 1, Q14_1b_3). In all regions the most reported substances while driving after taking medication were antihistamines and/or cough medicines (such as Claritin, Allegra, Benadryl) and prescription pain medications (such as Tylenol with codeine, OxyContin, Percocet, Vicodin/hydrocodone).

In the following section, we selected three out of the four questions (one per main DUI topic). For more details on the question not selected in this chapter (driving after drinking alcohol), as well results on self-redeclared habit of drink-driving, which is also a form of self-declared past behaviour, see Appendix 4.

Figure 2 shows that the proportion of car drivers who reported DUI of alcohol, drugs or medication varies strongly by country.

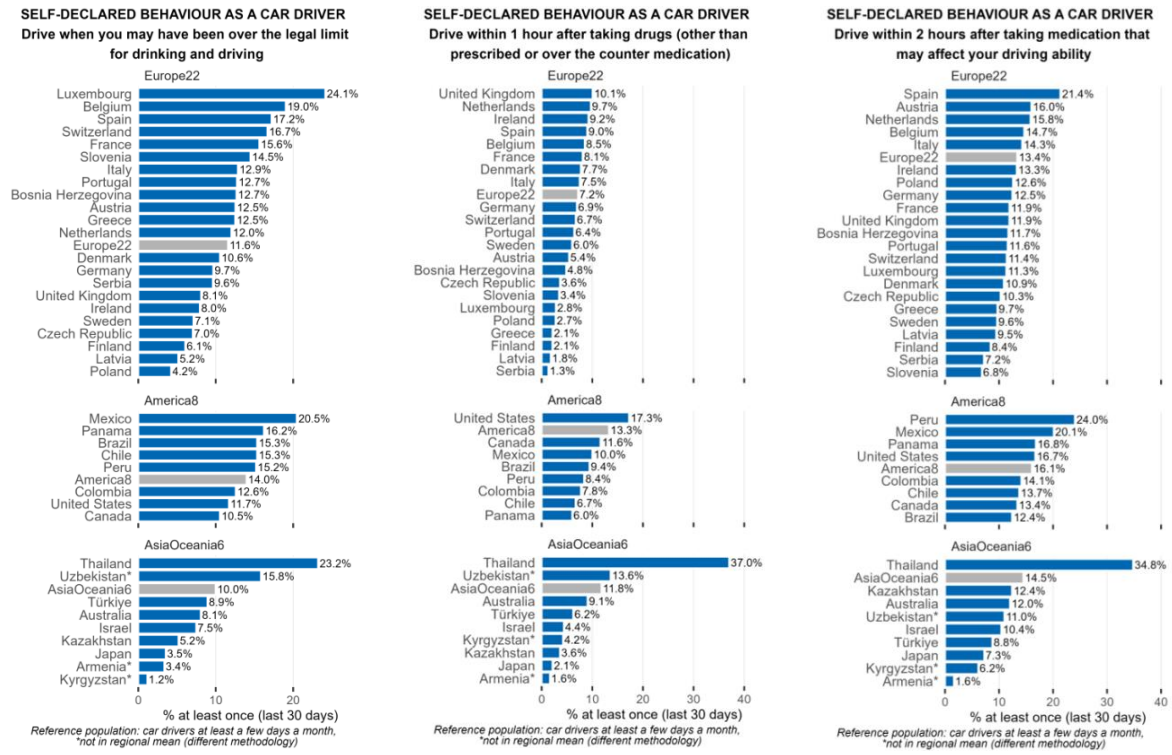


Figure 2: Self-declared behaviour as a car driver, by region and country (% at least once in the last 30 days).

In Europe22, the proportion of car drivers who reported drink-driving above the legal limit ranges from 4.2% in Poland to 24.1% in Luxembourg, for drug-driving from 1.3% in Serbia to 10.1% in the United Kingdom, and for DUI of medication from 6.8% in Slovenia to 21.4% in Spain.

In America8, the corresponding percentages range from 10.5% in Canada to 20.5% in Mexico for drink-driving above the legal limit, 6.0% in Panama to 17.3% in the United States for drug-driving, and 12.4% in Brazil to 24.0% in Peru for DUI of medication.

In AsiaOceania6, the national results of Thailand are clear outliers[3]. The percentage of Thai respondents who reported DUI of alcohol above the legal limit (23.2%), drugs (37.0%), or medication (34.8%) is very high compared to other countries. For all other countries in the AsiaOceania6 region, the percentages range from 1.2% in Kyrgyzstan to 15.8% in Uzbekistan for drink-driving above the legal limit, 1.6% in Armenia to 13.6% in Uzbekistan for drug-driving, and 1.6% in Armenia to 12.4% in Kazakhstan for DUI of medication.

[3] *The authors have strong doubts about this result; no mistakes were identified in the translation or data processing.*

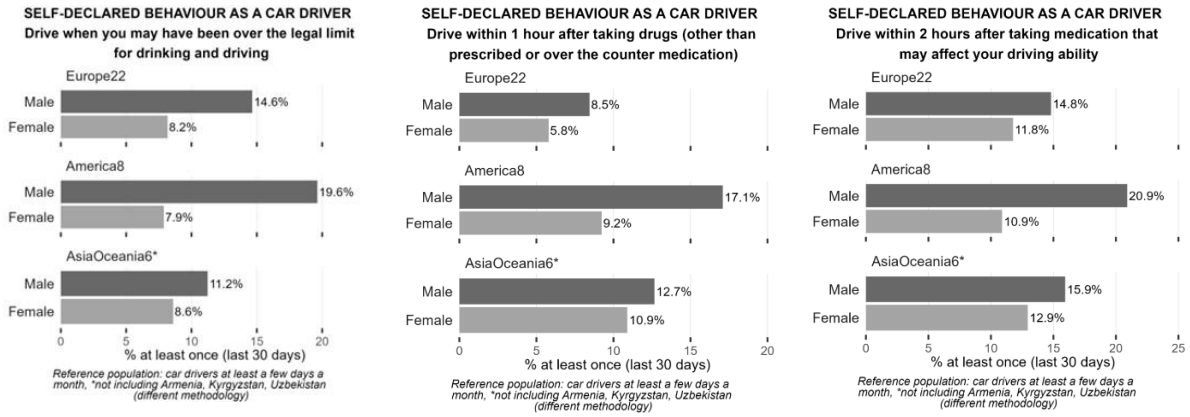


Figure 3: Self-declared behaviour as a car driver, by region and gender (% at least once in the last 30 days).

In all regions, more male respondents reported DUI of alcohol, drugs, or medication than female respondents (see Figure 3). Only the results for drug-driving and DUI of medication in the AsiaOceania6 region show no significant gender differences. The strongest gender differences are observed in the American region. In America8, 19.6% of male respondents reported drink-driving above the legal limit compared to 7.9% of female respondents (p-value < 0.001, Cramer's V = 0.169), for drugs, this was 17.1% vs. 9.2% (p-value < 0.001, Cramer's V = 0.116), and for DUI of medication, it was 20.9% vs. 10.9% (p-value < 0.001, Cramer's V = 0.136). Concerning age group differences, we observe a general decreasing trend in Europe22: the older the respondents, the lower the proportion who report DUI. The age group patterns in self-declared DUI behaviour are less clear in America8 and AsiaOceania6.

The corresponding results by age groups are presented in Appendix 4. Additionally, self-declared alcohol use while participating in traffic by other road user groups (i.e., moped riders/ motorcyclists, cyclists, riders of e-scooter and pedestrians) per country is also shown in Appendix 4. For more details on these road user groups we refer to the according ESRA3 thematic reports on moped riders and motorcyclists (Nikolaou et al., 2024), cyclists (Møller & Jensen, 2024), pedestrians (Jankowska-Karpa, 2025) and e-scooter riders (Delavary et al., 2024).

3.1.2 Personal and perceived social acceptability of DUI of alcohol, drugs or medication

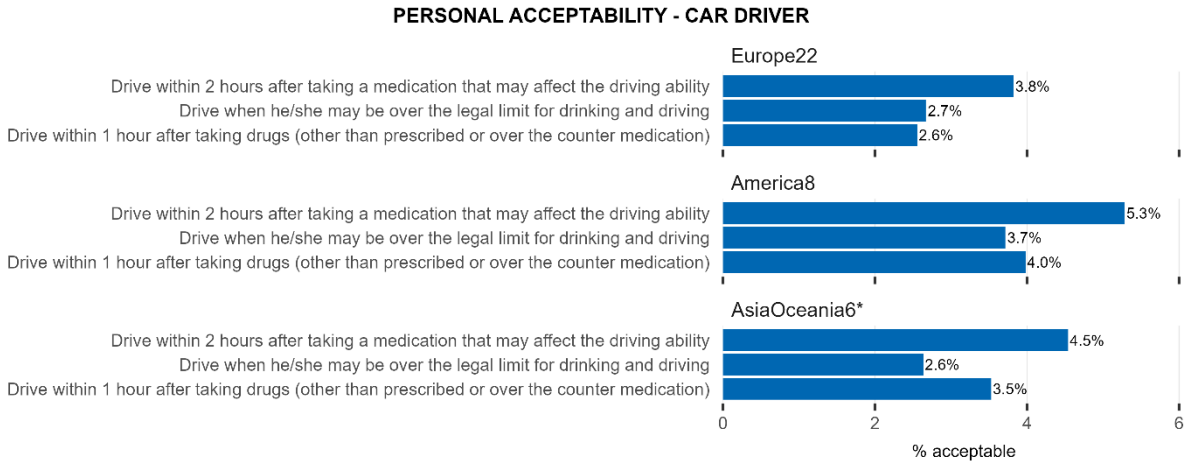
In the ESRA3 survey two types of questions were asked to all respondents to assess the normative beliefs in a country related to DUI of alcohol, drugs, or medication. One question was about the personal acceptability[4] of DUI (personal norm) and the other one about the perceived social acceptability[5] (social norm or injunctive norm) related to this behaviour (see Appendix 1, Q16 and Q15 for precise formulations). The respondents had to answer on a 5-points scale ranging from 1 'unacceptable' to 5 'acceptable'. For the analysis, values 4 and 5 were coded as 'acceptable', and values 1 to 3 were coded as 'unacceptable/neutral'. The results concerning personal acceptability are presented first, followed by the results concerning the perceived social acceptability of drink-driving above the legal limit.

[4] *"How acceptable do you, personally, feel it is for a car driver to…?"*

[5] *"Where you live, how acceptable would most other people say it is for a car driver to…?"*

3.1.2.1 Personal acceptability of DUI of alcohol, drugs or medication

Figure 4 shows the percentages of road users who indicated that they personally think certain car driving behaviours are acceptable by region (i.e., drink-driving above the legal limit, drug driving, and DUI of medications).



*Reference population: all road users, *not including Armenia, Kyrgyzstan, Uzbekistan (different methodology)*

Figure 4: Personal acceptability of unsafe car driving behaviour, by region (% acceptable).

A large majority of the respondents (around 92% to 96% for alcohol or drugs and 87% to 89% for medication) believe that DUI of an impairing substance is unacceptable (scores 1-2). Around 2% to 5% of the respondents indicated a neutral position for alcohol or drugs (score 3) and 7% to 9% for medication, and less than 6% considered these behaviours acceptable (scores 4 to 5).

The acceptability of the assessed behaviours differs depending on the impairing substance and region. DUI of medication is considered more acceptable than DUI of alcohol or drugs in all three regions. America8 has significantly higher acceptability rates for all substances than Europe22 (medication: 5.3% vs. 3.8%; p-value < 0.001, Cramer's V = 0.030; drugs: 4.0% vs. 2.6%; p-value < 0.001, Cramer's V = 0.036; alcohol above the legal limit: 3.7% vs. 2.7%; p-value < 0.01, Cramer's V = 0.026). Respondents in AsiaOceania6 take a median position (medication: 4.5%; drugs: 3.5%; alcohol above the legal limit: 2.6%).

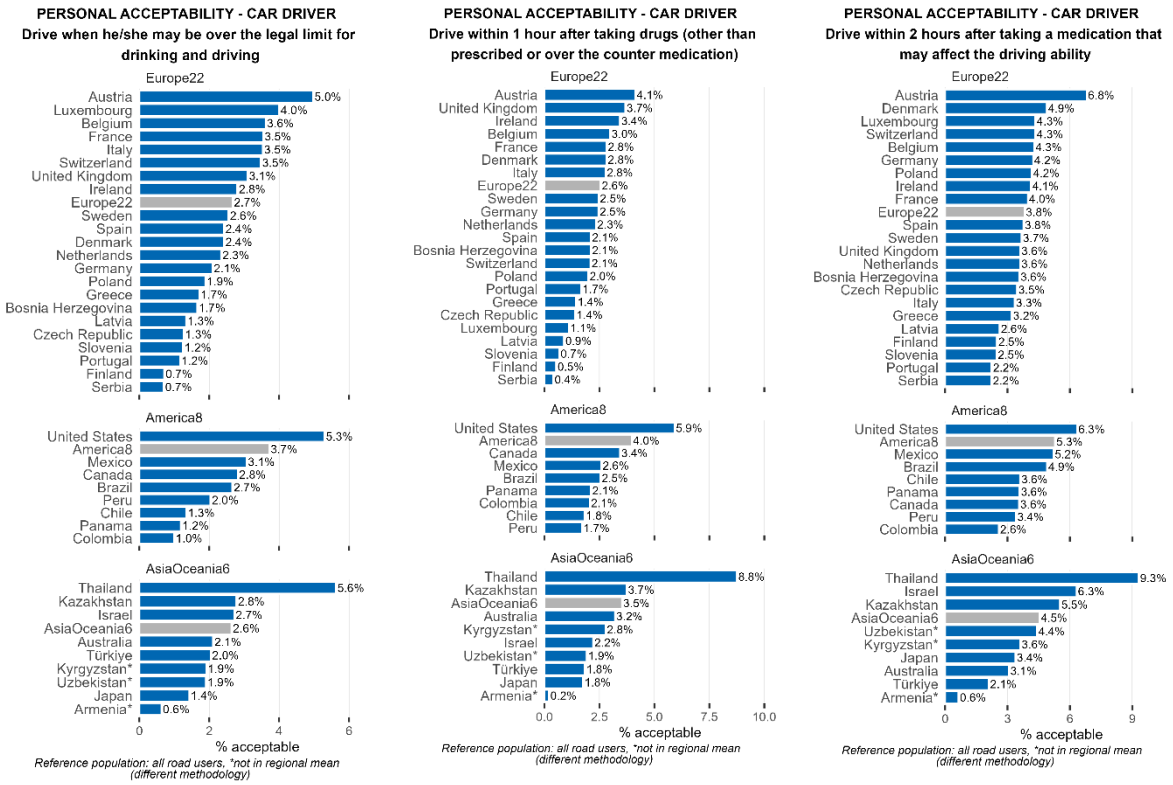


Figure 5: Personal acceptability of unsafe car driving behaviour, by region and country (% acceptable).

As Figure 5 shows, there is a rather consistent national pattern in the acceptability of DUI of alcohol, drugs, or medication by country. Most countries with acceptability rates above the regional average for drink-driving above the legal limit, also have acceptability rates above the regional average for drug-driving and DUI of medication. In Europe22, respondents from Austria show the highest acceptability rates for all impairing substances (alcohol above the legal limit: 5.0%; drugs: 4.1%; medication: 6.8%). In America8, these are the United States (respectively 5.3%; 5.9%; 6.3%), and in AsiaOceania6, this is Thailand (respectively 5.6%; 8.8%; 9.3%). The national results of Thailand are outliers[6] again. The lowest rates of acceptability of DUI are measured in Europe22 for all substances in Serbia (alcohol above the legal limit: 0.7%; drugs: 0.4%; medication: 2.2%), in America8, this is Colombia (alcohol above the legal limit: 1.0%; medication: 2.6%), except for the acceptability of drug-driving, where it is Peru (1.7%). In AsiaOceania6, the lowest rates are found in Armenia (alcohol above the legal limit: 0.6%; drugs: 0.2%; medication: 0.6%).

[6] *The authors have strong doubts about this result; no mistakes were identified in the translation or data processing.*

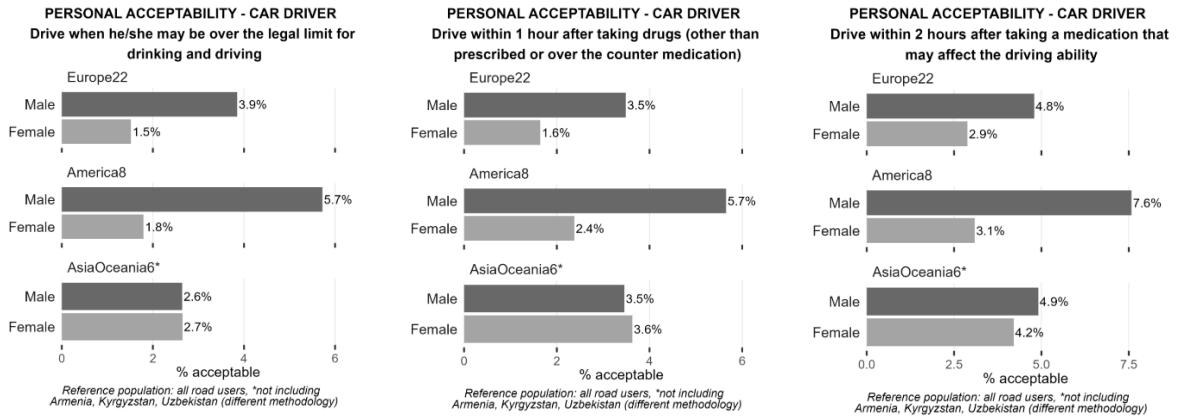


Figure 6: Personal acceptability of unsafe car driving behaviour, by region and gender (% acceptable).

As can be seen in Figure 6, the personal acceptability of DUI of alcohol, drugs, or medication shows strong gender differences. The acceptability of these behaviours is often more than twice as high among male road users compared to female road users in Europe22 and America8. In all regions the gender differences are statistically significant, except for the region AsiaOceania6, where no significant gender differences are observed for any of these questions. Most striking gender differences can be seen in America8, where 5.7% of male respondents think that drink-driving above the legal limit is acceptable compared to 1.8% of female respondents (p-value < 0.001, Cramer's V = 0.104). The corresponding percentages for drug-driving are 5.7% vs. 2.4% (p-value < 0.001, Cramer's V = 0.084) and for DUI of medication, 7.6% vs. 3.1% (p-value < 0.001, Cramer's V = 0.100).

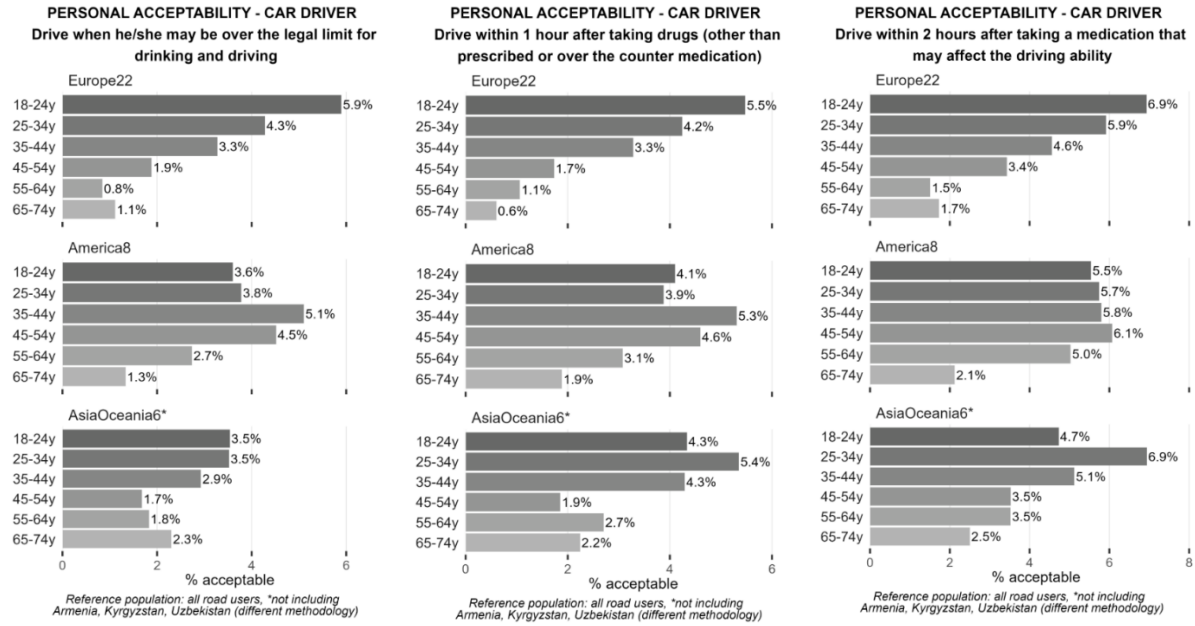


Figure 7: Personal acceptability of unsafe car driving behaviour, by region and age group (% acceptable).

The patterns concerning age group differences are less clear (see Figure 7). In Europe22, the results show a decreasing trend: the older the respondents, the lower the personal acceptability of DUI of alcohol, drugs, or medication. In America8, no significant age group differences could be identified. The same for the AsiaOceania6 region, with one exception: in AsiaOceania6, the acceptability of drug-driving is significantly lower among 45-54-year-olds (1.9%) compared to 25-34-year-old respondents (5.4%; p-value < 0.01, Cramer's V = 0.071).

For the corresponding results for other road user groups (i.e., moped riders/ motorcyclists, cyclists, and pedestrians) we refer to the according ESRA3 thematic reports on moped riders and motorcyclists

(Nikolaou et al., 2024), cyclists (Møller & Jensen, 2024), pedestrians (Jankowska-Karpa, 2025) and e-scooter riders (Delavary et al., 2024).

3.1.2.2 Perceived social acceptability of DUI of alcohol above the legal limit

Figure 8 shows the percentage of road users who think that most other people where they live would say that driving a car when over the legal limit is acceptable (perceived social acceptability). In Europe22, the perceived social acceptability of drink-driving above the legal limit ranges from 1.9% in the Czech Republic to 9.6% in Luxembourg, in America8 from 2.3% in Colombia to 6.5% in Mexico, and in AsiaOceania6 from 1.9% in Armenia to 7.6% in Thailand. The regional mean of America8 (5.3%) is significantly higher compared to AsiaOceania6 (3.7%; p-value < 0.01, Cramer's V = 0.024).

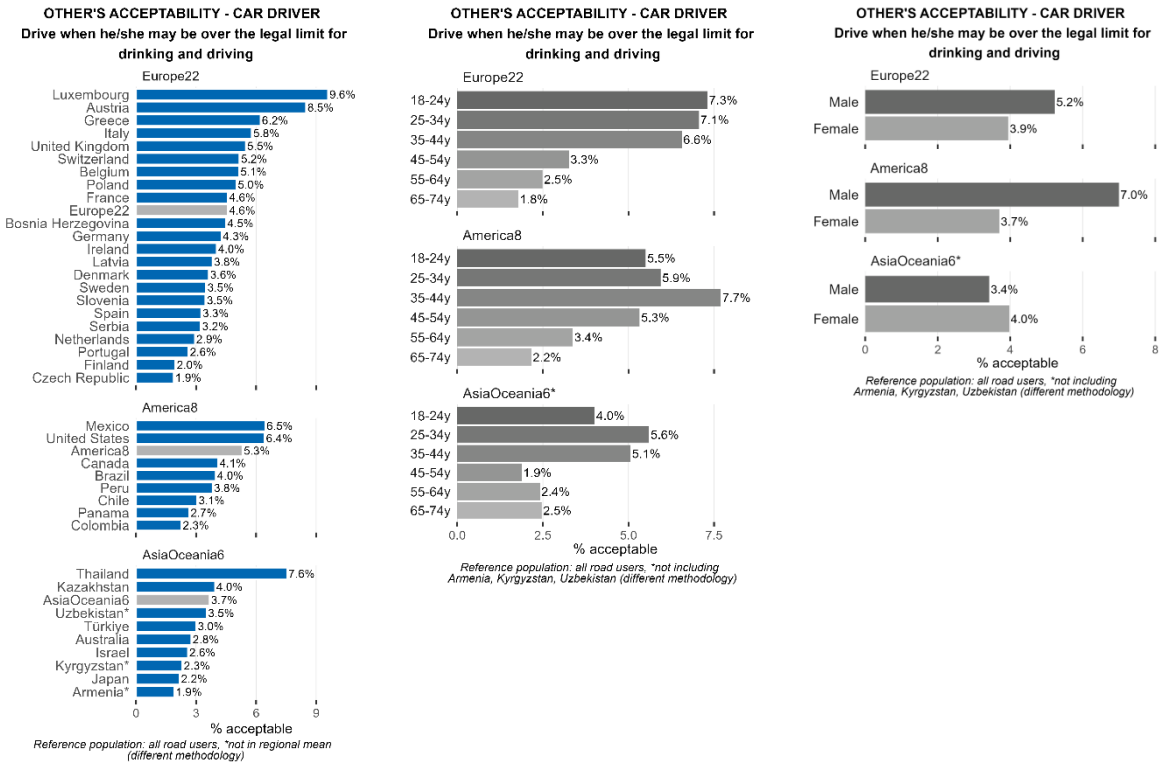


Figure 8: Perceived social acceptability of unsafe car driving behaviour, by region, country, age group and gender (% acceptable).

In line with personal acceptability, the perceived social acceptability shows the same trends with respect to gender and age group differences. Clear statistically significant differences are observed for gender. In Europe22 and America8, male respondents show significantly higher perceived social acceptability of drink-driving above the legal limit than female respondents. The strongest gender difference can be seen in America8 (male: 7.0% vs. female: 3.7%; p-value < 0.001, Cramer's V = 0.073). No statistically significant differences are identified in AsiaOceania6. The results indicate a decreasing trend in the perceived social acceptability of drink-driving above the legal limit with increasing age in Europe22, but not in the other regions.

3.1.2.3 The relation between personal and perceived social acceptability of drink-driving above the legal limit

When comparing the 'perceived social acceptability' (Figure 8) with the 'personal acceptability' (Figure 5), we observe that, in almost all the countries, the respondents think that other people somewhat more readily accept drink-driving above the legal limit than they themselves do: the percentages of respondents answering that 'others' find it acceptable to drive a car when he/she may be over the legal limit, range from 1.9% to 9.6% across the countries, while personal acceptance of the same behaviour range from 0.6% to 5.6%. Israel is the only exception, with a percentage of personal acceptability (2.7%) slightly higher than the percentage of 'others' acceptability (2.6%).

Results in Figure 9 show a strong positive correlation between the percentages of 'perceived social acceptability' and the 'personal acceptability' at a country level (r = 0.778, p-value < 0.001). These results indicate: the higher the perceived social acceptability, the higher the personal acceptably of DUI of alcohol above the legal limit.

Figure 9: Perceived social acceptability versus personal acceptability of driving a car when the driver may be over the legal limit for drinking and driving, at a country level (% acceptable).

Notes: Reference population: all road users; Armenia, Kyrgyzstan, Uzbekistan not included – different methodology; r – Pearson Correlation Coefficient.

3.1.3 Attitude, intention and perceived behaviour control related DUI of alcohol

Next to the normative belief (see acceptability in previous section 3.1.2), the ESRA3 survey also included questions related to the psychological concepts 'attitude', 'intention' and 'perceived behaviour control (PBC[7])'. These four concepts are suggested by Ajzen (1991) to be core elements of the theory of planned behaviour (TPB). The TPB model is widely used in road safety to understand the motivations for a certain unsafe traffic behaviour (e.g., Hai et al., 2024; Meesmann et al., 2020; Salomón et al., 2023; Somoray et al., 2024) and is also one of the key baseline models for developing traffic safety cultural models (e.g., Ward et al., 2019). With respect to DUI, the ESRA3 survey asked one question on 'attitude', one question on 'intention' and three questions on 'PBC' related to drink-driving (see Appendix 1, Q17 for precise formulations). Car drivers, who have driven a car at least a few days per year, were asked to indicate on a 5-points scale, where 1 is "disagree" and 5 is "agree", to what extent they agree with each statement. For the analysis, values 4 and 5 were coded as 'agree', and values 1 to 3 were coded as 'disagree/neutral'.

[7] *Here: self-efficacy.*

3.1.3.1 Attitude related to DUI of alcohol

Figure 10 shows the percentage of car drivers who agreed with the statement, "For short trips, one can risk DUI of alcohol," by region, country, age group, and gender.

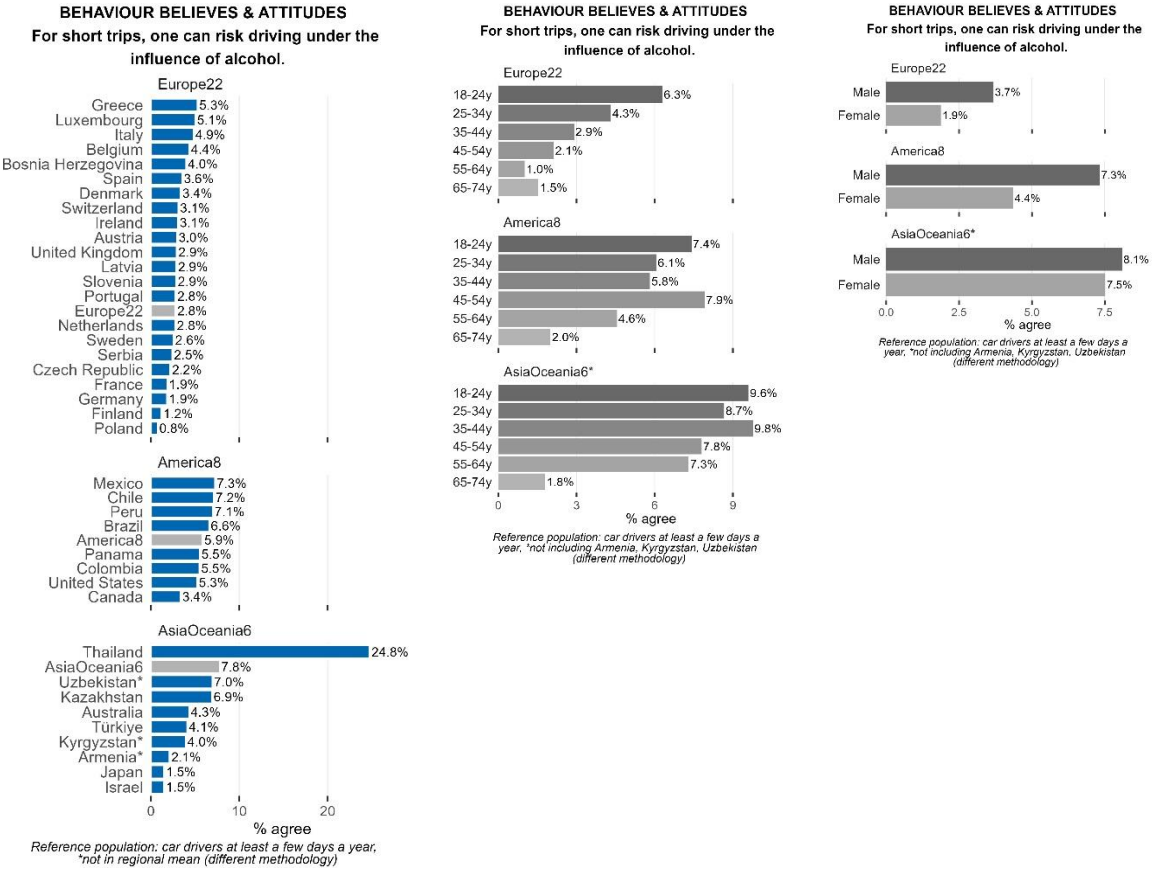


Figure 10: Attitude related to unsafe car driving behaviour, by region, country, age group and gender (% agree).

Significantly fewer car drivers agree with this statement in Europe22 (2.8%) compared to America8 (5.9%) and AsiaOceania6 (7.8%; p-value < 0.001, Cramer's V = 0.096). As in previous sections, the national result of Thailand is an outlier compared to other national values. In Europe22, the results range from 0.8% (Poland) to 5.3% (Greece), in America8 from 3.4% (Canada) to 7.3% (Mexico), and in AsiaOceania6 from 1.5% (Israel) to 24.8% (Thailand[8]).

A risky attitude towards drink-driving is more commonly reported by male drivers compared to female drivers in Europe22 (3.7% vs. 1.9%; p-value < 0.001, Cramer's V = 0.054) and in America8 (7.3% vs. 4.4%; p-value < 0.01, Cramer's V = 0.063). The results show no significant gender difference in the AsiaOceania6 region. Concerning age group differences, the Europe22 results show a general decreasing trend: the older the respondents, the less respondents approve with the statement, "for short trips, one can risk DUI of alcohol". In America8, no significant age group differences could be identified, and in AsiaOceania6 some significant differences among age groups existed, but the pattern was less clear.

[8] *The authors have strong doubts about this result; no mistakes were identified in the translation or data processing.*

3.1.3.2 Intention not to DUI of alcohol

Figure 12 shows the percentage of car drivers who agreed with the statement, "I intend not to drive after drinking alcohol in the next 30 days," by region, country, age group, and gender.

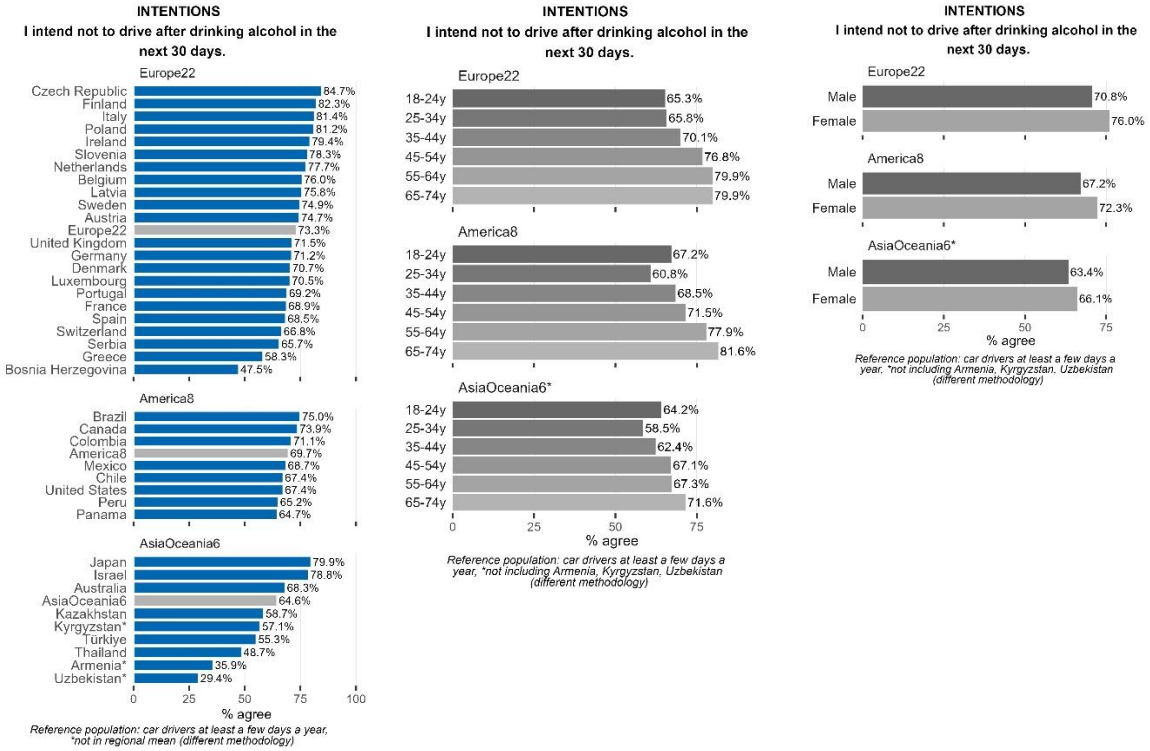


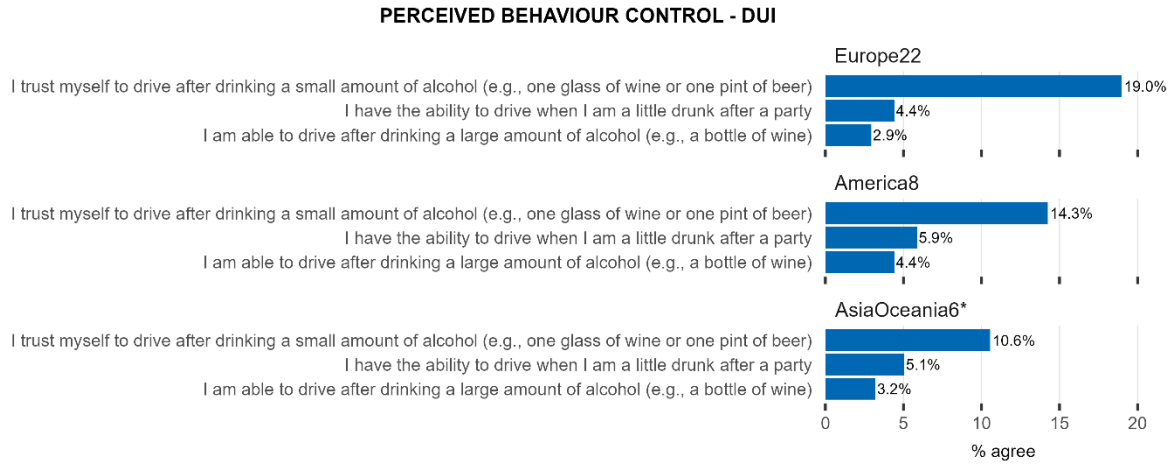
Figure 11: Intention not to drink and drive in next 30 days, by region, country, age group and gender (% agree).

In most countries the majority of car drivers state that they have the intention not to drink and drive in the next 30 days. The proportion of car drivers with this intention is significantly higher in Europe22 (73.3%) compared to America8 (69.7%) and AsiaOceania6 (64.6%; p-value < 0.001, Cramer's V = 0.069). In Europe22, the results range from 84.7% (Czech Republic) to 47.5% (Bosnia and Herzegovina), in America8 from 75.0% (Brazil) to 64.7% (Panama), and in AsiaOceania6 from 79.9% (Japan) to 29.4% (Uzbekistan).

As for previous results, significantly more female car drivers state that they have the intention not to drink and drive compared to male car drivers in Europe22 (76.0% vs. 70.8%; p-value < 0.001, Cramer's V = 0.060) and in America8 (72.3% vs. 67.2%; p-value < 0.01, Cramer's V = 0.056). The results show no significant gender difference in the AsiaOceania6 region. Concerning age group differences, the Europe22 and America8 results show a slight increasing trend: the older the respondents, the more respondents have the intention not to drink and drive. No significant age group differences could be observed in the AsiaOceania6 region.

3.1.3.3 Perceived behaviour control related to DUI of alcohol

Figure 12 shows percentage of car drivers who agree with statements that state that they can control a car when they drink and drive (PBC) by region.



*Reference population: car drivers at least a few days a year, *not including Armenia, Kyrgyzstan, Uzbekistan (different methodology)*

Figure 12: Perceived behaviour control related to unsafe car driving behaviour, by region (% agree).

The results show that a large majority of car drivers in all regions are aware of the risks of drink-driving and do not believe they can safely drive after consuming alcohol. Not surprisingly, the degree of perceived ability to drive a car after drinking alcohol depends on the amount of alcohol. In all regions, very few respondents agree with the statement, 'I am able to drive after drinking a large amount of alcohol' (Europe22: 2.9%; America8: 4.4%; AsiaOceania6: 3.2%; significant difference between Europe22 and America8; p-value < 0.001, Cramer's V = 0.033). This is followed by, 'I have the ability to drive when I am a little drunk after a party' (Europe22: 4.4%; America8: 5.9%; AsiaOceania6: 5.1%). The highest proportion of car drivers agree with the statement, 'I trust myself to drive after drinking a small amount of alcohol' (Europe22: 19.0%; America8: 14.3%; AsiaOceania6: 10.6%; significant difference between all regions; p-value < 0.001, Cramer's V = 0.086).

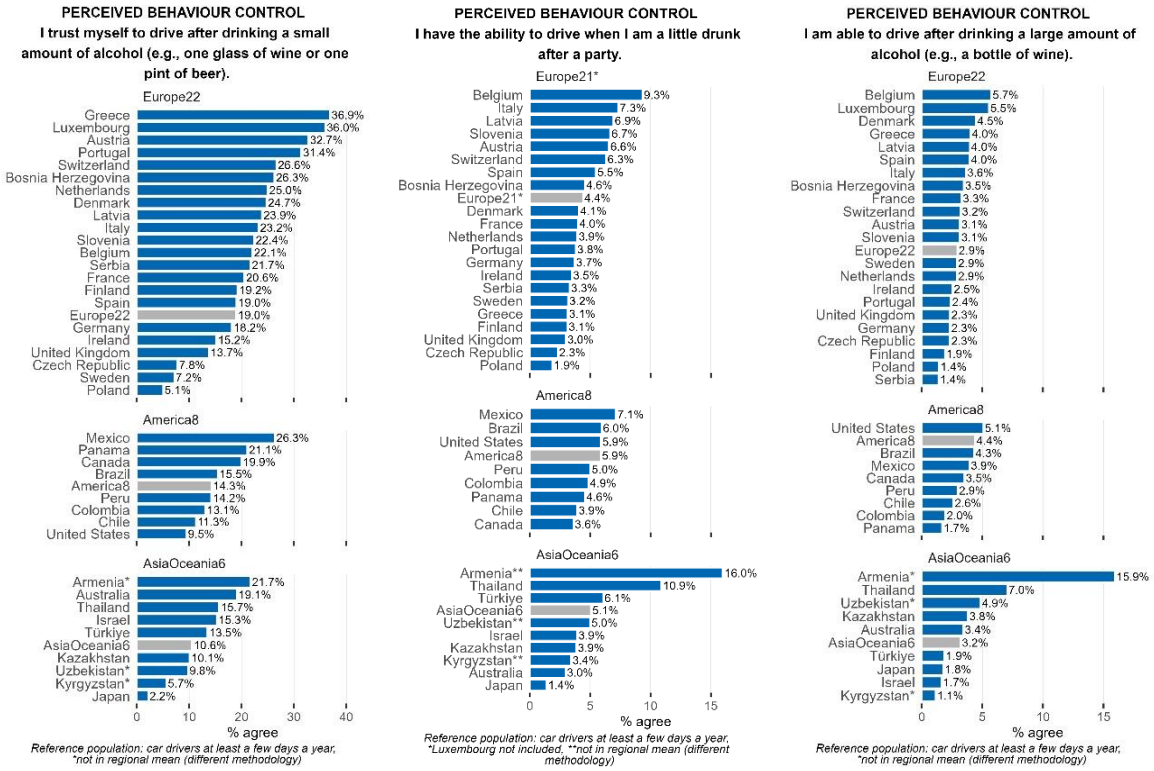


Figure 13: Perceived behaviour control related to unsafe car driving behaviour, by region and country (% agree).

Figure 13 shows that the proportion of car drivers who believe they can safely drive after drinking alcohol varies significantly by country. In all countries, the percentage of respondents who agree with the statement 'I trust myself to drive after drinking a small amount of alcohol' is higher compared to other statements that reflect the PBC of driving after consuming a larger amount of alcohol.

In Europe22, the percentages of car drivers who believe they can 'trust themselves to drive after drinking a small amount of alcohol' range from 5.1% (Poland) to 36.9% (Greece). For respondents who believe they 'have the ability to drive when a little drunk after a party', the range is 1.9% (Poland) to 9.3% (Belgium) and for those who believe they are 'able to drive after drinking a large amount of alcohol', the range is 1.4% (Serbia) to 5.7% (Belgium).

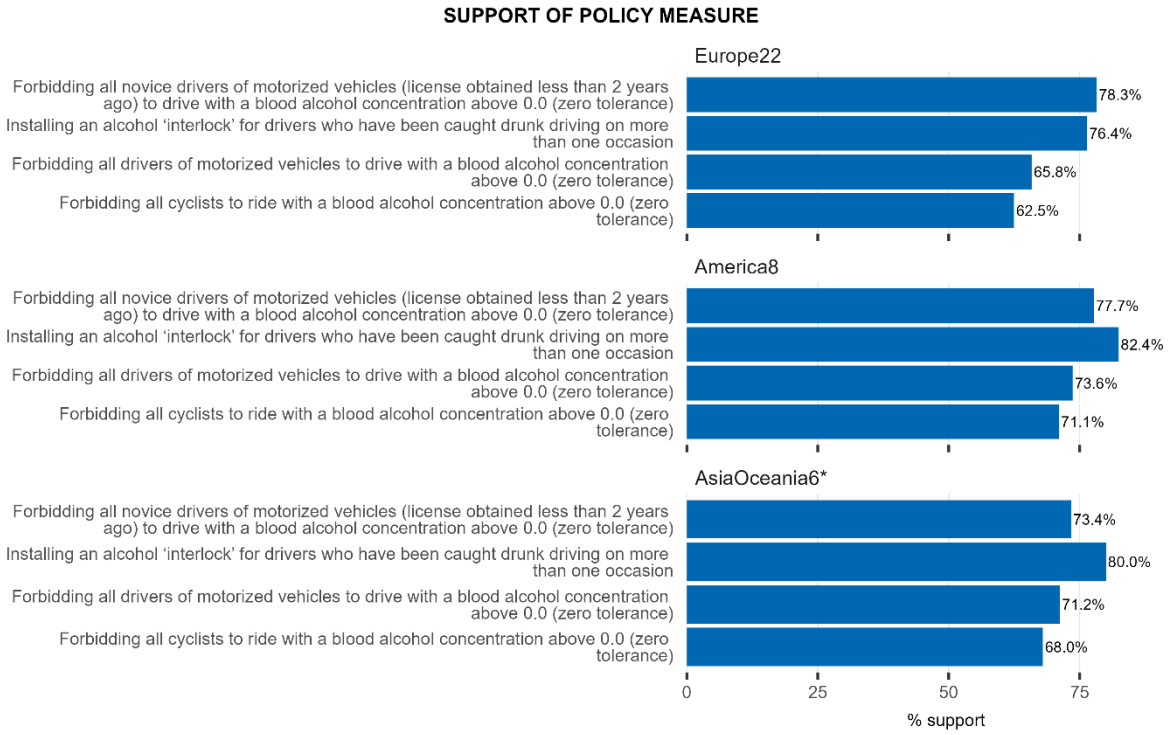
In America8, the corresponding percentages range from 9.5% (United States) to 26.3% (Mexico) for 'I trust myself to drive after drinking a small amount of alcohol', from 3.6% (Canada) to 7.1% (Mexico) for 'I have the ability to drive when I am a little drunk after a party', and from 1.7% (Panama) to 5.1% (United States) for 'I am able to drive after drinking a large amount of alcohol.'

In AsiaOceania6, the high PBC rates of Armenian car drivers who believe they have the ability to drive 'when they are a little drunk after a party' (16.0%) or 'after drinking a large amount of alcohol' (15.9%) are striking. Armenian respondents had the highest percentages for all three questions in this Asian Oceanian comparison. Japan had the lowest percentages for 'I trust myself to drive after drinking a small amount of alcohol' (2.2%) and for 'I have the ability to drive when I am a little drunk after a party' (1.4%). Kyrgyzstan had the lowest percentages for 'I am able to drive after drinking a large amount of alcohol' (1.1%).

For all three statements and in all regions, male car drivers indicated more often than female car drivers that they believe they can safely drive a car after consuming alcohol. Only in the AsiaOceania6 region, this difference is not statistically significant for two statements: 'I have the ability to drive when I am a little drunk after a party' and 'I am able to drive after drinking a large amount of alcohol'. Almost no statistically significant age group differences could be identified on a regional level. Only in Europe22 we see a slight decreasing trend with increasing age for two statements: 'I am able to drive after drinking a large amount of alcohol' and 'I have the ability to drive when I am a little drunk after a party'.

3.1.4 Support for policy measures against DUI of alcohol

Respondents had to indicate if they support or oppose a legal obligation with respect to three policy measures related to drink-driving and one related to drink-cycling (see Figure 14 and Q20 of the questionnaire in Appendix 1). They had to answer on a 5-points scale ranging from 1 'oppose' to 5 'support'. For the purpose of the analysis, the values 4 to 5 were coded as support, and values 1 to 3, as oppose and neutral.



*Reference population: all road users, *not including Armenia, Kyrgyzstan, Uzbekistan (different methodology)*

Figure 14: Support of policy measures against drink-driving, by region (% support).

Figure 14 shows that the four alcohol-related policy measures have high support among respondents. The proportion of respondents in favour of these different measures is at least 62% across all regions.

For almost all measures against drink-driving, the highest support is found in the America8 region, although the difference is not always statistically significant. The only exception is the support of a 'zero tolerance of alcohol for all novice drivers'. Europe22 has significantly lower support than America8 and AsiaOceania6 for most measures, except for the support for 'zero tolerance of alcohol for all novice drivers', which is significantly lower in the AsiaOceania6 region (73.4%) compared to America8 (77.7%) and Europe22 (78.3%; p-value < 0.001, Cramer's V = 0.043).

In America8 and AsiaOceania6, the most strongly supported measure against drink-driving is 'installing an alcohol interlock for drivers who have been caught drunk driving on more than one occasion' (82.4% and 80.0% respectively). In Europe22, this measure is also highly supported (76.4%), but the support for 'zero tolerance of alcohol for all novice drivers' is even stronger (78.3%).

The least supported measure in this comparison is 'zero tolerance of alcohol for all cyclists' (Europe22: 62.5%; America8: 71.1%; AsiaOceania6: 68.0%), followed by 'zero tolerance of alcohol for all drivers' (Europe22: 65.8%; America8: 73.6%; AsiaOceania6: 71.2%).

In the following section, we focus on measures against drink-driving. Additional information on the support for 'zero tolerance of alcohol for cyclists' can be found in Appendix 4.

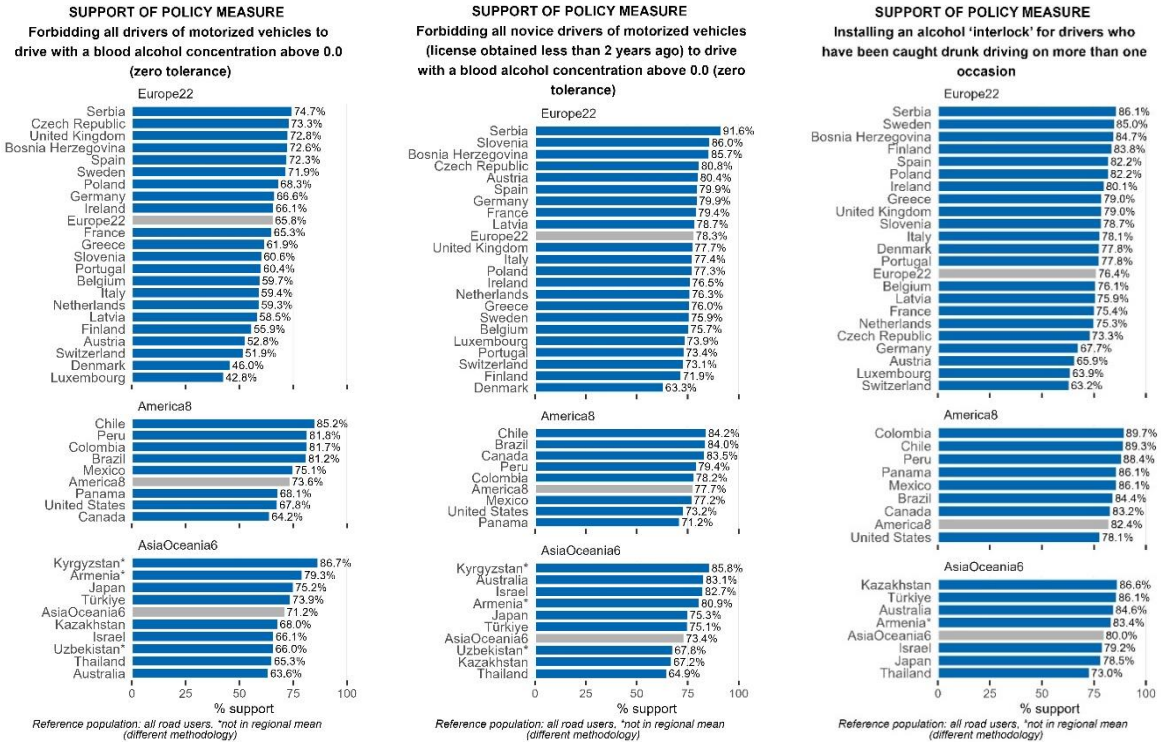


Figure 15: Support of policy measures against drink-driving, by region and country (% support).

The largest variability in support rates by country can be observed in Europe22 (Figure 15). The support rates for 'zero tolerance of alcohol for all drivers' range from 42.8% (Luxembourg) to 74.7% (Serbia), a difference of more than 30 percentage points. A similar range is observed for the support for 'zero tolerance of alcohol for novice drivers' (63.3% in Denmark to 91.6% in Serbia). The support for 'installing an alcohol interlock for drivers who have been caught drunk driving on more than one occasion' ranges from 63.2% (Switzerland) to 86.1% (Serbia), a difference of slightly more than 20 percentage points. Serbia shows the highest support for all three assessed policy measures against drink-driving in Europe22.

In America8, the variability in support rates by country is less pronounced than in Europe22. Between 64.2% (Canada) and 85.2% (Chile) of the respondents do support a 'zero tolerance of alcohol for all drivers'. The support rates for 'zero tolerance of alcohol for novice drivers' range from 71.2% (Panama) to 84.2% (Chile) and from 78.1% (United States) to 89.7% (Colombia) for 'installing an alcohol interlock for drivers who have been caught drunk driving on more than one occasion'.

In the AsiaOceania6 region, the corresponding support rates range from 63.6% (Australia) to 86.7% (Kyrgyzstan) for 'zero tolerance of alcohol for all drivers', from 64.9% (Thailand) to 85.8% (Kyrgyzstan) for 'zero tolerance of alcohol for novice drivers', and from 73.0% (Thailand) to 86.6% (Kazakhstan) for 'installing an alcohol interlock for drivers who have been caught drunk driving on more than one occasion'.

Regarding gender and age group-specific characteristics, female respondents have higher support rates for all policy measures in all regions, with one exception: the support rates for 'installing an alcohol interlock for drivers who have been caught drunk driving on more than one occasion' in AsiaOceania6 show no significant gender difference. Concerning age group we see a general increasing trend in Europe22: the older the respondents, the higher the support rates for policy measures against drink-driving. The patterns in age group-specific support rates in America8 and AsiaOceania6 are less clear.

The corresponding results, broken down by gender and age group, are presented in Appendix 4. Additional results on the support for 'zero tolerance of alcohol for cyclists' by region, country, gender, and age group are also shown in Appendix 4. For more details on this, we refer to the two specific

ESRA3 thematic reports on cyclists (Møller & Jensen, 2024) and support for policy measures (Stelling et al., 2024).

3.1.5 Enforcement perception and experienced enforcement for DUI of alcohol or drugs

In the ESRA3 survey, two types of questions were asked to car drivers to assess their perception of enforcement and their experience with police checks related to DUI of alcohol or drugs. The first question asked how likely they think it is that the police would check them for alcohol or drugs on a typical journey. Respondents answered on a 7-point scale, ranging from 1 ('very unlikely') to 7 ('very likely'). For analysis, values 5 to 7 were coded as 'likely,' and values 1 to 4 were coded as 'unlikely/neutral.' The second question asked how many times they had been checked by the police for alcohol or drugs in the last 12 months. Respondents had three answer options: 'never,' '1 time,' or 'at least 2 times'. For analysis, the answers were dichotomized into 'never' and 'at least once in the last 12 months' (see Appendix 1, Q22 and Q23 for the precise wording of the questions).

3.1.5.1 Perceived likelihood of enforcement for DUI of alcohol or drugs

Figure 16 shows the percentages of car drivers who personally believe it is likely that the police would check them for DUI of alcohol or drugs on a typical journey.

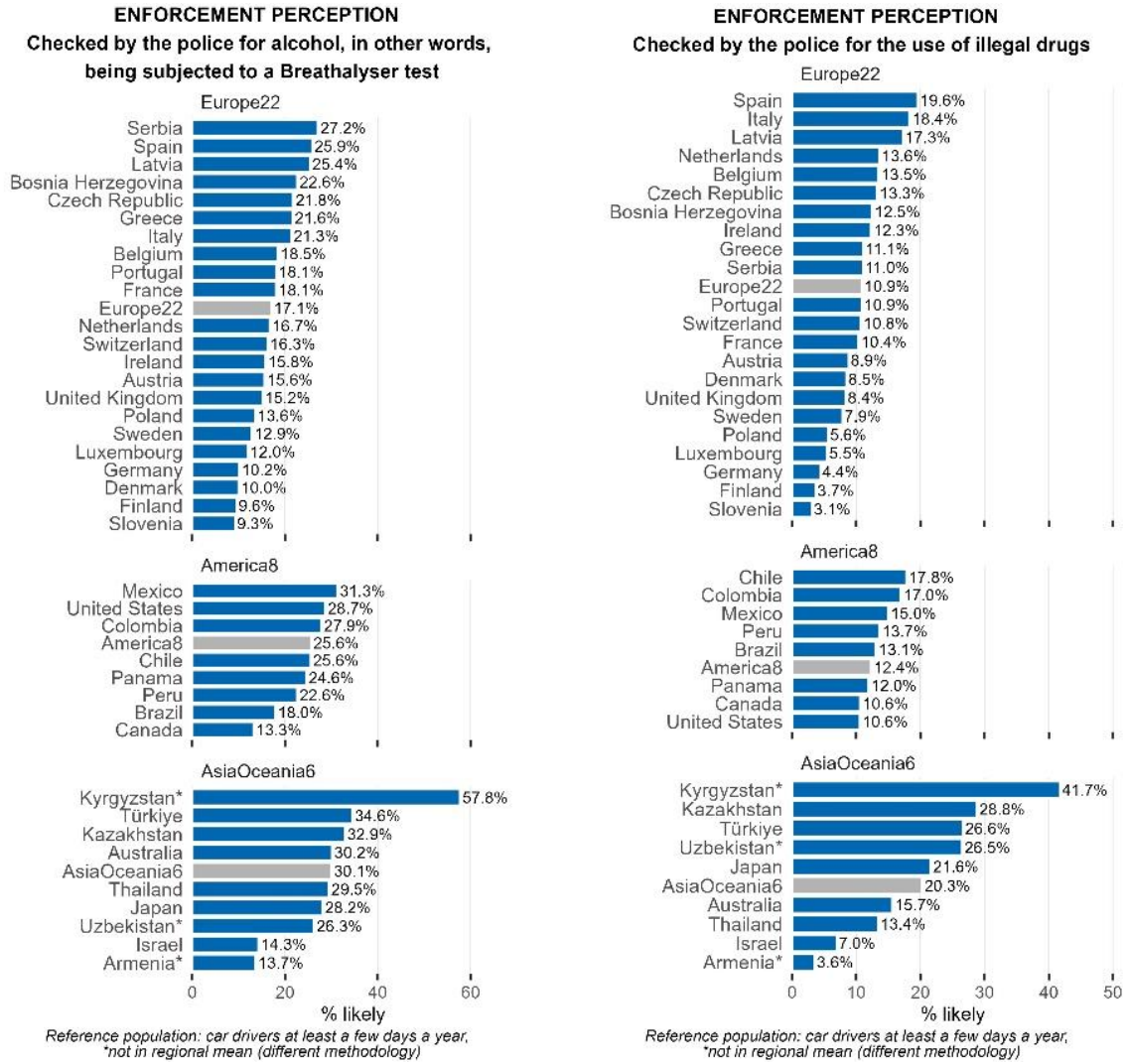


Figure 16: Perceived likelihood of enforcement for drink-driving (left) and drug-driving (right), by region and country (% likely).

The results show very clearly that in all countries more respondents reported alcohol checks as more likely compared to drug controls. Only in Uzbekistan are the percentages of drivers who perceive these

checks as likely similar for both alcohol (26.3%) and drugs (26.5%). Notably, the perceived likelihood of a police check is significantly higher in AsiaOceania6 compared to the other two regions, for both drink-driving and drug-driving (likelihood of an alcohol check: Europe22: 17.1%; America8: 25.6%; AsiaOceania6: 30.1%; p-value < 0.001, Cramer's V = 0.127; likelihood of a drug check: Europe22: 10.9%; America8: 12.4%; AsiaOceania6: 20.3%; p-value < 0.001, Cramer's V = 0.098).

In Europe22, the proportion of car drivers who think it is likely they will be checked for DUI of alcohol ranges from 9.3% in Slovenia to 27.2% in Serbia, and for DUI of drugs, from 3.1% in Slovenia to 19.6% in Spain. In America8, the corresponding percentages range from 13.3% in Canada to 31.3% in Mexico for drink-driving, and from 10.6% in the United States to 17.8% in Chile for drug-driving. In AsiaOceania6, the national results of Kyrgyzstan are striking. The percentage of car drivers in Kyrgyzstan who believe they are likely to be checked for drink-driving (57.8%) and for drug-driving (41.7%) is very high. In all other countries of this region, the percentages range from 13.7% in Armenia to 34.6% in Türkiye for drink-driving, and from 3.6% in Armenia to 28.8% in Kazakhstan for drug-driving.

Regarding gender and age group differences, the results show statistically significant gender differences in Europe22 and America8. More male car drivers than female drivers believe it is likely they will be checked for alcohol (Europe22: 18.7% vs. 15.4%; p-value < 0.001, Cramer's V = 0.044; America8: 28.9% vs. 22.2%; p-value < 0.001, Cramer's V = 0.076). The patterns related to age group differences are less clear. In the AsiaOceania6 region, the results show no significant difference according to gender or age group.

The corresponding results, broken down by gender and age group, are presented in Appendix 4. For more details on enforcement, we refer to the according ESRA3 thematic report on enforcement (Stelling et al., 2024).

3.1.5.2 Experienced enforcement for DUI of alcohol or drugs (last 12 months)

Figure 17 shows the percentages of car drivers who stated that they have been checked for alcohol or drugs at least once in the last 12 months. The figures clearly show that, in all countries and regions, more car drivers experienced alcohol checks compared to drug tests. In six countries, this difference is more than 30 percentage points (Bosnia and Herzegovina, Czech Republic, Latvia, Peru, Poland, Türkiye), and in two countries, it is even more than 40 percentage points (Mexico, Serbia).

In contrast to the perceived likelihood of enforcement for DUI of alcohol or drugs, we see a significantly higher percentage of drug tests in America8 compared to the other two regions (Europe22: 5.5%; America8: 8.2%; AsiaOceania6: 5.8%; p-value < 0.001, Cramer's V = 0.046). The results show no significant regional differences in experienced alcohol checks (Europe22: 18.8%; America8: 20.7%; AsiaOceania6: 17.5%; p-value > 0.01, Cramer's V = 0.025). This indicates that car drivers in AsiaOceania6 perceive a stronger likelihood of alcohol checks or drug tests compared to those in Europe22 or America8, despite the actual reported police checks showing a different pattern. This discrepancy might be related to factors such as the selectivity of police controls, the visibility of the controls to the public, or the general perception of the repressive nature of the country.

In Europe22, the proportion of car drivers who reported being checked by the police for alcohol ranged from 5.8% in the United Kingdom to 41.6% in Serbia, and for drugs, from 2.1% in Luxembourg to 9.9% in Spain. In America8, the corresponding percentages range from 5.9% in Canada to 40.1% in Mexico for alcohol checks, and from 3.8% in Canada to 12.6% in Peru for drug tests. In AsiaOceania6, the percentages range from 0.8% in Japan to 39.2% in Türkiye for alcohol checks, and from 0.5% in Japan to 10.6% in Türkiye for drug tests. The national results for Kyrgyzstan, in contrast to the strikingly high perceived likelihood, have a median position in the comparison of experienced enforcement (alcohol checks: 25.6%; drug tests: 5.7%).

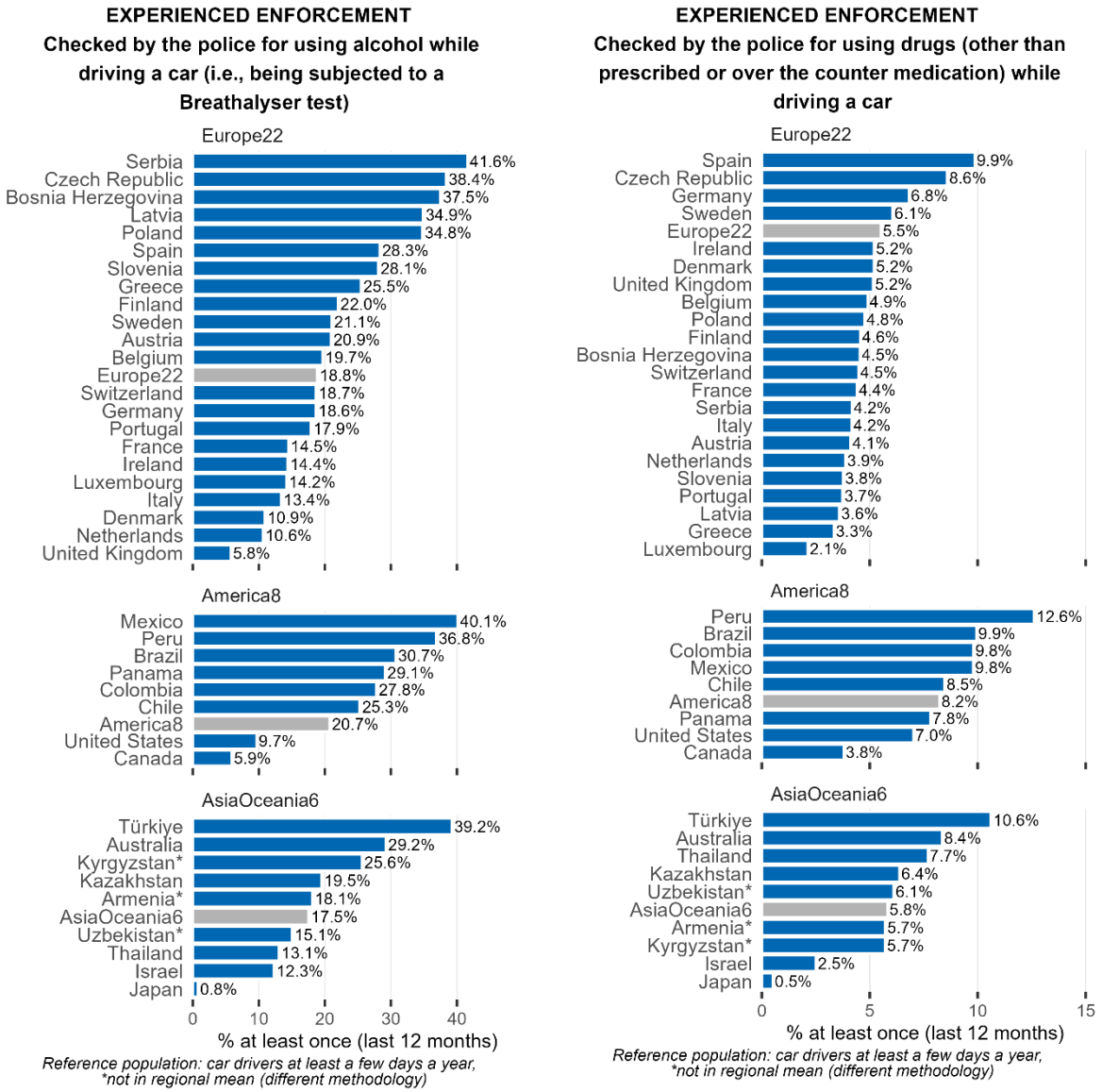


Figure 17: Experienced alcohol checks (left) and drug tests (right) by the police as a car driver, by region and country (% at least once in the last 12 months).

Regarding gender and age group differences, the results show strong and statistically significant gender differences in all regions. More male car drivers than female car drivers have experienced alcohol checks in the last 12 months (Europe22: 23.5% vs. 13.7%; p-value < 0.001, Cramer's V = 0.125; America8: 24.6% vs. 16.7%; p-value < 0.001, Cramer's V = 0.097; AsiaOceania6: 20.9% vs. 13.7%; p-value < 0.001, Cramer's V = 0.094). The same results are observed for drug tests in the last 12 months (Europe22: 6.6% vs. 4.3%; p-value < 0.001, Cramer's V = 0.050; America8: 10.6% vs. 5.8%; p-value < 0.001, Cramer's V = 0.086; AsiaOceania6: 7.0% vs. 4.5%; p-value < 0.01, Cramer's V = 0.054). The results indicate a decreasing trend with increasing age in all regions for both alcohol checks and drug tests: older drivers are less likely to report having been checked by the police compared to younger drivers. Only the results in AsiaOceania6 for experienced drug tests showed no significant age difference.

The corresponding results, broken down by gender and age group, are presented in Appendix 4. For more details on enforcement, we refer to the according ESRA3 thematic report on enforcement (Stelling et al., 2024).

3.1.5.3 The relation between perceived likelihood of enforcement and experienced enforcement for DUI of alcohol or drugs

Results in Figure 18 show a moderate positive correlation at a country level between the percentage of car drivers who stated that they have been checked for alcohol at least once in the last 12 months and the percentage of car drivers who believe it is likely to be checked by the police for DUI of alcohol on a typical journey (r = 0.348, p-value = 0.037). Similar results were found for DUI of drugs (r = 0.353, p-value = 0.035). In other words, there is a slight tendency for increased enforcement of DUI of alcohol or drugs to be associated with a higher perception likelihood of being checked for DUI.

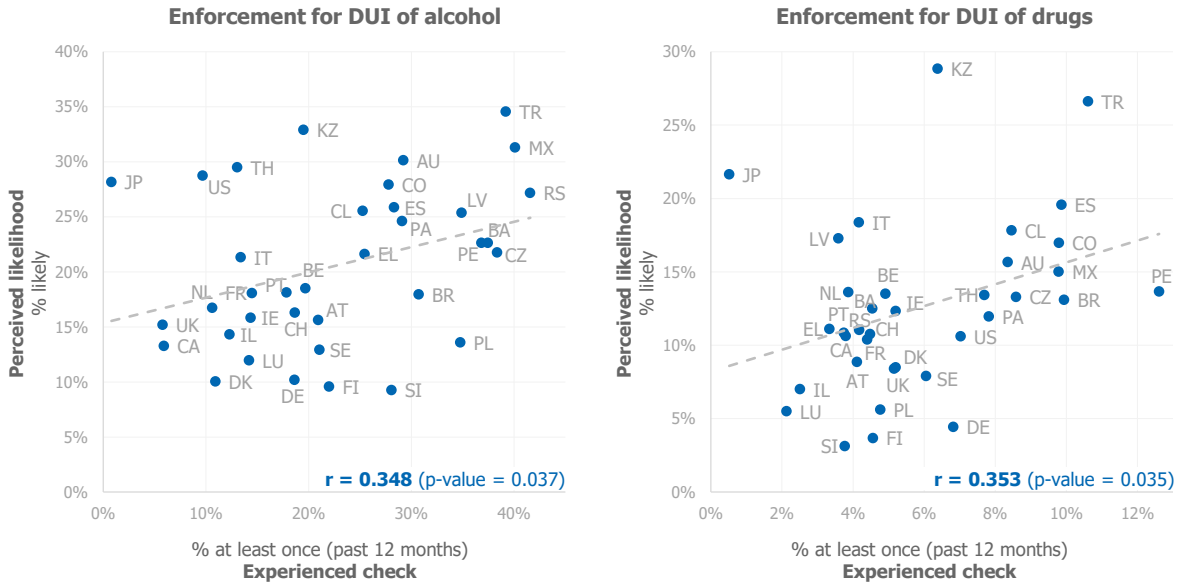


Figure 18: Experienced enforcement versus perceived likelihood of enforcement for DUI of alcohol (left) and for DUI of drugs (right), at a country level.

Notes: Reference population: car drivers at least a few days a year; Armenia, Kyrgyzstan, Uzbekistan not included – different methodology; r – Pearson Correlation Coefficient.

3.2 Advanced analyses

Two binary logistic multiple regression models were used to study the factors associated with self-declared DUI of alcohol above the legal limit (Section 3.2.1) and with self-declared DUI of drugs (Section 3.2.2). Multiple regression models provide a more comprehensive understanding of how various factors (independent variables) influence a dependent variable – in this case the self-declared behaviours. By including multiple independent variables, multiple regression models allow to control for possible confounding variables, providing a clearer view of the true effect of each independent variable on the dependent variable. Additionally, the inclusion of a Social Desirability Scale allows to control for desirability bias, ensuring that the effects of other variables are not distorted by the tendency of respondents to present themselves in a positive way.

Models were carried out separately for each of the three regions: Europe22, America8, and AsiaOceania6. In each model, the outcome is a binary variable indicating the absence (0=never) or presence (1=at least once) of self-declared behaviour in the past 30 days. Models include car drivers who have driven a car at least a few days a month in the past 12 months. Independent variables entered in the model in two blocks. The first block only includes sociodemographic characteristics (gender, age group, educational level, household's income, and level of urbanisation) and the frequency of driving a car. Categories with very low numbers of respondents were either assembled with other categories (such as 'no education' or 'primary education' which were grouped with 'secondary education') or excluded from the analysis (such as gender=other, which corresponds to less than 0.5% of car drivers driving at least a few days per month in the three regions). The second block for the models of DUI of alcohol above the legal limit includes the variables that assess the attitudes towards unsafe traffic behaviours (personal and perceived social acceptability, behaviour believes and attitudes, perceived behaviour control, and intention), support for policy measures, enforcement perception, and enforcement experience. The second block of the models for DUI of drugs only includes the personal

acceptability, enforcement perception, and enforcement experience. The second block of both models were adjusted for sociodemographic characteristics (block 1).

Models were adjusted for country and for social desirability. The Social Desirability–Gamma Short Scale (KSE-G) (Nießen et al., 2019) was included in ESRA3 Questionnaire (see Q26 in Appendix 1). The KSE-G consists of six items covering the two aspects of social desirability, namely exaggerating positive qualities (PQ+) and minimizing negative qualities (NQ−).

Odds ratios were used to measure the strength of association between the variables. The respective odds ratios, along with the corresponding 99% confidence intervals and significant p-values for different levels[9], are presented in the following tables.

3.2.1 Factors associated with self-declared DUI of alcohol above the legal limit

Table 2 shows the results of the three logistic regression models for DUI of alcohol above the legal limit – one model for each region. The included independent variables explain between 38% and 41% of the difference in self-declared DUI of alcohol above the legal limit in the regions (Nagelkerke R^2 in Europe22: 0.411; in America8: 0.384; in AsiaOceania6: 0.400).

Results show that male car drivers are more likely to declare drink-driving above the legal limit than female car drivers in all the regions ($p < 0.001$): OR = 2.29 in Europe22, OR = 2.23 in America8, and OR = 1.60 in AsiaOceania6.

The effect of age on self-declared drink-driving above the legal limit varies across regions. In Europe22, car drivers aged 25-44 have similar odds of reporting drink-driving above the legal limit as those aged 18-24 ($p > 0.05$), while older drivers are significantly less likely to report such behaviour: OR = 0.75 ($p < 0.01$) for ages 45-54, OR = 0.70 ($p < 0.001$) for ages 55-64, and OR = 0.68 ($p < 0.001$) for ages 65-74. In America8, car drivers aged 25-44 are more likely to report drink-driving above the legal limit compared to those aged 18-24 (25-34: OR = 1.42, $p < 0.05$; 35-44: OR = 1.51, $p < 0.01$), while no significant differences was observed between the younger drivers (18-24y) and drivers older than 54 years ($p > 0.05$). In AsiaOceania6 the OR decrease with the increase of the age group, but the differences are only significant between the age groups 18-24y and 55-64y (OR = 0.46, $p < 0.01$).

Table 2: Factors associated with self-declared DUI of alcohol above the legal limit while driving a car.

Independent variables (reference categories)	Dependent variable: self-declared behaviour (past 30 days) - **drive when you may have been over the legal limit for drinking and driving** (0=never; 1=at least once)		
	Europe22	**America8**	**AsiaOceania6**
	Odds Ratio (CI99%)	Odds Ratio (CI99%)	Odds Ratio (CI99%)
BLOCK 1 – Sociodemographic			
Gender (Ref. female)			
Male	**2.29** (1.99-2.64)***	**2.23** (1.77-2.82)***	**1.60** (1.17-2.20)***
Age group (Ref. 18-24y)			
25-34y	**0.99** (0.78-1.25)	**1.42** (0.98-2.07)*	**0.89** (0.54-1.47)
35-44y	**0.94** (0.74-1.19)	**1.51** (1.02-2.22)**	**0.82** (0.49-1.36)
45-54y	**0.75** (0.59-0.96)**	**1.23** (0.82-1.85)	**0.75** (0.44-1.28)
55-64y	**0.70** (0.54-0.90)***	**0.99** (0.63-1.55)	**0.46** (0.24-0.89)**
65-74y	**0.68** (0.51-0.91)***	**0.72** (0.41-1.25)	**0.59** (0.29-1.22)
Educational level (Ref. secondary education or lower)			
Bachelor's degree or similar	**1.17** (1.00-1.37)*	**1.14** (0.85-1.52)	**0.95** (0.66-1.37)
Master's degree or higher	**1.21** (1.01-1.46)**	**1.30** (0.92-1.84)	**1.02** (0.59-1.75)
Household's income (Ref. living comfortably on present income)			
Coping on present income	**1.09** (0.93-1.29)	**1.07** (0.82-1.39)	**0.91** (0.62-1.32)
Finding it difficult on present income	**1.18** (0.97-1.44)*	**0.96** (0.68-1.36)	**1.02** (0.65-1.60)
Finding it very difficult on present income	**0.94** (0.67-1.30)	**0.75** (0.42-1.34)	**0.92** (0.48-1.76)
Level of urbanisation (Ref. rural)			
Urban/ semi-urban	**0.82** (0.71-0.96)***	**0.83** (0.57-1.21)	**0.94** (0.58-1.51)
Frequency of driving a car (Ref. a few days a month)			
1 to 3 days a week	**1.54** (1.21-1.95)***	**1.25** (0.91-1.72)	**1.27** (0.78-2.09)
at least 4 days a week	**1.32** (1.02-1.71)**	**1.31** (0.93-1.85)*	**1.36** (0.80-2.31)

[9] ** p-value<0.05, **p-value<0.01, ***p-value<0.001.*

BLOCK 2			
Acceptability (Ref. unacceptable/neutral)			
Perceived social acceptability of drink-driving above the legal limit (acceptable)	**2.04** (1.51-2.76)***	**2.43** (1.37-4.31)***	**1.96** (0.93-4.12)*
Personal acceptability of drink-driving above the legal limit (acceptable)	**2.89** (1.96-4.27)***	**7.10** (3.21-15.73)***	**3.34** (1.41-7.91)***
Attitude (Ref. disagree/neutral)			
For short trips, one can risk DUI of alcohol (agree)	**1.78** (1.25-2.53)***	**1.36** (0.84-2.22)	**1.29** (0.74-2.24)
Perceived behaviour control			
Composite score (1-5)[1]	**2.73** (2.50-2.97)***	**2.62** (2.27-3.03)***	**2.81** (2.32-3.39)***
Intention (Ref. disagree/neutral)			
I intend not to drive after drinking alcohol in the next 30 days (agree)	**0.45** (0.39-0.53)***	**0.76** (0.59-0.98)**	**0.62** (0.43-0.90)***
Support for policy measures			
Composite score (1-5)[2]	**0.75** (0.70-0.81)***	**0.78** (0.69-0.89)***	**0.70** (0.60-0.83)***
Enforcement perception (Ref. unlikely/neutral)			
Checked by the police for alcohol, in other words, being subjected to a Breathalyser test (likely)	**1.21** (0.99-1.47)*	**1.13** (0.85-1.51)	**1.20** (0.81-1.77)
Enforcement experience (Ref. never)			
Checked by the police for using alcohol while driving a car (i.e., being subjected to a Breathalyser test) (at least once in last 12 months)	**1.59** (1.33-1.89)***	**1.25** (0.94-1.67)*	**1.12** (0.72-1.73)
Social Desirability Scale[3]			
Exaggerating positive qualities (composite score 1-5)	**0.80** (0.73-0.88)***	**0.77** (0.67-0.90)***	**0.85** (0.69-1.04)*
Minimizing negative qualities (composite score 1-5)	**0.71** (0.65-0.78)***	**0.70** (0.61-0.81)***	**0.70** (0.59-0.84)***
Sample size	16575	5454	3694
Nagelkerke R Square	0.411	0.384	0.400

*Notes: reference population – car drivers at least a few days a month; models adjusted for country and for Social Desirability Scale; * p-value<0.05, **p-value<0.01, ***p-value<0.001.*

[1] Perceived behaviour control – composite score from 1 to 5 (the higher the score, the higher the perceived behaviour control) obtained through the mean of the items "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", and "I am able to drive after drinking a large amount of alcohol (e.g., a bottle of wine)".

[2] Support for policy measures – composite score from 1 to 5 (the higher the score, the stronger the support) obtained through the mean of the items "Support of forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0 ‰ (zero tolerance)", "Support of 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)", and "Support of 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)".

[3] Social Desirability Scale – composite scores from 1 to 5 (the higher the score, the higher the tendency to exaggerate positive qualities/ minimize negative qualities (see Q26 in Appendix 1).

As for the association with educational level, in Europe22, car drivers with a bachelor's (OR = 1.17, $p < 0.05$) or master's degree (OR = 1.21, $p < 0.01$) are significantly more likely to report drink-driving compared to those with secondary education or lower. In contrast, in America8 and AsiaOceania6, educational level shows no significant effect on this behaviour ($p > 0.05$), despite odds ratios above 1 in America8 (OR = 1.14 for bachelor's degree and OR = 1.30 for master's degree).

Considering a significance level of 1%, the household's income does not influence significantly the self-declared drink-driving in any of the regions ($p > 0.01$).

Overall, car drivers living in urban or semi-urban areas are significantly less likely to report drink-driving compared to those living in rural areas, however the association is only significant in Europe22: OR = 0.82 ($p < 0.001$) in Europe22, OR = 0.83 ($p > 0.05$) in America8, and OR = 0.94 ($p > 0.05$) in AsiaOceania6.

Car drivers who drive more often (at least once a week) are more likely to report drink-driving than those who only drive a car a few days a month. In Europe22, car drivers who drive 1 to 3 days a week (OR = 1.54, $p < 0.001$) and at least 4 days a week (OR = 1.32, $p < 0.01$) have significantly higher odds of declaring drink-driving. In the other regions the OR for these categories of drivers is also higher than one, but only significant in America8 for the comparison between "at least a few days a week" and the reference category "a few days a month" (OR = 1.31, $p < 0.05$).

Both personal and perceived social acceptability of driving a car above the legal alcohol limit are associated with higher likelihood of declaring this behaviour in the three regions. The effect of personal acceptability is stronger (OR = 2.89 in Europe22, OR = 7.10 in America8, OR = 3.34 in AsiaOceania6;

$p < 0.001$ in all the regions) than the effect of perceived social acceptability (OR = 2.04, $p < 0.001$ in Europe22; OR = 2.43, $p < 0.001$ in America8; OR = 1.96, $p < 0.05$ in AsiaOceania6).

Car drivers who believe that for short trips they can DUI of alcohol are more likely to report drink-driving above the legal limit – the association is significant in Europe22 (OR = 1.78, $p < 0.001$), but not in America8 (OR = 1.36, $p > 0.05$) or AsiaOceania6 (OR = 1.29, $p > 0.05$).

The higher the perceived behaviour control of driving a car after drinking alcohol, the higher the odds of declaring drink-driving above the legal limit in all the regions ($p < 0.001$): OR = 2.73 in Europe22, OR = 2.62 in America8, and OR = 2.81 in AsiaOceania6.

The intention of not driving a car after drinking alcohol in the next 30 days is associated with lower odds of the self-declared drink-driving in Europe22 (OR = 0.45, $p < 0.001$), America8 (OR = 0.76, $p < 0.01$) and AsiaOceania6 (OR = 0.62, $p < 0.001$).

The higher the support for policy measures that restrict DUI of alcohol, the lower the odds of declaring drink-driving above the legal limit in the three regions ($p < 0.001$): OR = 0.75 in Europe22, OR = 0.78 in America8, and OR = 0.70 in AsiaOceania6.

Higher perception of being checked by the police for alcohol while driving a car seems to be associated with higher odds of declared drink-driving. The OR are higher than 1 in all the regions, but only significant at a 5% level in Europe22 (OR = 1.21, $p < 0.05$). Drivers who had been checked by the police for alcohol at least once in the previous 12 months are significantly more likely to report that they drink and drive in Europe22 (OR= 1.59, $p < 0.001$) and in America8 (OR = 1.25, $p < 0.05$), but not in AsiaOceania6 (OR = 1.12, $p > 0.05$). This rather strange results might be explained by selectivity of police checks (see e.g., Meesmann et al., 2015).

Finally, respondents with high socially desirable responding scores, who exaggerate positive qualities and minimize negative qualities, are less likely to report that they drink and drive in all the regions (OR between 0.70 and 0.85). These results show the importance of using a social desirability scale in the multiple regression models to correct the effects for desirability-related bias. It also suggests that the prevalence of DUI of alcohol may be underestimated as respondents may tend to give socially desirable answers in the survey.

3.2.2 Factors associated with self-declared DUI of drugs

Table 3 shows the results of the three logistic regression models for DUI of drugs – one model for each region. The included independent variables explain between 27% and 36% of the difference in self-declared DUI of drugs in the regions (Nagelkerke R^2 in Europe22: 0.314; in America8: 0.274; in AsiaOceania6: 0.367).

As in self-declared drink-driving above the legal limit, male car drivers are also more likely to declare DUI of drugs than female drivers in the three regions: OR = 1.58 ($p < 0.001$) in Europe22, OR = 1.56 ($p < 0.001$) in America8, and OR = 1.38 ($p < 0.01$) in AsiaOceania6.

In Europe22, the older the car driver, the less likely to declare DUI of drugs – in comparison with younger car drivers (18-24y). The OR for age groups 25-34y, 35-44y, 45-54y, 55-64y, 65-74y are 0.90 ($p > 0.05$), 0.78 ($p < 0.01$), 0.45 ($p < 0.001$), 0.51 ($p < 0.001$) and 0.39 ($p < 0.001$) respectively. A different trend can be seen in America8: car drivers aged 25-44 are more likely to report DUI of drugs compared to those aged 18-24 (25-34: OR = 1.69, $p < 0.01$; 35-44: OR = 1.78, $p < 0.001$), while no significant differences exist between the younger drivers (18-24y) and drivers older than 44 years ($p > 0.05$). In AsiaOceania6 car drivers aged 25-64 are equally likely to declare drug driving as drivers aged 18-24 ($p > 0.05$) – the OR are only significant for the age group 65-74y that show less self-declared DUI drugs (OR = 0.50, $p < 0.05$), considering a significance level of 5%.

Table 3: Factors associated with self-declared DUI of drugs while driving a car.

Independent variables (reference categories)	Dependent variable: self-declared behaviour (past 30 days) - **drive within 1 hour after taking drugs (other than prescribed or over the counter medication)** (0=never; 1=at least once)		
	Europe22	**America8**	**AsiaOceania6**
	Odds Ratio (CI99%)	Odds Ratio (CI99%)	Odds Ratio (CI99%)
BLOCK 1 – Sociodemographic			
Gender (Ref. female)			
Male	**1.58** (1.31-1.91)***	**1.56** (1.20-2.02)***	**1.38** (1.01-1.89)**
Age group (Ref. 18-24y)			
25-34y	**0.90** (0.68-1.20)	**1.69** (1.10-2.61)**	**1.10** (0.64-1.88)
35-44y	**0.78** (0.58-1.05)*	**1.78** (1.14-2.77)***	**1.06** (0.62-1.83)
45-54y	**0.45** (0.32-0.62)***	**1.22** (0.76-1.96)	**1.06** (0.61-1.87)
55-64y	**0.51** (0.36-0.72)***	**1.25** (0.76-2.05)	**0.80** (0.42-1.52)
65-74y	**0.39** (0.26-0.59)***	**0.91** (0.51-1.65)	**0.50** (0.22-1.16)*
Educational level (Ref. secondary education or lower)			
Bachelor's degree or similar	**1.19** (0.96-1.48)*	**0.79** (0.58-1.07)*	**1.00** (0.69-1.47)
Master's degree or higher	**1.15** (0.89-1.48)	**0.77** (0.52-1.13)	**1.15** (0.67-1.98)
Household's income (Ref. Living comfortably on present income)			
Coping on present income	**0.98** (0.79-1.23)	**1.09** (0.80-1.49)	**0.76** (0.52-1.11)
Finding it difficult on present income	**1.06** (0.81-1.39)	**1.43** (0.98-2.08)*	**0.70** (0.44-1.12)
Finding it very difficult on present income	**1.17** (0.77-1.79)	**1.26** (0.71-2.24)	**0.76** (0.39-1.47)
Level of urbanisation (Ref. rural)			
Urban/ semi-urban	**0.87** (0.71-1.08)	**0.71** (0.48-1.05)*	**0.91** (0.56-1.46)
Frequency of driving a car (Ref. a few days a month)			
1 to 3 days a week	**0.71** (0.54-0.94)**	**0.98** (0.69-1.40)	**1.02** (0.64-1.64)
at least 4 days a week	**0.92** (0.69-1.24)	**1.19** (0.82-1.73)	**1.06** (0.64-1.76)
BLOCK 2			
Acceptability (Ref. unacceptable/neutral)			
Personal acceptability of driving within 1 hour after taking drugs (other than prescribed or over the counter medication) (acceptable)	**16.22** (11.40-23.08)***	**10.44** (6.23-17.50)***	**14.89** (8.09-27.41)***
Enforcement perception (Ref. unlikely/neutral)			
Checked by the police for the use of illegal drugs (likely)	**1.75** (1.34-2.28)***	**1.75** (1.25-2.46)***	**1.32** (0.84-2.06)
Enforcement experience (Ref. never)			
Checked by the police for using drugs (other than prescribed or over the counter medication) while driving a car (at least once in last 12 months)	**4.89** (3.68-6.50)***	**3.95** (2.73-5.70)***	**2.34** (1.36-4.03)***
Social Desirability Scale[(1)]			
Exaggerating positive qualities (composite score 1-5)	**0.72** (0.64-0.81)***	**0.76** (0.66-0.88)***	**0.70** (0.58-0.84)***
Minimizing negative qualities (composite score 1-5)	**0.52** (0.47-0.58)***	**0.55** (0.48-0.63)***	**0.64** (0.55-0.75)***
Sample size	16575	5454	3694
Nagelkerke R Square	0.314	0.274	0.367

*Notes: reference population – car drivers at least a few days a month; models adjusted for country and for Social Desirability Scale; * p-value<0.05, **p-value<0.01, ***p-value<0.001.*

(1) Social Desirability Scale – composite scores from 1 to 5 (the higher the score, the higher the tendency to exaggerate positive qualities/ minimize negative qualities (see Q26 in Appendix 1).

Considering a significance level of 1%, the educational level, the household's income, and the level of urbanisation do not influence significantly the self-declared DUI of drugs in any of the regions ($p > 0.01$).

In Europe22, in comparison to respondents who drive a car only a few days a month, the ones who drive 1 to 3 days a week are less likely to declare DUI of drugs: OR = 0.71 ($p < 0.01$). However, car drivers who drive at least 4 days a week do not differ significantly from those who drive only a few days a month in Europe22 (OR = 0.92, $p > 0.05$). In America8 and AsiaOceania6 the frequency of driving a car does not influence DUI of drugs ($p > 0.05$).

The personal acceptability of driving a car within 1 hour after taking drugs (other than prescribed or over the counter medication) has a strong influence on the self-declared behaviour in the three regions. Car drivers who consider the behaviour acceptable are much more likely to report drug driving in Europe22 (OR = 16.22, $p < 0.001$) in America8 (OR = 10.44, $p < 0.001$), and in AsiaOceania6 (OR = 14.89, $p < 0.001$), in comparison to the ones who consider the behaviour unacceptable/neutral.

Car drivers with higher perception of being checked by the police for the use of illegal drugs while driving a car are significantly more likely to declare drug driving in Europe22 (OR = 1.75, p < 0.001) and in America8 (OR = 1.75, p < 0.001). Car drivers who had been checked by the police for drugs at least once in the previous 12 months are significantly more likely to report DUI of drugs in all the regions (p < 0.001): OR = 4.89 in Europe22, OR = 3.95 in America8, and OR = 2.34 in AsiaOceania6. This rather strange results might be explained by selectivity of police checks (e.g., Meesmann et al., 2015).

As it was observed in the regression models for DUI of alcohol (Table 2), respondents with high socially desirable responding scores are less likely to report that they DUI of drugs in all the regions (OR between 0.52 and 0.76).

3.3 Comparison between observed (Baseline) and self-declared behaviour (ESRA3)

This section includes the analysis of the correlation between observed behaviours (Baseline project) and self-declared behaviours (ESRA3 survey) at a country level.

The Baseline project (https://www.baseline.vias.be) produced values for Road Safety KPIs (Key Performance Indicators) in EU Member States between 2020 and 2022. One KPI related to DUI of alcohol while driving a passenger car was produced: 'Percentage of drivers driving within the legal limit for blood alcohol content (BAC)'. Different methodologies were used in the Baseline project. For effects of comparability with ESRA3 data, only Baseline countries with data for passenger car drivers collected using the same methodology were included in the analysis: data collected through roadside measurements by the police with a random selection of car drivers. Seven countries met these criteria – all also included in ESRA3: Belgium, Greece, Luxembourg, Poland, Portugal, Spain and Latvia. Data were extracted from the 'Baseline report on the KPI DUI of Alcohol' (see Table 12 in Baseline report) (Yannis & Folla, 2022).

Based on the data in the Baseline report, the percentage of car drivers driving above the legal limit for BAC was calculated for each country. This prevalence of the behaviour (observed) was correlated with ESRA3 data (self-declared) at a country level: self-declared behaviour of driving over the legal limit for drink-driving in the past 30 days and the habit of driving after drinking alcohol[10], which is also a form of self-declared past behaviour. Results are presented in Figure 19.

Results show that the prevalence of driving above the legal limit for BAC (observed behaviour) is positively and strongly correlated with both the self-declared behaviour of driving over the legal limit (r = 0.933, p = 0.002) and the habit of driving after drinking alcohol (r = 0.829, p = 0.021).

Despite the low number of countries included in the analysis (only seven), these results show that countries with a high prevalence of observed behaviour have a high prevalence of self-declared behaviours, and vice-versa.

Nevertheless, we have to point out that we are in fact comparing two different concepts here. Observed behaviour as measured in Baseline is a point-prevalence (measurement of the prevalence of behaviour at one moment in time) while the self-declared behaviour as measured in ESRA3 is a period-prevalence (measurement of the prevalence of behaviour over a period of time, in this case 30 days). These two are not fully comparable and one should always be cautious when comparing the two.

[10] *For results on the habit 'to drive after drinking', by region, country, age group and gender see Appendix 4.*

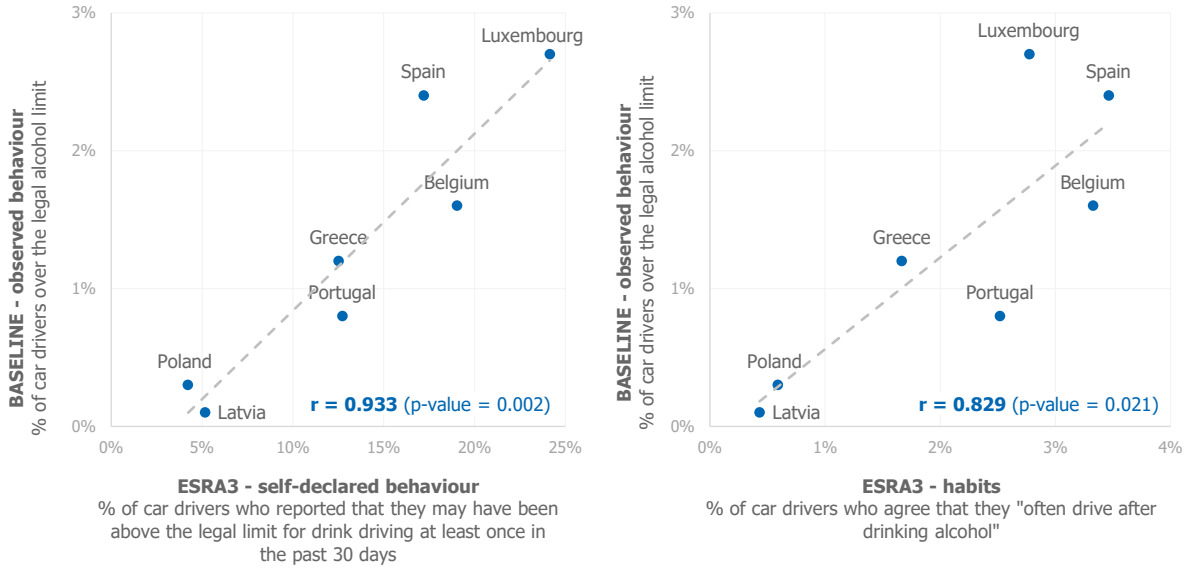


Figure 19: Observed drink-driving above the legal alcohol limit (Baseline) as a function of self-declared drink-driving above the legal alcohol limit (ESRA3) and the habit of driving after drinking alcohol (ESRA3).

Notes: r – Pearson Correlation Coefficient. Notes from Baseline report: minimum sample not achieved for all strata in Greece; minimum number of locations per stratum not achieved in Latvia and Luxembourg; no weighting was used in Luxembourg; motorways not included in Latvia and Poland.

3.4 Comparison over time (ESRA2-ESRA3)

This chapter compares ESRA3 results with ESRA2 results. The ESRA2 results that are shown in this chapter are different from the results published in ESRA2 publications. Because of methodological differences the ESRA2 results were recalculated in order to be comparable with the ESRA3 results. Between ESRA2 and ESRA3 there are differences on sample level and on question/item level. On sample level there is a difference in population between ESRA2 and 3: in ESRA2 the population consisted out of adults aged 18 years and older, while in ESRA3 the population was adults between 18 and 74 years old. In ESRA3 we also applied a stricter data cleaning compared to ESRA2 (for more information see also the methodology reports (Meesmann, Torfs, et al., 2022; Meesmann & Wardenier, 2024). To take these two differences into account, ESRA2 results were reweighted and recalculated so that the population is the same as in ESRA3 and consequently the results are comparable. On question and item level there are also differences between ESRA2 and ESRA3. For some questions, there is a difference in reference population, e.g., in ESRA2 attitudes towards safe and unsafe traffic behaviour were surveyed for all road users while in ESRA3 they were only surveyed for car drivers. This means that the results do not have the same reference, for example 30% of all road users or 30% of all car drivers does not have the same meaning. Differences in reference populations can often be recalculated and so these were also taken into account in the recalculated ESRA2 results. Furthermore, some questions and/or items of questions have a different formulation between ESRA2 and ESRA3. For some questions/items we considered the formulation between the two editions too different to be compared, therefore these questions/items are not included in the comparisons. Lastly, comparisons only focus on country level as the countries included in the according regional means are also too different between ESRA2 and ESRA3 (e.g., in ESRA2 the region America includes three countries, while in ESRA3 this region includes eight countries).

Despite the efforts of the ESRA initiative to make the presented ESRA2 and ESRA3 results as comparable as possible, these comparisons have limitations and should be interpreted with caution. There can still be potential methodological effects that can explain differences in the results. It concerns elements on which we have little to no control due to various reasons. Examples of such kind of methodological differences are changes in the characteristics or composition of the sample (e.g., level of education, rural vs. urban population or number of moped riders in the mixed group of moped riders and motorcyclists) and changes in answer patters due to different presentation of the question (e.g., matrix questions with many items vs. single item questions). Secondly, when comparing the results between

ESRA2 and ESRA3, the presented confidence intervals should also be considered. A difference in the percentage between ESRA2 and ESRA3 can seem large, while in fact the confidence intervals overlap or are not far apart. Because of these reasons, differences between ESRA2 and ESRA3 should not always be interpreted as actual changes in the population.

In 2025 the ESRA initiative plans to publish a dedicated report on 10 years of ESRA. This report will offer deeper insights into the evolution of ESRA and compare results over time since its start in 2015.

The comparison between ESRA2 and ESRA3 focuses on the self-declared behaviour (Section 3.4.1) and experienced enforcement (Section 3.4.2), both for car drivers.

3.4.1 Self-declared DUI of alcohol

The comparison of the self-declared behaviour includes two items: "Drive when you may have been over the legal limit for drinking and driving" and "Drive after drinking alcohol"[11]. The comparison was done at a country level for 24 countries with comparable data in ESRA2 and in ESRA3: the same formulation of both questions ('Over the last 30 days, how often did you as a car driver …?'), the same answering scale (5-points scale ranging from 1 'never' to 5 '(almost) always'), and the same reference population (car drivers at least a few days a month). Percentages of at least once in the past 30 days (answers 2-5) and the correspondent 95% Confidence Intervals (95% CI) are presented in Figure 20, Figure 21, and in Table 5 in Appendix 5.

The proportion of car drivers reporting DUI of alcohol above the legal limit increased in 13 countries and decreased in 11 countries. However, these changes were only statistically significant in the Netherlands, where the percentage rose from 7.3% (95% CI: 5.5%-9.4%) in ESRA2 to 12.0% (95% CI: 9.7%-14.6%) in ESRA3. Overall, these results indicate that, with the exception of the Netherlands, there were no significant changes in reported DUI of alcohol above the legal limit between ESRA2 and ESRA3 across the ESRA countries (Figure 20 and Table 5 in Appendix 5).

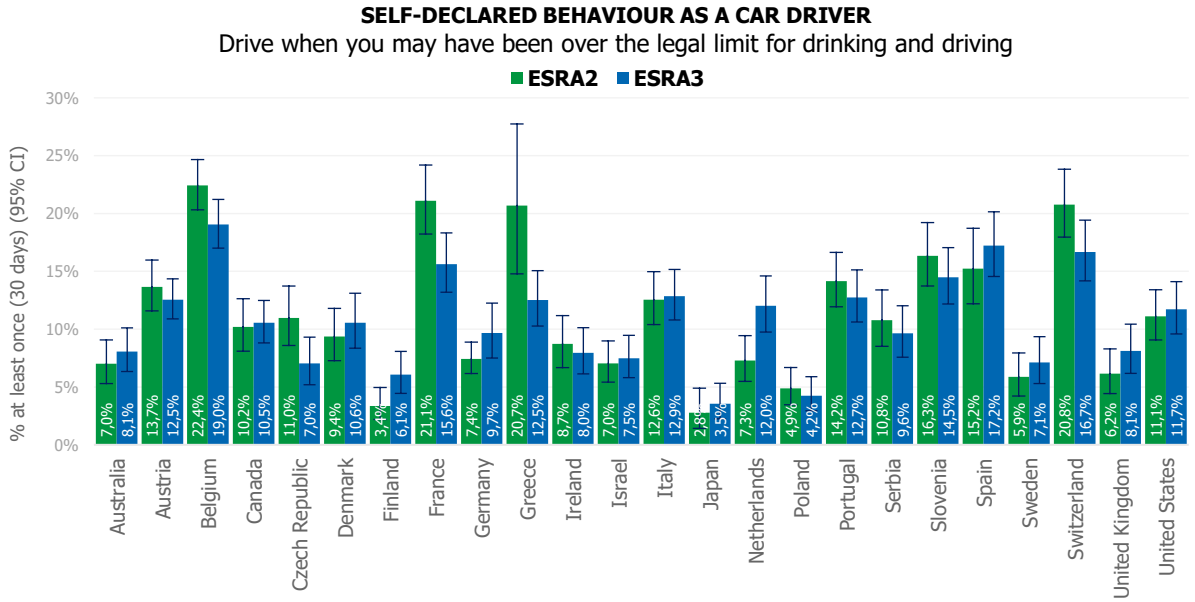


Figure 20: Self-declared behaviour as a car driver, in ESRA2 and in ESRA3, by country (% at least once in the past 30 days ± 95% Confidence Intervals). ESRA2 results recalculated for comparability.

As for self-declared behaviour of driving a car after drinking alcohol (Figure 21 and Table 5 in Appendix 5), the percentage of car drivers who reported the behaviour decreased in 21 of the 24 ESRA countries. The differences were significant in 12 of the 21 countries where the proportion decreased. These results

[11] *A comparison of self-declared DUI of drugs or medication was not made, as the questions differed between the two ESRA editions.*

suggest that, overall, the prevalence of driving a car after drinking alcohol decreased between ESRA2 and ESRA3.

It should be noted that for some countries very large differences between ESRA2 and ESRA3 were found. For example, the percentage of car drivers who reported driving after drinking alcohol decreased with a large number in Australia (22.4% in ESRA2 to 12.7% in ESRA3), Greece (29.8% in ESRA2 to 17.3% in ESRA3), Switzerland (33.5% in ESRA2 to 22.6% in ESRA3), and United States (21.2% in ESRA2 to 14.1% in ESRA3). As mentioned in the beginning of this section, these results should be interpreted with caution, as it may be influenced by methodological differences in ESRA2 and ESRA3 surveys.

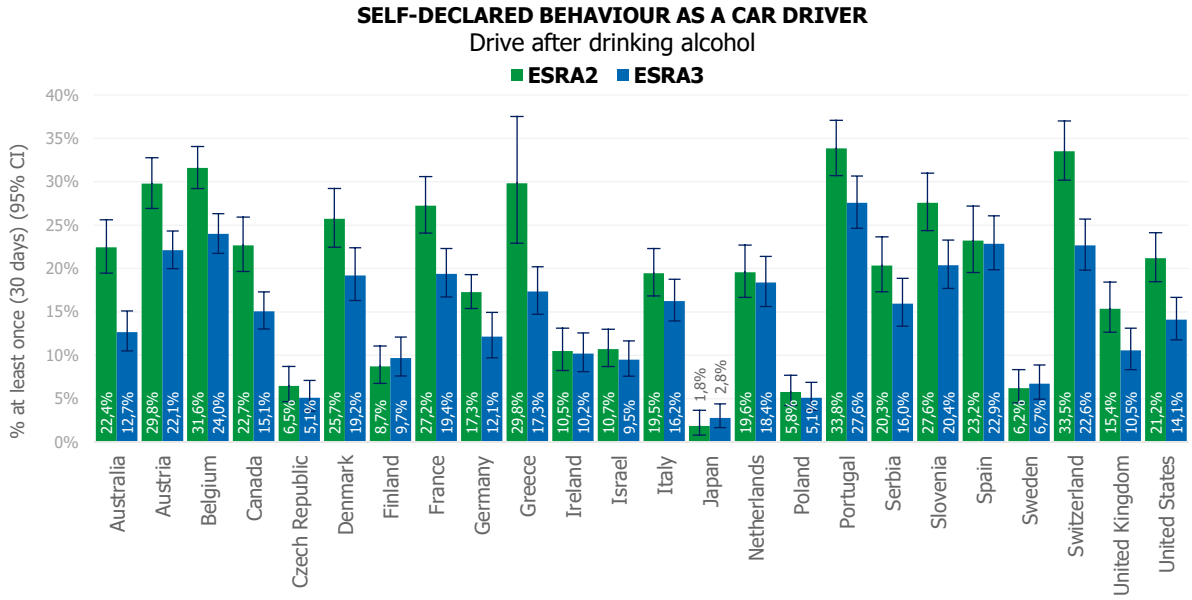


Figure 21: Self-declared behaviour as a car driver, in ESRA2 and in ESRA3, by country (% at least once in the past 30 days ± 95% Confidence Intervals). ESRA2 results recalculated for comparability.

3.4.2 Experienced enforcement for DUI of alcohol or drugs

The experienced enforcement in the past 12 months for using alcohol and for using drugs while driving a car was compared between ESRA2 and ESRA3 based on 26 countries. The reference population was the same in both ESRA editions (car drivers at least a few days per year). The question for drink-driving was also the same in both editions ('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)?'), but there was a small difference in the question for drug driving – ESRA2 had 'other than medication' instead of 'other than prescribed or over the counter medication' – formulation in ESRA3: '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?'. There was also a difference in the answering scale. In ESRA3 three answering options were presented: 'never', '1 time', 'at least 2 times', while in ESRA2, besides the same three options, respondents could choose not to respond ('I prefer not to respond to this question'). Only 0.2% of all ESRA2 respondents did not answer the questions. Percentages of at least once in the past 12 months and the correspondent 95% Confidence Intervals (95% CI) are presented in Figure 22, Figure 23, and in Table 6 in Appendix 5.

The percentage of car drivers who reported that they had been checked by the police while driving a car (at least once in the past 12 months) increased significantly in four countries (Germany, Italy, Switzerland, and United States) and decreased significantly in six countries (Australia, Finland, Ireland, Japan, Poland, and Thailand) – no significant changes were found in 16 countries. The differences were particularly high in Australia (46.8% in ESRA2 to 29.2% in ESRA3), Finland (38.3% in ESRA2 to 22.0% in ESRA3), Japan (5.7% in ESRA2 to 0.8% in ESRA3), Germany (6.6% in ESRA2 to 18.6% in ESRA3), and the United States (2.7% in ESRA2 to 9.7% in ESRA3) (Figure 22 and Table 6 in Appendix 5).

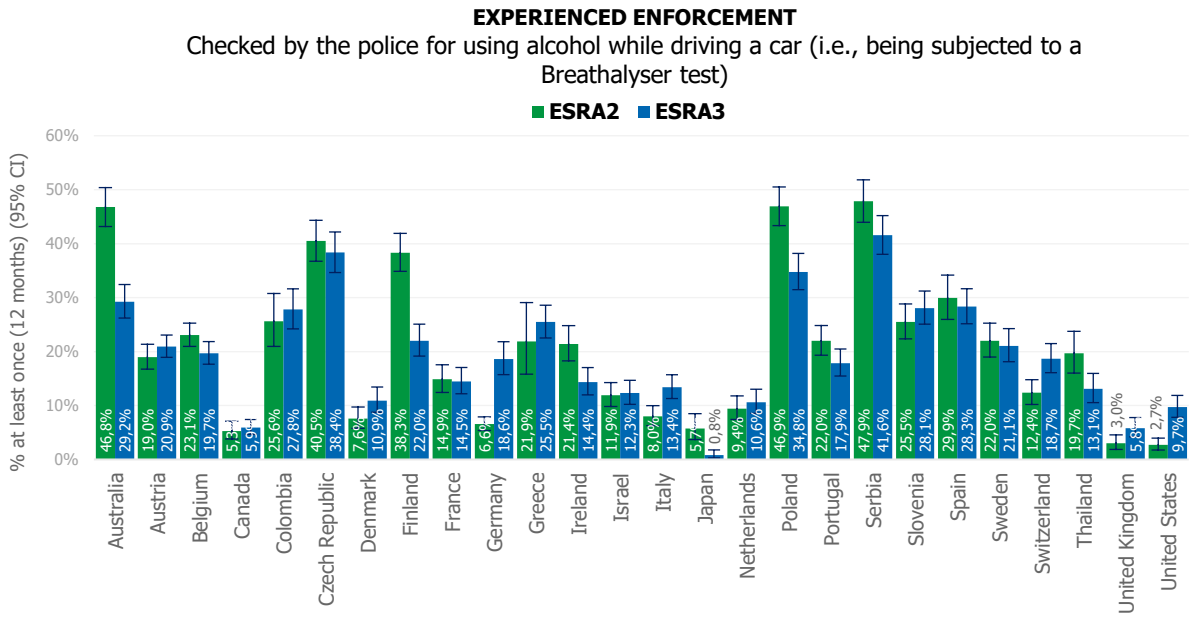


Figure 22: Experienced enforcement as a car driver, in ESRA2 and in ESRA3, by country (% at least once in the past 12 months ± 95% Confidence Intervals). ESRA2 results recalculated for comparability.

Notes: different answering options – in ESRA3: 'never', '1 time', 'at least 2 times'; in ESRA2: 'never', '1 time', 'at least 2 times', 'I prefer not to respond to this question' (only 46 did not answer – 0.2% of the total sample).

As for the experienced enforcement for using drugs while driving a car (Figure 23, and in Table 6 in Appendix 5), the proportion of drivers who were checked at least once in the past 12 months increased in 24 of the 26 countries – the differences were significant in 8 of the 24 countries: Belgium, Denmark, France, Germany, Israel, Sweden, United Kingdom, and the United States. Large differences were observed in some countries, for example in Denmark (0.9% in ESRA2 to 5.2% in ESRA3), Germany (1.9% in ESRA2 to 6.8% in ESRA3), United Kingdom (1.1% in ESRA2 to 5.2% in ESRA3), and the United States (1.8% in ESRA2 to 7.0% in ESRA3).

Once again it should be noted that these results must be interpreted with caution, not only because of methodological differences in ESRA2 and ESRA3 surveys, but also due to the differences in the formulation in the questions of experienced enforcement and in the answering scale mentioned above.

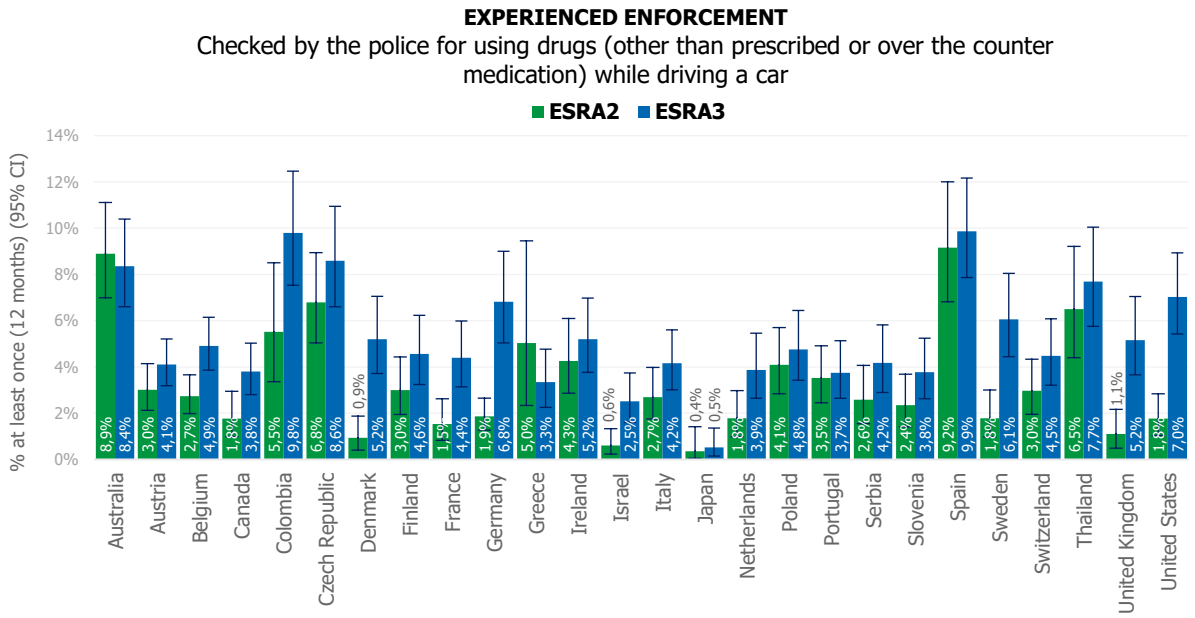


Figure 23: Experienced enforcement as a car driver, in ESRA2 and in ESRA3, by country (% at least once in the past 12 months ± 95% Confidence Intervals). ESRA2 results recalculated for comparability.

Notes: 1) different answering options – in ESRA3: 'never', '1 time', 'at least 2 times'; in ESRA2: 'never', '1 time', 'at least 2 times', 'I prefer not to respond to this question' (only 31 did not answer – 0.2% of the total sample); 2) in ESRA2 the question had "(other than medication)", instead of "(other than prescribed or over the counter medication)".

As stated above, the observed changes between ESRA2 and ESRA3 should be interpreted with caution, as they could be influenced by methodological differences in the surveys, or for example, by the COVID-19 pandemic (Lyon et al., 2024). Future measurements (ESRA4 in 2026) should be used to confirm changes over time (trends). If possible, other national monitoring data that assess the same (or similar) variables over time could also be used for external validation of the observed national trends/changes.

3.5 Limitations of the data

The ESRA3 survey provides valuable insights into DUI of alcohol, drugs, and medication, but several key limitations should be noted (see also Meesmann & Wardenier, 2024).

Cultural differences and response biases: One significant limitation is the impact of cultural differences among the countries surveyed. Road users from diverse regions, including Europe, America, Asia and Oceania, may interpret questions differently based on their cultural contexts, which can affect their responses. Factors such as social values, personality traits, status, laws, road safety culture, and infrastructure vary significantly across countries and may influence how individuals answer the survey questions (Pires et al., 2020). Additionally, self-report surveys are subject to biases such as social desirability bias, where respondents may provide answers that make them appear more favourable. Misunderstandings of questions or memory errors can also skew results (Choi & Pak, 2005; Krosnick & Presser, 2010). Although efforts were made to account for desirability bias in the advanced analysis i.e. the logistic regression models (use of social desirability scale (KSE-G; Nießen et al., 2019) in the models), desirability bias cannot be taken into account in simple descriptive results or the regional comparisons.

Sample size and representativeness: The ESRA3 survey has large sample size of more than 37000 respondents from 39 countries. Such a large sample size has the consequence that even small differences can become statistically significant. For this reason, effect sizes in the form of Cramer's V are also reported in the report and these show that most effect sizes are rather small. Also, online panels used for data collection can lead to selection and coverage biases, excluding those without internet access or less inclined to participate online. This can underrepresent certain age groups, such as those over 75 years old, and lead to non-response bias, where those who choose to participate may differ from non-respondents. Furthermore, in countries like Armenia, Kyrgyzstan and Uzbekistan, where online panels were unavailable, face-to-face recruitment was used, and the sample size was reduced,

which potentially affected the representativeness and the comparability of the data with other countries. Therefore, the data of these countries was not considered when calculating the according regional means (AsiaOceania6). Luxembourg also had a smaller sample size (N=500) but used online panel study design and therefore was included in the calculation of the regional mean (Europe22).

Self-declared data and survey limitations: The self-declared nature of the survey data introduces unexplained variance due to the lack of objective data and situational context. While the survey captures various attitudes, expectations, and elements of traffic safety culture, it does not account for all influencing factors such as personal capabilities and infrastructural differences. This limitation means that specific country results and differences observed between countries require further research to fully understand.

In summary, while the ESRA3 survey offers valuable insights, its limitations include cultural biases, response biases, sample representativeness issues, and the inherent limitations of self-declared data. These factors should be considered when interpreting the results, and further research is needed to address these limitations and provide a more comprehensive understanding of road safety perceptions and behaviours.

4 Summary and discussion

4.1 Major findings and discussion

The research questions can be answered – based on the ESRA3-results - as follows:

Which countries and regions have the highest and lowest rates of self-declared DUI of alcohol, drugs, or medication, and do these behaviours differ across countries and regions?

- The highest rates of self-declared DUI of alcohol above the legal limit (at least once in the last 30 days) are found in Luxembourg (24.1%), Thailand (23.2%), and Mexico (20.5%), while Kyrgyzstan (1.2%), Armenia (3.4%), and Japan (3.5%) report the lowest.
- For drug-driving, Thailand (37.0%), the U.S. (17.3%), and Uzbekistan (13.6%) have the highest rates, while Serbia (1.3%), Armenia (1.6%), and Latvia (1.8%) report the lowest.
- DUI of medication is most common in Thailand (34.8%), Peru (24.0%), and Spain (21.4%), and least common in Armenia (1.6%), Kyrgyzstan (6.2%), and Slovenia (6.8%).
- There is considerable variability in these behaviours across countries and regions.
- In Europe22 there is a wide range of DUI above the legal limit rates across countries (4.2% in Poland to 24.1% in Luxembourg), with smaller differences for drug-driving (1.3% in Serbia to 10.1% in the UK) and DUI of medication (6.8% in Slovenia to 21.4% in Spain).
- In America8, these rates range for drink-driving above the legal limit from 10.5% in Canada to 20.5% in Mexico, drug-driving from 6.0% in Panama to 17.3% in the U.S., and DUI of medication from 12.4% in Brazil to 24.0% in Peru.
- In AsiaOceania6, Thailand stands out as a clear outlier, with significantly higher rates across all categories, while other countries report much lower rates ranging from 1.2% in Kyrgyzstan to 15.8% in Uzbekistan for drink-driving above the legal limit, from 1.6% in Armenia to 13.6% in Uzbekistan for drug-driving, and from 1.6% in Armenia to 12.4% in Kazakhstan for DUI of medication.

Does personal acceptability of DUI of alcohol, drugs, or medication differ across countries and regions, and does the personal acceptability match with the perceived social acceptability in a country?

- The personal acceptability of DUI of alcohol, drugs, or medication is low in all countries and regions.
- The rates range in Europe22 from 0.4% to 6.8%, in America8 from 1.0% to 6.3%, and in AsiaOceania6 from 0.2% to 9.3%.
- The countries with the highest personal acceptability rates for impaired driving are Thailand (drink-driving above the legal limit: 5.6%; drug-driving: 8.8%; DUI of medication: 9.3%), the United States (5.3%, 5.9%, 6.3%, respectively), and Austria (5.0%, 4.1%, 6.8%, respectively).
- The results show a strong positive correlation between the percentages of 'personal acceptability' and 'perceived social acceptability' of DUI of alcohol above the legal limit. Thus, the higher the personal acceptability, the higher the perceived social acceptability of DUI of alcohol above the legal limit. However, in all regions and almost all the countries, more respondents believe that others accept DUI of alcohol above the legal limit than they themselves do.

Do attitude, intention, and perceived behaviour control regarding drink-driving differ across countries and regions?

- Attitude related to drink-driving: In all regions and most countries, very few car drivers agree with the statement that for short trips one can risk DUI of alcohol (only exception: Thailand). In Europe22, this ranges from 0.8% in Poland to 5.3% in Greece; in America8, from 3.4% in

Canada to 7.3% in Mexico; and in AsiaOceania6, from 1.5% in Israel to 7.0% in Uzbekistan (in Thailand 24.8%[12])).

- Intention not to drink and drive: Most car drivers have the intention not to drink and drive in the next 30 days across all regions. In Europe22, this ranges from 47.5% in Bosnia and Herzegovina to 84.7% in the Czech Republic; in America8, from 64.7% in Panama to 75.0% in Brazil; and in AsiaOceania6, from 29.4% in Uzbekistan to 79.0% in Japan.
- Perceived behaviour control related to drink-driving: The majority of car drivers across all regions are aware of the risks of drink-driving and do not believe they can safely drive after consuming alcohol. As expected, the degree of perceived ability to drive a car after drinking alcohol depends on the amount of alcohol. In all regions and most countries, very few respondents agree with the statement, "I am able to drive after drinking a large amount of alcohol". In Europe22, this ranges from 1.4% in Serbia to 5.7% in Belgium; in America8, from 1.7% in Panama to 5.1% in the United States; and in AsiaOceania6, from 1.1% in Kyrgyzstan to 15.9% in Armenia. The highest proportion of car drivers agree with the statement, "I trust myself to drive after drinking a small amount of alcohol". In Europe22, this ranges from 5.1% in Poland to 36.9% in Greece; in America8, from 9.5% in the United States to 26.3% in Mexico; and in AsiaOceania6, from 2.2% in Japan to 21.7% in Armenia.

Does the support for policy measures against drink-driving differ across countries and regions?

- The support for policy measures against drink-driving is very high across all regions and countries, with at least 62% respondents in favour for each measure.
- In America8 and AsiaOceania6, the most supported measure is installing alcohol interlocks for repeat offenders, with support ranging from 78.1% in the U.S. to 89.7% in Colombia and from 73.0% in Thailand to 86.6% in Kazakhstan in the respective region. In Europe22, zero tolerance for alcohol among novice drivers has the highest support, ranging from 63.3% in Denmark to 91.6% in Serbia.
- The least supported measure against drink-driving is zero tolerance for all drivers of motorized vehicles. In Europe22, support ranges from 42.8% in Luxembourg to 74.7% in Serbia; in America8, from 64.2% in Canada to 85.2% in Chile; and in AsiaOceania6, from 63.6% in Australia to 86.7% in Kyrgyzstan. Even less supported in all regions is a 'zero tolerance of alcohol for all cyclists' (drink-cycling).[13]

Which countries and regions have the highest and lowest rates of car drivers which have experienced enforcement for DUI of alcohol or drugs, and does the perceived likelihood of enforcement match the actual frequency of enforcement?

- Across all regions and countries more car drivers experienced alcohol checks compared to drug checks.
- The proportion of car drivers who were checked for drink-driving in the last 12 months is the highest in Serbia (41.6%), Mexico (40.1%) and Türkiye (39.2%), and the lowest in Japan (0.8%), the United Kingdom (5.8%) and Canada (5.9%).
- The countries with the highest rates of police checks for drug-driving are Peru (12.6%), Türkiye (10.6%) and Brazil (9.9%). At the other end of the scale, we find we find Japan, Luxembourg and Israel all below 2.5%.
- There is a slight tendency for increased enforcement of DUI of alcohol or drugs to be associated with a higher perceived likelihood of being checked for DUI.

What is the influence of gender and age on these behaviours, related opinions, attitudes and enforcement?

[12] *The authors have strong doubts about this result; no mistakes were identified in the translation or data processing.*

[13] *In Europe22, support ranges from 28.8% in Finland to 77.9% in Serbia; in America8, from 62.3% in Canada to 81.7% in Chile; and in AsiaOceania6, from 60.3% in Kazakhstan to 73.4% in Australia.*

- The results show clear gender differences regarding DUI of alcohol, drugs, and medication, as well as related opinions, attitudes, and enforcement experiences. More male respondents reported DUI of alcohol, drugs, or medication and displayed riskier attitudes than female respondents. Additionally, more men reported police checks for DUI. These differences are statistically significant in all related ESRA3 survey questions for Europe22 and America8. In AsiaOceania6, the trend is similar, but not always statistically significant. Statistically significant results in AsiaOceania6 were found for: self-declared DUI of alcohol, drugs or medication, experienced enforcement, and some questions assessing PBC and support for DUI policy measures.
- The patterns related to age group differences are less clear. In Europe22, a general trend emerges: the older the respondents, the less likely they are to report DUI of alcohol, drugs, or medication, being checked by the police, or displaying risky opinions or attitudes on the topic. In America8, this trend is observed only for the declared intention not to drink and drive in the next 30 days and for experienced enforcement. In AsiaOceania6, it is seen only for experienced enforcement. The patterns regarding age group differences in PBC and perceived likelihood of enforcement are less clear in all regions.

Which explanatory variables are associated with self-declared DUI of alcohol above the legal limit?

- The associations between self-declared DUI of alcohol above the legal limit and explanatory variables differ per region and country.
- The following explanatory variables were associated with high rates of self-declared drink-driving above the legal limit in all three regional models: male gender; strong personal and perceived social acceptability of drink-driving above the legal limit; strong perceived behaviour control (trust in being able to drive after drinking alcohol); low intention to not drink and drive and low support of policy measures against drink-driving.
- The independent variables explained 38% to 41% of the differences in self-declared DUI above the legal alcohol limit in the three regional logistic regression models in this report.

Which explanatory variables are associated with self-declared DUI of drugs?

- The associations between self-declared DUI of drugs and explanatory variables differ per region and country.
- The following explanatory variables were associated with high rates self-declared drug-driving in all three regional models: male gender; strong personal and perceived social acceptability of DUI of drugs and experienced drug check, which might be explained by selectivity of the police checks.
- The independent variables explained 27% to 36% of the difference in self-declared DUI of drugs in the three regional logistic regression models in this report.

Are national drink-driving rates based on self-declared behaviour correlated with observed behaviour?

- We compared the national results of seven countries which participated in Baseline (observed behaviour) and ESRA3 (self-declared behaviour). The results show that the national mean prevalence rates of driving above the legal limit for BAC (observed behaviour) is positively and strongly correlated with both the self-declared behaviour of driving over the legal limit in the last 30 days ($r = 0.933$, $p = 0.002$) and the general habit to drive after drinking alcohol ($r = 0.829$, $p = 0.021$).

How did self-declared DUI of alcohol evolve over time?

- We compared the national results on DUI of alcohol of 24 countries which participated in ESRA2 and ESRA3. Overall, the national results indicate a significant decrease of reported driving after drinking alcohol (12 out of 24 countries), but no significant changes in reported DUI of alcohol above the legal limit between ESRA2 and ESRA3 (except for the Netherlands).

How did experienced enforcement for DUI of alcohol or drugs evolve over time?

- We compared the national results of experienced checks for alcohol and drugs of 26 countries which participated in ESRA2 and ESRA3. Overall, the national results indicate that the proportion of car drivers who experienced an alcohol check by the police in the last 12 months increased in four countries, deceased in six countries, and showed no significant change in 16 countries.
- The proportion of car drivers who experienced drug checks by the police in the last 12 months increased in 24 out of 26 countries. In 8 out of 24 countries this difference was statistically significant.

4.2 Recommendations

Ongoing efforts to decrease road casualties caused by DUI of alcohol, drugs or medication should continue. The effectiveness of these efforts in reducing traffic accidents varies significantly between countries. One of the key principles to combat DUI is to work with a comprehensive set of different measures which are tailored to the specific needs of the country, the target group or involved stakeholders. The following recommendations are partly based on European Commission (2023).

Key recommendations against DUI include:

Policy recommendations at national and regional level

Regional and national DUI strategy

- Develop comprehensive strategies against DUI which combines legislation, enforcement, education, and research, and which is tailored to each country's needs.

Strengthening legislation & enhanced enforcement

- Lower BAC limits, especially for novice and professional drivers and a zero-tolerance for drugs.
- Require alcohol interlocks for convicted offenders and consider for professional drivers.
- Implement nationwide random breath testing and random drug testing of drivers.
- Test all drivers involved in fatal crashes for alcohol and drugs.
- Prohibit the reporting of exact locations of police checks via online applications.

Awareness and education

- Run continuous public campaigns on the dangers of DUI, targeting high-risk groups like young drivers and older adults using medication.
- Involve NGOs in awareness campaigns and ensure physicians/pharmacists warn patients about drug impairments (see for more details below).

Research and data

- Conduct more research on the prevalence of DUI of drug and medication over time, especially given the ageing population in many countries, which might lead to an increase of drivers impaired by medication.
- Encourage cross-border data sharing on DUI prevalence to standardize data collection, enhance comparability (benchmarking), and improve trend monitoring across regions.
- Encourage more research assessing factors associated with DUI and evaluating counter-measures.

Technological solutions

- Encourage development of affordable in-vehicle technologies to detect impaired driving.
- Encourage the use of alcohol interlocks (i.e., for professional drivers and convicted offenders).

Specific recommendations to particular stakeholders

- *[To Non-Governmental Organizations (NGOs)]* Contribute to education and public awareness rising campaigns and events, focusing on the dangers of impaired driving.

- *[To physicians and pharmacists]* Always explicitly mention the risks of DUI of prescribed or over-the-counter medication.
- *[To pharmaceutical companies]* Improve patient information leaflets to include clear warnings about the potential impact of medication on driving ability.
- *[To vehicle manufacturers and other companies]* Develop low-cost solutions to be incorporated in vehicles that can detect or prevent impaired driving.

These combined efforts aim to reduce DUI-related crashes, with tailored strategies and collaboration among key stakeholders.

4.3 Closing remarks

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[14])?** 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

[14] *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[15]

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[16] without using child restraint systems (e.g., child safety seat, cushion)
- transport children above 150cm[17] 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[18]:** 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

[15] *This question was adapted to national legal regulation.*
[16] *This question was adapted to national legal regulation.*
[17] *This question was adapted to national legal regulation.*
[18] *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[19]) 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.

[19] *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[20] 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!

[20] *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 4: 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).*

Appendix 4: Additional results – overall results

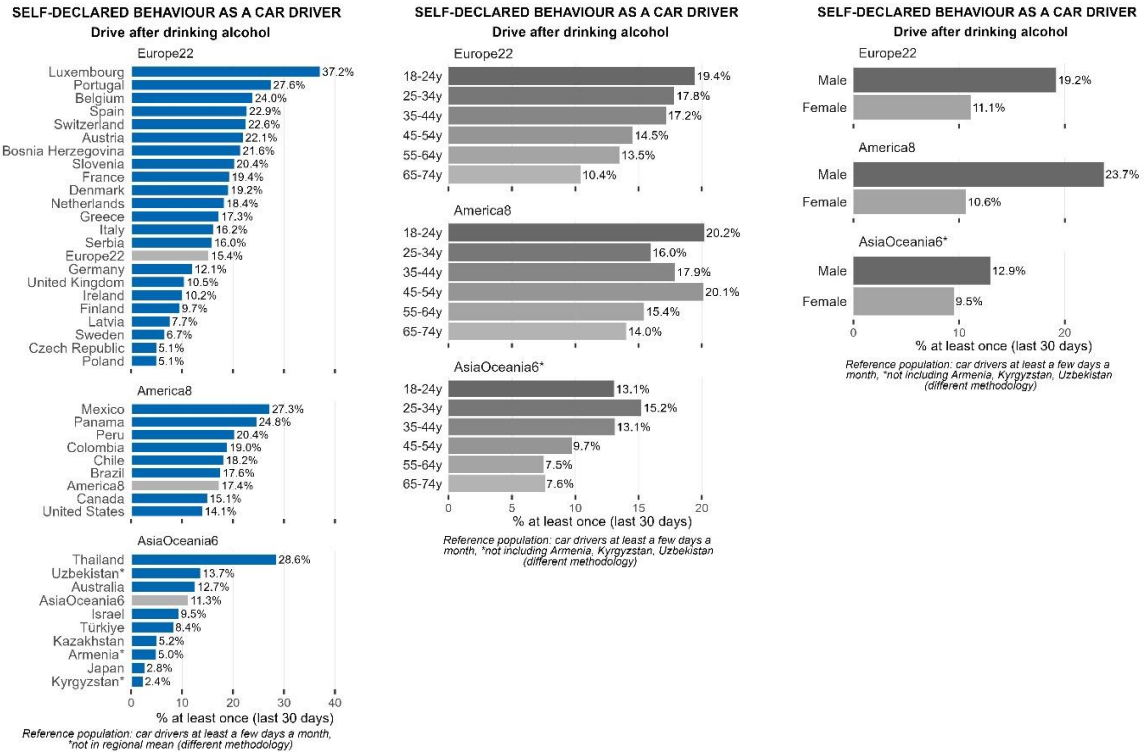

Figure 24: Self-declared driving a car after drinking alcohol, by region, country, age group and gender (% at least once in the last 30 days).

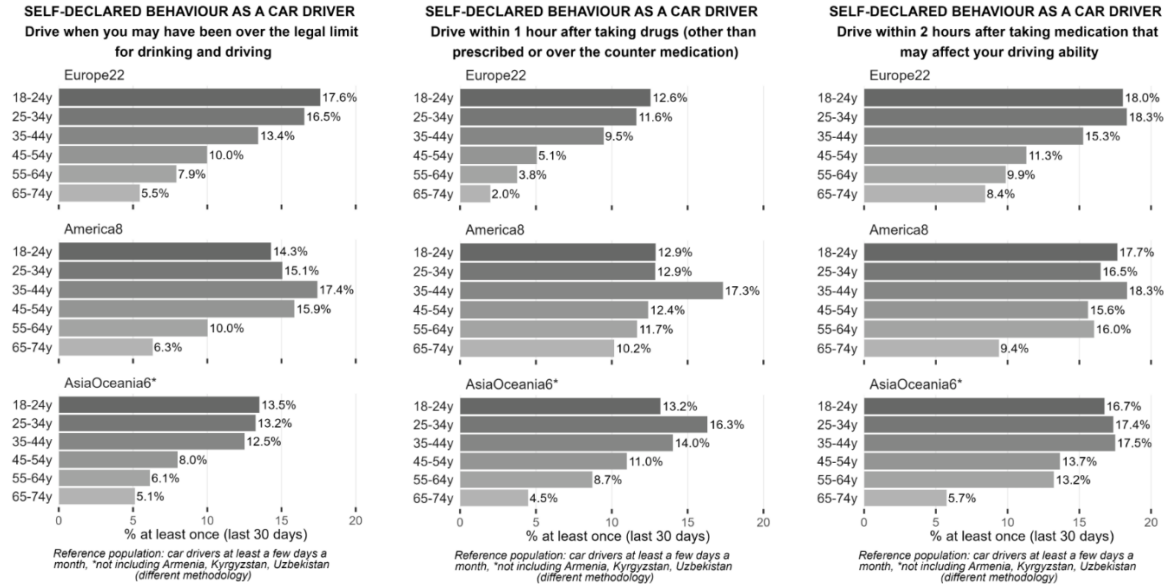

Figure 25: Self-declared behaviours as a car driver, by region and age group (% at least once in the last 30 days).

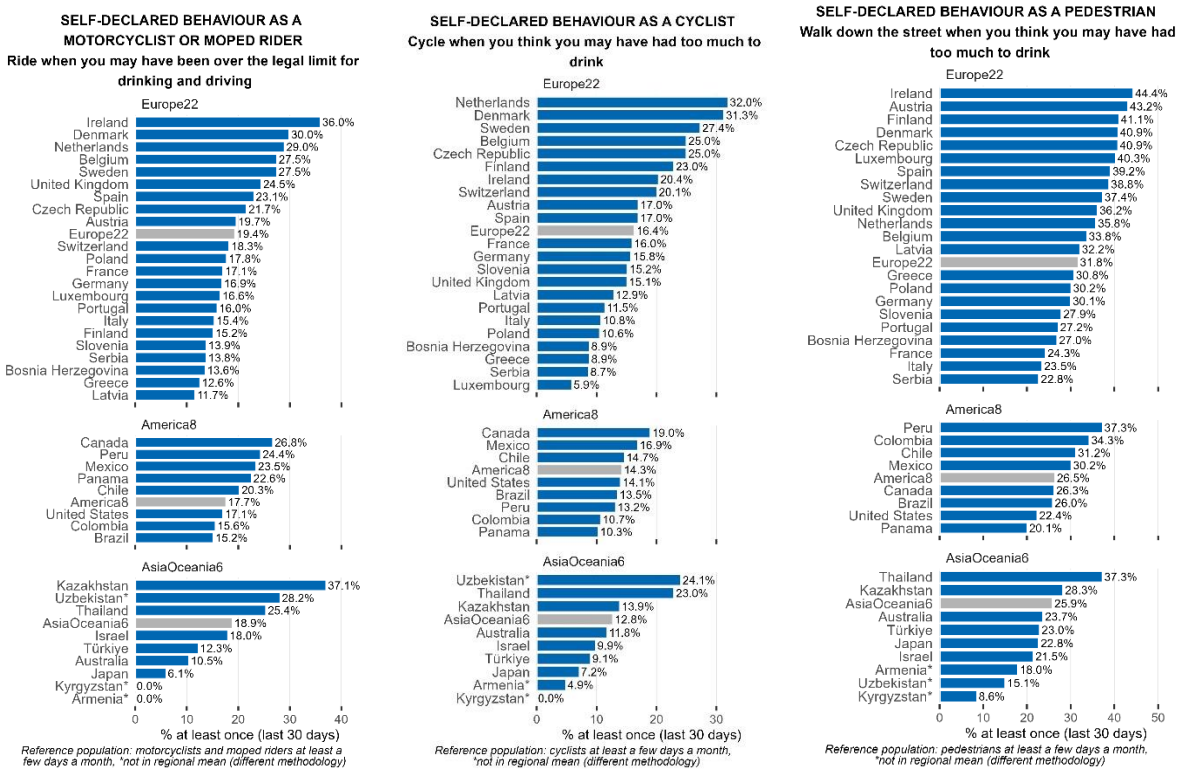

Figure 26: Self-declared alcohol in traffic by road user type, region and country (% at least once in the last 30 days).

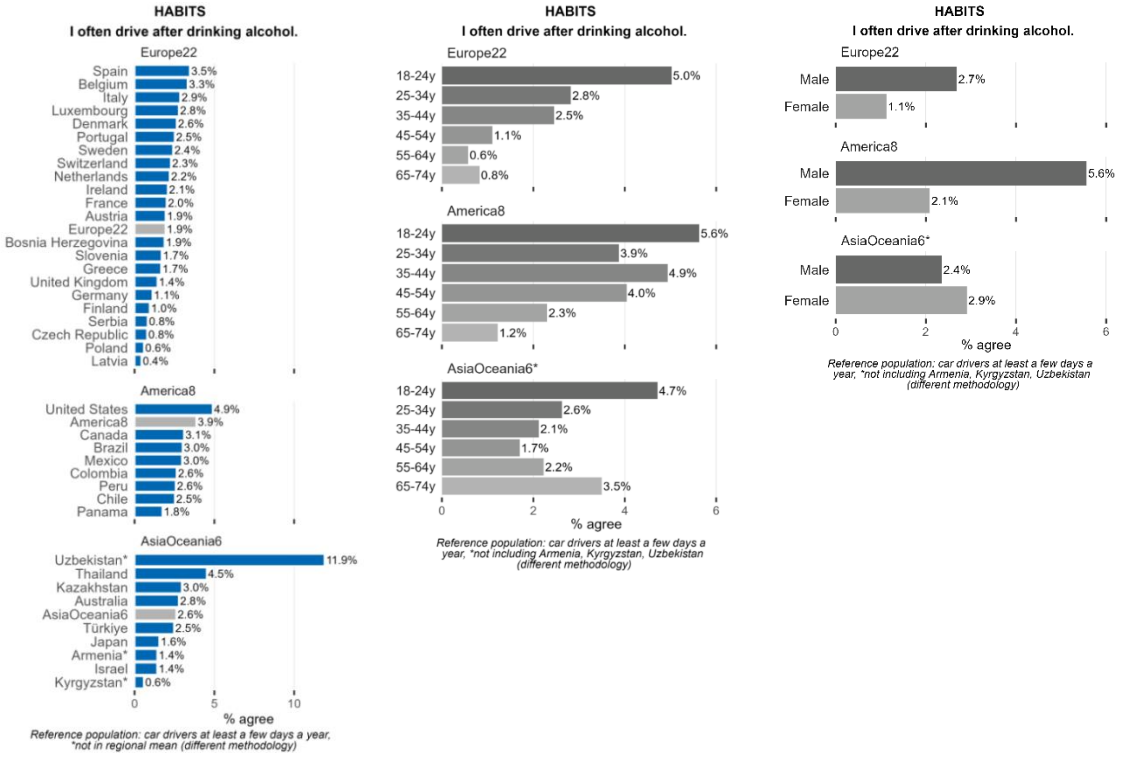

Figure 27: Habit related to drink-driving a car, by region, country, age group and gender (% agree).

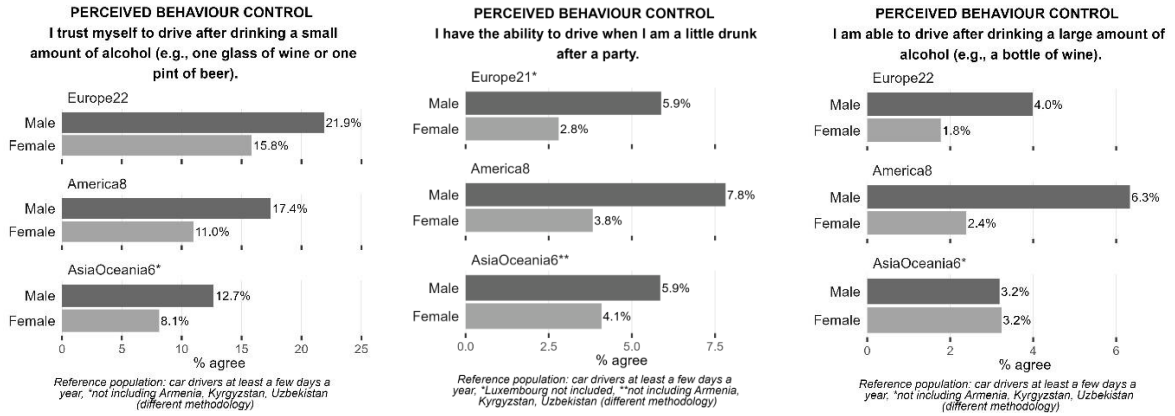

Figure 28: Perceived behaviour control related to unsafe car driving behaviour, by region and gender (% agree).

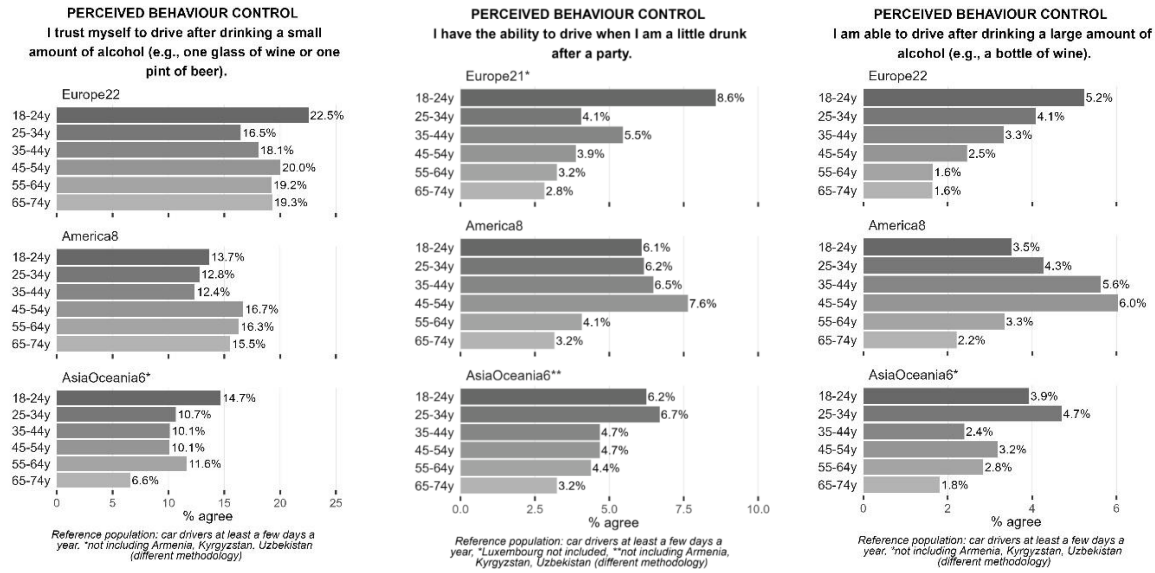

Figure 29: Perceived behaviour control related to unsafe car driving behaviour, by region, and age group (% agree).

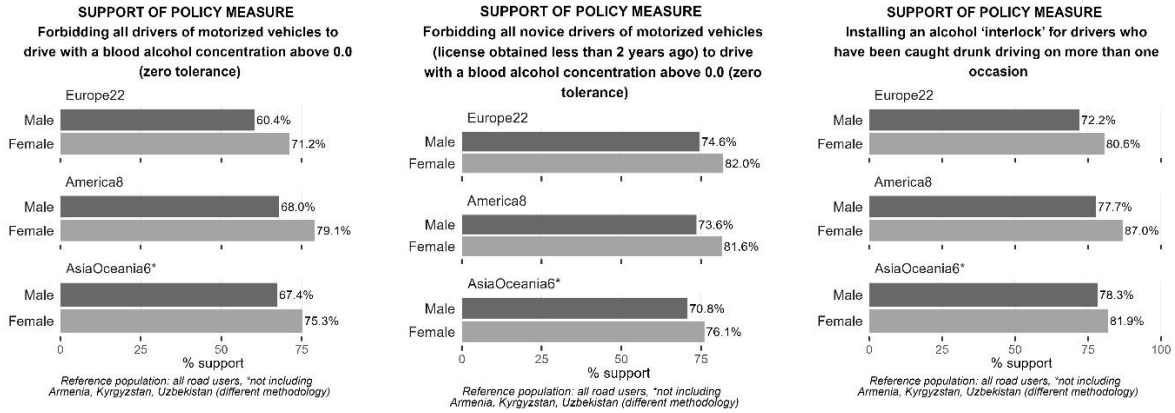

Figure 30: Support of policy measures against drink-driving, by region and gender (% support).

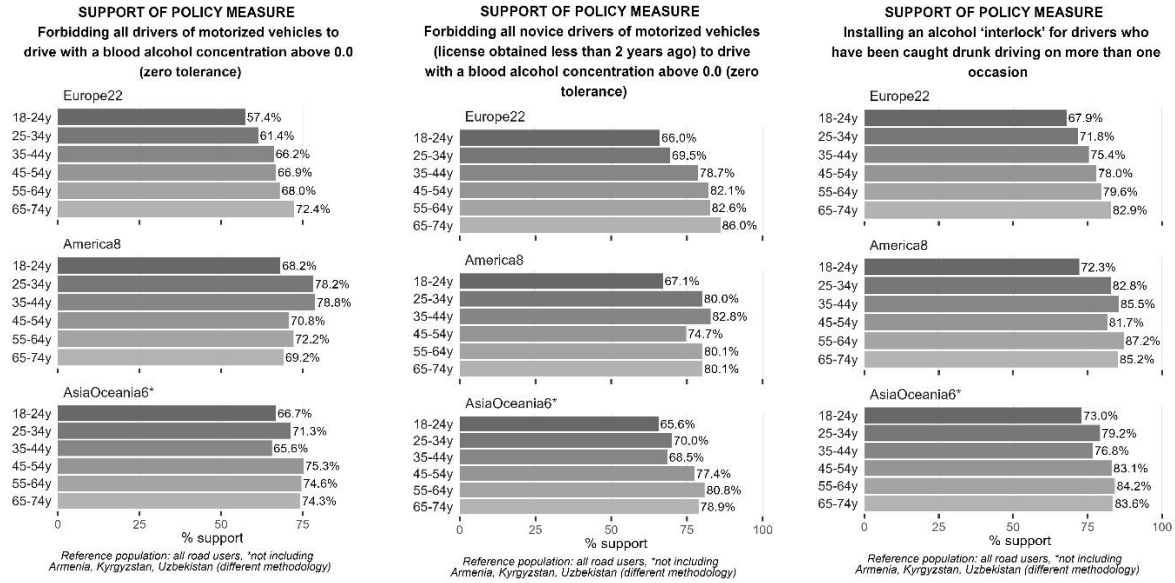

Figure 31: Support of policy measures against drink-driving, by region and age group (% support).

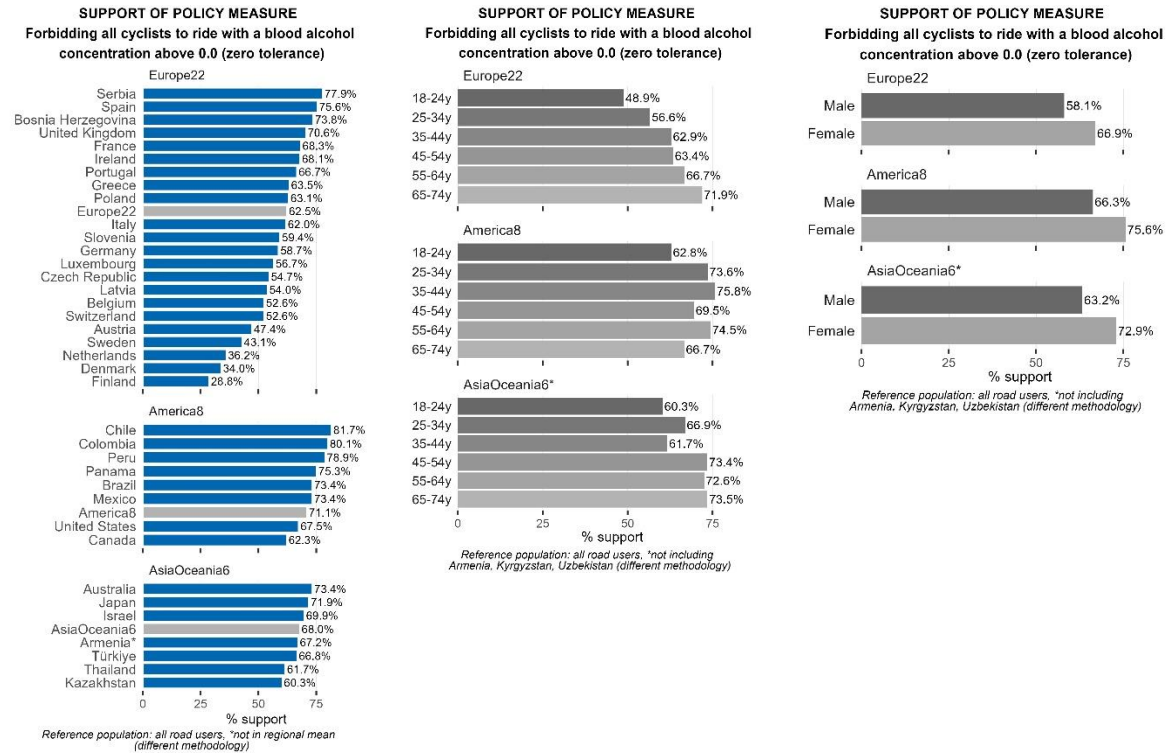

Figure 32: Support of policy measures against drink-cycling, by region, country, age group and gender (% support).

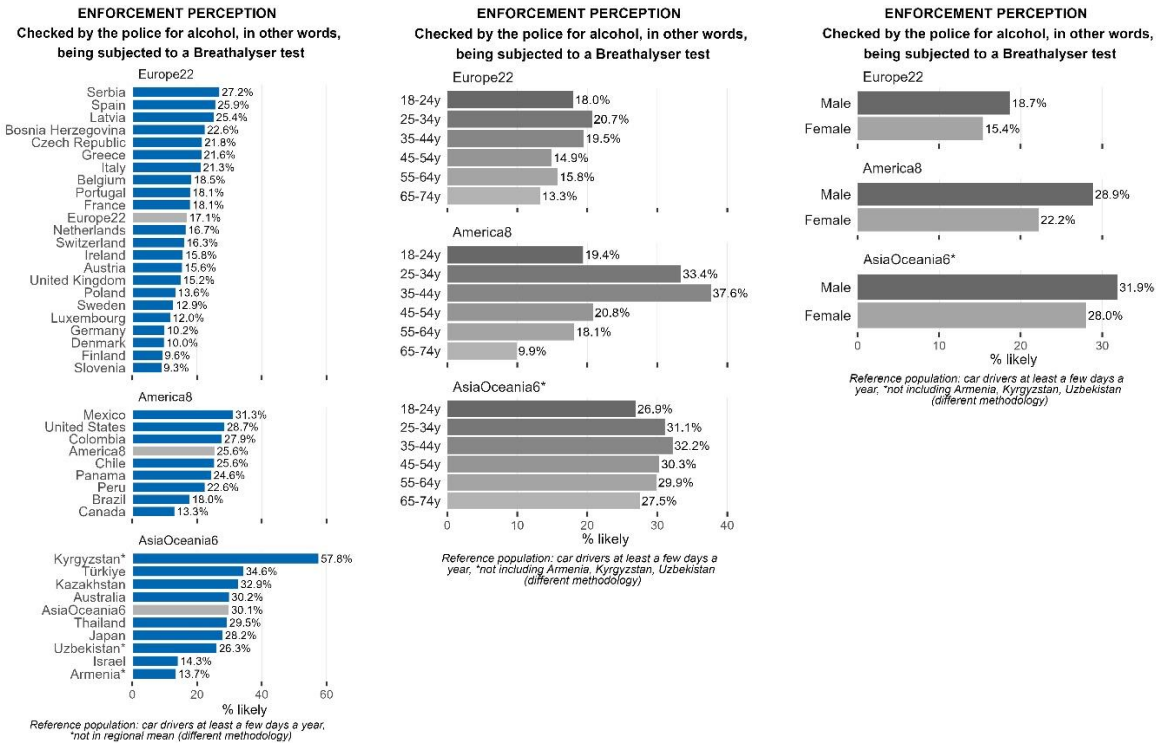

Figure 33: Perceived likelihood of enforcement for drink-driving, by region, country, age group and gender (% likely).

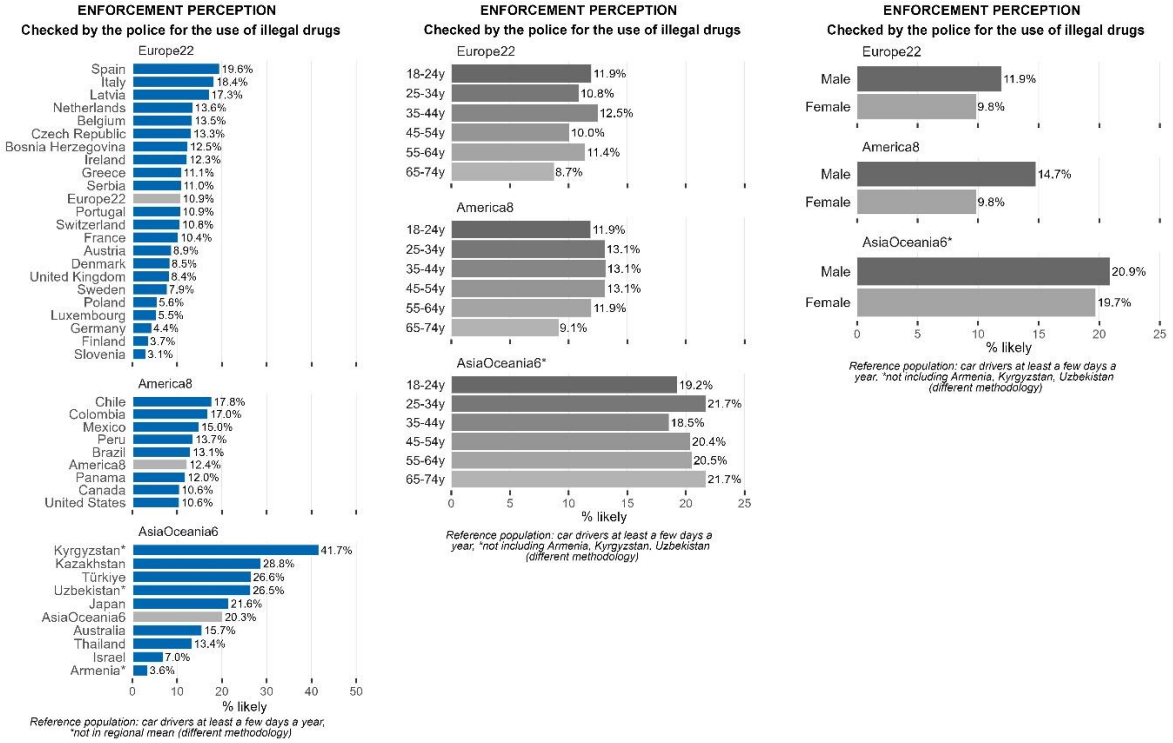

Figure 34: Perceived likelihood of enforcement for drug-driving, by region, country, age group and gender (% likely).

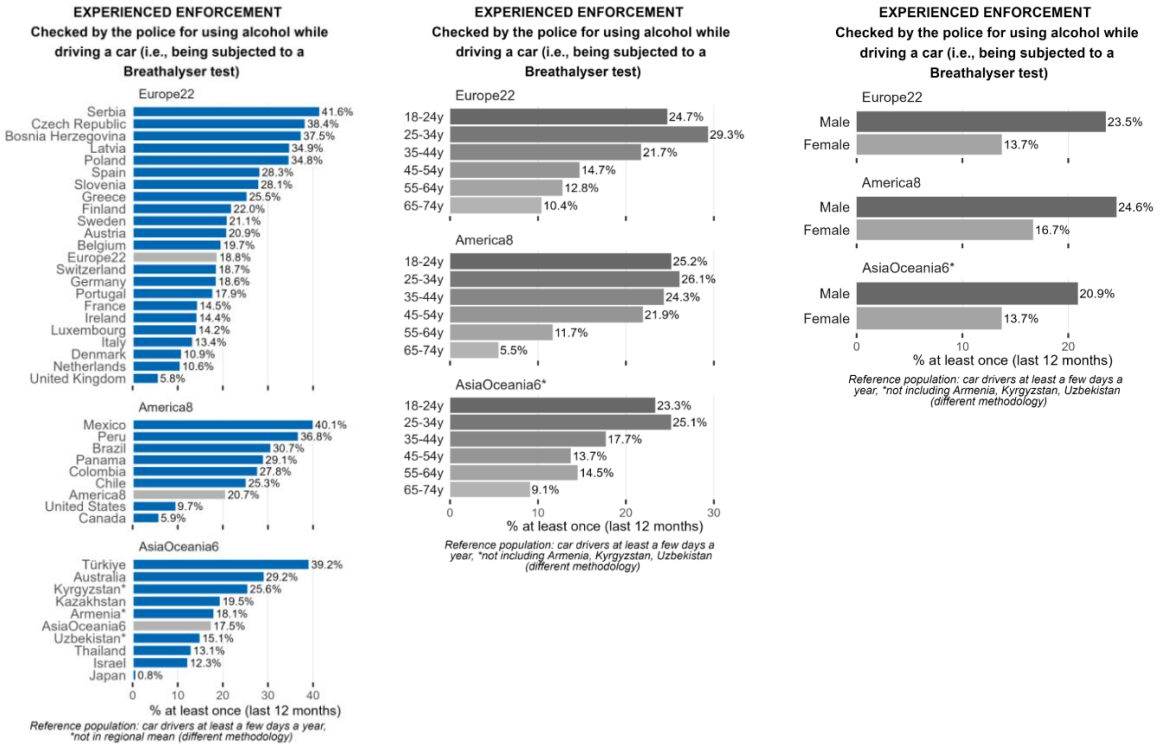

Figure 35: Experienced alcohol check by the police as a car driver, by region, country, age group and gender (% at least once in the last 12 months).

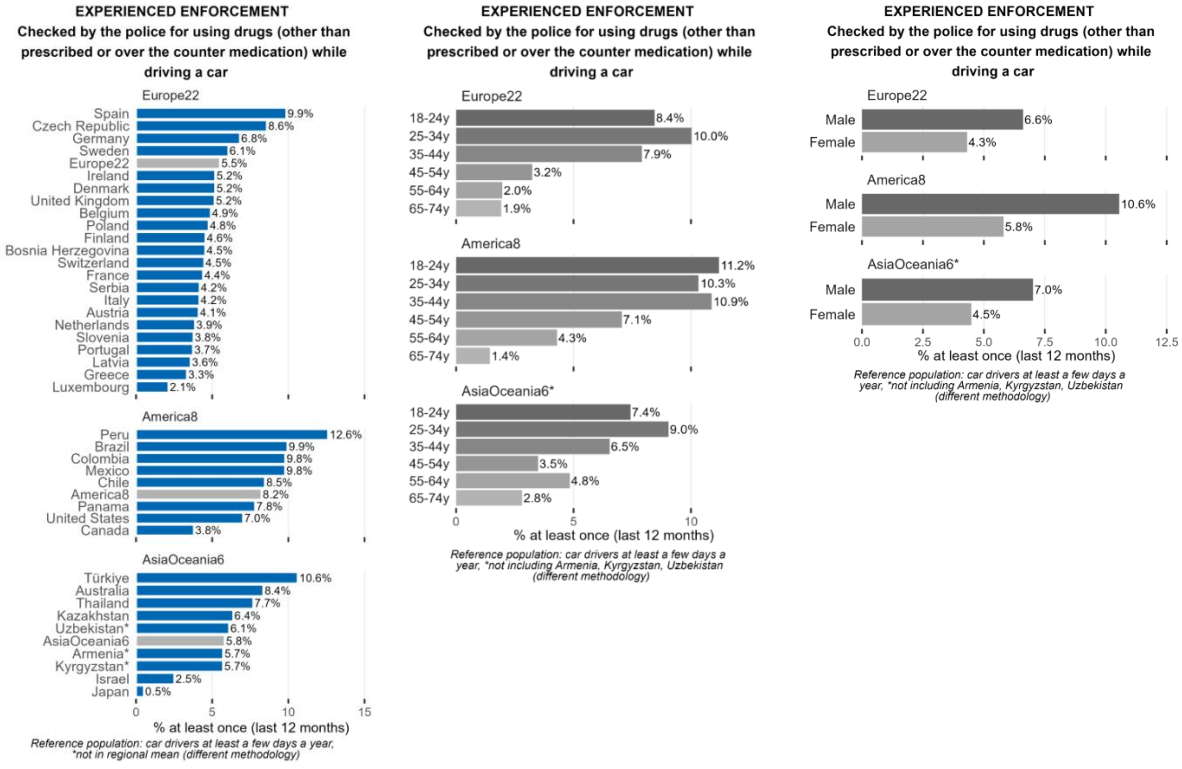

Figure 36: Experienced drug test by the police as a car driver, by region, country, age group and gender (% at least once in the last 12 months).

Appendix 5: Additional results – comparison of time (ESRA2-ESRA3)

Table 5: Self-declared behaviours of car drivers in ESRA2 and in ESRA3.

Country	Edition	*Weighted sample*	Drive when you may have been over the legal limit for drinking and driving % at least once (past 30 days) (95% CI)	Drive after drinking alcohol % at least once (past 30 days) (95% CI)
Australia	ESRA3	*809*	8.1% (6.3%-10.1%)	12.7% (10.5%-15.1%)
	ESRA2	*714*	7.0% (5.3%-9.1%)	22.4% (19.5%-25.6%)
Austria	ESRA3	*1420*	12.5% (10.9%-14.4%)	22.1% (20.0%-24.3%)
	ESRA2	*943*	13.7% (11.6%-16.0%)	29.8% (26.9%-32.8%)
Belgium	ESRA3	*1346*	19.0% (17.0%-21.2%)	24.0% (21.7%-26.3%)
	ESRA2	*1417*	22.4% (20.3%-24.7%)	31.6% (29.2%-34.1%)
Canada	ESRA3	*1385*	10.5% (8.8%-12.5%)	15.1% (13.0%-17.3%)
	ESRA2	*695*	10.2% (8.1%-12.6%)	22.7% (19.7%-25.9%)
Czech Republic	ESRA3	*597*	7.0% (5.2%-9.3%)	5.1% (3.6%-7.1%)
	ESRA2	*571*	11.0% (8.6%-13.7%)	6.5% (4.7%-8.7%)
Denmark	ESRA3	*647*	10.6% (8.4%-13.1%)	19.2% (16.3%-22.4%)
	ESRA2	*641*	9.4% (7.3%-11.8%)	25.7% (22.5%-29.2%)
Finland	ESRA3	*683*	6.1% (4.4%-8.1%)	9.7% (7.6%-12.1%)
	ESRA2	*660*	3.4% (2.2%-5.0%)	8.7% (6.8%-11.1%)
France	ESRA3	*769*	15.6% (13.2%-18.3%)	19.4% (16.7%-22.3%)
	ESRA2	*720*	21.1% (18.2%-24.2%)	27.2% (24.1%-30.6%)
Germany	ESRA3	*618*	9.7% (7.5%-12.3%)	12.1% (9.7%-14.9%)
	ESRA2	*1440*	7.4% (6.2%-8.9%)	17.3% (15.4%-19.3%)
Greece	ESRA3	*754*	12.5% (10.3%-15.1%)	17.3% (14.7%-20.2%)
	ESRA2	*596*	20.7% (14.8%-27.7%)	29.8% (22.9%-37.5%)
Ireland	ESRA3	*706*	8.0% (6.1%-10.1%)	10.2% (8.1%-12.6%)
	ESRA2	*693*	8.7% (6.7%-11.2%)	10.5% (8.2%-13.1%)
Israel	ESRA3	*796*	7.5% (5.8%-9.5%)	9.5% (7.6%-11.7%)
	ESRA2	*795*	7.0% (5.4%-9.0%)	10.7% (8.7%-13.0%)
Italy	ESRA3	*906*	12.9% (10.8%-15.2%)	16.2% (13.9%-18.8%)
	ESRA2	*811*	12.6% (10.4%-15.0%)	19.5% (16.8%-22.3%)
Japan	ESRA3	*570*	3.5% (2.3%-5.3%)	2.8% (1.7%-4.4%)
	ESRA2	*505*	2.8% (1.4%-4.9%)	1.8% (0.8%-3.7%)
Netherlands	ESRA3	*700*	12.0% (9.7%-14.6%)	18.4% (15.6%-21.4%)
	ESRA2	*667*	7.3% (5.5%-9.4%)	19.6% (16.7%-22.7%)
Poland	ESRA3	*723*	4.2% (2.9%-5.9%)	5.1% (3.7%-6.9%)
	ESRA2	*694*	4.9% (3.5%-6.7%)	5.8% (4.2%-7.7%)
Portugal	ESRA3	*844*	12.7% (10.6%-15.1%)	27.6% (24.6%-30.7%)
	ESRA2	*856*	14.2% (11.9%-16.6%)	33.8% (30.7%-37.1%)
Serbia	ESRA3	*676*	9.6% (7.6%-12.0%)	16.0% (13.3%-18.9%)
	ESRA2	*707*	10.8% (8.5%-13.4%)	20.3% (17.3%-23.6%)
Slovenia	ESRA3	*805*	14.5% (12.2%-17.1%)	20.4% (17.7%-23.3%)
	ESRA2	*783*	16.3% (13.7%-19.2%)	27.6% (24.4%-31.0%)
Spain	ESRA3	*710*	17.2% (14.6%-20.1%)	22.9% (19.9%-26.1%)
	ESRA2	*727*	15.2% (12.2%-18.7%)	23.2% (19.5%-27.2%)
Sweden	ESRA3	*633*	7.1% (5.3%-9.4%)	6.7% (4.9%-8.9%)
	ESRA2	*614*	5.9% (4.2%-7.9%)	6.2% (4.5%-8.3%)
Switzerland	ESRA3	*776*	16.7% (14.2%-19.4%)	22.6% (19.8%-25.7%)
	ESRA2	*742*	20.8% (18.0%-23.8%)	33.5% (30.2%-37.0%)
United Kingdom	ESRA3	*644*	8.1% (6.2%-10.4%)	10.5% (8.3%-13.1%)
	ESRA2	*599*	6.2% (4.4%-8.3%)	15.4% (12.6%-18.4%)
United States	ESRA3	*782*	11.7% (9.6%-14.1%)	14.1% (11.8%-16.7%)
	ESRA2	*807*	11.1% (9.1%-13.4%)	21.2% (18.5%-24.1%)

Notes: Self-declared behaviours assessed by asking: 'Over the last 30 days, how often did you as a car driver …?'; answer scale: 5-points scale, where 1 = never & 5 = (almost) always – percentages of 'at least once' (answers 2 to 5) are presented; percentages whose 95% CI of ESRA2 and ESRA3 do not overlap are highlighted in blue; ESRA2 results recalculated for comparability.

Table 6: Experienced enforcement (car drivers) in ESRA2 and in ESRA3.

Country	Edition	*Weighted sample*	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)?	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?
			% at least once (past 12 months) (95% CI)	% at least once (past 12 months) (95% CI)
Australia	ESRA3	*828*	29.2% (26.2%-32.4%)	8.4% (6.6%-10.4%)
	ESRA2	*743*	46.8% (43.2%-50.4%)	8.9% (7.0%-11.1%)
Austria	ESRA3	*1506*	20.9% (18.9%-23.1%)	4.1% (3.2%-5.2%)
	ESRA2	*1113*	19.0% (16.7%-21.4%)	3.0% (2.1%-4.1%)
Belgium	ESRA3	*1391*	19.7% (17.7%-21.9%)	4.9% (3.9%-6.1%)
	ESRA2	*1467*	23.1% (21.0%-25.3%)	2.7% (2.0%-3.7%)
Canada	ESRA3	*1464*	5.9% (4.7%-7.4%)	3.8% (2.8%-5.0%)
	ESRA2	*725*	5.3% (3.8%-7.1%)	1.8% (1.0%-2.9%)
Colombia	ESRA3	*557*	27.8% (24.2%-31.6%)	9.8% (7.5%-12.5%)
	ESRA2	*581*	25.6% (21.0%-30.8%)	5.5% (3.4%-8.5%)
Czech Republic	ESRA3	*641*	38.4% (34.6%-42.2%)	8.6% (6.6%-10.9%)
	ESRA2	*645*	40.5% (36.7%-44.3%)	6.8% (5.0%-8.9%)
Denmark	ESRA3	*689*	10.9% (8.8%-13.4%)	5.2% (3.7%-7.1%)
	ESRA2	*693*	7.6% (5.8%-9.7%)	0.9% (0.4%-1.9%)
Finland	ESRA3	*769*	22.0% (19.2%-25.1%)	4.6% (3.2%-6.2%)
	ESRA2	*734*	38.3% (34.9%-41.9%)	3.0% (1.9%-4.4%)
France	ESRA3	*801*	14.5% (12.2%-17.0%)	4.4% (3.1%-6.0%)
	ESRA2	*740*	14.9% (12.4%-17.6%)	1.5% (0.8%-2.6%)
Germany	ESRA3	*649*	18.6% (15.7%-21.8%)	6.8% (5.0%-9.0%)
	ESRA2	*1495*	6.6% (5.4%-7.9%)	1.9% (1.3%-2.7%)
Greece	ESRA3	*814*	25.5% (22.5%-28.6%)	3.3% (2.3%-4.8%)
	ESRA2	*594*	21.9% (15.8%-29.1%)	5.0% (2.3%-9.5%)
Ireland	ESRA3	*736*	14.4% (12.0%-17.0%)	5.2% (3.8%-7.0%)
	ESRA2	*692*	21.4% (18.3%-24.8%)	4.3% (2.9%-6.1%)
Israel	ESRA3	*836*	12.3% (10.2%-14.7%)	2.5% (1.6%-3.7%)
	ESRA2	*822*	11.9% (9.8%-14.2%)	0.6% (0.2%-1.3%)
Italy	ESRA3	*921*	13.4% (11.3%-15.7%)	4.2% (3.0%-5.6%)
	ESRA2	*829*	8.0% (6.3%-10.0%)	2.7% (1.8%-4.0%)
Japan	ESRA3	*603*	0.8% (0.3%-1.8%)	0.5% (0.1%-1.4%)
	ESRA2	*543*	5.7% (3.7%-8.5%)	0.4% (0.0%-1.4%)
Netherlands	ESRA3	*740*	10.6% (8.5%-13.0%)	3.9% (2.6%-5.5%)
	ESRA2	*692*	9.4% (7.4%-11.8%)	1.8% (1.0%-3.0%)
Poland	ESRA3	*772*	34.8% (31.5%-38.2%)	4.8% (3.4%-6.4%)
	ESRA2	*744*	46.9% (43.3%-50.5%)	4.1% (2.8%-5.7%)
Portugal	ESRA3	*902*	17.9% (15.5%-20.5%)	3.7% (2.6%-5.1%)
	ESRA2	*881*	22.0% (19.3%-24.8%)	3.5% (2.5%-4.9%)
Serbia	ESRA3	*724*	41.6% (38.0%-45.2%)	4.2% (2.9%-5.8%)
	ESRA2	*703*	47.9% (44.0%-51.8%)	2.6% (1.6%-4.1%)
Slovenia	ESRA3	*824*	28.1% (25.1%-31.2%)	3.8% (2.6%-5.2%)
	ESRA2	*780*	25.5% (22.4%-28.8%)	2.4% (1.4%-3.7%)
Spain	ESRA3	*748*	28.3% (25.2%-31.6%)	9.9% (7.9%-12.2%)
	ESRA2	*762*	29.9% (26.0%-34.2%)	9.2% (6.8%-12.0%)
Sweden	ESRA3	*690*	21.1% (18.1%-24.3%)	6.1% (4.4%-8.0%)
	ESRA2	*667*	22.0% (19.0%-25.3%)	1.8% (1.0%-3.0%)
Switzerland	ESRA3	*803*	18.7% (16.1%-21.5%)	4.5% (3.2%-6.1%)
	ESRA2	*800*	12.4% (10.2%-14.8%)	3.0% (2.0%-4.3%)
Thailand	ESRA3	*620*	13.1% (10.5%-16.0%)	7.7% (5.8%-10.0%)
	ESRA2	*580*	19.7% (16.0%-23.7%)	6.5% (4.4%-9.2%)
United Kingdom	ESRA3	*668*	5.8% (4.2%-7.8%)	5.2% (3.7%-7.0%)
	ESRA2	*624*	3.0% (1.9%-4.6%)	1.1% (0.5%-2.2%)
United States	ESRA3	*823*	9.7% (7.8%-11.9%)	7.0% (5.4%-8.9%)
	ESRA2	*836*	2.7% (1.7%-4.0%)	1.8% (1.0%-2.8%)

Notes: 1) different answering options – in ESRA3: 'never', '1 time', 'at least 2 times'; in ESRA2: 'never', '1 time', 'at least 2 times', 'I prefer not to respond to this question' (only 0.2% of the total sample did not answered); 2) percentages whose 95% CI of ESRA2 and ESRA3 do not overlap are highlighted in blue; 3) ESRA2 results recalculated for comparability.

** in ESRA2 the question had "(other than medication)", instead of "(other than prescribed or over the counter medication)".*

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