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E-Survey of Road users' Attitudes

A global look at road safety

Synthesis from the ESRA2 survey in 48 countries

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A global look at road safety

Synthesis from the ESRA2 survey in 48 countries

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- Touring & Automovil Club de Colombia, Colombia: *Alfredo Albornoz*
- VTI - Swedish National Road and Transport Research Institute, Sweden: *Anna Vadeby, Astrid Linder, Gunilla Sörensen*

Main outputs from ESRA2

ESRA Dashboard

The ESRA dashboard presents regional means and the weighted national results of the 48 countries which participated in ESRA2.

Main report

Meesmann, U., Wardenier, N., Torfs, K., Pires, C., Delannoy, S. & Van den Berghe, W. (2022). A global look at road safety. Synthesis from the ESRA2 survey in 48 countries. ESRA project (E-Survey of Road users' Attitudes). Brussel, Belgium: Vias institute.

Methodology report

Meesmann, U., Torfs, K., Wardenier, N. & Van den Berghe, W. (2022). ESRA2 methodology. ESRA2 report Nr. 1 (updated version). ESRA project (E-Survey of Road users' Attitudes). Brussels, Belgium: Vias institute.

15 Thematic reports

Holocher, S., & Holte, H. (2019). Speeding. ESRA2 Thematic report Nr. 2. ESRA project (E-Survey of Road users' Attitudes). Bergisch Gladbach, Germany: Federal Highway Research Institute.

Pires, C., Areal, A., & Trigoso, J. (2019). Distraction (mobile phone use). ESRA2 Thematic report Nr. 3. ESRA project (E-Survey of Road users' Attitudes). Lisbon, Portugal: Portuguese Road Safety Association.

Goldenbeld, C., & Nikolaou, D. (2022). Driver fatigue. ESRA2 Thematic report Nr. 4 (updated version). ESRA project (E-Survey of Road users' Attitudes). The Hague, Netherlands Institute for Road safety Research SWOV.

Achermann Stürmer, Y., Meesmann, U. & Berbatovci, H. (2019). Driving under the influence of alcohol and drugs. ESRA2 Thematic report Nr. 5. ESRA project (E-Survey of Road users' Attitudes). Bern, Switzerland: Swiss Council for Accident Prevention.

Goldenbeld, C., Buttler, I., & Ozeranska, I. (2022). Enforcement and traffic violations. ESRA2 Thematic report Nr. 6 (updated version). ESRA project (E-Survey of Road users' Attitudes). The Hague, Netherlands: SWOV Institute for Road Safety Research.

Nakamura, H., Alhajyaseen, W., Kako, Y. and Kakinuma, T. (2020). Seat belt and child restraint systems. ESRA2 Thematic report Nr. 7. ESRA project (E-Survey of Road users' Attitudes). International Association of Traffic and Safety Sciences (IATSS), 2-6-20 Yaesu, Chuo-ku, Tokyo 104-0028, Japan.

Lyon, C., Vanlaar, W.G.M., Buttler, I., Robertson, R.D. & Woods-Fry, H. (2020). Elderly Road Users. ESRA2 Thematic report Nr. 8. ESRA project (E-Survey of Road users' Attitudes). Ottawa, Canada: Traffic Injury Research Foundation.

Van den Berghe, W., Sgarra, V., Usami, D. S., González-Hernán-dez, B. & Meesmann, U. (2022). Public support for policy measures in road safety. ESRA2 Thematic report Nr. 9 (updated version). ESRA project (E-Survey of Road users' Attitudes). Brussels, Belgium: Vias institute and Rome, Italy: CTL – Research Centre for Transport and Logistics.

Buttler, I. (2020). Pedestrians. ESRA2 Thematic report Nr. 10. ESRA project (E-Survey of Road users' Attitudes). Warsaw, Instytut Transportu Samochodowego, Poland.

Achermann Stürmer, Y., & Berbatovci, H., Buttler, I. (2020). Cyclists. ESRA2 Thematic report Nr. 11. ESRA project (E-Survey of Road users' Attitudes). Bern, Switzerland: Swiss Council for Accident Prevention.

Yannis, G., Laiou, A., Nikolaou, D., Usami, D.S., Sgarra, V., Azarko, A. (2022). Moped drivers and motorcyclists. ESRA2 Thematic report Nr. 12 (updated version). ESRA project (E-Survey of Road users' Attitudes). Athens, Greece: National Technical University of Athens.

Granié, M.-A., Thévenet, C., Evennou, M., Lyon, C. & Vanlaar, W. (2020). Gender Issues. ESRA2 Thematic report Nr. 13. ESRA project (E-Survey of Road users' Attitudes). Lyon, France: Université Gustave Eiffel.

Furian, G., Kaiser, S., Senitschnig, N., Soteropoulos, A. (2021b). Young Road Users. ESRA2 Thematic report Nr. 14. ESRA project (E-Survey of Road users' Attitudes). Vienna, Austria Austrian Road Safety Board KFV.

Furian, G., Kaiser, S., Senitschnig, N., Soteropoulos, A. (2021a). Subjective safety and risk perception. ESRA2 Thematic report Nr. 15. ESRA project (E-Survey of Road users' Attitudes). Vienna, Austria Austrian Road Safety Board KFV.

Woods-Fry, H., Vanlaar, W., Robertson, R.D., Lyon, C. & Cools, M. (2020). Driver attitudes towards vehicle automation. International comparison based on ESRA2 data from 32 countries. ESRA2 Thematic report Nr. 16. ESRA project (E-Survey of Road users' Attitudes). Ottawa, Canada: Traffic Injury Research Foundation.

Regional report

Torfs, K., Delannoy Sh., Schinckus, L., Willocq, B., Van den Berghe, W. & Meesmann, U. (2021). Road Safety culture in Africa. Results from the ESRA2 survey in 12 African countries. ESRA project (E-Survey of Road users' Attitudes). Brussels, Belgium: Vias institute.

64 Country fact sheets

Africa
- Benin 2019 *(English)* / *(French)*
- Cameroon 2019 *(English)* / *(French)*
- Egypt 2018 *(English)* / *(French)*
- Ghana 2019 *(English)* / *(French)*
- Ivory Coast 2019 *(English)* / *(French)*
- Kenya 2018 *(English)* / *(French)*
- Morocco 2018 *(English)* / *(French)*
- Nigeria 2018 *(English)* / *(French)*
- South Africa 2018 *(English)* / *(French)*
- Tunisia 2019 *(English)* / *(French)*
- Uganda 2019 *(English)* / *(French)*
- Zambia 2019 *(English)* / *(French)*

America & Latin America
- Canada 2018 *(English)*
- Colombia 2019 *(English)*
- United States of America 2018 *(English)*

Asia & Oceania
- Australia 2018 *(English)*
- India 2018 *(English)*
- Israel 2018 *(English)* / *(Hebrew)*
- Japan 2018 *(English)* / *(Japanese)*
- Lebanon 2019 *(English)*
- Malaysia 2019 *(English)*
- Republic of Korea 2018 *(English)*
- Thailand 2019 *(English)*
- Vietnam 2019 *(English)*

Europe
- Austria 2018 *(English)*
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- Czech Republic 2018 *(English)*
- Denmark 2018 *(English)*
- Finland 2018 *(English)*
- France 2018 *(English)*
- Germany 2018 *(English)*
- Greece 2018 *(English)*
- Hungary 2018 *(English)*
- Ireland 2018 *(English)*
- Italy 2018 *(English)*
- Luxembourg 2019 *(English)*
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- Norway 2019 *(English)*
- Poland 2018 *(English)*
- Portugal 2018 *(English)*/ *(Portuguese)*
- Serbia 2018 *(English)*
- Slovenia 2018 *(English)*
- Spain 2018 *(English)*
- Sweden 2018 *(English)*
- Switzerland 2018 *(English)*
- United Kingdom 2018 *(English)*

6 Webinars

- 1st Webinar - September 23, 2020 - Enforcement and traffic violations (SWOV – Charles Goldenbeld) & Seat belt & Child restraint systems (IATSS – Hideki Nakamura)
- 2nd Webinar - October 21, 2020 - Senior road users (TIRF - Dan Mayhew) & Support for policy measures (VIAS – Wouter Van den Berghe)
- 3rd Webinar - November 18, 2020 - Pedestrians (ITS - Ilona Buttler and Dagmara Jankowska-Karpa) & Cyclists (Bfu – Yvonne Achermann)
- 4th Webinar - December 16, 2020 - Moped drivers and Motorcyclists (NTUA – George Yannis) & Gender Issues (EIFFEL – Marie-Axelle Granié)
- 5th Webinar - January 13, 2021 - Young road users (KfV – Aggelos Soteropoulos) & Subjective safety and risk perception (KfV – Susanne Kaiser)
- 6th Webinar - February 17, 2021 - Vehicle automation (TIRF - Heather Woods-Fry), Road Safety culture in Africa (VIAS institute - Shirley Delannoy) (based on the ESRA results in 12 African countries) & Current developments and planned further activities for ESRA (Vias institute – Wouter Van den Berghe and Uta Meesmann)

Symposium 2019

2nd ESRA Symposium on Global Road Safety Performance Indicators on June 18, 2019 in Brussels (Belgium). The symposium was sponsored by the Forum of European Road Safety Institutes (FERSI). A short description can be found here.

ESRA conference 2022

The International ESRA Conference on Traffic Safety Culture and Performance Indicators took place on April 21, 2022 (online event). Core organizer of this Conference was the University Gustave Eiffel (France).

- Welcome and introduction to ESRA Conference (Peter Silverans & Uta Meesmann, Vias institute, Belgium)
- International differences in public support for road safety policy measures (*Wouter Van den Berghe, Vias institute, Belgium*)
- Importance on collecting ESRA data for developing countries (*Maria Segui-Gomez, WHO, Spain*)
- Crash data, self-declared and observed behaviours in Portugal (*Jose Trigoso and Alain Areal, PRP, Portugal*)
- Socio-cognitive factors in road safety monitoring (*Uta Meesmann, Vias institute, Belgium*)
- Correlations of multiple rider behaviours with self-reported attitudes, perspectives on traffic rule strictness and social desirability (*George Yannis, NTUA, Greece*)
- Relationship between subjective safety and accident statistics (*Aggelos Soteropoulos, KFV, Austria*)
- Live demonstration of the ESRA dashboard (*Uta Meesmann, Vias institute, Belgium*)
- Age and road safety performance: Focusing on elderly and young drivers (*Ward Vanlaar, TIRF, Canada*)
- Gender differences in relation to cultural indicators (*Marie-Axelle Granié, Université Gustave Eiffel, France*)
- Modelling self-reported driver perspectives and fatigued driving via deep learning (*Dimitrios Nikolau, NTUA, Greece*)
- Use of ESRA data by the Belgian government (*Anne Vandenberghe, Federal Public Service Mobility and Transport, Belgium*)
- Experiences with using ESRA data in France (*Manuelle Salathé, Observatoire national interministériel de la sécurité routière, France*)
- Scientific and institutional conclusions for ESRA3 (*Wouter Van den Berghe & Uta Meesmann, Vias institute, Belgium*)

All ESRA2 output is available on https://esranet.eu/en/publications/.

Acknowledgement

Vias institute, which coordinates the ESRA initiative, would like to thank all 38 participating organisations for supporting and financing the national ESRA2 surveys in 48 countries between 2018 and 2020, and for their commitment, flexibility and cooperation. We would also like to express our gratitude to the eleven other members of the ESRA2 steering group (BASt (Germany), BFU (Switzerland), CTL (Italy), IATSS (Japan), IFSTTAR (France), ITS (Poland), KFV (Austria), NTUA (Greece), PRP (Portugal), SWOV (the Netherlands), TIRF (Canada)) for helping to develop the ESRA2 survey and the common ESRA2 outputs. Special thanks go to Gerald Furian and Aggelos Soteropoulos for reviewing this report.

ESRA is funded through the contributions of the partner organisations, either from their own resources or from sponsoring. Part of the funding for Vias institute is provided by the Belgian Federal Public Service Mobility & Transport.

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List of Abbreviations

Africa12	12 African countries from the ESRA2 survey: Benin, Cameroon, Egypt, Ghana, Ivory Coast, Kenya, Morocco, Nigeria, South Africa, Tunisia, Uganda, Zambia
America3	3 American countries from the ESRA2 survey: Canada, Colombia, USA
AsiaOceania9	9 Asian and Oceanian countries from the ESRA2 survey: Australia, India, Israel, Japan, Lebanon, Malaysia, Republic of Korea, Thailand, Vietnam
DUI	Driving under the influence
ESRA	E-Survey of Road users' Attitudes
EU	European Union
Europe24	24 European countries from the ESRA2 survey: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxemburg, Norway, the Netherlands, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, United Kingdom
LOI	Length of the interview
PBC	Perceived behaviour control
Q	Question
y	Years of age

Executive summary

The ESRA initiative

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.

Vias institute in Brussels (Belgium) initiated and still coordinates ESRA, in cooperation with eleven steering group partners: BASt (Germany), BFU (Switzerland), CTL (Italy), IATSS (Japan), IFSTTAR (France), ITS (Poland), KFV (Austria), NTUA (Greece), PRP (Portugal), SWOV (the Netherlands), TIRF (Canada).

Two editions of the ESRA survey have been launched already. Those editions were ESRA1 (2015-2018) and ESRA2 (2018-2021). The fieldwork of the second edition (ESRA2), was conducted in two waves in 2018 and 2019/20. In total, 39 partners from 48 countries participated in the ESRA2 survey.

Key outputs of the project can be found on the ESRA website (www.esranet.eu). All ESRA2 reports have been peer-reviewed in a predefined review procedure coordinated by SWOV (Netherlands).

ESRA is funded through the contributions of the partner organisations, either from their own resources or through sponsoring.

Study design and scope of the questionnaire

ESRA2 data were collected through online panel surveys, using a representative sample of the national adult populations in each participating country (typically 1,000 respondents per country).

At the heart of this survey was a jointly developed questionnaire, which was translated into 62 national language versions. The themes covered include self-declared behaviour, attitudes and opinions on unsafe behaviour in traffic, enforcement experiences and support for policy measures. The survey addresses different road safety topics (e.g., driving under the influence of alcohol and drugs, speeding, distraction, seatbelt and helmet use) and targets car occupants, moped riders and motorcyclists, cyclists and pedestrians. The median length to fill in the survey was 22 minutes.

Hard quota were used for gender and age distribution during the sampling procedure. The geographical spread of the sample across a country was monitored (soft quota). Five market research agencies (INFAS, Ipsos (formerly GfK), Punto de Fuga, Dynata (formerly RN SSI) and TNS Ilres) organised the fieldwork under the supervision of Vias institute. The fieldwork was conducted in two waves: (1) a first wave in December 2018 and (2) a second wave which started in November 2019.

Data processing and quality control

In order to maximise the cross-national comparability of the data, the programming of the survey, the data collection in all countries, and the data processing were centrally organized by Vias institute and the ESRA steering group. Data files with standardized cleaned full data and additional dichotomized variables were provided to the national partners.

PRP (Portugal), in collaboration with Vias institute (Belgium), was responsible for the quality control of the standardized data cleaning and data processing procedure, as well as the extraction of standardized figures which were used in all common ESRA2 outputs. The national partners were asked to validate the national datafiles and the country fact sheets, before common output was published.

Sample characteristics & fieldwork

In total the ESRA2 survey collected data from more than 45,000 road users across 48 countries. The samples are representative for the national adult population based on interlaced quota of gender and six age groups. Sample size, internet use, gender and age distribution per region are presented in this report. Details on national results can be found in Appendix 4.

Key output

The key results of the ESRA2 survey were published through a series of reports including this report, the dedicated report on the African ESRA countries, a Methodology Report, 15 Thematic Reports on road safety topics (see Table 1) and 64 country fact sheets, in which national key results are compared to a regional mean. Scientific articles, national reports and many conference presentations are currently in progress. All common ESRA2 reports have been peer-reviewed within the consortium, following a pre-defined quality control procedure. ESRA2 output can be freely consulted and downloaded at the ESRA website (www.esranet.eu).

Conclusions

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 60 countries across six continents. The outputs of the ESRA project have become building blocks of national and international road safety monitoring systems.

In the next edition of the ESRA survey (ESRA3), the overall methodological approach that was developed and implemented in ESRA1 and ESRA2 will be maintained. The data collection of ESRA3 will be organized between February and March 2023. Organisations interested in joining ESRA and becoming a national ESRA partner can contact the ESRA Secretariat at ESRA@vias.be.

1 Introduction

1.1 Monitoring road safety performance

Trends in road safety performance and the success of policy measures can be monitored using road safety performance indicators, based on accident statistics, roadside observations, or (questionnaire) surveys.

There is a broad consensus amongst road safety experts that roadside observations are the golden standard to produce road safety performance indicators since they are based on observed behaviour in traffic. But observation-based studies have also limitations. The number and nature of variables that are observable are limited. Moreover, roadside observations require a sophisticated study design and protocol. They are very time intensive and expensive. At present, moreover, due to methodological differences, results of such studies are often not comparable across countries.

An alternative is to use road safety surveys (questionnaires). Such surveys, when properly designed and with an adequate sampling approach, can yield very useful information on road safety performance. Moreover, when online panels are used, such surveys appear to be a relatively inexpensive way for obtaining indicators on safety practice and road users' behaviour. Hence, it is tempting to use road safety indicators based on surveys for benchmarking purposes.

1.2 The added value of using road safety surveys (questionnaires)

An important advantage of using road safety surveys (questionnaires) is that they allow to collect data on many additional topics and themes, as they are not limited to things which can be observed.

They offer the possibility to include variables that can explain the behaviour. For example, they can provide insights into the socio-cognitive determinants of behaviour: attitudes, perceived social norm, risk perception, or existing habits. These concepts can help to understand the underlying motivations of certain behaviour (e.g. Ajzen, 1991; Rogers, 1975; Rosenstock, 1974; Vanlaar & Yannis, 2006). In the current literature those concepts are often closely linked with assessing road safety culture (e.g. Ward et al., 2019).

Several of these socio-cognitive concepts are interesting in their own right, because they can help target policy and campaigns. Moreover, many other types of questions can be included that are related to road safety practice and culture, such as mobility behaviour, involvement in road crashes, support for policy measures, experience with enforcement, etc.. Also for these variables, using a consistent design and questionnaire is important, to assure international comparability.

1.3 International comparability of data from road safety surveys

The results of national road safety surveys are seldom comparable across countries because of differences in aims, scope, methodology, questions used, or sample population being surveyed.

Therefore, in 1991 the European Commission initiated the European project SARTRE (Social Attitudes to Road Traffic Risk in Europe (Cestac & Delhomme, 2012)). A common questionnaire and study design were developed, and face-to-face interviews were conducted among a representative sample of the national adult population. Four editions of the SARTRE survey were completed (1991, 1996, 2002, 2010). In the first three editions of the SARTRE project, surveys were directed only to car drivers. In the fourth edition, the target group was extended to powered two-wheelers, pedestrians, cyclists, and users of public transport (Cestac & Delhomme, 2012). SARTRE4 involved 19 European countries. It was the last of the SARTRE series that was funded by the European Commission.

In 2015, Vias institute (formerly the Belgian Road Safety Institute) launched the ESRA (E-Survey of Road users' Attitudes) initiative to build on the SARTRE experience and extend scope and coverage, initially with partners from a number of countries in the European Union (EU). In a few years, the project evolved into a global initiative, jointly undertaken by road safety institutes, research centres, public services, and private sponsors from all over the world. In total, 60 countries have already participated in ESRA1 and/or ESRA2. Overall, the ESRA initiative has demonstrated the feasibility and the added value of joint and simultaneous data collection on road safety across the world.

1.4 Aim and objectives of the ESRA initiative

The aim of ESRA is to collect and analyse comparable data on road safety, in particular road safety culture and behaviour of road users. The main objectives of the ESRA initiative are:

- to provide scientific support for road safety policy at national and international level;
- to make internationally comparable data available on the current road safety situation in countries all over the world;
- to develop a series of reliable, cost-effective, and comparable road safety performance indicators;
- to develop time series on road safety performance.

1.5 ESRA coverage

The ESRA initiative was initiated by Vias institute (Belgium) in 2015 (Torfs et al., 2016). Two editions of ESRA have already taken place. Data for ESRA1 was collected in 2015-2017 and for ESRA2 in 2018-2020. Figure 1 gives an overview of the geographical coverage of the different ESRA surveys and the data collection period for the participating countries.

Figure 1: Evolution - Geographic coverage of the different ESRA surveys (2015-2020).

The first edition of the ESRA survey (ESRA1) was carried out in three waves in 2015, 2016 and 2017. Data were collected from almost 40,000 road users in 38 countries across five continents (Meesmann et al., 2018). The current report focusses on the second edition of the ESRA survey, which, in its first wave in 2018, already involved 32 countries (ESRA2_2018) and 16 additional countries in its second wave (ESRA2_2019) for a total of 48 countries and more than 45,000 road users.

Vias institute in Brussels (Belgium) coordinated the ESRA2 survey in close collaboration with eleven additional steering group partners: BASt (Germany), BFU (Switzerland), CTL (Italy), IATSS (Japan), IFSTTAR (France), ITS (Poland), KFV (Austria), NTUA (Greece), PRP (Portugal), SWOV (the Netherlands), TIRF (Canada).

In each country that participates in ESRA, there is a national partner to support the initiative. They are responsible for the funding of the survey, the translation of the survey questionnaire into the national language(s) and interpretation of the findings. For the African countries, funding was provided by the Group Renault and The World Bank Group. A list of all partners (organisations and contact persons) supporting the ESRA2 survey can be found on page 3 of this report.

1.6 Main outputs

All data collected in the different countries are centralised in the ESRA database. Teams of researchers explore this database and produce analyses, reports, articles, and indicators on road safety. One of the

key characteristics of the ESRA dataset is the high comparability of data across countries. Moreover, with the third edition in sight, ESRA is also a great source for analysing the development of road safety performance and culture over time.

The key results of the ESRA2 survey were published through a series of reports including this Main Report, the dedicated report on the African ESRA countries (Torfs et al., 2021), a Methodology Report (Meesmann et al., 2022), 15 Thematic Reports on road safety topics (see Table 1) and 64 country fact sheets, in which national key results are compared to a regional mean (benchmark).

Table 1: ESRA2 – 15 Thematic Reports.

Themes	Themes
▪ Driving under the influence of alcohol and drugs ▪ Speeding ▪ Distraction (mobile phone use) ▪ Driver fatigue ▪ Seat belt and child restraint systems ▪ Subjective safety and risk perception ▪ Enforcement and traffic violations ▪ Public support for policy measures in road safety ▪ Driver attitudes towards vehicle automation	▪ Pedestrians ▪ Cyclists ▪ Moped drivers and motorcyclists ▪ Young Road Users ▪ Elderly road users ▪ Gender issues

The common ESRA outputs are public documents that can be freely downloaded from the ESRA website (www.esranet.eu). For all the ESRA2 outputs produced by the steering group partners, the consortium defined and implemented a peer-review procedure. All Thematic Reports were peer reviewed by a steering group member who was not involved in the writing. This review procedure was coordinated by SWOV (the Netherlands). For more information on ESRA review procedure see detailed Methodology Report (Meesmann et al., 2022).

All national partners and sponsors receive their national/regional datasets and a detailed 'Table Report' with aggregated national results of all ESRA2 questions. The international dataset, which includes all individual data of all countries, is only available to the ESRA steering group members.

The first wave outputs (32 countries) have been presented at the '2nd ESRA Symposium' in Brussels, Belgium (18/06/2019) and have also been published in a special issue in IATSS Research (https://www.sciencedirect.com/journal/iatss-research/vol/44/issue/3) (Meesmann & Nakamura, 2020; Pires et al., 2020). Results have also been presented during six webinars with 14 presentations (2020/21). The final ESRA2 Conference took place on the 21st of April 2022 (online event). Furthermore, many ESRA partners have produced reports based on their national dataset, contributed to conferences and wrote scientific articles. Some examples of ESRA2 publications in scientific journals can be found in Appendix 6.

1.7 Costs and resources

From the beginning onwards, the intention was to keep costs as low as possible. The main principles to achieve this are: (1) using online panel surveys; and (2) sharing the analysis work amongst the ESRA partner organisations.

In most countries, the cost for conducting the national survey with a sample of 1,000 respondents was below €12,000. The costs differed between countries and were mainly determined by the local cost for conducting the survey, the sample size, and deviations from the standard methodology. The financial resources for the national survey costs and the staff time needed for analysing the data were secured by the ESRA2 partners' own sources, or through a sponsor who paid for the national survey cost.

The ESRA2 questionnaire was developed by Vias institute in collaboration with the ESRA2 steering group partners. National partners were responsible for the translations of the English master version into their own national language version(s). Furthermore, they were responsible for the validations of the national results and provided contextual information necessary for the interpretation of the results. The analyses of the common data were a joint effort of ESRA2 steering group members and Vias institute, who spend over 80 person months on analysing and producing the common ESRA2 outputs.

2 Methodology[1]

2.1 Scope of the questionnaire

The ESRA2 survey is addressed to four types of road users: car occupants, moped riders and motorcyclists, cyclists and pedestrians. It covers ten different themes (e.g. self-declared behaviour, support for policy measures) and for most of these themes, up to five different topics (such as speeding and driving under the influence of alcohol). Overall, over 300 variables are included in the survey. Table 2 shows an overview of the scope of the ESRA2 questionnaire. The full questionnaire can be found in Appendix 1.

Table 2: ESRA2 survey targeted road users, road safety topics and themes.

Road users	Themes	Road safety topics
▪ car occupants ▪ moped riders and motorcyclists ▪ cyclists ▪ pedestrians	▪ self-declared behaviours ▪ attitudes and opinions on unsafe traffic behaviour ▪ subjective safety and risk perception ▪ support for policy measures ▪ enforcement of traffic laws ▪ crash involvement ▪ vehicle automation ▪ transport modes ▪ socio-demographic information ▪ 2 bonus questions per country[2]	▪ speeding ▪ driving under the influence of alcohol, drugs and medication ▪ protective systems (e.g. seat belt use, helmet use) ▪ distraction (mobile phone) ▪ fatigue

Most of the ESRA2 questions were based on validated questionnaires from Belgium (BIVV/IBSR Three-yearly Road Safety Attitude Survey (Meesmann et al., 2014)), other European countries (SARTRE – Social Attitudes to Road Traffic Risk in Europe (Cestac & Delhomme, 2012), and the US (Traffic Safety Culture Index (AAA Foundation for Traffic Safety, 2016)). The questions reflect common topics related to road user behaviour, referred by the WHO as priorities in road safety policy (World Health Organization, 2018) and by the European Commission in its proposal for road safety performance indicators (European Commission, 2019).

For the interpretation of the results additional contextual information on country level were collected using international data sources (e.g. WHO, IRTAD, CARE) and a dedicated ESRA2 expert survey (e.g. questions on current national legal regulations).

The median length of the interview was 22 minutes. The questionnaire was first developed in English by the ESRA steering group, based on the experience with ESRA1 and subsequently translated into 62 national language versions[3]. The survey was programmed in nine different character sets: Arabic, Cyrillic, Devanagari, Greek, Hebrew, Japanese, Korean, Latin and Thai. An overview of the langue versions can be found in Appendix 3.

2.2 Online survey using internet panels

ESRA data is derived from an extensive online survey amongst a representative sample of the national adult populations in each participating country. More specifically, ESRA2 is based on a web-based survey using internet panels.

[1] A full description of the ESRA2 methodology can be found in the detailed Methodology Report (Meesmann et al., 2022) which is available on the ESRA website.

[2] Two bonus questions which were chosen freely by each national partner.

[3] Different country versions for the same language (e.g., Canadian-French and French-French) are considered as different language versions; some countries had several language versions (e.g., Switzerland: 3 national language versions).

This approach has some advantages compared to other survey modes, especially given the international context of the study. These advantages are:

- Self-administered web surveys are less prone to social desirability in responses compared to interviewer-administered surveys (Baker et al., 2010; De Leeuw et al., 2008; C. Goldenbeld & De Craen, 2013).
- The common study design provides better comparability across countries (i.e. identical criteria in sampling procedure, identical programming of questionnaire; one project management across all countries as the ESRA survey is actually 'one' survey which is only linked to different national translations).
- Reduction of time (fieldwork in most countries ca. 2-3 weeks; efficient data processing), workload (e.g. less time for fieldwork and data processing) and costs.

For limitations of online surveys see section 4.3 'Point of attention in the future'.

2.3 Sampling and fieldwork

The ESRA2 fieldwork was conducted in two waves: (1) a first wave in December 2018[4] and (2) a second wave, which started in November 2019[5]. Five market research agencies (INFAS, Ipsos (formerly GfK), Punto de Fuga, Dynata (formerly RN SSI) and TNS Ilres) organised the fieldwork under the supervision of Vias institute. In total, 48 countries participated and more than 45,000 respondents contributed to this survey.

In each country the aim was to have at least 1,000 respondents[6], being a representative sample of the national adult population. Representativity was based on interlaced hard quota for gender and six age groups (18-24, 25-34, 35-44, 45-54, 55-64, 65+). The regional spread across the country was monitored. Small corrections with respect to the national representativity of the sample were made by using weighting factors based on UN population statistics (United Nations Statistics Division, 2019). Details on the sample characteristics and weights can be found in section 2.4 'sample characteristic', Appendix 4 and Appendix 2.

2.4 Data processing and quality control

In order to maximise cross-national comparability of data, the programming of the survey, the data collection in all countries, and the data processing were centrally organized by Vias institute and the ESRA steering group. Data files with standardized cleaned full data and additional dichotomized variables were provided to the national partners.

Data cleaning

The data files provided by the market research companies had to respect a specific template. All the national data files were merged into one file, including the answers of all respondents in 48 countries. Vias institute checked the quality of the data and carried out a second data cleaning, which included controlling for duplicate entries, removing inconsistencies with panel information, checking for the length of the interview (identifying and eliminating 'speeders' and 'turtles'), and removing straightliners (respondents who give the same answers for many questions). From the original, pre-cleaned dataset provided by the market research agencies (N=45,664), 550 respondents were removed. The final sample consists of N=45,114 respondents.

Data processing

In view of facilitating analysis and dissemination of ESRA2 results, for some questions the original answer categories (mainly 5-point and 7-point scales) were dichotomized (i.e. grouping answers into two groups and creating a binary variable). The dichotomization process was conducted centrally by Vias institute and used in presenting all descriptive analyses of the ESRA2 reports. The dichotomizations and reference categories for each question are indicated in the ESRA2 questionnaire in Appendix 1 (see information on binary variable).

[4] Only in Switzerland the fieldwork extended to January 2019.

[5] Due to the Covid-19 pandemic situation, the fieldwork had to be extended until July 2020 for some countries.

[6] In some African countries and very small countries such as Luxembourg, the sample size was smaller.

A weighting of the data was applied in the descriptive analyses. This weighting was meant to correct for small deviations in the sample of representative gender and age groups for the countries: 18-24y, 25-34y, 35-44y, 45-54y, 55-64y, 65y+ (United Nations Statistics Division, 2019). 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 (for more details on weighting see Appendix 2).

The statistical packages used within the data processing were SPSS 25.0 (IBM Corp., 2017) and R (R Core Team, 2020).

Data quality control

PRP (Portugal) in collaboration with Vias institute (Belgium) was responsible for the quality control of the standardized data cleaning and data processing procedure, and for the extraction of standardized figures which were used in all common ESRA2 outputs. The national partners were asked to validate the national datafiles and the country fact sheets, before common output was published.

More information on data cleaning and data processing can be found in the ESRA2 methodology report (Meesmann et al., 2022).

2.5 Sample characteristics

Geographical coverage

The ESRA2 data is based on the answers to the survey questions from more than 45,000 road users across 48 countries. The participating countries in ESRA2 were (countries with * joined in 2019):

- Europe24: Austria, Belgium, Bulgaria*, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland*, Ireland, Italy, Luxembourg*, Norway*, the Netherlands, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, United Kingdom;
- America3: Canada, Colombia*, USA;
- AsiaOceania9: Australia, India, Israel, Japan, Lebanon*, Malaysia*, Republic of Korea, Thailand*, Vietnam*;
- Africa12: Benin*, Cameroon*, Egypt, Ghana*, Ivory Coast*, Kenya, Morocco, Nigeria, South Africa, Tunisia*, Uganda*, Zambia*.

Figure 2 shows the geographical coverage of the survey. Details on the fieldwork per country can be found in Appendix 3.

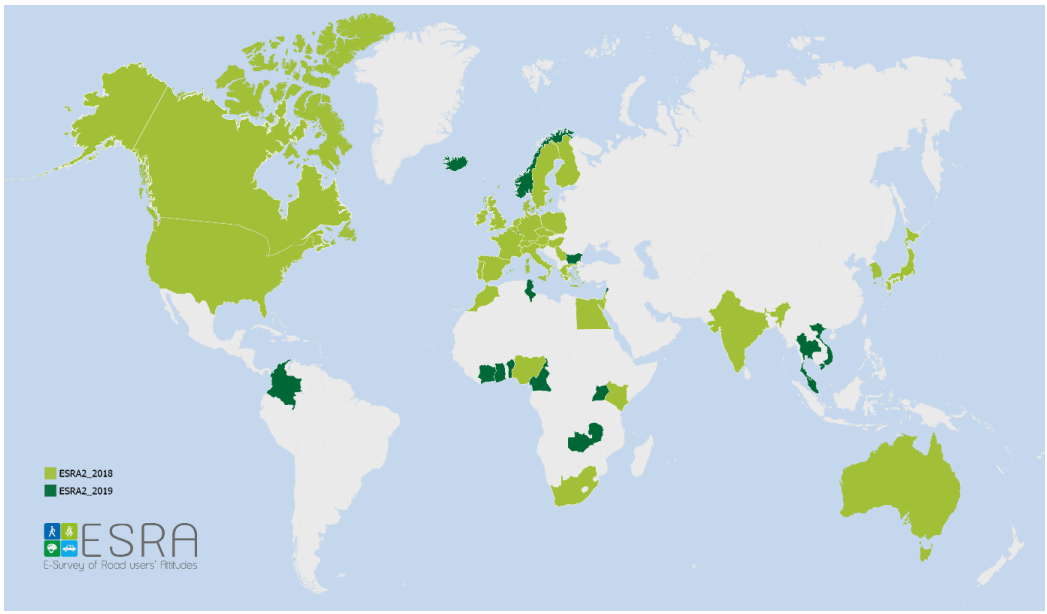


Figure 2: Geographical coverage of the ESRA2 survey.

Regional differences

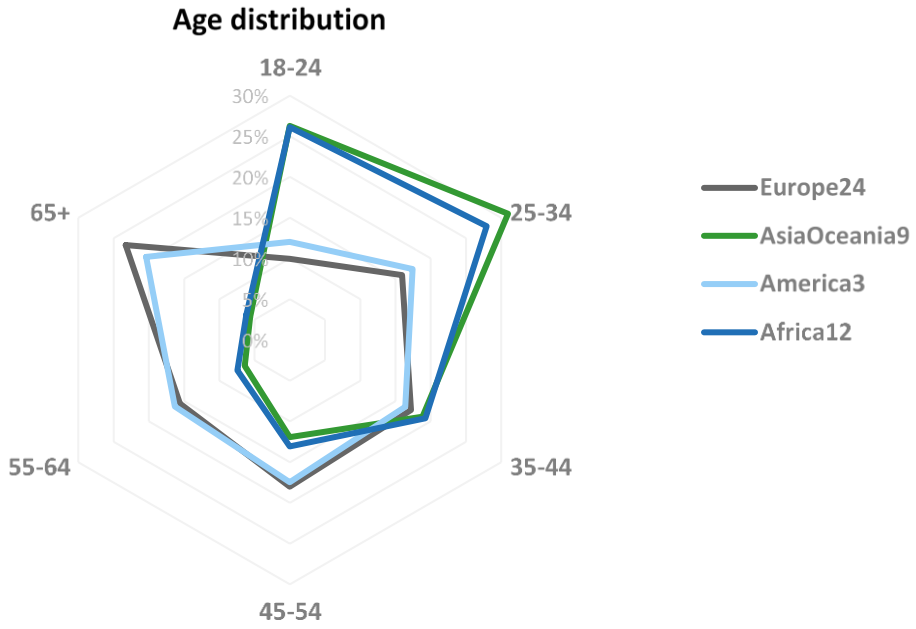
Table 3 shows the sample size, national internet penetration and the distribution of gender and age by geographical region. With 24 countries, Europe had the biggest sample size and America with three countries the smallest. The gender distribution in the total sample is 49.6% men and 50.1% women (0.3% other).

Table 3: Sample size, internet use, gender and age distribution by region (weighed means).

Region	Sample size	Internet-users % (per 100 people)	Gender			Age group					
			male	female	other	18-24y	25-34y	35-44y	45-54y	55-64y	65y+
Europe24	25987	68-99%	48%	52%	0%	10%	16%	17%	18%	16%	23%
AsiaOceania9	8590	34-96%	50%	49%	1%	26%	31%	19%	12%	6%	6%
America3	3009	65-91%	48%	51%	0%	12%	17%	16%	17%	16%	20%
Africa12	7528	14-67%	49%	51%	0%	26%	28%	19%	13%	7%	6%
TOTAL	45114	14-99%	50%	50%	0.3%	14%	21%	20%	17%	13%	15%

Note. (1) Reference population: all road users. (2) Regional weighed means. (3) Source internet use per country: The World Bank Group (2021).

Figure 3 shows the age distribution by region. They are in line with the demographic characteristics of the regional samples (e.g. younger population in the African region compared to the European or American region (United Nations Statistics Division, 2019)). The youngest respondents were 18 years old (as defined in the study design) and the oldest respondent was 98 years old. The average age was 44 years with a standard deviation of 16.4 years; the median age was 42 years.



Reference population: all respondents

Figure 3: Age distribution by region (weighted means).

It should be noted that the share of the oldest age group 65y+ varies strongly by country. This is to some extent the result of their real share in the population (United Nations Statistics Division, 2019), but in some cases, it is also due to underrepresentation of this age group within the sample (Cameroon, Ghana, Greece, Iceland, Ivory Coast, Kenya, Lebanon, Malaysia, Morocco, Nigeria, Republic of Korea, Serbia, Slovenia, Spain, Thailand, Tunisia, Uganda, Vietnam and Zambia).

The internet penetration in a country can serve as an indicator for the representativeness of an online panel sample for the national population. As Table 3 and Appendix 4 show, the number of internet-users per 100 people is very high in most participating countries (on average 71%; median 79%). It is above 60% in all countries, except in India and in ten out of twelve African countries (South Africa,

Egypt, Nigeria, Ghana, Ivory Coast, Uganda, Cameroon, Benin, Kenya, and Zambia). Note, that these countries also have a very young population and internet penetration is lower among children. Thus, the internet penetration among the adult population is likely to be much higher. However, this indicates a possible limitation of the representativity of the online panel sample in these countries. This contextual information should be considered in further analyses and interpretation of the results.

The means for results at regional level are based on weighted data. Details on the unweighted national samples can be found in Appendix 4 and Meesmann et al. (2022).

3 Key results from the ESRA2 survey

This report focusses on the presentation of regional results and the comparison across the main road safety topics of the ESRA2 survey. Those were i.e.: speeding, driving under the influence of alcohol, drugs and medication, protective systems (e.g. seat belt use, helmet use), distraction (mobile phone use), and fatigue. All national results can be found in Appendix 5 and in the according thematic reports. Appendix 5 also provides additional statistical information on the significant differences of the results between the countries and the regions.

3.1 Use of transport modes

Respondents were asked how often they used one or more transport modes in the last 12 months. Multiple answers were possible. Figure 4 presents the percentage of respondents who stated that they used a certain mode of transport at least a few days a month (in ESRA defined as 'frequent use of transport modes'). The results are presented per region (for national results and more statistical information see Table 5 and Table 6 in Appendix 5).

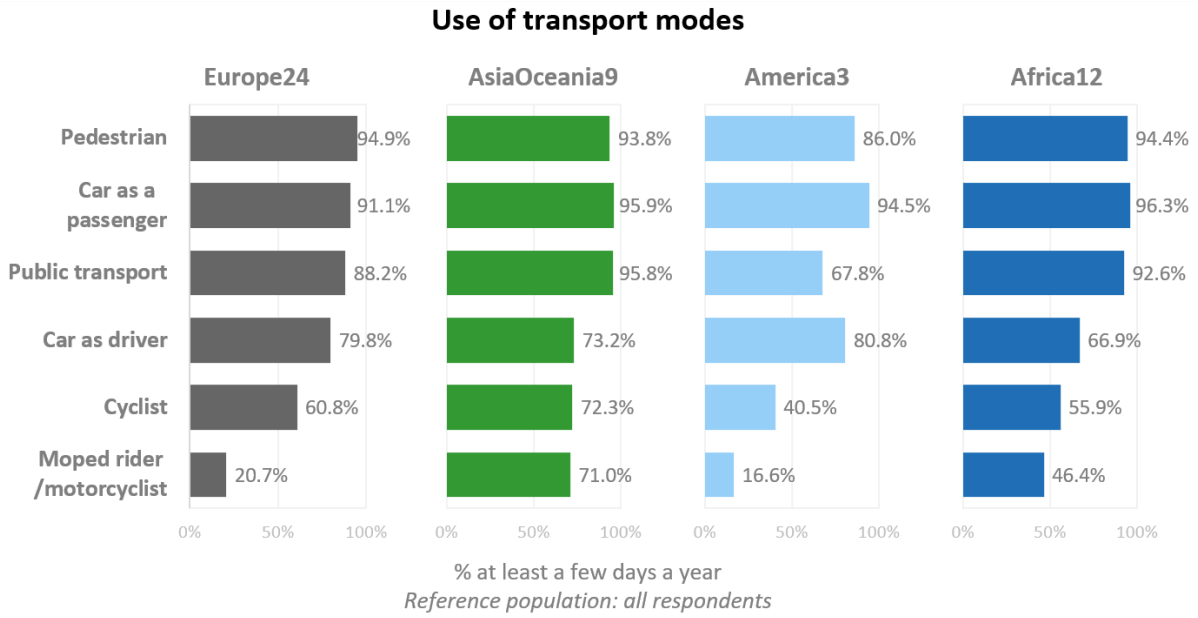


Figure 4: Use of transport modes, by region (% at least a few days a month; weighted means).

The most striking differences between the regions are the frequent use of mopeds and motorcycles, which is clearly higher in the Asian-Oceanian region than in all other regions, and the frequent use of public transport and cycling, which is clearly lower in America than in all other regions. In most regions walking, being a passenger in the car and using public transport are the most frequently used transport modes, except for America, where driving a car is more common than using public transport. Riding a motorcycle or moped is the least frequently used transport mode in all countries, with the exception of Vietnam (92.8%), India (71.5%), Thailand (71.2%), Benin (63.2%), Cameroon (61.8%), Nigeria (48.4%), Malaysia (47.1%) and Ivory Coast (26.9%).

In general, the use of almost all transport modes is more frequently reported by men than by women. However, these differences are very small for being a pedestrian and for using public transport. Being a passenger in a car is more frequently reported by women than men, except for the Asian-Oceanian region (no gender difference). In most regions the data show no clear age differences in the use of transport modes except for cycling and riding a moped or a motorcycle, which decreases with increasing age in all regions. In Europe being a passenger in a car decreases with increasing age, but this pattern cannot be observed in the other regions. In all regions the use of public transport is most frequently reported by the youngest age group (18-24y).

3.2 Self-declared unsafe behaviour in traffic

In order to assess the prevalence of different types of unsafe behaviour in traffic, respondents needed to indicate whether they had engaged in a certain behaviour over the last 30 days. The type of unsafe traffic behaviours included speeding, distraction, (not using) protective systems and driving under influence. In the following section the regional results are presented per road user group. Note, that many respondents belong to more than one road user group.

3.2.1 Car drivers and car passengers

Figure 5 shows the self-declared unsafe behaviour of car drivers in traffic for each of the four regions. The national results and more statistical information can be found in Table 7 in Appendix 5. The figure presents the percentage of car drivers and car passengers who stated that they had engaged in a certain behaviour over the last 30 days.

It is interesting to observe that the results of Europe24 and America3 show similar patterns and so do the results of Africa12 and AsiaOceania9. This pattern is in particular obvious for the use of seatbelts and child restraint systems. In AsiaOceania9 and in Africa12 the percentages of respondents reporting to not use a seatbelt or child restraint system is about twice as high as in Europe24 and America3. In Africa12, 71.3% of the respondents stated that at least once they had not worn a seatbelt in the backseat of a car over the past 30 days. In AsiaOceania9 this percentage was 68.2%, while in Europe24 and America3 this was around 36%.

Driving under the influence of drugs was amongst the least frequently declared unsafe behaviour in all regions. While in Europe24 only 5.0% of the respondents reported driving one hour after using drugs, this percentage was higher in all other regions (19.8% in AsiaOceania9, 16.5% in Africa12 and 11.7% in America3). The comparison among the regions shows higher prevalence of driving after taking medication in AsiaOceania9 (25.9%) and Africa12 (20.0%), than in Europe24 (14.9%) and America3 (14.8%).

On the other hand, self-declared speeding rates are higher in Europe24 and America3 than in AsiaOceania9 and Africa12. Exceeding speed limits on motorways and outside built-up areas were more frequently declared than speeding in built-up areas in all regions. In Europe24 and America3, more than half the car drivers declared having been driving above the speed limit on motorways/freeways (61.5% and 69.9%), outside built-up areas (67.5% and 64.6%) and inside built-up areas (56.3% and 57.3%, respectively). These percentages were less than, or close to, 50% in the other regions.

The self-declared use of the mobile phone while driving was more prevalent in Africa12 (64.6% declared talking on a hand free phone, 51.7% talking on a hand-held phone and 44.5% reported reading a message or check social media while driving). In Europe24 these results were the lowest (ranging from 24.4% to 48.0%).

Self-declared fatigued driving was lower in Europe24 (19.7%) than in the other regions: 25.6% in AsiaOceania9, 22.0% in Africa12 and 21.4% in America3.

The results on self-declared unsafe behaviour in traffic (Figure 5) are highly correlated with those on personal acceptability (Figure 9) of these behaviours. For more information on this see section 4.3 'Acceptability of unsafe traffic behaviour'.

In all regions, male car drivers reported more unsafe behaviour in traffic than female ones. Overall, younger car drivers (18-24y and 25-34y) tend to report more unsafe behaviour in traffic than the older drivers (35-44y, 45-54y and 65+). However, for some self-declared behaviours, in some regions the age group differences are small and there is hardly an age gradient.

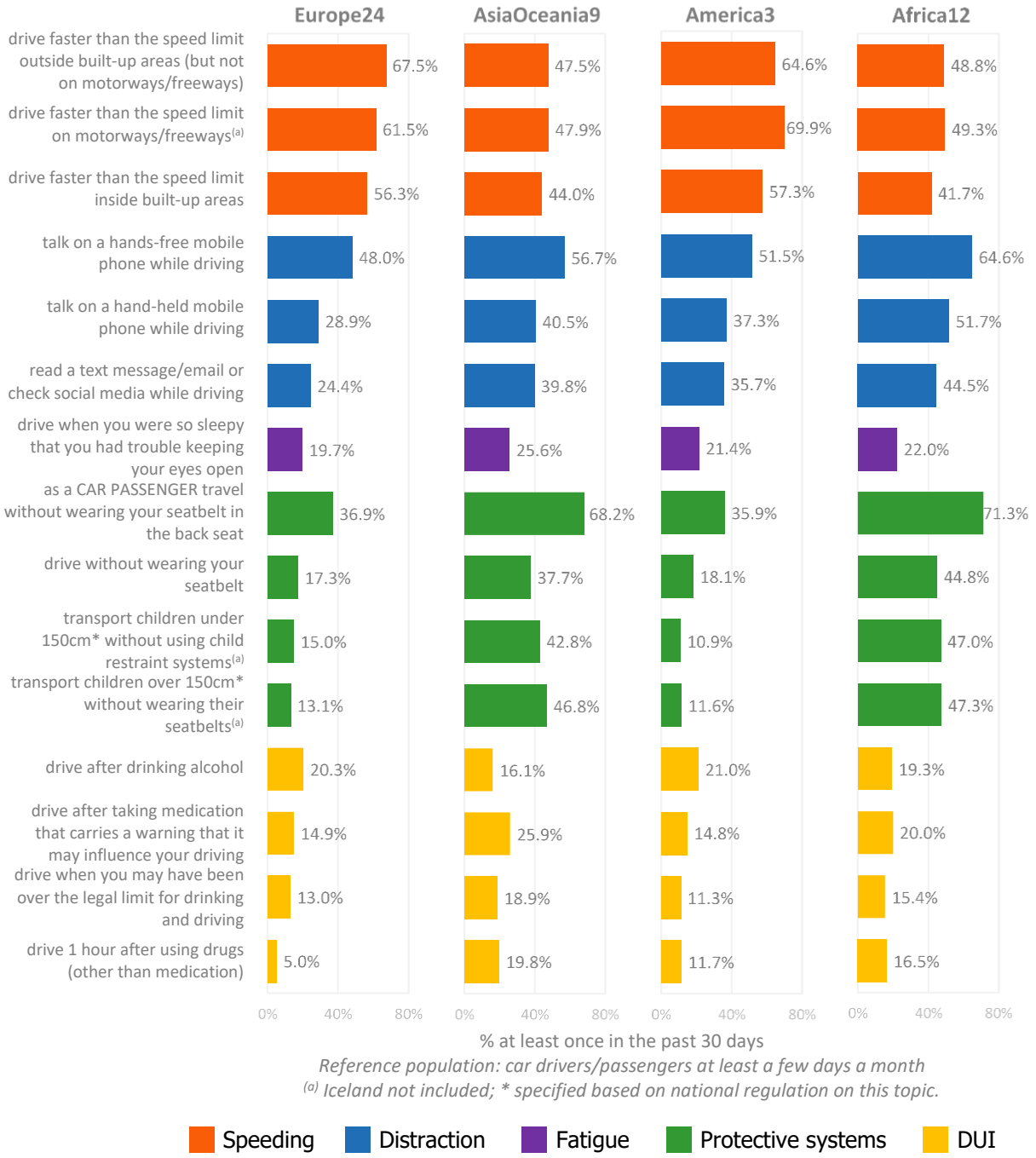


Figure 5: Self-declared behaviour as a car driver & car passenger, by region (% at least once in the past 30 days – scores 2 to 5 on a 5-point scale from 1 "never" to 5 "[almost] always").

3.2.2 Moped riders and motorcyclists

The ESRA2 questionnaire included 4 questions related to self-declared unsafe traffic behaviour of motorcyclists and moped riders. The results per region are presented in Figure 6 (for national results and more statistical information see Table 8 in Appendix 5). The figure shows the percentage of moped and motorcyclist riders who stated that they had engaged in a certain behaviour over the last 30 days.

In Europe23 speeding is clearly the most frequently reported unsafe behaviour (45.2%) among motorcyclist and moped riders. In all other regions, it is either speeding or not wearing a helmet. In

AsiaOceania9 and Africa12 almost half of the respondents (46.6% and 46.3%) reported to have been riding without a helmet.

Riding a motorcycle or moped with an alcohol concentration above the legal limit is the least reported unsafe behaviour in all regions (21.1% in America3; 19.9% in AsiaOceania9; 19.8% in Europe23 and 18.1% in Africa12). Note, however, that in all regions the unsafe traffic behaviours were more frequently reported by moped riders and motorcyclists compared to car drivers.

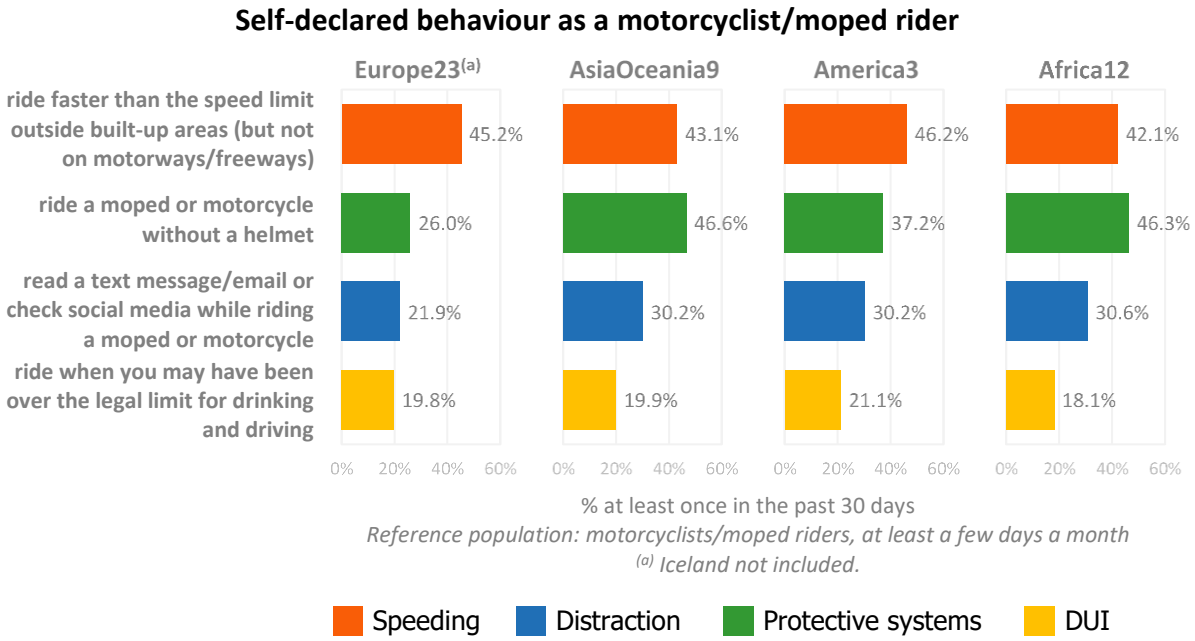


Figure 6: Self-declared behaviour as a motorcyclist and moped rider, by region (% at least once in the past 30 days – scores 2 to 5 on a 5-point scale from 1 "never" to 5 "[almost] always").

In general, male moped riders or motorcyclists engage more in unsafe behaviour than female riders. Furthermore, as for car drivers, younger moped riders and motorcyclists tend to ride less safe than older age categories. Overall, there are few age differences when it comes to riding when over the legal limit for drink-driving.

3.2.3 Cyclists

The ESRA2 questionnaire included 5 questions related to self-declared unsafe behaviour of cyclists. The results per region are presented in Figure 7. Details on the national results and more statistical information can be found in Table 8 in Appendix 5. The figure shows the percentage of cyclists who stated that they engaged in a certain behaviour over the last 30 days.

The ranking of the level of engagement in the five unsafe behaviours is the same in the four regions. In all regions cycling without a helmet is the most frequently reported unsafe behaviour (69.8% in AsiaOceania9; 69.0% in Europe23; 58.0% in Africa12 and 51.2% in America3). Cycling when you think you may have had too much to drink was the behaviour that was reported the least (19.3% in AsiaOceania9; 17.3% in Europe23; 15.7% in Africa12 and 15.3% in America3).

No systematic pattern can be observed for the gender differences in cyclist behaviour. On the other hand, cyclists from older age categories report in general less unsafe behaviour than younger cyclists.

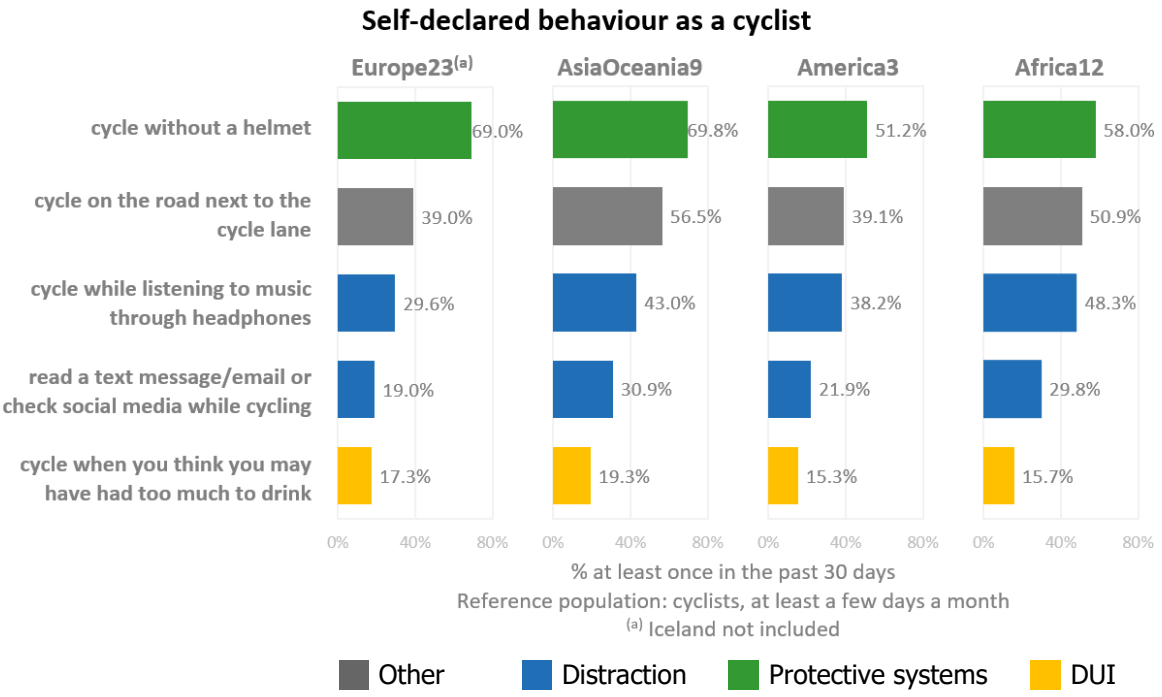


Figure 7: Self-declared behaviour as a cyclist, by region (% at least once in the past 30 days – scores 2 to 5 on a 5-point scale from 1 "never" to 5 "[almost] always").

3.2.4 Pedestrians

The ESRA2 questionnaire included 4 questions related to self-declared unsafe behaviour of pedestrians in traffic. The results per region are presented in

Figure 8 (for national results and more statistical information see Table 8 in Appendix 5). The figure shows the percentage of pedestrians who stated that they had engaged in a certain behaviour over the last 30 days.

In all regions the most frequently reported unsafe behaviour of pedestrians is crossing the street without using a nearby pedestrian crossing. In Europe24, 74.1% of the respondents reported this behaviour, 73.9% in Africa12, 69.2% AsiaOceania9 and 64.0% in Amercia3. In Africa12 the percentage of pedestrians reading text messages or checking social media (70.0%) or listening to music through headphones (56.9%) is clearly higher than in all other regions. In the other regions these results range from 52.4% to 58.9% for texting/reading on a mobile phone and from 33.7% to 46.2% for listening to music through headphones.

In all regions gender differences are rather small for most self-declared unsafe traffic behaviours. Except for AsiaOceania9, male pedestrians report in general more risky behaviour than female ones. Additionally, as for the other transport modes, pedestrians from younger age categories report in general a higher frequency of unsafe behaviour than older pedestrians.

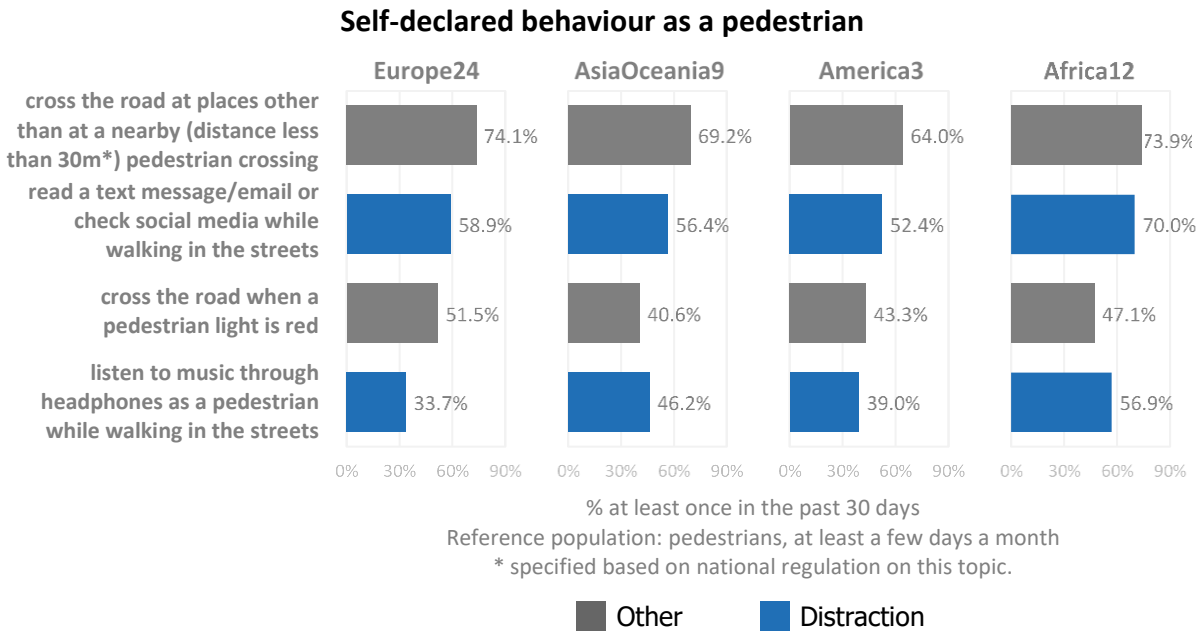


Figure 8: Self-declared behaviour as a pedestrian, by region (% at least once in the past 30 days – scores 2 to 5 on a 5-point scale from 1 "never" to 5 "[almost] always").

3.3 Acceptability of unsafe behaviour in traffic

Two questions in the ESRA2 survey were meant to collect data on the acceptability of unsafe behaviour in traffic. One question was about the personal acceptability[7] of unsafe behaviour as a car driver and the other one about the perceived social acceptability[8] (social norm) related to this behaviour. Figure 9 presents the results per region (for national results and more statistical information see Table 9 and Table 10 in Appendix 5). The figure includes two indicators: (1) the percentage of respondents who think that a certain behaviour is acceptable and (2) the percentage of respondents who think that such a behaviour is socially accepted by others.

The results from Figure 9 show low levels of personal and perceived social acceptability of the listed unsafe behaviours (except for talking on a hand-free mobile phone while driving). The rates are particularly low in Europe24 and America3 for driving while being sleepy, driving under the influence of alcohol or drugs/medication, for not securing children in the car with a seatbelt/child restraint system and for texting or reading messages on the mobile phone while driving. The acceptability of these behaviours was higher in AsiaOceania9 and Africa12 (more than twice as high in most cases). On the other hand, talking on a hand-free mobile phone and driving above the speed limits on motorways/freeways – the behaviours most accepted in all regions – was considered more acceptable in America3 and Europe24 than in Africa12 and AsiaOceania9. In all regions, driving above the speed limit inside built-up areas was considered less acceptable than outside built-up areas or on motorways.

Figure 9 also illustrates that the respondents think that "others" consider the unsafe behaviours in traffic to be more acceptable than they do themselves. This pattern is observed in all the regions for all the behaviours analysed.

Overall, the regional results on personal/social acceptability (Figure 9) and self-declared behaviour (Figure 5) are in most cases consistent: regions with higher acceptability tend to have higher rates of the corresponding self-declared behaviour. In other words, the behaviours engaged in more frequently, are also more accepted. However, there are some exceptions when comparing personal acceptability and self-declared behaviours. For example, the personal acceptability of fatigued driving is lower than for driving while being over the legal limit for drinking and driving in all regions, while the percentage

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

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

of drivers who declared driving while fatigued were much higher than those who declared drinking and driving. Concerning speeding, in Europe24 the percentage of respondents who consider it acceptable to drive beyond the speed limit inside built-up areas (5.0%) is about half of those who consider the same behaviour acceptable outside built-up areas (10.5%), while the corresponding rates of self-declared behaviours were closer (56.3% and 67.5%; see also Pires et. al. (Pires et al., 2020)).

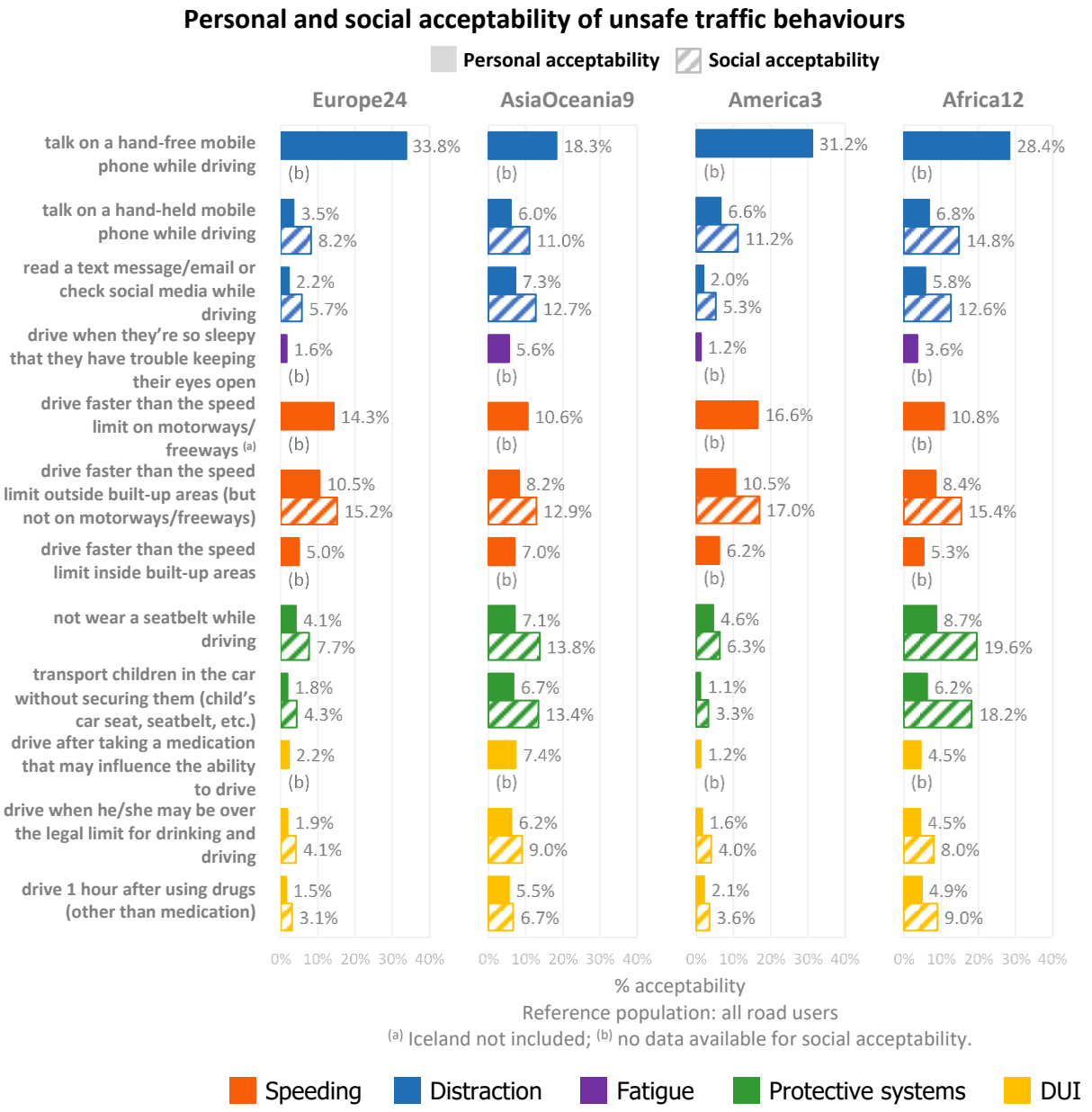


Figure 9: Personal and social acceptability of unsafe traffic behaviours, by region (% acceptability – scores 4 to 5 on a 5-point scale from 1 "unacceptable" to 5 "acceptable").

Both social and personal acceptability of unsafe behaviour are in general higher among men than among women, except in AsiaOceania9, where differences between men and women do not show a consistent pattern. In most regions younger age categories systematically report higher social acceptability and personal acceptability of unsafe traffic behaviour than older age categories.

3.4 Attitudes and perceived behaviour control

The ESRA2 survey included several questions related to the psychological concepts 'attitudes' and 'perceived behaviour control'. The respondents were asked to indicate on a 5-point scale, where 1 is "disagree" and 5 is "agree", to what extent they agree with each of the following statements:

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.
- For short trips, it is not really necessary to use the appropriate child restraint.
- 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:

- I trust myself to drive after having a glass of alcohol.
- 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. half a liter of wine).
- I trust myself when I drive significantly faster than the speed limit.
- I am able to drive fast through a sharp curve.
- I trust myself when I check my 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.

The according questions and answers can be found in Appendix 1 (Q15) and Table 11. Composite scores for these concepts were created based on an explorative factor analysis[9]. For 'attitudes' this is a composite score of items across all road safety topics (speeding, driving under the influence of alcohol, child restraint system use and mobile phone use). For 'perceived behaviour control' composite scores were made per road safety topic. In both cases, the higher the mean score, the higher the percentage of respondents with risky road safety beliefs. Figure 10 shows the regional mean-scores for these two concepts. The national results and more statistical information can be found in Table 11 in Appendix 5.

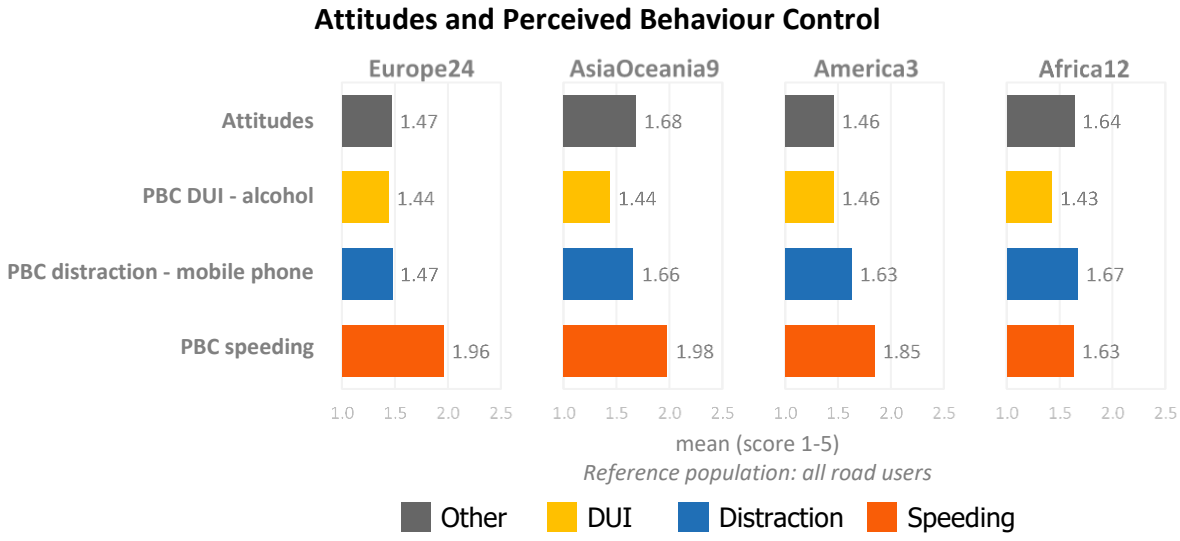


Figure 10: Composite mean scores for Attitudes and Perceived Behaviour Control: DUI (alcohol), distraction (mobile phone), and speeding.

Figure 10 shows that respondents in AsiaOceania9 and Africa12 have more risky road safety attitudes compared to respondents from America3 or Europe24. The results with respect to perceived behaviour control show similar patterns across all regions: the highest score is observable for being able to control

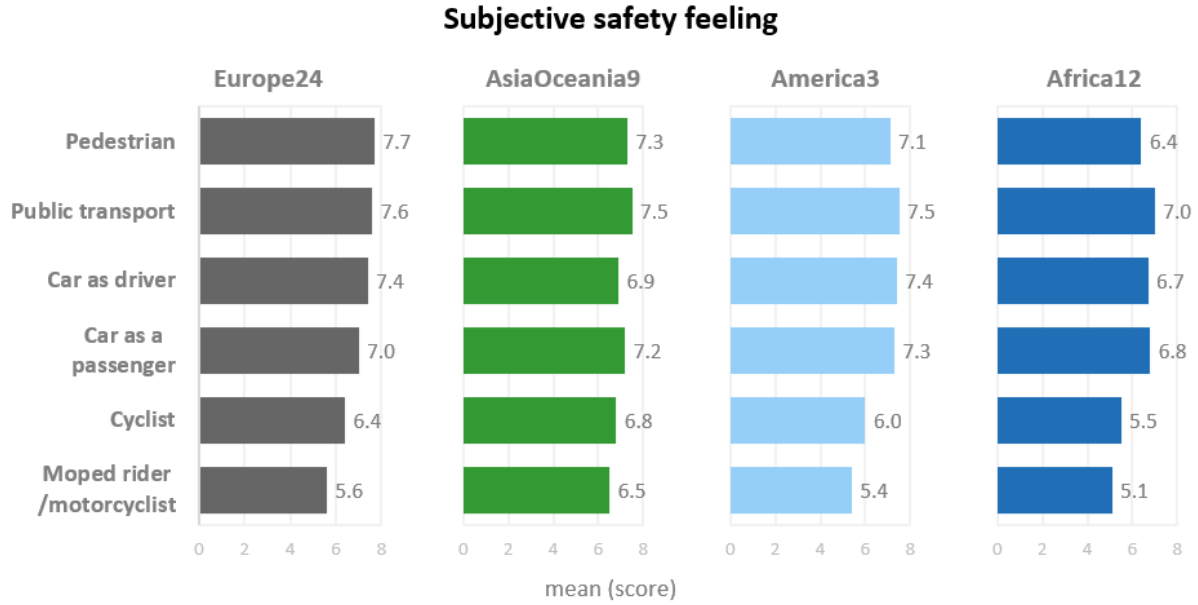
[9] The explorative factor analysis showed that all questions related to the concept 'attitudes' including all road safety topics loaded on one dimension, which indicated that they could be combined. The questions related to the concept 'perceived behaviour control' had to be separated by road safety topic as they loaded on one dimension per road safety topic.

speeding behaviour, followed by mobile phone use and driving under the influence of alcohol. One exception is that in Africa12 more respondents think that they can control the car while using a mobile phone (mean score: 1.67) than while speeding with the car (mean score: 1.63).

In all regions, men have more risky road safety attitudes compared to women. The same is true for the perceived behaviour control. Men more often perceive that they can control the car after drinking alcohol, while speeding or using a mobile phone. The gender difference was the smallest for the perceived ability to control the car while using a mobile phone in AsiaOceanina9. From all regions, Europe24 showed the largest gender difference for these four risky road safety beliefs. In most regions younger age categories systematically report more risky attitudes and more often perceive that they can control the car while speeding or using the mobile phone than older age categories. This trend can also be observed in the perception of respondents to control the car after drinking alcohol in Europe24, but not for the other regions. In America3 the 25-34 year olds report most often that they think they can control the car after drinking alcohol while in AsiaOceania9 the 35-44 year olds report this most often.

3.5 Subjective safety and risk perception

Respondents were asked how safe they felt while using different transport modes (if they had not used a certain transport mode in the last 12 months, they did not get this question). They could indicate their answer on a scale from 0-10 where 0 was 'very unsafe' and 10 'very safe'. Figure 11 shows the mean scores by region. The results for each country and more statistical information can be found in Table 12 in Appendix 5.



Reference population: all road users who used each specific transport mode in the past 12 months

Figure 11: Subjective safety feeling, by region (mean score of a 11-point scale from 0 = "very unsafe" to 10 = "very safe").

In all regions respondents considered moped riding, motorcycling and cycling as the least safe transport modes. The lowest mean scores refer to moped riders and motorcyclists (Africa12 (5.1), America3 (5.4), Europe24 (5.6) and AsiaOceania9 (6.5)). In most regions using public transport is considered to be the safest mode of transport (according mean scores: Europe24 (7.6), AsiaOceania9 and America3 (7.5) and Africa12 (7.0)). Only in Europe24 walking as a pedestrian (7.7) is considered slightly safer than using public transport (7.6).

Women tend to feel less safe when using the various transport modes than men. In Europe24, America3 and Africa12, for some modes (e.g. public transport) the subjective level of safety tends to increase with age. In contrast, this age gradient was not found for Asia-Oceania9 or even reversed.

The risk perception of the traffic behaviours was assessed by asking "How often do you think each of the following factors is the cause of a road crash involving a car?". Figure 12 shows the percentage of drivers who thought that a certain behaviour is often or frequently the cause of an accident. The results are presented by region. The related national results and more statistical information can be found in Table 11 in Appendix 5.

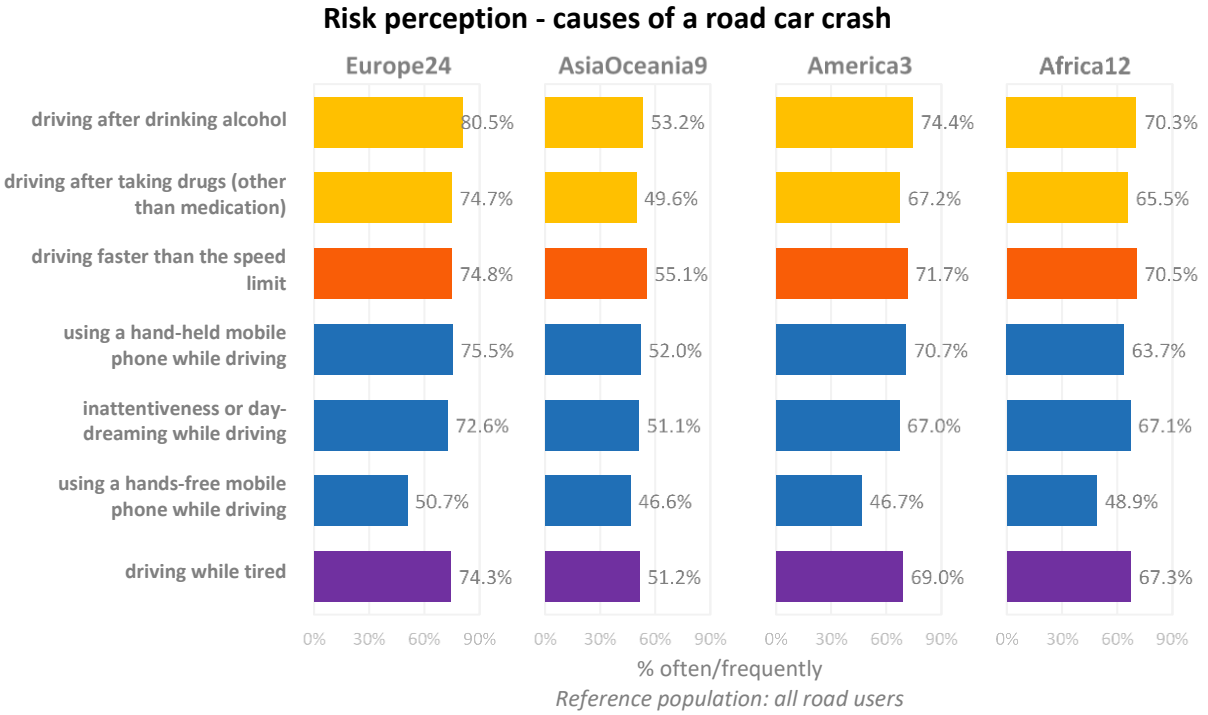


Figure 12: Risk perception - causes of road car crash, by region ('How often do you think each of the following factors is the cause of a road crash involving a car?' – % often/frequently – scores 4 to 6 on a 6-scale from 1 'never' to 6 '[almost] always').

Figure 12 illustrates that risk perception of the unsafe behaviours was the highest in Europe24, with rates ranging from 50.7% for using a hands-free mobile phone to 80.5% for driving after drinking alcohol. The lowest rates were reported in AsiaOceania9, ranging from 46.6% (using a hands-free mobile phone while driving) to 55.1% (driving above the speed limit). In America3, the percentages ranged from 46.7% (using a hands-free mobile phone while driving) to 74.4% (driving after drinking alcohol) and in Africa12 from 48.9% (using a hands-free mobile phone while driving) to 70.5% (driving faster than the speed limit).

In Europe24 and America3, respondents considered driving after drinking alcohol as the riskiest factor (80.5% and 74.4%). In AsiaOceania9 and Africa12, speeding was considered as the riskiest behaviour (55.1% and 70.5%, respectively). In Europe24, using a hand-held-phone while driving was considered the second riskiest factor (75.5%). Using a hands-free phone while driving was considered as the least risky behaviour in all regions (around 50%).

In all regions, women considered the driving behaviours listed to be riskier than men. In Europe24 and America3, risk perception of different behaviours increased with increasing age; in AsiaOceania9 and Africa12 this age pattern was not found.

3.6 Traffic law enforcement

To assess the perceived likelihood of being checked by the police, the ESRA2 survey included one question[10] with five items. Figure 13 presents the results per region for this question (for national results and more statistical information see Table 13 in Appendix 5). The figure shows the percentage of

[10] "On a typical journey, how likely is it that you (as a car driver) will be checked by the police for…"

respondents who think that it is likely that they as a car driver on a typical journey, will be checked by the police for a certain unsafe traffic behaviour.

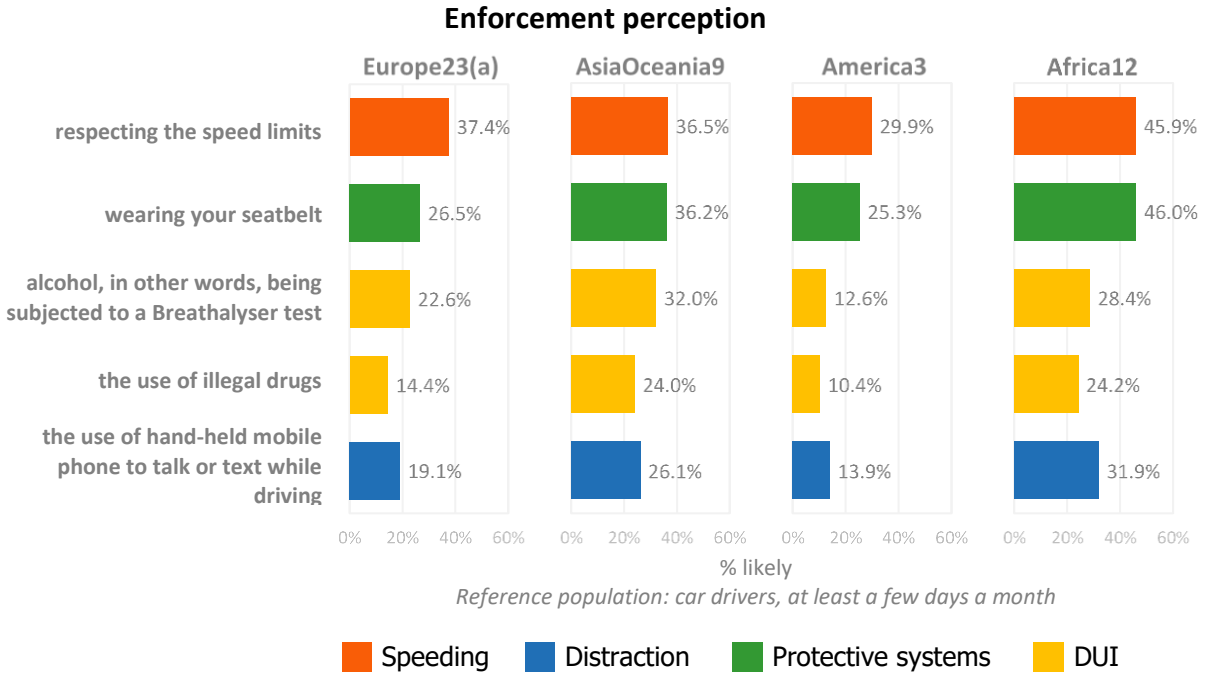


Figure 13: Enforcement perception, by region ('On a typical journey, how likely is it that you (as a car driver) will be checked by the police for…' – % of likely – scores 5 to 7 on a 7-point scale from 1 "very unlikely" to 7 "very likely").

In all regions, the reported likelihood of being checked is highest for respecting the speed limits (Africa12: 45.9%, Europe23: 37.4%, AsiaOceania9: 36.5%, America3: 29.9%) and for wearing the seatbelt (Africa12: 46.0%, AsiaOceania9: 36.2%, Europe23: 26.5%, America3: 25.3). Being checked by the police for the use of illegal drugs is perceived as the most unlikely in all regions (Africa12: 24.2%, AsiaOceania9: 24.0%, Europe23: 14.4%, America3: 10.4%). The likelihood of being checked for all unsafe behaviours is perceived the highest in Africa12 (ranging from 24.2% to 45.9%) and the lowest in America3 (ranging from 10.4% to 29.9%).

In all regions, male drivers tend to report a higher likelihood of being checked for traffic violations than female drivers. Younger drivers in general report a higher likelihood of being checked than older ones.

The ESRA2 questionnaire also asked car drivers about their experience of being checked by the police for using alcohol and for using drugs while driving a car in the past 12 months. Figure 14 shows the results per region (for national results and more statistical information see Table 14 in Appendix 5).

In all regions, there are more checks by the police for using alcohol than for using drugs while driving a car. The highest percentage of alcohol checks is reported in AsiaOceania9 (33.1%), followed by Europe23 (18.4%) and Africa12 (16.9%). In America3 the lowest percentage of alcohol checks is reported (4.9%). In AsiaOceania9 (11.5%) and Africa12 (10.3%) being checked by the police for drug use is reported the most, in Europe23 (4.1%) and America3 (2.3%) the least.

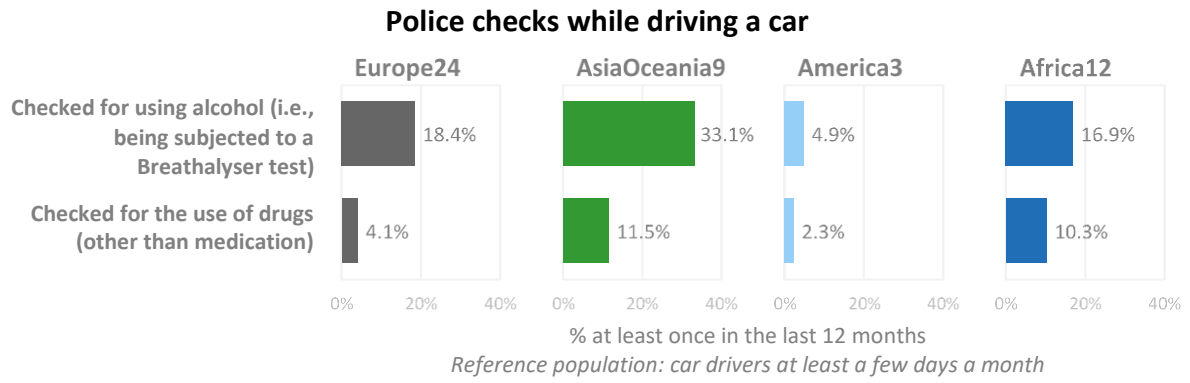


Figure 14: Police checks for using alcohol (i.e., being subjected to a Breathalyser test) and for the use of drugs (other than medication) while driving a car (% of at least once in the last 12 months).

Overall male drivers report more checks for using alcohol and drugs than female drivers. Younger drivers had in general more experience with being checked for alcohol and drugs than older age categories.

3.7 Public support for policy measures

To assess public support for policy measures, respondents were asked whether they would support or oppose certain policy measures that would be compulsory[11]. Figure 15 presents the results per region for this question (for national results and more statistical information see Table 15 in Appendix 5). The figure shows the percentage of respondents supporting the idea that a particular measure would be a legal obligation.

In all regions, almost all policy measures listed are supported by the majority of the respondents. Only the following two policy measures are supported by less than 50% of the respondents: to forbid using headphones while walking in the streets in America3 (42.0%) and in Europe24 (42.5%), and the obligation to install Intelligent Speed Assistance (ISA) in America3 (47.6%). Overall, policy measures related to protective systems and driving under the influence receive highest public support. Policy measures related to distraction are supported the least.

For most policy measures, support is the highest in Africa12. Within each topic (speeding, distraction, protective systems and driving under the influence) the pattern is consistent between regions: policy measures with high support have in general high support in all regions, policy measures with lower support have lower support in all regions.

In all regions, women tend to be more supportive for road safety measures than men. Younger age categories are in general less in favour of policy measures than older age categories in most regions.

[11] "Do you oppose or support a legal obligation to …?"

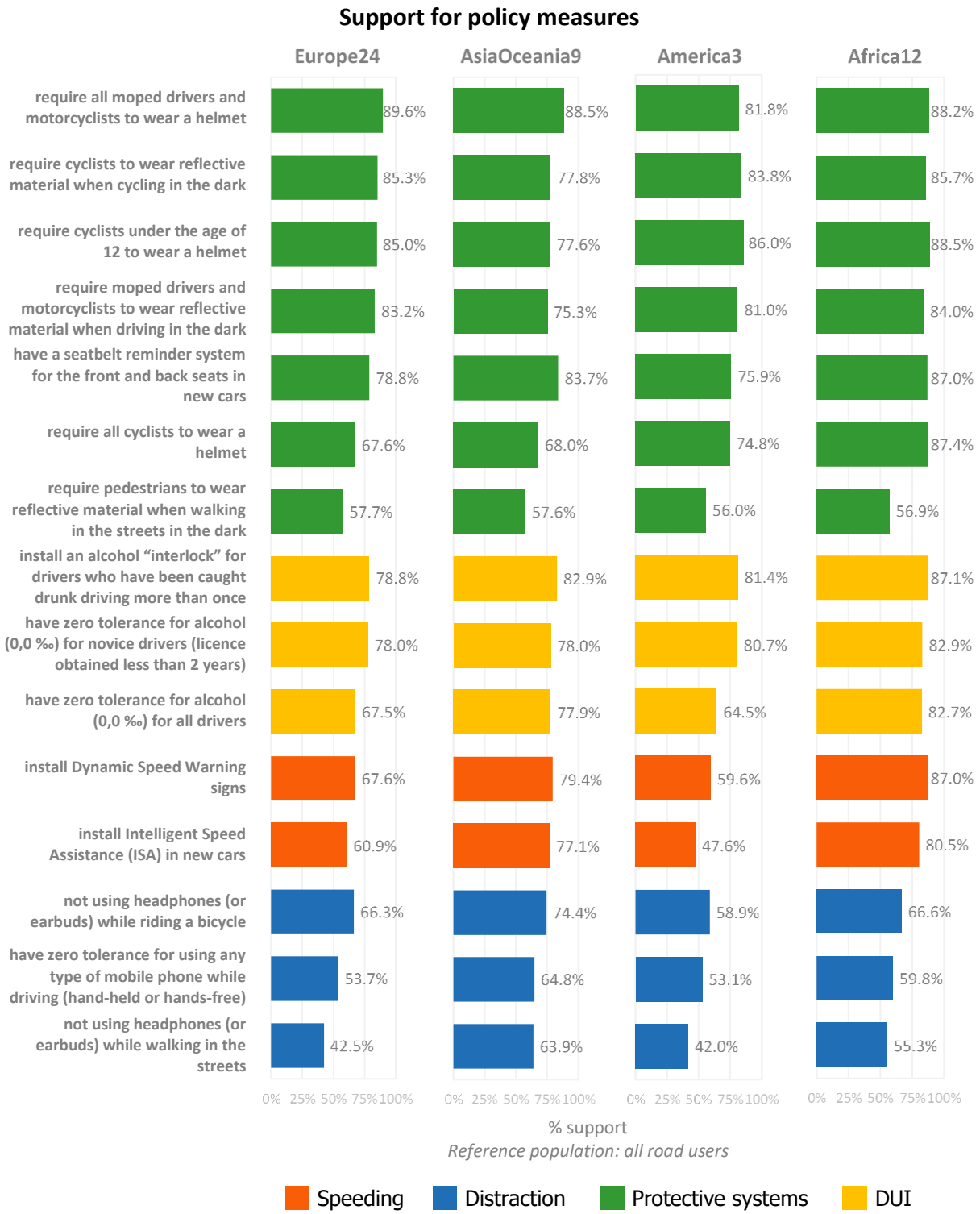


Figure 15: Support for policy measures, by region (Do you oppose or support a legal obligation to …?' – % of support – scores 4 to 5 on a 5-point scale from 1 "oppose" to 5 "support").

3.8 Opinions on vehicle automation

ESRA2 also included a question about vehicle automation. Two levels of vehicle automation were defined:

- Semi-automated passenger cars: drivers can choose to have the vehicle control all critical driving functions, including monitoring the road, steering, and accelerating or braking in certain traffic and environmental conditions. These vehicles will monitor roadways and prompt drivers when they need to resume control of the vehicle.
- Fully-automated passenger cars: the vehicle controls all critical driving functions and monitoring in all traffic situations. Drivers do not take control of the vehicle at any time.

Figure 16 shows the interest of respondents in using a semi- or fully-automated passenger car per region[12]. The national results and more statistical information can be found in Table 16 in Appendix 5.

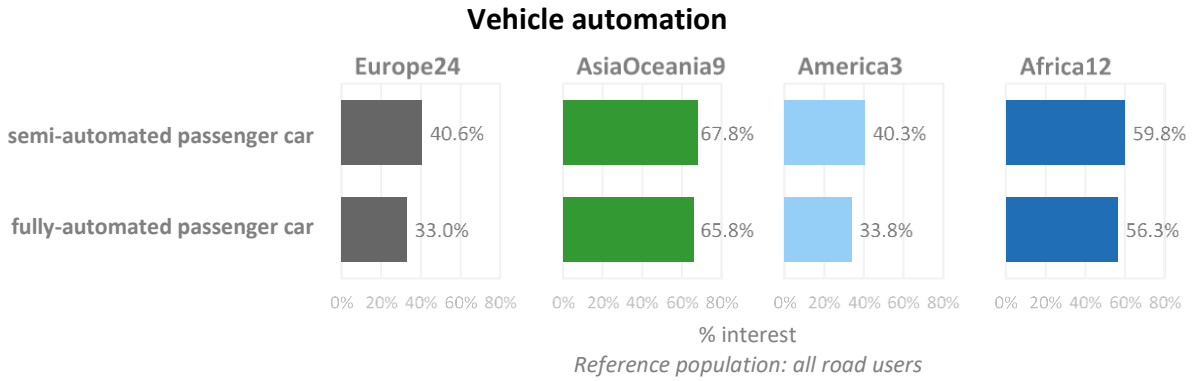


Figure 16: Vehicle automation, by region ('How interested would you be in using the following types of automated passenger car?' – % of likely – scores 5 to 7 on a 7-point scale from 1 "not at all interested" to 7 "very interested").

Interestingly, in all regions the interest in semi-automated passenger cars is somewhat higher than in fully-automated cars. For both levels of automation, the interest is higher in AsiaOceania9 and Africa12 and lower in America3 or Europe24. In most regions male respondents are more interested in automated cars than female respondents[13]. There are no significant differences with respect to age in the interest for semi-automated cars, but the interest in fully-automated cars decreased with age.

Respondents were also asked how likely they thought that a certain benefit would occur if everyone would use a semi-automated passenger car or a fully-automated passenger car[14]. The potential benefits included fewer crashes, reduced severity of crash, less traffic congestion, shorter travel time, lower vehicle emissions, better fuel economy, more time for functional activities, and more time for recreational activities. Figure 17 shows the percentage of respondents, who thought that a certain benefit would be likely.

Better fuel economy, fewer crashes and reduced severity of crashes are the potential benefits that were perceived as the most likely in all regions if everyone would use automated cars. Shorter travel time was perceived as the least likely potential benefit for both levels of vehicle automation. In general, the respondents in most regions thought that the protentional benefits would be higher if everyone would use a fully-automated passenger car than if everyone would use a semi-automated car. However, some exceptions exist and the difference between fully- and semi-automated cars was very small for some benefits.

The general perceived potential benefit of everyone driving automated passenger cars (semi-/fully-automated) was the highest in AsiaOceania9 (ranging from 58.3% to 70.7%), followed by Africa12

[12] "How interested would you be in using the following types of automated passenger car?"

[13] Only exception: no significant gender difference in interest for fully automated cars in Africa12.

[14] "How likely do you think it is that the following benefits will occur if everyone would use a semi-automated passenger car/fully automated passenger car?"

(ranging from 47.2% to 64.5%). In Europe24 and America3 each assessed potential benefit was perceived as least likely of all regions (ranging from 32.1% to 54.3% for Europe24 and from 30.6% to 49.7% for America3)).

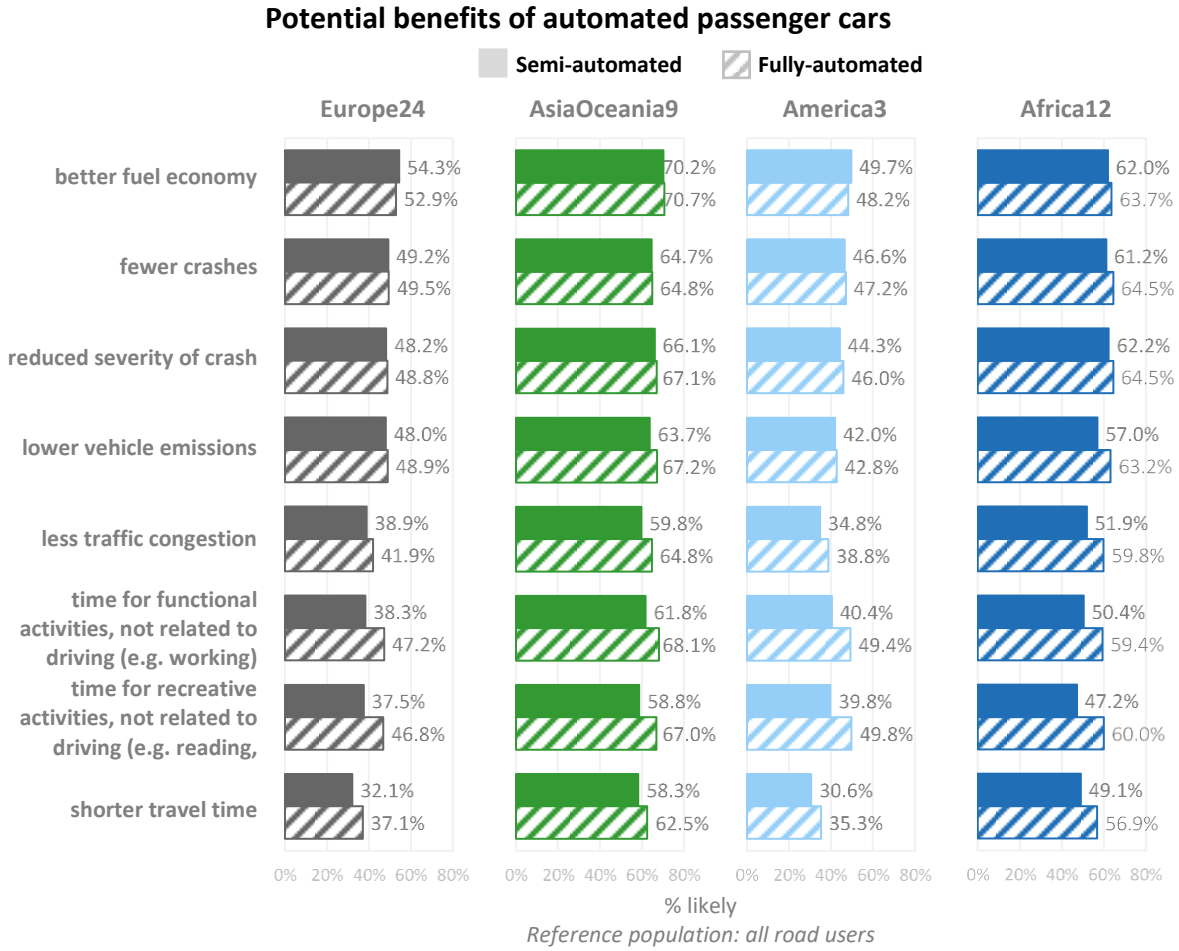


Figure 17: Potential benefits of semi-automated and fully-automated passenger cars, by region (% of likely – scores 5 to 7 on a 7-point scale from 1 = "very unlikely" to "7 = very likely").

Men tended to perceive the potential benefits of everyone driving an automated passenger car as more likely than women, except in Africa12 for some potential benefits. For most potential benefits young people believe more that they are likely to happen.

4 Conclusions

4.1 Achievement of the initial aims and objectives

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 60 countries across six continents. The ESRA initiative has yielded a very rich dataset that is useful for understanding road safety risks and the effectiveness of policy measures. ESRA data helps to assess the national road safety situation and enables benchmarking in comparison to other countries or regions. In this way, ESRA data are a solid foundation for national and international road safety monitoring systems.

An evaluation among ESRA partners in 2021 showed great enthusiasm and satisfaction with ESRA and in particular how ESRA2 was managed and conducted. All ESRA2 partners indicated that the ESRA data were useful for their organization and almost all partners have used ESRA2 data for dissemination activities. Most ESRA partners are very satisfied with their role in the ESRA2 fieldwork and with their return on investment for the resources their organization has spent on ESRA2.

4.2 A wealth of information has become available

The key results of the ESRA2 survey were published through a series of reports including this report, the dedicated report on the African ESRA countries, a Methodology Report, 15 Thematic Reports on road safety topics (see Table 1) and 64 country fact sheets, in which national key results are compared to a regional mean. Scientific articles, national reports and many conference presentations are currently in progress. All common ESRA2 reports have been peer-reviewed within the consortium, following a pre-defined quality control procedure. ESRA2 output can be freely consulted and downloaded at the ESRA website (www.esranet.eu).

Only a fraction of the available information has been included in this synthesis report. Of the many findings, some interesting results are presented below:

In relation to road safety in general:

- Women are more concerned about risks on the road and safety than men, this gender difference is larger in Europe than in other regions of the world.
- Riding a moped or a motorcycle is perceived as the most unsafe mode of transport.
- Those who engage in drunk driving, drug driving, or in multiple traffic offences (including both types of impaired driving) have a disproportionately high involvement in injury crashes.
- People tend to be more interested in semi-automated than in fully automated cars.

In relation to behaviour of road users in traffic:

- In all regions, the most frequently reported traffic violations of car drivers/passengers are speeding violations, not wearing the seatbelt in the back seat and using the mobile phone while driving.
- In AsiaOceania and in Africa the percentages of respondents reporting to not use a seatbelt or child restraint system is about twice as high as in Europe and America.
- Mobile phone use when driving and fatigued driving are higher among younger drivers than older drivers.
- In most countries one fifth to one quarter of car drivers report to have driven while having trouble keeping their eyes open in the past 30 days.
- Driving after drinking alcohol is being reported by one in five drivers in Europe, USA and Africa and by one in seven drivers in AsiaOceania.

- People think that others find risky behaviour in traffic more acceptable than they do themselves.
- Attitudes, acceptability and perceived behaviour control are significant predictors for unsafe traffic behaviour. The effect size of these concepts differs according to road safety topic and by country.

In relation to policy measures and enforcement:

- Public support for additional road safety policy measures is lower in Europe and America than in Asia and Africa.
- The enforcement of seat belt use and safe transport of children is especially important in African and Asian countries.
- Young drivers are least likely to support zero tolerance policies for mobile phone use when driving, while elderly drivers are the most likely to support this measure.
- A new challenge for traffic enforcement worldwide is the frequent use of (hand-held) smartphone by vehicle drivers, cyclists and pedestrians.
- The fairly high reported traffic violations rates of moped riders, motorcyclists, cyclists and pedestrians, indicates that these groups should not be ignored in road infrastructure and traffic enforcement planning or in traffic education.

As shown in this report the ESRA2 survey provides a unique data set of road users' opinions, attitudes, and behaviour in relation to road safety. The total sample size consists of 45,114 road users from 48 countries. The information is recent (2018-2020), reliable and comparable across countries. Therefore, the results can form the basis for benchmarking road safety culture in a regional and global perspective. In particular for some African countries, the ESRA2 data presents the first overview of comparable road safety data across the region, but the data collection was very challenging and comparisons should be made with caution (Torfs et al., 2021).

4.3 Points of attention for the future

For the data comparison and the next ESRA edition the following points of attention should be considered.

Having a standardised methodology and sampling procedure in all participating countries is essential to obtain fully comparable and reliable data (De Leeuw et al., 2008). Although this was clearly anticipated in ESRA2 a few issues arose. For instance, one of the main challenges was the low internet penetration in some countries, which might affect the representativity of the online panels in these countries. This was in particular the case in some African countries. It should be noted however that in most ESRA2 countries the internet penetration was very high (median 79%) and 37 out of 48 countries had a percentage above 60%.

In some countries it was not possible to reach a sample size of at least 1,000 respondents. This was the case in most African countries and some small countries such as Luxembourg or Iceland.

In several countries the share of the oldest age group (65y+) was underrepresented. This was the case mainly in African countries but also in a few countries from other regions (e.g., Greece, Serbia, Vietnam). There are also doubts about the national representativity of very old participants in this online panel survey. For these reasons the ESRA steering group decided to work in the next edition (ESRA3) with a maximum age of 74y. In ESRA3 we will aim for a national representative sample based on gender, six age groups (18-24, 25-34, 35-44, 45-54, 55-64, 65-74) and regional spread. In countries where this is not possible the sample will be reduced to four age groups with a maximum age of 54y.

Survey research is fraught with general response tendencies and biases, and this is especially true in cross-national studies (e.g. Lajunen et al., 1997; Tellis & Chandrasekaran, 2010). Road users of countries from Europe, America, Africa, Asia, or Oceania may have different cultural interpretations of the questions in the survey. Factors like social values, capabilities, personality, the role of status of a person, laws, road safety culture, and infrastructural differences vary among the different countries and may influence road users' responses (Pires et al., 2020; Van den Berghe et al., 2020). Indeed, the ESRA data revealed differences in general response tendencies between countries on several questions. For

example, in Greece respondents tend to indicate that 'they themselves' do not accept a certain unsafe traffic behaviour, but that 'the others' do accept this behaviour, whereas in the Netherlands this difference between personal and social acceptability of unsafe traffic behaviour is much smaller.

Other limitations of self-reported data are the tendency of respondents to provide answers which present a favourable image of themselves (desirability bias), the misunderstanding of questions (e.g., questions with difficult words or long questions), or unintentional faulty answers due to memory errors (recall error) (Choi & Pak, 2005; Krosnick & Presser, 2010; Pires et al., 2020). Based on the experiences in ESRA1, a social desirability scale was included in the ESRA2 questionnaire (Lajunen et al., 1997; see also: Ostapczuk et al., 2017; Yılmaz et al., 2022). This social desirability scale can help to correct for desirability-related bias by including this variable as controlling factor in, for example, regression models (Lajunen et al., 1997; Meesmann et al., 2020; Nießen et al., 2019).

Finally, as highlighted in this section, some improvements are to be made when envisioning a third edition of the ESRA survey in 2023. A core set of questions will be retained in every survey allowing comparisons and the development of time series of road safety performance indicators. If deemed appropriate new questions could be added and some of the existing ones may be modified or removed in view of obtaining a higher response quality. This will be a joint decision of all participating organisations.

4.4 Towards ESRA3

In ESRA3, the overall methodological approach that was developed and implemented in ESRA1 and ESRA2 will be maintained. In each participating country, the ESRA3 survey will be conducted among a representative sample of the national adult population.

The questionnaire in ESRA3 will have the same length as those of ESRA1 and ESRA2. Many questions will remain the same as in ESRA2 in order to allow for detecting trends over time. For each world region which includes several ESRA partner countries (e.g., Europe, Africa, Arab world, Latin America, Asia, etc.) some specific questions on road safety will be added that are highly relevant for that region; these questions will be determined in cooperation with the countries concerned and the Regional Road Safety Observatories in these regions. The questionnaire will be available in the national language of the country (in countries with several languages, the main ones will be used).

The data collection will be organized between February and March 2023 and undertaken by survey and polling agencies via online panels, under the supervision of Vias institute. All data collected will be centrally stored and processed. Small deviations from the overall methodology (sample size, survey method) will be considered in countries where the standard methodology cannot be applied.

Organisations interested in joining ESRA and becoming a national ESRA partner can contact the ESRA Secretariat at ESRA@vias.be.

List of tables

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Overview appendixes

Appendix 1: ESRA2 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. Thank you for your contribution!

Socio-demographic information

Q1) In which country do you live? _____

Q2) Are you ... male – female – other (only in country who officially recognizes another gender)

Q3a) In which year were you born? Dropdown menu

Q3b) In which month were you born? Dropdown menu

Q4_1) 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

Q4_2) What is the highest qualification or educational certificate that your mother has obtained? none - primary education - secondary education - bachelor's degree or similar - master's degree or higher - I don't know

Q5a) Which of the following terms best describes your current professional occupation? white collar or office worker (excluding executive)/employee (public or private sector) →Q5b - blue collar or manual worker/worker →Q5b - executive →Q5b - self-employed/independent professional →Q5b - currently no professional occupation →Q5c

Q5b) Do you have to drive or ride a vehicle for work? (Please indicate the job category that is most appropriate for you) yes, I work as a taxi, bus, truck driver, … - yes, I work as a courier, mailman, visiting patients, food delivery, salesperson, … - no

Q5c) You stated that you currently have no professional occupation. Which of the following terms best describes your current situation? I am … a student - unemployed, looking for a job – retired - not fit to work - a stay-at-home spouse or parent - other

Q6) What is the postal code of the municipality in which you live? _____

Q7) In which region do you live? Drop down menu

Q8a) How far do you live from the nearest bus stop, light rail stop, or metro/underground station? less than 500 metres → Q8b - between 500 metres and 1 kilometre → Q8b - more than 1 kilometre → skip Q8b

Q8b) What is the frequency of your nearest bus stop, light rail stop, or metro/underground station? at least 3 times per hour - 1 or 2 times per hour - less than 1 time per hour

Mobility & exposure

Q9) Do you have a car driving licence or permit (including learner's permit)? yes - no

Q10) 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): walk minimum 100m (pedestrian; including jogging, inline skate, skateboard, …) - cycle (non-electric) - cycle on an electric bicycle/e-bike/pedelec - drive a moped (≤ 50 cc or ≤ 4 kW; non-electric - drive a motorcycle (> 50 cc and > 4 kW non-electric) - drive an electric moped (≤ 4 kW) - drive an electric motorcycle (> 4 kW) - drive a powered personal transport device such as an electric step, hoverboard, solowheel,… - drive a car (non-electric or non-hybrid) - drive a taxi - drive a bus as a driver - drive a truck/lorry - drive a hybrid or electric car - take a taxi or use a ride-hail service (e.g. Uber, Lyft) - take the train - take the bus - take the

tram/streetcar - take the subway - take the aeroplane - take a ship/boat or ferry - be a passenger in a car - use another transport mode

Q11) Over the last 30 days[15], have you transported a child (<18 years of age) in a car? yes - no
Items: below 150cm - above 150cm

Self-declared safe and unsafe behaviour in traffic

Q12_1a) Over the last 12 months, 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: at least once (2-5) - never (1)
Items (random):

- drive after drinking alcohol
- drive faster than the speed limit outside built-up areas (but not on motorways/freeways)
- read a text message or email while driving

Q12_1b) Over the last 30 days, how often did you as a CAR DRIVER …?[16]
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: at least once (2-5) - never (1)
Items (random):

- drive when you may have been over the legal limit for drinking and driving
- drive after drinking alcohol
- drive 1 hour after using drugs (other than medication)
- drive after taking medication that carries a warning that it may influence your driving ability
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (but not on motorways/freeways)
- drive faster than the speed limit on motorways/freeways
- drive without wearing your seatbelt
- transport children under 150cm without using child restraint systems (e.g. child safety seat, cushion)
- transport children over 150cm without wearing their seatbelts
- talk on a hand-held mobile phone while driving
- talk on a hands-free mobile phone while driving
- read a text message/email or check social media (e.g. Facebook, twitter, etc.) while driving
- drive when you were so sleepy that you had trouble keeping your eyes open

Q12_2) Over the last 30 days, how often did you as a CAR PASSENGER …?[17] 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: at least once (2-5) - never (1)
Item:

- travel without wearing your seatbelt in the back seat

Q12_3) Over the last 30 days, how often did you as a MOPED DRIVER OR MOTORCYCLIST …?[18] 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: at least once (2-5) - never (1)
Items (random):

- ride when you may have been over the legal limit for drinking and driving
- ride faster than the speed limit outside built-up areas (but not on motorways/freeways)
- ride a moped or motorcycle without a helmet
- read a text message/email or check social media (e.g. Facebook, twitter, etc.) while riding a moped or motorcycle

[15] For data collection in Benin, due to the covid-19 situation, some wordings of questions needed to be addressed. During this period, this sentence was phrased as follow: "*During a typical month, do you transport a child (<18 years of age) in your* car at least one day of the month?"

[16] For data collection in Benin, during covid-19 lockdown : *"During a typical month, how often do you as a CAR DRIVER…?"*

[17] For data collection in Benin, during covid-19 lockdown: *"During a typical month, how often do you as a CAR PASSENGER …?"*

[18] For data collection in Benin, during covid-19 lockdown: *"During a typical month, how often do you as a MOPED DRIVER OR MOTORCYCLIST …?"*

Q12_4) Over the last 30 days, how often did you as a CYCLIST …?[19] 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: at least once (2-5) - never (1)
Items (random):

- 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 text message/email or check social media (e.g. Facebook, twitter, etc.) while cycling
- cycle on the road next to the cycle lane

Q12_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: at least once (2-5) - never (1)
Items (random):

- listen to music through headphones as a pedestrian while walking in the streets
- read a text message/email or check social media (e.g. Facebook, twitter, etc.) while walking in the streets
- cross the road when a pedestrian light is red
- cross the road at places other than at a nearby (distance less than 30m) pedestrian crossing

Acceptability of safe and unsafe traffic behaviour

Q13_1) 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):

- drive when he/she may be over the legal limit for drinking and driving
- drive 1 hour after using drugs (other than medication)
- drive faster than the speed limit outside built-up areas (but not on motorways/freeways)
- not wear a seatbelt while driving
- transport children in the car without securing them (child's car seat, seatbelt, etc.)
- talk on a hand-held mobile phone while driving
- read a text message/email or check social media (e.g. Facebook, twitter, etc.) while driving

Q14_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)

- drive when he/she may be over the legal limit for drinking and driving
- drive 1 hour after using drugs (other than medication)
- drive after taking a medication that may influence the ability to drive
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (but not on motorways/freeways)
- drive faster than the speed limit on motorways/freeways
- not wear a seatbelt while driving
- 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 hand-free mobile phone while driving
- read a text message/email or check social media (e.g. Facebook, twitter, etc.) while driving
- drive when they're so sleepy that they have trouble keeping their eyes open

Attitudes towards safe and unsafe behaviour in traffic

Q15) 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):

[19] For data collection in Benin, during covid-19 lockdown: *"During a typical month, how often do you as a CYCLIST …?"*

Normative believes & subjective norms (including injunctive norms from Q13)

- Most of my friends would drive after having drunk alcohol.
- Most of my friends would drive 20 km/h over the speed limit in a residential area.

Behaviour believe & 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.
- For short trips, it is not really necessary to use the appropriate child restraint.
- 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 (here: self-efficacy)

- I trust myself to drive after having a glass of alcohol.
- 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. half a liter of wine).
- I trust myself when I drive significantly faster than the speed limit.
- I am able to drive fast through a sharp curve.
- I trust myself when I check my 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.
- Even when I am a little drunk after a party, I drive.
- It sometimes happens that I drive after consuming a large amount of alcohol (e.g. a liter of beer or half a liter of wine).
- I often drive faster than the speed limit.
- I like to drive in a sporty fast manner through a sharp curve.
- It happens sometimes that I write a message on the mobile phone while driving.
- I often talk on a hand-held mobile phone while driving.
- I often check my messages on the mobile phone while driving.

Intentions

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

Quality control items

- Indicate number 1 on the answering scale.
- Indicate number 4 on the answering scale.

Subjective safety & risk perception

Q16) 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 Q10 are displayed.

Q17) 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)

- driving after drinking alcohol
- driving after taking drugs (other than 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 day-dreaming while driving
- driving while tired

Support for policy measures

Q18) Do you oppose or support a legal obligation to …? 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 (random)

- install 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 the legal limit)
- have zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2 years)
- have zero tolerance for alcohol (0,0 ‰) for all drivers
- install Intelligent Speed Assistance (ISA) in new cars (which automatically limits the maximum speed of the vehicle and can be turned off manually)
- install Dynamic Speed Warning signs (traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold)
- have a seatbelt reminder system for the front and back seats in new cars
- require all cyclists to wear a helmet
- require cyclists under the age of 12 to wear a helmet
- require all moped drivers and motorcyclists to wear a helmet
- require pedestrians to wear reflective material when walking in the streets in the dark
- require cyclists to wear reflective material when cycling in the dark
- require moped drivers and motorcyclists to wear reflective material when driving in the dark
- have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers
- not using headphones (or earbuds) while walking in the streets
- not using headphones (or earbuds) while riding a bicycle

Q19_1) What do you think about the current traffic rules and penalties in your country for driving or riding under the influence of alcohol? agree – disagree
Items:
- The traffic rules should be stricter.
- The traffic rules are not being checked sufficiently.
- The penalties are too severe.

Q19_2) What do you think about the current traffic rules and penalties in your country for driving or riding faster than the speed limit? agree – disagree
Items: Q19_1

Q19_3) What do you think about the current traffic rules and penalties in your country for using a mobile phone while driving or riding? agree – disagree
Items: Q19_1

Enforcement

Q20) On a typical journey, how likely is it that you (as a CAR DRIVER) will be checked by the police 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)
- … alcohol, in other words, being subjected to a Breathalyser test
- … the use of illegal drugs
- … respecting the speed limits (including checks by a police car with a camera, fixed cameras, mobile cameras, and section control systems)
- … wearing your seatbelt
- … the use of hand-held mobile phone to talk or text while driving

Q21) 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 - I prefer not to respond to this question
Binary variable: at least once - never (removing "I prefer not to respond to this Q")

Q22) In the past 12 months, how many times have you been checked by the police for the use of drugs (other than medication) while DRIVING A CAR? never – 1 time – at least 2 times - I prefer not to respond to this question
Binary variable: at least once - never (removing "I prefer not to respond to this Q")

Involvement in road crashes

Introduction: 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.

Q23_1a) In the past 12 months, how many times have you personally been involved in road crashes in which you or somebody else had to be taken to the hospital? ___ times (number; max. 10) if 0 → Q23_2a; if >0 → Q23_1b → Q23_2a
Binary variable: at least once - never

Q23_1b) Please indicate the transport modes you were using at the time of these crashes.
Items indicated by the respondent in Q10 are displayed; Threshold = 'at least a few days a year'.
Number to be indicated after each transport mode; note the sum should be equal to the number indicated in Q23_1a

Q23_2a) In the past 12 months, how many times have you personally been involved in road crashes with only minor injuries (no need for hospitalisation) for you or other people? ___ times (number; max. 10) if 0 → Q23_3a; if >0 → Q23_2b → Q23_3a
Binary variable: at least once - never

Q23_2b) = Q23_1b

Q23_3a) In the past 12 months, how many times have you personally been involved in road crashes with only material damage?
___ times (number; max. number 10) if 0 → skip Q23_3b; if >0 → Q23_3b → next Q
Binary variable: at least once - never

Q23_3b) = Q23_1b

Vehicle automation

I2) Introduction: The following questions focus on your opinion about automated passenger cars. We talk about two different levels of vehicle automation:
Semi-automated passenger cars: Drivers can choose to have the vehicle control all critical driving functions, including monitoring the road, steering, and accelerating or braking in certain traffic and environmental conditions. These vehicles will monitor roadways and prompt drivers when they need to resume control of the vehicle.
Fully-automated passenger cars: The vehicle controls all critical driving functions and monitoring all traffic situations. Drivers do not take control of the vehicle at any time.

Q24) How interested would you be in using the following types of automated passenger car? You can indicate your answer on a scale from 1 to 7, where 1 is "not at all interested" and 7 is "very interested". The numbers in between can be used to refine your response.
Binary variable: interested (5-7) - not interested/neutral (1-4)
Items:

- semi-automated passenger car
- fully-automated passenger car

Q25_1) How likely do you think it is that the following benefits will occur if everyone would use a semi-automated passenger car? 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):

- fewer crashes
- reduced severity of crash
- less traffic congestion
- shorter travel time
- lower vehicle emissions
- better fuel economy
- time for functional activities, not related to driving (e.g. working)
- time for recreative activities, not related to driving (e.g. reading, sleeping, eating)

Q25_2) How likely do you think it is that the following benefits will occur if everyone would use a fully-automated passenger car? 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.
Items (random) = Q25_1

Bonus question to be filled in by national partner

Q26) .....? You can indicate your answer on a scale from 1 to 5, where 1 is "...." and 5 is "....". The numbers in between can be used to refine your response.
Items (random; 4 items)

Q27) .....? You can indicate your answer on a scale from 1 to 5, where 1 is "...." and 5 is "....". The numbers in between can be used to refine your response.
Items (random; 4 items)

Social desirability scale

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

Q28) To what extent are the following statements true? You can indicate your answer on a scale from 1 to 5, where 1 is "very untrue" and 5 is "very true". The numbers in between can be used to refine your response.
Items (random):

- I always respect the highway code, even if the risk of getting caught is very low.
- I would still respect speed limits at all times, even if there were no police checks.
- I have never driven through a traffic light that had just turned red.
- I do not care what other drivers think about me.
- I always remain calm and rational in traffic. (if needed pop-up: rational = non-emotional)
- I am always confident of how to react in traffic situations.

Appendix 2: ESRA2 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, 2019). 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, 65y+). 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, 65y+) distribution in a country as retrieved from the UN population statistics.
Europe24 weight	European weighting factor based on all 24 European countries participating in ESRA2, considering individual country weight and population size of the country as retrieved from the UN population statistics.
America3 weight	American weighting factor based on all 3 North and Latin American countries participating in ESRA2, considering individual country weight and population size of the country as retrieved from the UN population statistics.
AsiaOceania9 weight	Asian and Oceanian weighting factor based on all 9 Asian and Oceanian countries participating in ESRA2, considering individual country weight and population size of the country as retrieved from the UN population statistics.
Africa12 weight	African weighting factor based on all 12 African countries participating in ESRA2, considering individual country weight and population size of the country as retrieved from the UN population statistics.

Appendix 3: Summary of ESRA2 fieldwork per country

ESRA2_2018

Country	Panel provider	National subcontractor	National langue versions	Sample size	Median LOI (minutes)	Start date field (yyyy-mm-dd)	End date field (yyyy-mm-dd)
Australia	Dynata (RN SSI)	Dynata (RN SSI)	English_AU	968	18.44	2018-12-14	2018-12-29
Austria	Punto de Fuga	CINT	German_AT	1999	18.57	2018-12-04	2018-12-18
Belgium	Dynata (RN SSI)	Dynata (RN SSI)	Dutch_BE; French_BE	1985	18.90	2018-12-14	2018-12-31
Canada	Dynata (RN SSI)	Dynata (RN SSI)	English_CA; French_CA	980	19.50	2018-12-19	2018-12-31
Czech Republic	Dynata (RN SSI)	Dynata (RN SSI)	Czech_CR	989	20.81	2018-12-14	2018-12-30
Denmark	Dynata (RN SSI)	Dynata (RN SSI)	Danish_DK	984	20.31	2018-12-14	2018-12-31
Egypt	Punto de Fuga	CINT	Arabic_EG; English_EG	996	21.92	2018-12-04	2018-12-24
Finland	Dynata (RN SSI)	Dynata (RN SSI)	Finnish_FI	994	20.04	2018-12-14	2018-12-27
France	Dynata (RN SSI)	Dynata (RN SSI)	French_FR	994	19.02	2018-12-14	2018-12-30
Germany	Dynata (RN SSI)	Dynata (RN SSI)	German_DE	1989	18.67	2018-12-14	2018-12-29
Greece	Ipsos (GfK)	Toluna	Greek_EL	1015	23.52	2018-12-05	2018-12-19
Hungary	Punto de Fuga	CINT	Hungarian_HU	1014	21.89	2018-12-04	2018-12-12
India	Punto de Fuga	CINT	Hindi_IN; English_IN	1035	24.12	2018-12-04	2018-12-12
Ireland	Ipsos (GfK)	Toluna	English_IE	1031	21.00	2018-12-05	2018-12-24
Israel	Dynata (RN SSI)	Panel4All	Hebrew_IL; English_IL	984	20.02	2018-12-17	2018-12-29
Italy	Dynata (RN SSI)	Dynata (RN SSI)	Italian_IT	980	20.04	2018-12-14	2018-12-24
Japan	Dynata (RN SSI)	Dynata (RN SSI)	Japanese_JP	980	17.37	2018-12-14	2018-12-25
Kenya	Punto de Fuga	CINT	Swahili_KE; English_KE	1000	30.55	2018-12-04	2018-12-13
Morocco	Punto de Fuga	CINT	Arabic_MA; French_MA	1047	27.05	2018-12-05	2018-12-23
Netherlands	Dynata (RN SSI)	Dynata (RN SSI)	Dutch_NL	983	19.19	2018-12-17	2018-12-27
Nigeria	Punto de Fuga	CINT	English_NG	1000	34.08	2018-12-04	2018-12-21
Poland	Dynata (RN SSI)	Dynata (RN SSI)	Polish_PL	993	22.04	2018-12-17	2018-12-31
Portugal	Punto de Fuga	CINT	Portugese_PT	998	21.34	2018-12-04	2018-12-17
Republic of Korea	Ipsos (GfK)	Toluna	Korean_KR	1043	18.62	2018-12-05	2018-12-18
Serbia	Ipsos (GfK)	CINT	Serbian_RS	1041	24.00	2018-12-05	2018-12-18
Slovenia	Ipsos (GfK)	CINT	Slovenian_SI	1035	23.58	2018-12-05	2018-12-15
South Africa	Ipsos (GfK)	Toluna	Afrikaans_ZA; English_ZA	1013	28.28	2018-12-05	2018-12-19
Spain	Dynata (RN SSI)	Dynata (RN SSI)	Spanish_ES	980	20.61	2018-12-14	2018-12-28
Sweden	Dynata (RN SSI)	Dynata (RN SSI)	Swedish_SE	987	19.53	2018-12-17	2018-12-30
Switzerland	INFAS	Lightspeed	German_CH; French_CH; Italian_CH	1020	19.79	2019-01-04	2019-01-22
United Kingdom	Dynata (RN SSI)	Dynata (RN SSI)	English_UK	963	16.91	2018-12-14	2018-12-26
USA	Punto de Fuga	CINT	English_US	1016	16.93	2018-12-04	2018-12-11
32	**4**	**5**	**42**	**35036**	**20.82**	**2018-12-04**	**2019-01-22**

ESRA2_2019

Country	Panel provider	National subcontractor	National langue versions	Sample size	Median LOI (minutes)	Start date field (yyyy-mm-dd)	End date field (yyyy-mm-dd)
Benin	Ipsos (GfK)	Ipsos (GfK)	French_BJ	272	41.16	2020-06-02	2020-07-06
Bulgaria	Punto de Fuga	CINT	Bulgarian_BG	1005	24.28	2019-12-10	2020-01-08
Cameroon	Punto de Fuga	CINT	French_CM; English_CM	204	39.16	2019-11-19	2020-01-08
Colombia	Punto de Fuga	CINT	Spanish_CO	1013	28.73	2020-04-17	2020-04-20
Ghana	Punto de Fuga	CINT	English_GH	378	37.03	2019-11-19	2020-01-15
Iceland	Ipsos (GfK)	Ipsos (GfK)	Icelandic_IS; English_IS	413	20.22	2020-06-01	2020-07-10
Ivory Coast	Punto de Fuga	CINT	French_CI	379	43.65	2019-11-19	2020-02-20
Lebanon	Ipsos (GfK)	Ipsos (GfK)	Arabic_LB; English_LB	1016	23.27	2020-06-01	2020-07-02
Luxembourg	TNS	TNS	French_LU	555	24.82	2020-06-25	2020-07-01
Malaysia	Dynata (RN SSI)	Dynata (RN SSI)	Malay_MY	529	22.30	2020-04-22	2020-04-29
Norway	Dynata (RN SSI)	Dynata (RN SSI)	Norwegian_NO	1040	20.05	2020-04-22	2020-04-28
Thailand	Dynata (RN SSI)	Dynata (RN SSI)	Thai_TH	1026	22.13	2020-04-22	2020-04-29
Tunisia	Punto de Fuga	CINT	Arabic_TN	383	26.70	2019-11-19	2019-12-23
Uganda	Punto de Fuga	CINT	English_UG	378	35.24	2019-11-19	2020-01-08
Vietnam	Ipsos (GfK)	Ipsos (GfK)	Vietnamese_VN	1009	21.82	2020-06-01	2020-06-09
Zambia	Punto de Fuga	CINT	English_ZM	478	39.00	2019-11-19	2020-01-08
16	**4**	**4**	**19**	**10078**	**25.65**	**2019-11-19**	**2020-07-10**

Appendix 4: Main characteristics of the ESRA2 sample

Table 4: Sample size, gender and age distribution by country (unweighted) and region (weighed means).

Country / Region	Sample size	Internet-users (per 100 people)	Gender			Age group					
			male	female	other	18-24y	25-34y	35-44y	45-54y	55-64y	65y+
Australia	968	87	48%	52%	0%	11%	19%	18%	17%	15%	20%
Austria	1999	88	48%	52%	0%	10%	17%	16%	19%	16%	23%
Belgium	1985	89	49%	51%	0%	10%	16%	17%	18%	16%	23%
Benin	272	20	75%	25%	0%	41%	43%	13%	3%	0%	0%
Bulgaria	1005	68	48%	52%	0%	8%	16%	18%	17%	15%	26%
Cameroon	204	23	45%	55%	0%	27%	29%	22%	21%	0%	2%
Canada	980	91	49%	51%	0%	11%	16%	16%	18%	18%	21%
Colombia	1013	65	49%	51%	0%	15%	26%	23%	16%	12%	8%
Czech Republic	989	81	49%	51%	0%	8%	16%	21%	16%	15%	23%
Denmark	984	98	49%	51%	0%	11%	15%	15%	18%	16%	24%
Egypt	996	47	54%	46%	0%	20%	32%	32%	11%	2%	2%
Finland	994	89	49%	51%	0%	10%	16%	15%	16%	17%	26%
France	994	82	48%	52%	0%	10%	16%	16%	17%	16%	24%
Germany	1989	90	49%	51%	0%	9%	15%	14%	20%	16%	25%
Ghana	378	39	48%	52%	0%	30%	29%	21%	17%	2%	1%
Greece	1015	73	50%	48%	2%	9%	20%	31%	25%	13%	3%
Hungary	1014	76	45%	50%	5%	10%	16%	19%	16%	17%	22%
Iceland	413	99	50%	50%	0%	15%	30%	35%	15%	4%	2%
India	1035	34	54%	45%	1%	22%	25%	22%	16%	9%	6%
Ireland	1031	85	46%	54%	0%	11%	19%	24%	20%	14%	11%
Israel	984	82	49%	51%	0%	16%	21%	19%	15%	13%	16%
Italy	980	74	48%	52%	0%	8%	13%	17%	19%	16%	27%
Ivory Coast	379	36	56%	44%	0%	28%	32%	23%	15%	2%	1%
Japan	980	85	48%	52%	0%	8%	13%	17%	15%	15%	31%
Kenya	1000	18	50%	50%	0%	27%	36%	22%	12%	3%	1%
Lebanon	1016	78	55%	45%	0%	33%	27%	21%	13%	5%	0%
Luxembourg	555	97	49%	51%	0%	11%	21%	18%	17%	15%	18%
Malaysia	529	84	50%	50%	0%	16%	29%	25%	16%	10%	5%
Morocco	1047	65	55%	45%	0%	27%	35%	24%	9%	2%	2%
Netherlands	983	95	49%	51%	0%	11%	15%	15%	19%	16%	23%
Nigeria	1000	42	55%	45%	0%	28%	37%	21%	10%	3%	2%
Norway	1040	98	49%	51%	0%	11%	16%	20%	18%	15%	21%
Poland	993	78	48%	52%	0%	10%	19%	18%	15%	18%	19%
Portugal	998	75	49%	51%	0%	10%	15%	18%	18%	19%	21%
Republic of Korea	1043	96	50%	48%	1%	13%	19%	22%	21%	18%	8%
Serbia	1041	73	49%	50%	1%	13%	20%	22%	20%	19%	6%
Slovenia	1035	80	51%	49%	0%	10%	18%	18%	20%	21%	13%
South Africa	1013	56	46%	54%	0%	17%	30%	22%	15%	11%	5%
Spain	980	86	54%	46%	0%	9%	15%	22%	12%	17%	24%
Sweden	987	92	50%	50%	0%	11%	17%	16%	17%	15%	25%
Switzerland	1020	90	51%	49%	0%	10%	17%	17%	20%	16%	19%
Thailand	1026	67	50%	50%	0%	17%	27%	29%	17%	9%	2%
Tunisia	383	67	51%	49%	0%	20%	23%	18%	32%	5%	2%
Uganda	378	24	44%	56%	0%	34%	30%	16%	18%	1%	1%
United Kingdom	963	95	49%	51%	0%	11%	17%	16%	18%	15%	23%
United States	1016	87	47%	52%	1%	12%	18%	16%	18%	17%	20%
Vietnam	1009	69	50%	50%	0%	24%	28%	23%	17%	7%	1%
Zambia	478	14	46%	54%	0%	31%	33%	16%	17%	2%	0%
Europe24	25987	68-99	48%	52%	0%	10%	16%	17%	18%	16%	23%
AsiaOceania9	8590	34-96	50%	49%	1%	26%	31%	19%	12%	6%	6%
America3	3009	65-91	48%	51%	0%	12%	17%	16%	17%	16%	20%
Africa12	7528	14-67	49%	51%	0%	26%	28%	19%	13%	7%	6%
TOTAL	45114	14-99	50%	50%	0.3%	14%	21%	20%	17%	13%	15%

Note. (1) Reference population: all road users. (2) Regional weighed means. (3) Source internet use per country: The World Bank Group (2021). (4) For the first wave countries, the internet penetration in the year 2018 is reported, for the second wave countries the internet penetration in the year 2019 is reported.

Appendix 5: Key results from ESRA2 per country

This appendix provides detailed information on the results presented in Chapter 3 'Key results from the ESRA2 survey'. National values and more detailed information on the significant differences between regional means are shown.

In this appendix the following tables are presented:

The tables show all national values. Countries with a significantly higher value than the overall mean were highlighted in red and those with a significantly lower value than the overall mean were highlighted in green. If the national value is not highlighted in a colour, this means that the country value does not significantly differ from the overall mean.

The last six lines in the tables are dedicated to the regional means and provide additional information on the significant differences between the regions. Each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level. In other words, if two regions have the same superscript letter their means do not differ significantly from each other, but if they have different letters, their values are significantly different.

Statistical analysis

For nominal data, the Chi-square Test of Independence was used to assess if the answers depend significantly on the region. Pairwise comparisons were used to identify the pairs of regions that differ significantly, at a significance level of 1%. The strength of the association was assessed through the Cramer's V coefficient. The following thresholds were considered to classify the strength of associations (Cohen, 1988): small=0.06, medium=0.17, large=0.29.

Adjusted standardized residuals were used to identify countries with percentage significantly higher than overall mean (red), significantly lower than the overall mean (green), and with no significant differences from the overall mean, at a significance level of 1%.

For continuous variables (safety feeling scores), ANOVA was used for region comparisons. Pairwise comparisons were performed with Tukey HSD test, considering a significance level of 1%. The strength of the differences was assessed through eta squared (Cohen, 1988): 0.01 indicates a small Effect, 0.06 indicates a medium Effect, and 0.14 indicates a large effect.

SPSS 26.0 (IBM Corp., 2017) and R (R Core Team, 2020) were used for the data processing and data analysis.

Use of transport modes – a few days a month (Q10)

Table 5: Use of transport modes, by country and region (% at least a few days a month).

	Pedestrian	Cyclist	Moped rider /motorcyclist	Car as driver	Car as a passenger	Public transport
Australia	88.9%	20.9%	7.6%	80.4%	72.2%	45.6%
Austria	97.6%	49.1%	12.2%	49.0%	37.1%	33.2%
Belgium	90.2%	40.3%	10.6%	77.2%	62.8%	42.2%
Benin	94.6%	28.5%	63.2%	31.8%	76.9%	42.6%
Bulgaria	90.9%	41.4%	15.1%	68.3%	82.1%	67.0%
Cameroon	95.6%	25.5%	61.8%	43.1%	99.0%	63.7%
Canada	82.9%	28.4%	9.5%	77.3%	71.3%	38.0%
Colombia	92.9%	58.5%	35.7%	55.8%	88.5%	83.1%
Czech Republic	92.8%	34.9%	10.7%	60.6%	66.0%	64.1%
Denmark	94.6%	56.6%	8.3%	74.3%	78.8%	50.3%
Egypt	83.7%	41.8%	34.5%	60.3%	83.0%	77.0%
Finland	95.6%	48.7%	7.4%	70.6%	70.8%	47.8%
France	89.5%	27.0%	9.0%	78.4%	67.9%	45.2%
Germany	93.6%	50.1%	10.3%	75.7%	59.9%	48.9%
Ghana	92.9%	41.3%	39.7%	45.5%	95.2%	83.6%
Greece	94.1%	33.1%	22.1%	80.1%	82.5%	66.6%
Hungary	97.3%	57.6%	15.8%	70.9%	78.9%	69.9%
Iceland	80.6%	42.4%	26.4%	80.6%	62.0%	37.3%
India	90.6%	56.7%	71.5%	68.3%	87.0%	81.6%
Ireland	89.9%	29.6%	9.2%	77.4%	77.4%	51.1%
Israel	90.0%	14.2%	4.9%	84.3%	77.5%	53.4%
Italy	93.0%	48.5%	22.9%	88.3%	68.6%	55.7%
Ivory Coast	95.8%	19.3%	26.9%	30.9%	94.5%	58.0%
Japan	76.1%	41.8%	11.0%	63.6%	60.6%	54.0%
Kenya	94.5%	46.4%	38.4%	61.2%	94.2%	87.1%
Lebanon	85.3%	24.5%	18.0%	72.2%	64.0%	28.5%
Luxembourg	98.0%	34.4%	8.3%	91.0%	70.6%	48.1%
Malaysia	89.4%	45.0%	47.1%	85.6%	78.4%	51.6%
Morocco	85.5%	40.3%	32.7%	61.0%	84.0%	69.3%
Netherlands	90.9%	73.6%	14.3%	72.2%	58.4%	39.6%
Nigeria	91.0%	45.0%	48.4%	68.9%	94.3%	88.4%
Norway	95.0%	43.8%	9.0%	78.0%	68.9%	57.8%
Poland	92.7%	61.0%	11.7%	73.8%	72.4%	64.9%
Portugal	90.4%	24.3%	13.3%	87.2%	70.6%	47.4%
Republic of Korea	89.2%	38.8%	10.8%	71.4%	80.9%	89.6%
Serbia	95.7%	51.4%	13.6%	69.9%	89.5%	67.9%
Slovenia	95.9%	54.6%	15.0%	82.6%	72.4%	34.0%
South Africa	86.2%	27.2%	15.5%	82.6%	85.9%	34.7%
Spain	94.2%	37.7%	18.7%	80.0%	69.1%	66.5%
Sweden	94.8%	47.3%	12.3%	68.7%	74.0%	57.6%
Switzerland	97.0%	40.9%	13.4%	77.1%	65.6%	65.5%
Thailand	85.5%	64.9%	71.2%	64.6%	61.1%	57.4%
Tunisia	91.6%	36.6%	30.3%	60.6%	83.8%	60.3%
Uganda	94.4%	39.4%	38.6%	46.6%	96.0%	66.9%
United Kingdom	88.5%	23.9%	7.5%	67.4%	73.0%	54.6%
United States	76.8%	23.3%	9.6%	79.5%	80.6%	23.5%
Vietnam	94.8%	69.7%	92.8%	48.9%	71.8%	49.7%
Zambia	95.4%	36.4%	23.4%	52.9%	92.5%	83.1%
Europe24	92.3%[a]	42.3%[a]	13.1%[a]	75.9%[a]	68.2%[a]	54.4%[a]
AsiaOceania9	89.8%[b]	57.5%[b]	65.6%[b]	67.0%[b]	82.2%[b]	76.3%[b]
America3	78.7%[c]	26.4%[c]	11.4%[c]	77.5%[a]	80.4%[b]	30.1%[c]
Africa12	88.8%[b]	37.0%[d]	33.9%[d]	58.3%[c]	88.1%[c]	68.1%[d]
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.112	0.164	0.447	0.165	0.204	0.240

Reference population: all road users.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

(1) p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Use of transport modes – a few days a year (Q10)

Table 6: Use of transport modes, by country and region (% at least a few days a year).

	Pedestrian	Cyclist	Moped rider /motorcyclist	Car as driver	Car as a passenger	Public transport
Australia	93.8%	33.1%	11.2%	83.6%	92.5%	81.3%
Austria	99.3%	70.0%	21.2%	57.6%	61.4%	61.0%
Belgium	94.2%	57.5%	15.7%	80.1%	87.8%	80.9%
Benin	97.1%	52.1%	73.1%	42.6%	97.5%	83.9%
Bulgaria	93.8%	64.3%	28.0%	74.4%	97.5%	96.3%
Cameroon	98.5%	44.1%	65.7%	53.9%	99.5%	92.2%
Canada	89.6%	49.7%	13.9%	80.7%	93.9%	77.2%
Colombia	95.6%	75.4%	45.4%	62.6%	98.3%	98.2%
Czech Republic	97.5%	60.0%	24.5%	68.8%	96.7%	96.4%
Denmark	96.6%	74.0%	17.0%	80.0%	97.0%	89.0%
Egypt	90.7%	58.7%	46.9%	68.3%	91.8%	91.8%
Finland	98.4%	78.3%	20.3%	78.7%	97.6%	91.8%
France	92.6%	45.0%	13.0%	80.8%	89.5%	77.3%
Germany	95.9%	67.5%	14.8%	78.8%	87.1%	84.4%
Ghana	97.1%	61.6%	51.9%	56.3%	99.7%	96.0%
Greece	96.3%	63.7%	35.3%	84.3%	99.0%	98.8%
Hungary	98.7%	81.8%	33.0%	78.7%	98.0%	96.4%
Iceland	87.2%	56.4%	34.4%	85.2%	93.2%	86.2%
India	94.7%	72.4%	77.2%	74.4%	98.3%	98.7%
Ireland	93.3%	49.2%	17.2%	82.0%	96.8%	95.6%
Israel	94.9%	34.8%	9.6%	87.4%	97.7%	93.5%
Italy	95.4%	65.7%	30.2%	90.5%	88.9%	91.3%
Ivory Coast	98.2%	40.9%	40.6%	42.0%	97.4%	87.6%
Japan	80.8%	49.7%	13.1%	67.0%	85.1%	84.1%
Kenya	97.7%	64.1%	51.8%	69.2%	99.2%	98.2%
Lebanon	93.3%	46.4%	28.7%	76.7%	88.5%	72.9%
Luxembourg	99.6%	55.9%	13.2%	93.0%	95.7%	92.8%
Malaysia	95.5%	62.9%	57.5%	89.0%	96.2%	91.1%
Morocco	93.2%	59.9%	48.5%	71.3%	95.3%	96.9%
Netherlands	93.2%	84.4%	20.4%	75.3%	81.6%	75.0%
Nigeria	96.4%	61.0%	59.0%	75.0%	99.6%	98.8%
Norway	97.0%	66.9%	17.2%	83.8%	94.4%	92.9%
Poland	96.1%	82.2%	29.9%	79.7%	96.4%	95.5%
Portugal	94.9%	47.5%	20.9%	89.9%	95.6%	92.6%
Republic of Korea	90.4%	54.1%	16.4%	76.3%	92.1%	98.4%
Serbia	97.4%	78.9%	31.9%	75.9%	99.8%	97.5%
Slovenia	98.2%	81.4%	35.6%	85.9%	97.0%	89.5%
South Africa	93.4%	44.0%	27.0%	88.5%	97.6%	81.1%
Spain	96.4%	56.7%	26.6%	84.2%	93.9%	95.3%
Sweden	97.3%	70.3%	21.1%	75.1%	96.6%	92.8%
Switzerland	98.0%	62.3%	21.5%	83.6%	92.9%	95.0%
Thailand	88.9%	72.4%	75.8%	68.7%	80.0%	84.6%
Tunisia	96.6%	56.9%	42.6%	70.2%	96.6%	92.4%
Uganda	96.8%	60.8%	49.2%	52.9%	99.5%	95.0%
United Kingdom	90.9%	36.3%	10.1%	70.5%	92.9%	89.8%
United States	84.6%	36.0%	14.6%	82.5%	94.1%	63.4%
Vietnam	97.4%	84.9%	95.4%	55.3%	97.5%	91.3%
Zambia	97.7%	57.7%	33.7%	62.6%	99.6%	98.1%
Europe24	94.9%[a]	60.8%[a]	20.7%[a]	79.8%[a]	91.1%[a]	88.2%[a]
AsiaOceania9	93.8%[b]	72.3%[b]	71.0%[b]	73.2%[b]	95.9%[b]	95.8%[b]
America3	86.0%[c]	40.5%[c]	16.6%[c]	80.8%[a]	94.5%[c]	67.8%[c]
Africa12	94.4%[ab]	55.9%[d]	46.4%[d]	66.9%[c]	96.3%[b]	92.6%[d]
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.089	0.154	0.415	0.128	0.100	0.207

Reference population: all road users.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

(1) p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Self-declared behaviour as car driver and car passenger (Q12_1b/Q12_2)

Table 7: Self-declared behaviour as a car driver/passenger, by country and region (% at least once in the past 30 days – scores 2 to 5 on a 5-point scale from 1 "never" to 5 "[almost] always").

	Driving under the influence				Speeding			Seat belts/CRS				Distraction			Fatigue
	drive when you may have been over the legal limit for drinking and driving	drive after drinking alcohol	drive 1 hour after using drugs (other than medication)	drive after taking medication that carries a warning that it may influence your driving ability	drive faster than the speed limit inside built-up areas	drive faster than the speed limit outside built-up areas (but not on motorways /freeways)	drive faster than the speed limit on motorways /freeways	drive without wearing your seatbelt	transport children under 150cm* without using child restraint systems	transport children over 150cm* without wearing their seatbelts	as a car passenger travel without wearing your seatbelt in the back seat	talk on a hand-held mobile phone while driving	talk on a hands-free mobile phone while driving	read a text message/e mail or check social media while driving	drive when you were so sleepy that you had trouble keeping your eyes open
Australia	8.9%	23.7%	5.9%	13.4%	44.6%	50.6%	49.3%	6.3%	7.9%	5.9%	10.0%	12.5%	41.3%	19.0%	17.0%
Austria	14.8%	30.5%	7.3%	22.0%	71.4%	82.5%	77.0%	19.9%	14.8%	9.8%	43.7%	36.5%	63.6%	34.2%	31.8%
Belgium	24.2%	33.1%	7.1%	18.1%	61.7%	72.1%	68.3%	14.2%	14.4%	12.0%	30.1%	22.2%	45.5%	28.1%	24.4%
Benin	24.7%	37.7%	19.5%	22.1%	31.2%	55.8%	41.6%	36.4%	57.9%	60.0%	69.4%	48.1%	70.1%	22.1%	14.3%
Bulgaria	5.1%	9.3%	3.5%	10.1%	49.1%	55.2%	44.0%	33.7%	19.0%	21.6%	58.0%	38.5%	52.2%	24.9%	19.3%
Cameroon	23.9%	27.0%	9.0%	15.9%	39.8%	47.2%	44.3%	61.4%	54.5%	55.6%	86.6%	36.4%	62.5%	33.0%	9.1%
Canada	14.5%	25.9%	12.8%	16.7%	66.4%	75.1%	78.6%	16.0%	19.9%	15.5%	25.2%	21.4%	43.6%	26.0%	22.0%
Colombia	11.0%	13.6%	4.4%	10.2%	38.7%	48.1%	48.9%	20.4%	33.0%	23.2%	76.7%	36.1%	67.4%	41.6%	17.8%
Czech Republic	11.9%	7.2%	2.7%	11.5%	68.3%	78.3%	71.1%	27.7%	15.2%	11.7%	49.3%	33.7%	40.6%	26.8%	21.9%
Denmark	11.6%	26.7%	4.2%	12.2%	61.8%	81.8%	74.1%	12.9%	30.8%	9.0%	20.2%	24.4%	42.1%	29.0%	24.1%
Egypt	13.1%	13.6%	20.3%	20.8%	37.3%	46.8%	49.3%	61.1%	54.5%	62.0%	70.7%	62.9%	73.4%	51.6%	31.3%
Finland	4.1%	9.3%	1.7%	13.2%	72.8%	78.9%	77.8%	20.2%	20.3%	7.5%	29.4%	49.5%	41.4%	35.9%	28.8%
France	22.3%	28.9%	6.3%	23.2%	63.0%	74.6%	67.3%	12.3%	14.8%	7.7%	22.7%	25.8%	36.3%	28.1%	18.5%
Germany	9.0%	18.2%	3.7%	13.0%	66.6%	75.0%	64.8%	14.2%	12.1%	12.8%	22.3%	40.4%	42.5%	22.8%	23.5%
Ghana	14.5%	12.2%	15.7%	14.5%	41.9%	40.1%	37.2%	41.3%	37.8%	34.3%	77.0%	43.9%	59.9%	43.6%	16.9%
Greece	19.3%	27.7%	7.2%	8.4%	42.9%	60.6%	64.1%	31.0%	21.4%	21.6%	57.2%	45.3%	56.7%	31.9%	25.6%
Hungary	3.9%	5.4%	2.2%	10.3%	55.2%	66.8%	56.6%	27.5%	14.2%	14.7%	59.8%	29.1%	52.4%	17.1%	20.3%
Iceland	25.8%	16.5%	10.5%	19.6%	73.5%	81.4%	(a)	15.4%	(a)	(a)	38.7%	59.3%	72.7%	53.3%	29.5%
India	19.9%	15.7%	20.4%	26.2%	39.1%	41.8%	44.7%	39.9%	45.0%	48.2%	70.2%	41.6%	57.4%	38.7%	21.9%
Ireland	10.7%	12.2%	6.9%	13.8%	45.1%	59.9%	60.5%	9.8%	13.7%	7.8%	23.9%	22.1%	48.0%	26.3%	23.9%
Israel	7.6%	11.0%	3.4%	6.1%	58.3%	66.4%	71.2%	7.6%	14.0%	10.9%	34.9%	24.6%	77.1%	29.8%	26.5%
Italy	13.6%	20.2%	4.3%	12.6%	40.5%	55.1%	49.1%	25.0%	18.2%	18.0%	61.9%	26.6%	58.8%	24.0%	14.2%
Ivory Coast	19.7%	35.0%	11.2%	23.3%	38.5%	37.6%	46.2%	49.1%	52.9%	50.7%	87.4%	43.1%	58.1%	39.3%	13.7%
Japan	5.0%	3.7%	12.5%	10.9%	64.5%	65.0%	54.3%	8.8%	25.2%	21.4%	63.8%	17.8%	27.6%	25.7%	33.2%
Kenya	16.8%	22.7%	16.7%	21.9%	43.5%	54.9%	52.6%	51.3%	46.8%	43.8%	74.4%	60.1%	69.6%	48.9%	17.8%
Lebanon	11.4%	19.4%	8.9%	13.3%	28.9%	42.7%	47.8%	40.4%	33.1%	43.6%	67.6%	60.8%	65.6%	54.4%	22.7%
Luxembourg	30.9%	53.3%	4.2%	14.7%	66.3%	85.3%	84.2%	6.3%	9.7%	1.6%	21.4%	33.9%	75.8%	40.9%	24.5%
Malaysia	18.6%	11.9%	14.6%	28.3%	57.0%	60.7%	63.3%	47.9%	44.8%	49.6%	71.6%	56.7%	72.8%	50.4%	37.1%
Morocco	14.2%	13.5%	18.0%	20.3%	41.2%	44.1%	46.7%	29.3%	47.7%	46.5%	58.7%	48.3%	64.3%	47.9%	22.4%
Netherlands	9.0%	21.1%	5.1%	14.8%	58.5%	69.2%	67.9%	12.3%	13.0%	9.9%	27.2%	11.6%	41.0%	18.0%	21.6%

	Driving under the influence				Speeding			Seat belts/CRS				Distraction			Fatigue
	drive when you may have been over the legal limit for drinking and driving	drive after drinking alcohol	drive 1 hour after using drugs (other than medication)	drive after taking medication that carries a warning that it may influence your driving ability	drive faster than the speed limit inside built-up areas	drive faster than the speed limit outside built-up areas (but not on motorways /freeways)	drive faster than the speed limit on motorways /freeways	drive without wearing your seatbelt	transport children under 150cm* without using child restraint systems	transport children over 150cm* without wearing their seatbelts	as a car passenger travel without wearing your seatbelt in the back seat	talk on a hand-held mobile phone while driving	talk on a hands-free mobile phone while driving	read a text message/e mail or check social media while driving	drive when you were so sleepy that you had trouble keeping your eyes open
Nigeria	11.9%	17.9%	24.1%	16.1%	40.8%	46.4%	45.6%	45.7%	45.8%	51.1%	76.5%	57.6%	66.6%	36.7%	17.7%
Norway	8.5%	5.9%	5.7%	11.5%	54.1%	78.4%	79.0%	12.9%	16.0%	11.4%	21.8%	32.9%	62.5%	36.1%	23.4%
Poland	6.4%	6.8%	2.9%	12.8%	64.8%	73.5%	55.7%	27.4%	18.4%	17.2%	50.7%	42.1%	59.6%	26.7%	19.6%
Portugal	14.1%	33.9%	4.4%	13.2%	66.8%	75.4%	70.6%	11.8%	14.1%	11.5%	55.5%	37.4%	65.7%	36.6%	20.2%
Republic of Korea	8.0%	8.9%	3.5%	19.2%	57.0%	57.9%	53.8%	19.0%	49.1%	85.4%	66.5%	42.6%	67.0%	41.7%	29.9%
Serbia	11.0%	19.4%	3.8%	10.4%	53.0%	64.6%	44.5%	31.3%	24.1%	20.3%	74.9%	47.7%	54.9%	36.0%	13.9%
Slovenia	16.6%	27.4%	3.5%	6.8%	60.8%	79.7%	75.3%	15.8%	9.0%	6.8%	39.9%	44.5%	58.4%	30.4%	20.8%
South Africa	21.4%	32.5%	12.6%	23.4%	52.7%	62.1%	61.8%	37.6%	33.9%	33.7%	63.8%	47.2%	60.8%	42.5%	22.5%
Spain	17.1%	24.7%	5.9%	19.6%	49.7%	58.8%	61.4%	12.1%	12.9%	13.6%	36.9%	21.7%	55.5%	22.8%	20.7%
Sweden	6.9%	7.7%	4.7%	10.2%	53.8%	78.5%	80.5%	16.2%	14.6%	9.0%	27.7%	31.1%	53.8%	24.8%	24.3%
Switzerland	21.5%	33.6%	4.3%	16.2%	51.4%	75.1%	75.6%	20.6%	14.4%	8.1%	40.3%	24.7%	46.8%	24.8%	19.0%
Thailand	20.7%	27.4%	32.5%	30.1%	45.9%	52.7%	51.4%	41.9%	50.8%	46.9%	71.4%	55.3%	65.9%	40.7%	31.0%
Tunisia	9.5%	18.1%	9.9%	22.5%	47.0%	56.3%	53.9%	50.0%	49.6%	42.9%	77.9%	50.0%	60.8%	38.4%	18.5%
Uganda	12.5%	16.6%	14.8%	15.9%	33.7%	43.2%	42.0%	47.4%	49.6%	47.9%	78.8%	48.3%	52.3%	39.2%	15.9%
United Kingdom	8.8%	17.9%	7.4%	12.9%	50.1%	58.4%	56.1%	9.9%	9.1%	9.3%	20.9%	9.6%	33.4%	14.5%	15.3%
United States	11.1%	21.2%	12.1%	15.0%	58.0%	64.9%	70.8%	18.4%	9.4%	9.3%	32.5%	39.6%	51.2%	36.9%	21.9%
Vietnam	25.8%	29.6%	26.0%	29.2%	40.2%	41.8%	41.1%	41.2%	44.1%	44.6%	74.4%	45.4%	52.2%	42.4%	30.4%
Zambia	13.4%	25.3%	9.9%	12.2%	36.0%	49.8%	46.1%	39.4%	44.4%	40.7%	70.8%	46.1%	59.4%	36.0%	12.6%
Europe24	13.0%[a]	20.3%[a]	5.0%[a]	14.9%[a]	56.3%[a]	67.5%[a]	61.5%[a]	17.3%[a]	15.0%[a]	13.1%[a]	36.9%[a]	28.9%[a]	48.0%[a]	24.4%[a]	19.7%[a]
AsiaOceania9	18.9%[b]	16.1%[b]	19.8%[b]	25.9%[b]	44.0%[b]	47.5%[b]	47.9%[b]	37.7%[b]	42.8%[b]	46.8%[b]	68.2%[b]	40.5%[b]	56.7%[b]	39.8%[b]	25.6%[b]
America3	11.3%[a]	21.0%[a]	11.7%[c]	14.8%[a]	57.3%[a]	64.6%[c]	69.9%[c]	18.1%[a]	10.9%[c]	11.6%[a]	35.9%[a]	37.3%[c]	51.5%[c]	35.7%[c]	21.4%[ac]
Africa12	15.4%[c]	19.3%[a]	16.5%[d]	20.0%[c]	41.7%[c]	48.8%[b]	49.3%[b]	44.8%[c]	47.0%[d]	47.3%[b]	71.3%[c]	51.7%[d]	64.6%[d]	44.5%[d]	22.0%[c]
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.067	0.041	0.205	0.110	0.134	0.189	0.143	0.270	0.337	0.375	0.334	0.189	0.133	0.186	0.053

Reference population: car drivers/passenger, at least a few days a month.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

(1) p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

(a) Iceland not included.

** specified based on national regulation on this topic.*

Self-declared behaviour - moped riders + motorcyclist (Q12_3), cyclists (Q12_4), pedestrians (Q12_5)

Table 8: Self-declared behaviour as a moped riders and motorcyclists, cyclist, and pedestrian, by country and region (% at least once in the past 30 days – scores 2 to 5 on a 5-point scale from 1 "never" to 5 "[almost] always").

	Moped riders and motorcyclists				Cyclists					Pedestrians			
	ride when you may have been over the legal limit for drinking and driving	ride faster than the speed limit outside built-up areas (but not on motorways/freeways)	ride a moped or motorcycle without a helmet	read a text message/email or check social media while riding a moped or motorcycle	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 text message/email or check social media while cycling	cycle on the road next to the cycle lane	listen to music through headphones as a pedestrian while walking in the streets	read a text message/email or check social media while walking in the streets	cross the road when a pedestrian light is red	cross the road at places other than at a nearby (distance <30m*) pedestrian crossing
Australia	30.7%	45.9%	29.3%	29.7%	14.9%	29.7%	37.1%	17.4%	34.7%	33.8%	52.3%	41.6%	65.3%
Austria	21.8%	52.3%	19.8%	18.5%	17.8%	69.1%	21.4%	14.4%	35.9%	27.4%	60.7%	43.0%	71.8%
Belgium	21.3%	42.4%	23.3%	21.8%	28.2%	82.8%	28.3%	22.5%	37.2%	27.4%	55.5%	42.9%	71.5%
Benin	14.4%	34.0%	31.4%	20.9%	21.7%	48.5%	39.1%	17.4%	46.4%	58.1%	74.2%	36.4%	62.3%
Bulgaria	9.8%	32.7%	30.3%	16.4%	6.7%	67.5%	30.3%	13.0%	54.6%	31.7%	56.5%	24.8%	63.4%
Cameroon	16.7%	28.8%	46.0%	15.2%	17.3%	73.1%	42.3%	26.9%	44.2%	62.1%	81.0%	48.2%	79.0%
Canada	52.7%	63.4%	49.5%	50.5%	21.9%	51.6%	38.8%	23.8%	43.5%	37.7%	47.7%	45.6%	69.3%
Colombia	9.7%	38.7%	34.3%	21.5%	12.8%	54.6%	57.7%	21.9%	57.1%	59.0%	61.4%	50.7%	72.1%
Czech Republic	9.4%	41.9%	21.7%	7.6%	26.4%	70.1%	23.5%	12.8%	29.5%	28.8%	62.0%	37.7%	77.7%
Denmark	28.0%	54.9%	37.8%	25.6%	27.8%	72.0%	33.9%	22.6%	30.5%	35.4%	58.4%	45.8%	69.8%
Egypt	22.4%	54.5%	58.0%	46.5%	21.6%	62.3%	62.0%	39.2%	54.3%	62.2%	70.2%	45.6%	70.4%
Finland	5.4%	56.8%	21.6%	10.8%	21.2%	72.1%	35.1%	26.4%	31.8%	38.9%	65.3%	56.3%	80.2%
France	33.7%	59.6%	31.5%	41.6%	17.5%	74.3%	32.8%	20.5%	44.8%	31.0%	61.1%	65.7%	72.8%
Germany	18.1%	49.0%	22.7%	17.6%	17.4%	72.9%	23.0%	15.2%	41.3%	25.6%	49.7%	41.8%	67.1%
Ghana	14.7%	37.7%	41.7%	23.3%	10.9%	44.9%	32.7%	21.8%	38.5%	65.5%	70.1%	42.7%	76.4%
Greece	16.4%	46.4%	42.4%	16.1%	8.0%	53.1%	38.7%	23.1%	66.2%	35.8%	62.9%	62.8%	80.6%
Hungary	8.7%	46.6%	30.6%	10.6%	15.7%	83.4%	21.7%	10.8%	33.4%	31.8%	52.3%	36.0%	69.0%
Iceland	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	64.7%	72.5%	49.4%	73.9%
India	18.0%	41.5%	47.0%	29.5%	19.4%	72.1%	44.6%	31.9%	57.5%	43.9%	53.6%	40.0%	70.3%
Ireland	22.1%	41.1%	32.6%	27.7%	16.1%	50.8%	39.7%	18.0%	43.0%	44.6%	66.1%	67.2%	80.3%
Israel	4.2%	41.7%	8.3%	12.5%	8.6%	47.9%	39.3%	21.4%	27.9%	46.6%	77.1%	48.2%	73.4%
Italy	16.1%	42.4%	17.0%	17.4%	12.7%	63.9%	30.5%	17.3%	32.2%	32.2%	56.0%	37.7%	74.6%
Ivory Coast	10.8%	25.5%	38.2%	10.8%	16.4%	74.0%	50.7%	20.5%	53.4%	70.2%	79.9%	45.7%	63.6%
Japan	10.2%	53.7%	15.7%	14.8%	9.0%	68.0%	13.7%	16.1%	52.7%	27.3%	48.0%	46.5%	73.3%
Kenya	12.2%	39.1%	52.6%	29.9%	9.5%	68.0%	52.9%	28.4%	57.5%	55.4%	72.3%	51.5%	80.5%
Lebanon	16.4%	37.9%	38.2%	30.3%	10.8%	52.3%	41.7%	22.8%	44.2%	48.0%	68.6%	31.4%	65.0%
Luxembourg	12.8%	63.0%	4.3%	14.9%	17.3%	59.2%	28.3%	26.7%	51.8%	41.4%	71.9%	63.3%	76.5%
Malaysia	28.1%	58.2%	44.6%	40.6%	21.0%	66.0%	58.8%	41.2%	65.5%	49.7%	64.5%	37.6%	73.6%
Morocco	23.1%	48.7%	44.2%	36.4%	17.5%	58.0%	50.2%	40.5%	56.3%	55.1%	70.6%	52.7%	73.6%
Netherlands	18.4%	37.6%	36.2%	20.6%	26.2%	87.0%	30.0%	24.7%	26.3%	32.5%	52.4%	44.7%	66.8%
Nigeria	13.5%	33.7%	45.7%	23.8%	10.2%	48.7%	43.8%	15.1%	42.2%	56.3%	67.0%	37.5%	72.3%

	Moped riders and motorcyclists				Cyclists					Pedestrians			
	ride when you may have been over the legal limit for drinking and driving	ride faster than the speed limit outside built-up areas (but not on motorways/freeways)	ride a moped or motorcycle without a helmet	read a text message/email or check social media while riding a moped or motorcycle	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 text message/email or check social media while cycling	cycle on the road next to the cycle lane	listen to music through headphones as a pedestrian while walking in the streets	read a text message/email or check social media while walking in the streets	cross the road when a pedestrian light is red	cross the road at places other than at a nearby (distance <30m*) pedestrian crossing
Norway	35.1%	59.6%	40.4%	33.0%	27.7%	56.0%	44.2%	24.8%	47.7%	52.5%	69.8%	59.2%	83.1%
Poland	13.8%	46.6%	33.6%	20.7%	15.8%	79.5%	33.0%	19.3%	41.0%	36.7%	51.9%	35.5%	69.1%
Portugal	10.4%	39.1%	13.5%	16.4%	9.1%	45.7%	26.7%	19.3%	28.0%	34.0%	69.0%	67.3%	79.8%
Republic of Korea	16.1%	46.0%	31.0%	26.5%	15.8%	67.0%	46.2%	20.0%	45.9%	56.0%	71.8%	42.4%	58.4%
Serbia	10.6%	27.7%	37.3%	12.0%	11.8%	81.7%	24.1%	26.2%	37.9%	28.6%	70.6%	52.0%	81.9%
Slovenia	19.9%	47.4%	25.8%	12.8%	14.3%	72.2%	14.9%	10.4%	26.5%	20.8%	57.3%	30.1%	74.2%
South Africa	21.0%	41.4%	25.9%	26.1%	14.9%	45.3%	39.6%	17.8%	43.8%	40.7%	62.8%	53.8%	76.2%
Spain	20.2%	38.8%	21.3%	20.2%	11.6%	53.7%	32.2%	21.1%	38.8%	46.6%	73.7%	75.5%	84.5%
Sweden	18.2%	50.4%	27.3%	22.3%	28.9%	70.7%	37.9%	23.3%	54.0%	47.6%	61.4%	64.1%	79.9%
Switzerland	15.2%	51.8%	17.4%	14.6%	20.1%	55.0%	23.0%	14.4%	39.1%	35.5%	60.4%	47.2%	73.8%
Thailand	25.3%	41.0%	51.3%	32.0%	20.0%	62.9%	39.9%	28.7%	51.7%	38.8%	51.8%	33.8%	66.4%
Tunisia	13.8%	51.7%	60.9%	21.6%	10.0%	65.7%	42.9%	28.4%	52.9%	43.6%	68.1%	43.9%	70.9%
Uganda	14.4%	32.2%	44.2%	28.8%	10.1%	57.7%	34.9%	16.1%	47.0%	55.7%	64.7%	41.7%	81.5%
United Kingdom	38.9%	45.8%	40.3%	41.7%	22.2%	49.4%	35.5%	22.6%	43.5%	35.6%	60.6%	62.0%	77.8%
United States	21.4%	46.9%	37.8%	30.6%	15.6%	51.1%	35.0%	22.4%	35.0%	38.2%	52.4%	42.5%	62.4%
Vietnam	30.8%	47.4%	41.9%	28.2%	29.5%	72.4%	50.8%	29.0%	64.3%	59.9%	55.3%	34.2%	64.6%
Zambia	7.1%	25.0%	24.1%	12.6%	6.3%	59.0%	40.2%	18.5%	52.6%	62.4%	75.6%	45.0%	81.5%
Europe24	19.8%[a]	45.3%[a]	26.0%[a]	21.9%[a]	17.3%[a]	69.0%[a]	29.6%[a]	19.0%[a]	39.0%[a]	33.7%[a]	58.9%[a]	51.5%[a]	74.1%[a]
AsiaOceania9	19.9%[a]	43.1%[ab]	46.6%[b]	30.2%[b]	19.3%[b]	69.8%[a]	43.0%[b]	30.9%[b]	56.5%[b]	46.2%[b]	56.4%[b]	40.6%[b]	69.2%[b]
America3	21.1%[a]	46.2%[ab]	37.2%[c]	30.2%[b]	15.3%[a]	51.2%[b]	38.2%[b]	21.9%[a]	39.1%[a]	39.0%[c]	52.4%[c]	43.3%[b]	64.0%[c]
Africa12	18.1%[a]	42.1%[b]	46.3%[b]	30.6%[b]	15.7%[a]	58.0%[c]	48.3%[c]	29.8%[b]	50.9%[c]	56.9%[d]	70.0%[d]	47.1%[c]	73.9%[a]
p-value [(1)]	0.108	0.041	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.021	0.025	0.175	0.079	0.034	0.116	0.165	0.131	0.154	0.195	0.113	0.085	0.062

Reference population: motorcyclists/moped riders/cyclists/pedestrians, at least a few days a month.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

(1) p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

(a) Iceland not included.

** specified based on national regulation on this topic.*

Social acceptability (Q13)

Table 9: Social acceptability of unsafe behaviour in traffic, by country and region ("Where you live, how acceptable would most other people say it is for a CAR DRIVER to…" – % of acceptability – scores 4 and 5 on a 5-point scale from 1 "unacceptable" to 5 "acceptable").

	Driving under the influence		Speeding	Seat belts/CRS		Distraction	
	drive when he/she may be over the legal limit for drinking and driving	drive 1 hour after using drugs (other than medication)	drive faster than the speed limit outside built-up areas (but not on motorways/ freeways)	not wear a seatbelt while driving	transport children in the car without securing them (child's car seat, seatbelt, etc.)	talk on a hand-held mobile phone while driving	read a text message/email or check social media (e.g. Facebook, twitter, etc.) while driving
Australia	2.7%	3.4%	8.3%	1.8%	2.3%	4.4%	4.0%
Austria	6.6%	3.8%	29.2%	11.4%	4.9%	17.5%	9.3%
Belgium	4.6%	3.3%	14.6%	6.1%	3.4%	6.0%	4.0%
Benin	6.6%	5.8%	11.6%	20.2%	18.2%	12.4%	11.6%
Bulgaria	5.4%	3.8%	17.7%	15.5%	9.8%	20.5%	11.5%
Cameroon	16.7%	10.3%	27.9%	44.6%	35.8%	18.1%	13.7%
Canada	3.7%	4.0%	13.6%	4.5%	4.2%	5.8%	5.1%
Colombia	2.9%	2.5%	8.7%	8.3%	10.4%	5.7%	6.7%
Czech Republic	1.2%	0.9%	8.6%	5.6%	1.8%	3.3%	1.9%
Denmark	1.7%	1.9%	13.2%	4.1%	1.4%	3.3%	3.0%
Egypt	7.5%	12.6%	17.1%	25.5%	21.8%	18.6%	15.8%
Finland	0.7%	0.7%	17.2%	4.9%	2.2%	12.4%	5.3%
France	4.6%	3.1%	16.6%	3.7%	2.2%	5.4%	5.1%
Germany	4.6%	3.3%	21.2%	8.0%	4.3%	10.0%	5.9%
Ghana	6.9%	5.3%	12.7%	19.3%	11.9%	9.8%	7.7%
Greece	8.1%	6.1%	19.9%	20.4%	10.2%	20.5%	16.8%
Hungary	0.7%	1.0%	7.8%	4.9%	2.6%	2.9%	1.9%
Iceland	7.7%	3.4%	19.6%	11.9%	7.0%	8.0%	5.6%
India	10.8%	6.9%	12.8%	15.6%	14.7%	11.5%	13.7%
Ireland	2.6%	2.5%	8.8%	2.9%	1.8%	5.9%	3.9%
Israel	4.5%	4.1%	22.6%	4.0%	5.4%	10.4%	10.3%
Italy	4.2%	2.4%	11.3%	10.5%	4.2%	5.6%	4.7%
Ivory Coast	7.7%	6.9%	10.0%	27.2%	17.4%	9.8%	8.7%
Japan	2.1%	5.6%	8.5%	4.9%	5.7%	6.6%	3.2%
Kenya	9.7%	9.6%	18.2%	20.0%	20.0%	15.4%	13.2%
Lebanon	8.0%	7.1%	17.3%	28.4%	20.5%	27.1%	20.6%
Luxembourg	7.6%	4.0%	18.9%	4.9%	4.0%	6.7%	7.0%
Malaysia	5.3%	4.2%	10.6%	7.9%	8.9%	7.4%	5.9%
Morocco	7.4%	10.2%	16.6%	13.9%	17.7%	16.5%	14.9%
Netherlands	1.3%	1.8%	9.1%	3.8%	2.2%	2.3%	2.0%
Nigeria	11.0%	10.0%	12.9%	14.0%	16.7%	13.1%	8.8%
Norway	3.0%	3.0%	13.2%	3.1%	1.9%	8.2%	4.6%
Poland	6.1%	3.5%	21.0%	15.9%	7.7%	15.6%	8.9%
Portugal	3.0%	2.3%	12.5%	4.3%	2.6%	6.4%	4.9%

	Driving under the influence		Speeding	Seat belts/CRS		Distraction	
	drive when he/she may be over the legal limit for drinking and driving	drive 1 hour after using drugs (other than medication)	drive faster than the speed limit outside built-up areas (but not on motorways/ freeways)	not wear a seatbelt while driving	transport children in the car without securing them (child's car seat, seatbelt, etc.)	talk on a hand-held mobile phone while driving	read a text message/email or check social media (e.g. Facebook, twitter, etc.) while driving
Republic of Korea	0.7%	0.8%	8.8%	4.8%	6.3%	6.7%	5.0%
Serbia	5.9%	5.4%	14.0%	11.2%	6.6%	14.9%	10.0%
Slovenia	3.1%	1.9%	9.9%	5.2%	2.3%	4.9%	3.8%
South Africa	5.0%	3.8%	11.0%	9.4%	5.7%	7.8%	6.3%
Spain	4.3%	3.4%	11.7%	5.2%	6.1%	9.5%	7.0%
Sweden	1.8%	2.0%	24.8%	4.8%	1.4%	9.0%	4.5%
Switzerland	3.2%	1.9%	12.6%	7.1%	1.8%	6.3%	3.0%
Thailand	5.6%	9.7%	10.8%	11.0%	15.2%	9.9%	15.1%
Tunisia	6.8%	7.3%	13.6%	19.8%	14.9%	20.4%	12.3%
Uganda	8.7%	7.9%	16.4%	19.0%	27.5%	15.9%	15.9%
United Kingdom	2.9%	3.9%	9.6%	5.2%	4.0%	4.2%	4.4%
United States	4.2%	3.7%	18.5%	6.6%	2.6%	12.6%	5.2%
Vietnam	4.0%	5.5%	7.1%	7.5%	7.3%	7.1%	7.0%
Zambia	9.8%	9.2%	13.8%	16.3%	14.6%	13.2%	11.9%
Europe24	4.1%[a]	3.1%[a]	15.2%[a]	7.7%[a]	4.3%[a]	8.2%[a]	5.7%[a]
AsiaOceania9	9.0%[b]	6.7%[b]	12.9%[b]	13.8%[b]	13.4%[b]	11.0%[b]	12.7%[b]
America3	4.0%[a]	3.6%[a]	17.0%[a]	6.3%[c]	3.3%[c]	11.2%[b]	5.3%[a]
Africa12	8.0%[c]	9.0%[c]	15.4%[a]	19.6%[d]	18.2%[d]	14.8%[c]	12.6%[b]
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.092	0.113	0.030	0.159	0.211	0.088	0.123

Reference population: all road users.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

[(1)] p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Personal acceptability (Q14)

Table 10: Personal acceptability of unsafe behaviour in traffic, by country and region ("How acceptable do you, personally, feel it is for a CAR DRIVER to…" – % of acceptability – scores 4 and 5 on a 5-point scale from 1 "unacceptable" to 5 "acceptable").

	Driving under the influence			Speeding			Seat belts/CRS		Distraction			Fatigue
	drive when he/she may be over the legal limit for drinking and driving	drive 1 hour after using drugs (other than medication)	drive after taking a medication that may influence the ability to drive	drive faster than the speed limit inside built-up areas	drive faster than the speed limit outside built-up areas (but not on motorways/ freeways)	drive faster than the speed limit on motorways/ freeways	not wear a seatbelt while driving	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 hand-free mobile phone while driving	read a text message/email or check social media while driving	drive when they're so sleepy that they have trouble keeping their eyes open
Australia	1.8%	2.2%	1.2%	3.1%	6.1%	7.0%	2.2%	1.7%	2.8%	24.3%	1.7%	2.1%
Austria	2.6%	2.1%	3.8%	10.5%	22.1%	29.0%	5.7%	2.6%	7.4%	35.1%	3.1%	2.7%
Belgium	3.1%	1.8%	2.3%	6.0%	11.7%	18.0%	3.9%	1.6%	1.9%	32.3%	1.7%	1.3%
Benin	2.9%	3.7%	6.2%	1.7%	4.5%	9.5%	7.0%	7.9%	5.0%	20.2%	5.8%	2.1%
Bulgaria	2.0%	1.1%	1.6%	3.3%	5.9%	6.6%	6.0%	2.5%	5.4%	37.3%	2.4%	1.8%
Cameroon	3.4%	4.4%	4.4%	3.4%	10.3%	11.3%	14.2%	10.3%	5.9%	31.4%	5.4%	2.5%
Canada	3.0%	4.2%	3.2%	7.2%	11.8%	19.4%	4.8%	2.9%	4.8%	24.3%	3.0%	2.9%
Colombia	1.1%	0.9%	1.4%	2.5%	5.5%	6.0%	2.4%	3.2%	2.0%	19.6%	2.1%	1.0%
Czech Republic	1.1%	0.6%	1.0%	3.1%	9.1%	11.0%	5.2%	1.2%	3.6%	33.4%	0.7%	1.0%
Denmark	0.9%	1.0%	1.4%	2.5%	10.8%	15.7%	3.4%	1.1%	2.0%	22.9%	1.2%	0.8%
Egypt	5.2%	8.6%	6.2%	7.6%	13.8%	15.7%	15.9%	10.1%	11.9%	30.7%	9.8%	5.9%
Finland	0.2%	0.7%	1.2%	7.4%	15.9%	21.0%	4.1%	0.7%	7.2%	56.8%	2.5%	1.0%
France	2.3%	1.2%	2.4%	6.7%	12.6%	17.3%	4.0%	0.9%	3.4%	27.2%	1.5%	1.0%
Germany	2.2%	1.9%	2.6%	6.6%	15.0%	18.0%	4.0%	1.8%	4.9%	30.6%	2.3%	2.0%
Ghana	2.6%	3.4%	2.9%	2.9%	5.3%	6.3%	4.8%	3.2%	2.1%	15.9%	2.1%	2.1%
Greece	1.2%	1.3%	2.3%	2.7%	7.8%	8.6%	3.4%	1.2%	1.9%	29.7%	4.8%	1.8%
Hungary	0.5%	0.7%	0.7%	2.4%	6.9%	8.6%	2.4%	1.2%	0.6%	32.8%	1.0%	0.4%
Iceland	3.4%	3.6%	3.6%	7.3%	11.6%	(a)	4.4%	3.6%	6.3%	22.8%	6.1%	2.9%
India	7.2%	5.5%	8.5%	7.1%	7.8%	9.5%	7.7%	7.2%	5.8%	13.6%	7.8%	6.1%
Ireland	1.6%	1.5%	1.6%	2.5%	5.8%	8.9%	1.3%	1.1%	3.0%	25.1%	1.1%	1.8%
Israel	0.7%	1.5%	1.6%	6.5%	12.4%	18.4%	1.5%	1.4%	2.3%	47.4%	1.9%	1.6%
Italy	1.4%	0.6%	1.3%	2.6%	7.1%	8.7%	4.0%	1.3%	1.4%	45.2%	1.6%	0.9%
Ivory Coast	2.1%	1.1%	4.5%	4.0%	4.2%	8.2%	8.4%	3.7%	1.8%	31.1%	2.4%	0.8%
Japan	1.2%	3.2%	1.7%	4.2%	6.6%	8.9%	2.8%	2.1%	3.0%	23.4%	2.1%	1.8%
Kenya	3.9%	2.1%	1.8%	4.0%	6.4%	6.3%	3.9%	3.7%	4.0%	14.9%	2.5%	1.3%
Lebanon	1.7%	1.7%	2.0%	3.3%	4.7%	8.6%	6.7%	3.1%	6.9%	25.6%	4.5%	2.0%
Luxembourg	3.2%	1.3%	1.1%	2.5%	13.0%	20.9%	1.8%	0.7%	2.7%	38.2%	1.6%	1.1%
Malaysia	2.8%	3.0%	3.2%	5.1%	5.9%	8.9%	5.7%	3.6%	4.9%	32.3%	3.4%	2.8%
Morocco	6.4%	6.2%	6.4%	7.4%	8.0%	13.4%	8.2%	7.8%	8.3%	34.4%	8.8%	5.1%
Netherlands	1.1%	1.3%	2.1%	3.2%	7.8%	14.3%	2.5%	1.3%	1.6%	31.4%	1.3%	1.5%
Nigeria	3.0%	4.7%	2.9%	2.7%	5.6%	5.7%	5.6%	4.2%	4.3%	21.5%	3.3%	2.2%

	Driving under the influence			Speeding			Seat belts/CRS		Distraction			Fatigue
	drive when he/she may be over the legal limit for drinking and driving	drive 1 hour after using drugs (other than medication)	drive after taking a medication that may influence the ability to drive	drive faster than the speed limit inside built-up areas	drive faster than the speed limit outside built-up areas (but not on motorways/ freeways)	drive faster than the speed limit on motorways/ freeways	not wear a seatbelt while driving	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 hand-free mobile phone while driving	read a text message/email or check social media while driving	drive when they're so sleepy that they have trouble keeping their eyes open
Norway	1.6%	2.0%	2.5%	3.3%	10.8%	18.1%	1.9%	1.4%	4.2%	33.1%	2.7%	1.4%
Poland	2.1%	1.7%	2.9%	8.2%	14.0%	18.2%	8.4%	3.5%	5.6%	59.1%	3.4%	2.3%
Portugal	0.9%	1.1%	1.9%	3.3%	7.2%	15.7%	2.2%	0.8%	1.6%	43.0%	1.1%	0.7%
Republic of Korea	0.8%	0.5%	1.6%	5.7%	7.0%	10.2%	2.2%	4.5%	4.6%	36.0%	3.5%	2.2%
Serbia	1.0%	0.5%	0.3%	2.9%	4.8%	7.2%	3.9%	0.7%	1.4%	24.0%	0.7%	0.3%
Slovenia	0.6%	0.7%	0.7%	1.6%	8.0%	13.3%	2.0%	0.3%	1.3%	33.2%	0.9%	0.2%
South Africa	2.2%	1.8%	1.6%	3.4%	6.0%	7.4%	3.6%	1.7%	4.4%	33.9%	1.8%	1.7%
Spain	1.4%	1.0%	2.9%	4.0%	6.6%	10.2%	3.2%	2.8%	3.5%	25.9%	3.9%	2.3%
Sweden	1.5%	0.9%	1.3%	3.9%	18.5%	23.9%	3.6%	0.5%	4.6%	43.6%	1.6%	1.1%
Switzerland	1.2%	1.4%	1.8%	2.8%	12.3%	21.9%	6.3%	0.7%	4.4%	35.0%	1.3%	0.7%
Thailand	4.2%	6.9%	5.2%	5.5%	8.3%	11.9%	8.0%	7.7%	6.5%	39.7%	7.7%	4.0%
Tunisia	2.6%	2.3%	2.6%	4.4%	7.8%	15.1%	9.1%	3.7%	4.7%	32.4%	3.7%	2.6%
Uganda	7.4%	3.7%	4.2%	5.3%	9.3%	7.7%	5.0%	4.8%	6.3%	17.5%	3.7%	3.2%
United Kingdom	2.8%	2.6%	2.4%	4.3%	6.7%	10.3%	3.0%	2.7%	3.3%	22.6%	2.2%	2.5%
United States	1.5%	2.0%	0.9%	6.6%	11.0%	17.4%	4.8%	0.8%	7.4%	33.6%	1.9%	1.0%
Vietnam	1.8%	3.0%	2.2%	2.3%	3.6%	4.5%	3.2%	2.9%	3.1%	7.3%	3.2%	1.9%
Zambia	3.3%	2.1%	2.7%	1.7%	4.0%	3.6%	4.0%	1.7%	2.7%	22.0%	2.1%	2.1%
Europe24	1.9%[a]	1.5%[a]	2.2%[a]	5.0%[a]	10.5%[a]	14.3%[a]	4.1%[a]	1.8%[a]	3.5%[a]	33.8%[a]	2.2%[a]	1.6%[a]
AsiaOceania9	6.2%[b]	5.5%[b]	7.4%[b]	7.0%[b]	8.2%[b]	10.6%[b]	7.1%[b]	6.7%[b]	6.0%[b]	18.3%[b]	7.3%[b]	5.6%[b]
America3	1.6%[a]	2.1%[c]	1.2%[c]	6.2%[bc]	10.5%[a]	16.6%[c]	4.6%[a]	1.1%[c]	6.6%[b]	31.2%[c]	2.0%[a]	1.2%[a]
Africa12	4.5%[c]	4.9%[d]	4.5%[d]	5.3%a[c]	8.4%[b]	10.8%[b]	8.7%[c]	6.2%[b]	6.8%[b]	28.4%[d]	5.8%[c]	3.6%[c]
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.099	0.105	0.109	0.034	0.036	0.059	0.086	0.122	0.069	0.127	0.110	0.094

Reference population: all road users.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

(1) p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

(a) Iceland not included.

Attitudes (Q15), risk perception (Q17), perceived behaviour control (Q15)

Table 11: Composite mean scores for Attitudes, Risk Perception, and Perceived Behaviour Control (PBC).

	Attitudes [1]	Risk perception [2]	PBC DUI - alcohol [1]	PBC distraction - mobile phone [1]	PBC speeding [1]
Australia	1.35	4.41	1.40	1.42	1.71
Austria	1.62	4.26	1.76	1.67	2.46
Belgium	1.50	4.18	1.63	1.56	1.97
Benin	1.41	4.35	1.44	1.38	1.39
Bulgaria	1.45	4.41	1.33	1.39	1.55
Cameroon	1.57	4.63	1.53	1.60	1.50
Canada	1.49	4.21	1.51	1.48	1.96
Colombia	1.45	4.07	1.31	1.48	1.55
Czech Republic	1.42	4.65	1.25	1.42	1.82
Denmark	1.39	4.18	1.49	1.46	1.94
Egypt	1.83	4.00	1.26	1.77	1.73
Finland	1.45	4.47	1.34	1.73	1.85
France	1.58	4.19	1.49	1.47	1.86
Germany	1.49	4.28	1.55	1.49	2.29
Ghana	1.60	4.33	1.29	1.53	1.50
Greece	1.60	4.27	1.55	1.45	1.73
Hungary	1.37	4.56	1.24	1.38	1.79
Iceland	1.66	4.14	1.58	1.83	2.22
India	1.65	3.64	1.48	1.69	2.13
Ireland	1.41	3.82	1.45	1.44	1.80
Israel	1.47	4.56	1.29	1.51	1.80
Italy	1.50	4.24	1.52	1.49	1.95
Ivory Coast	1.57	4.14	1.52	1.53	1.36
Japan	1.47	2.78	1.19	1.40	1.38
Kenya	1.66	4.89	1.56	1.75	1.64
Lebanon	1.64	4.06	1.56	1.88	1.65
Luxembourg	1.57	4.07	1.81	1.61	2.11
Malaysia	1.75	4.08	1.37	1.85	1.97
Morocco	1.57	3.91	1.34	1.62	1.51
Netherlands	1.39	4.13	1.43	1.53	2.18
Nigeria	1.66	4.68	1.47	1.73	1.71
Norway	1.40	4.07	1.27	1.70	2.06
Poland	1.47	4.48	1.21	1.55	1.97
Portugal	1.52	4.63	1.50	1.55	2.02
Republic of Korea	2.10	2.61	1.21	1.51	1.56
Serbia	1.43	4.59	1.47	1.39	1.55
Slovenia	1.40	4.31	1.65	1.50	1.93
South Africa	1.57	4.12	1.79	1.79	2.06
Spain	1.44	4.56	1.41	1.39	1.71
Sweden	1.43	4.22	1.22	1.51	2.03
Switzerland	1.49	4.16	1.69	1.40	1.92
Thailand	1.84	2.67	1.59	1.59	1.57
Tunisia	1.63	3.80	1.44	1.64	1.49
Uganda	1.65	4.47	1.51	1.70	1.53
United Kingdom	1.35	4.32	1.33	1.38	1.83
United States	1.47	4.07	1.47	1.68	1.88
Vietnam	1.58	3.29	1.53	1.53	1.54
Zambia	1.50	4.61	1.62	1.62	1.58
Europe24	1.47 [a]	4.32 [c]	1.44 [a]	1.47 [a]	1.96 [c]
AsiaOceania9	1.68 [c]	3.45 [a]	1.44 [a]	1.66 [b]	1.98 [c]
America3	1.46 [a]	4.11 [b]	1.46 [a]	1.63 [b]	1.85 [b]
Africa12	1.64 [b]	4.18 [b]	1.43 [a]	1.67 [b]	1.63 [a]
p-value [3]	<0.001	<0.001	0.311	<0.001	<0.001
Eta-squared	0.021	0.041	0.000	0.013	0.020

Reference population: all road users.

Green cells – countries with mean significantly higher than the overall mean (0.01 level); orange cells – countries with mean significantly lower than the overall mean (0.01 level); white cells – countries that do not differ significantly from the overall mean (0.01 level).

[1] score from 1 to 5; [2] score from 1 to 6; [3] p-value of ANOVA for comparison among regions; each superscript letter denotes a region whose means do not differ significantly from each other at the 0.01 level.

Safety feeling (Q16)

Table 12: Safety feeling, by country and region (mean score of a 11-point scale, where 0 = very unsafe & 10 = very safe).

	Pedestrian	Cyclist	Moped rider /motorcyclist	Car as driver	Car as a passenger	Public transport
Australia	8.1	6.3	5.7	7.5	7.5	7.9
Austria	8.3	7.2	6.2	8.0	7.2	8.2
Belgium	6.7	5.6	5.4	7.0	6.7	7.6
Benin	7.9	5.0	4.3	7.5	6.4	6.2
Bulgaria	7.2	5.5	4.5	5.9	6.5	7.2
Cameroon	6.7	4.8	4.7	6.7	7.0	7.2
Canada	8.1	6.6	6.0	7.8	7.5	8.1
Colombia	6.3	5.3	4.8	6.7	7.0	6.6
Czech Republic	7.3	6.1	5.5	6.8	6.9	7.8
Denmark	8.4	7.3	6.4	8.2	7.7	8.1
Egypt	6.5	5.8	5.3	6.5	6.9	7.2
Finland	8.2	7.2	6.4	7.9	7.6	8.2
France	7.6	5.9	5.5	7.2	6.7	7.7
Germany	8.3	7.1	6.1	8.1	7.3	7.8
Ghana	6.1	5.2	4.7	6.6	7.0	7.0
Greece	7.1	4.5	4.6	6.5	6.7	7.9
Hungary	7.3	6.1	5.2	6.8	7.2	7.9
Iceland	7.6	6.8	6.2	8.3	7.2	7.6
India	7.2	7.0	6.6	7.0	7.5	7.7
Ireland	7.4	5.5	5.4	7.4	7.3	8.0
Israel	8.0	4.9	3.7	7.0	6.6	7.6
Italy	7.5	6.1	5.5	7.1	6.4	7.1
Ivory Coast	6.4	5.8	4.9	6.5	7.3	7.9
Japan	7.1	6.1	5.2	6.5	6.6	7.8
Kenya	7.0	6.2	5.3	7.1	7.1	7.3
Lebanon	6.9	4.3	3.8	6.7	6.0	6.2
Luxembourg	8.2	6.2	5.8	7.9	6.9	8.0
Malaysia	6.9	6.6	5.9	7.0	7.1	7.3
Morocco	6.5	5.8	5.5	6.8	6.7	7.1
Netherlands	7.3	6.9	6.4	7.3	7.2	7.8
Nigeria	6.4	5.1	5.0	6.8	6.9	6.6
Norway	8.5	7.3	6.4	8.2	7.4	8.1
Poland	7.0	6.4	6.1	6.7	6.7	7.2
Portugal	7.5	6.2	5.7	7.6	7.3	8.1
Republic of Korea	6.8	4.8	4.0	6.0	6.2	7.1
Serbia	6.7	5.7	5.1	7.0	7.2	7.6
Slovenia	7.4	6.0	5.7	7.3	7.1	8.1
South Africa	5.7	4.9	4.8	6.5	6.3	6.8
Spain	7.7	5.9	5.2	7.4	6.9	7.7
Sweden	8.3	7.1	5.8	7.6	7.3	7.7
Switzerland	8.8	7.3	6.5	8.0	7.4	8.6
Thailand	6.6	6.3	6.0	6.5	6.4	6.8
Tunisia	6.6	5.9	5.4	6.7	6.7	7.0
Uganda	6.3	4.9	4.5	6.5	7.1	6.5
United Kingdom	7.8	6.1	5.3	7.6	7.4	7.7
United States	7.0	6.1	5.5	7.5	7.3	7.5
Vietnam	7.7	7.0	6.5	6.7	6.8	7.2
Zambia	6.7	6.0	6.0	6.9	7.1	7.1
Europe24	7.7^{a}	6.4^{a}	5.6^{b}	7.4^{a}	7.0^{a}	7.6^{a}
AsiaOceania9	7.3^{b}	6.8^{b}	6.5^{c}	6.9^{b}	7.2^{c}	7.5^{ab}
America3	7.1^{c}	6.0^{c}	5.4^{ab}	7.4^{a}	7.3^{c}	7.5^{b}
Africa12	6.4^{d}	5.5^{d}	5.1^{a}	6.7^{c}	6.8^{b}	7.0^{c}
p-value [1]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Eta-squared	0.036	0.028	0.049	0.017	0.004	0.014

Reference population: all road users who used each specific transport mode in the past 12 months.

Green cells – countries with mean significantly higher than the overall mean (0.01 level); orange cells – countries with mean significantly lower than the overall mean (0.01 level); white cells – countries that do not differ significantly from the overall mean (0.01 level).

[1] p-value of ANOVA for comparison among regions; each superscript letter denotes a region whose means do not differ significantly from each other at the 0.01 level.

Enforcement perception (Q20)

Table 13: Enforcement perception, by country and region ("On a typical journey, how likely is it that you (as a CAR DRIVER) will be checked by the police for…" – % of likely – scores 5 to 7 on a 7-point scale from 1 "very unlikely" to 7 "very likely").

	alcohol, in other words, being subjected to a Breathalyser test	use of illegal drugs	respecting the speed limits	wearing your seatbelt	use of hand-held mobile phone to talk or text while driving
Australia	30.0%	17.1%	41.4%	24.1%	21.1%
Austria	23.5%	10.5%	43.1%	25.0%	19.8%
Belgium	21.8%	14.3%	38.5%	19.6%	15.7%
Benin	14.6%	7.8%	19.4%	22.3%	17.5%
Bulgaria	35.8%	26.5%	53.2%	50.1%	31.9%
Cameroon	24.5%	23.6%	38.2%	37.3%	23.6%
Canada	13.7%	11.9%	27.2%	20.7%	14.7%
Colombia	42.7%	27.3%	47.3%	51.3%	30.9%
Czech Republic	38.5%	19.1%	46.2%	35.7%	24.7%
Denmark	10.9%	8.0%	26.0%	15.5%	12.8%
Egypt	31.6%	29.8%	48.6%	43.2%	32.4%
Finland	15.6%	7.3%	48.7%	10.4%	9.2%
France	15.1%	9.5%	32.9%	17.2%	14.4%
Germany	14.0%	10.1%	32.4%	19.8%	16.5%
Ghana	36.4%	39.0%	53.5%	63.4%	32.9%
Greece	20.8%	11.2%	38.5%	32.8%	16.0%
Hungary	32.0%	16.2%	47.4%	34.1%	24.3%
Iceland	34.8%	27.8%	57.7%	47.7%	29.5%
India	33.1%	24.5%	35.6%	37.0%	26.9%
Ireland	19.5%	11.3%	36.5%	23.1%	16.7%
Israel	15.6%	8.5%	30.9%	19.0%	24.7%
Italy	20.5%	16.5%	37.3%	28.8%	22.1%
Ivory Coast	18.2%	20.1%	32.3%	34.6%	31.6%
Japan	21.2%	16.9%	31.7%	27.9%	19.3%
Kenya	41.4%	24.9%	54.3%	61.5%	33.5%
Lebanon	17.5%	13.7%	31.7%	29.3%	20.6%
Luxembourg	14.7%	6.0%	32.9%	16.6%	14.5%
Malaysia	30.8%	25.7%	53.5%	54.4%	38.0%
Morocco	24.8%	21.7%	44.8%	45.6%	38.3%
Netherlands	16.0%	13.0%	40.3%	21.7%	20.7%
Nigeria	20.8%	25.5%	30.4%	56.1%	35.5%
Norway	15.3%	13.1%	30.4%	24.2%	17.0%
Poland	53.1%	22.6%	56.1%	53.7%	26.7%
Portugal	26.5%	13.9%	40.7%	30.0%	24.5%
Republic of Korea	19.1%	9.8%	26.2%	14.1%	10.5%
Serbia	44.5%	16.1%	57.1%	55.1%	32.1%
Slovenia	32.0%	11.0%	44.1%	36.5%	23.9%
South Africa	25.8%	14.4%	42.4%	34.6%	18.4%
Spain	35.0%	26.1%	42.3%	35.8%	25.8%
Sweden	15.9%	10.8%	29.8%	13.1%	10.3%
Switzerland	17.4%	10.7%	35.1%	24.0%	17.2%
Thailand	34.6%	22.1%	41.1%	46.5%	25.2%
Tunisia	27.6%	21.2%	48.1%	47.0%	33.8%
Uganda	37.5%	27.0%	52.5%	54.0%	33.3%
United Kingdom	11.9%	9.6%	24.9%	13.9%	11.5%
United States	10.1%	8.9%	28.9%	24.0%	12.4%
Vietnam	32.8%	20.6%	43.2%	40.9%	24.0%
Zambia	31.1%	27.1%	73.2%	65.6%	40.8%
Europe24	22.6%[a]	14.4%[a]	37.4%[a]	26.5%[a]	19.1%[a]
AsiaOceania9	32.0%[b]	24.0%[b]	36.5%[a]	36.2%[b]	26.1%[b]
America3	12.6%[c]	10.4%[c]	29.9%[b]	25.3%[a]	13.9%[c]
Africa12	28.4%[d]	24.2%[b]	45.9%[c]	46.0%[c]	31.9%[d]
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.115	0.132	0.088	0.173	0.136

Reference population: car drivers, at least a few days a month.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

[(1)] p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Self-declared enforcement (Q21/Q22)

Table 14: Self-declared enforcement, by country and region ("In the past 12 months, how many times have you been checked by the police for …?" – % at least once in the past 12 months).

	checked by the police for using alcohol while DRIVING A CAR (i.e., being subjected to a Breathalyser test)	**checked by the police for the use of drugs** (other than medication) while DRIVING A CAR
Australia	47.1%	10.5%
Austria	19.2%	3.6%
Belgium	24.1%	4.1%
Benin	3.9%	4.0%
Bulgaria	41.3%	13.8%
Cameroon	28.0%	8.3%
Canada	8.1%	4.2%
Colombia	33.0%	10.0%
Czech Republic	41.7%	7.5%
Denmark	8.9%	2.2%
Egypt	14.8%	14.0%
Finland	38.9%	3.3%
France	15.2%	2.2%
Germany	7.2%	2.5%
Ghana	23.0%	17.1%
Greece	24.8%	5.3%
Hungary	36.9%	3.8%
Iceland	24.2%	8.2%
India	33.7%	12.1%
Ireland	22.5%	5.8%
Israel	12.0%	0.8%
Italy	9.3%	3.5%
Ivory Coast	9.5%	7.0%
Japan	4.6%	0.3%
Kenya	40.4%	17.1%
Lebanon	6.4%	3.7%
Luxembourg	14.5%	1.2%
Malaysia	13.9%	7.7%
Morocco	10.6%	6.7%
Netherlands	10.3%	3.3%
Nigeria	12.2%	9.7%
Norway	21.5%	5.4%
Poland	46.7%	4.4%
Portugal	21.8%	3.5%
Republic of Korea	51.2%	3.9%
Serbia	44.6%	3.0%
Slovenia	25.2%	2.6%
South Africa	22.2%	8.3%
Spain	30.2%	9.7%
Sweden	22.7%	3.1%
Switzerland	12.7%	3.4%
Thailand	20.3%	8.1%
Tunisia	10.2%	3.4%
Uganda	26.6%	14.1%
United Kingdom	4.4%	2.8%
United States	2.6%	1.8%
Vietnam	40.0%	17.8%
Zambia	16.8%	10.2%
Europe24	18.4%[a]	4.1%[a]
AsiaOceania9	33.1%[b]	11.5%[b]
America3	4.9%[c]	2.3%[c]
Africa12	16.9%[d]	10.3%[d]
p-value [(1)]	<0.001	<0.001
Cramer's V	0.177	0.139

Reference population: car drivers, at least a few days a month.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

[(1)] p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Support for policy measures (Q18)

Table 15: Support for policy measures, by country and region ("Do you oppose or support a legal obligation to …?" – % of support – scores 4 to 5 on a 5-point scale from 1 "oppose" to 5 "support").

	install an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion	have zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2 years)	have zero tolerance for alcohol (0,0 ‰) for all drivers	install Intelligent Speed Assistance (ISA) in new cars	install Dynamic Speed Warning signs	have a seatbelt reminder system for the front and back seats in new cars	require all cyclists to wear a helmet	require cyclists under the age of 12 to wear a helmet	require all moped drivers and motorcyclists to wear a helmet	require pedestrians to wear reflective material when walking in the streets in the dark	require cyclists to wear reflective material when cycling in the dark	require moped drivers and motorcyclists to wear reflective material when driving in the dark	have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers	not using headphones (or earbuds) while walking in the streets	not using headphones (or earbuds) while riding a bicycle
Australia	84.7%	85.4%	50.6%	57.5%	65.8%	81.4%	84.0%	90.0%	89.4%	31.1%	82.5%	77.2%	57.6%	38.8%	64.8%
Austria	71.6%	83.2%	51.2%	43.5%	54.3%	66.2%	57.7%	84.4%	91.0%	57.1%	77.6%	75.9%	36.8%	49.1%	65.9%
Belgium	76.1%	78.1%	57.6%	57.9%	64.8%	81.0%	58.3%	83.8%	82.4%	60.2%	81.3%	80.9%	47.5%	44.6%	62.7%
Benin	91.3%	93.4%	90.5%	95.5%	96.7%	96.7%	93.0%	90.1%	95.9%	74.0%	90.9%	83.9%	74.4%	55.4%	75.1%
Bulgaria	89.7%	83.2%	81.1%	79.1%	83.5%	83.4%	75.5%	87.8%	91.6%	64.9%	92.1%	92.0%	46.2%	57.2%	72.9%
Cameroon	89.7%	82.8%	74.0%	88.2%	95.6%	96.6%	92.2%	94.1%	96.1%	54.9%	86.8%	84.8%	60.8%	65.2%	77.9%
Canada	85.0%	85.6%	59.1%	49.0%	61.8%	76.9%	75.7%	89.7%	88.4%	54.0%	81.3%	83.2%	62.7%	43.7%	66.4%
Colombia	89.3%	88.1%	89.8%	77.5%	87.9%	90.0%	94.3%	94.6%	95.2%	46.2%	92.5%	92.1%	65.0%	43.9%	63.8%
Czech Republic	78.3%	86.1%	73.7%	56.1%	67.0%	68.8%	67.2%	90.9%	88.3%	65.4%	82.5%	82.4%	43.4%	47.1%	71.8%
Denmark	84.5%	69.1%	52.4%	55.7%	63.6%	76.4%	54.2%	80.5%	89.1%	63.7%	82.8%	78.7%	56.5%	36.6%	54.2%
Egypt	85.4%	83.9%	87.8%	78.6%	84.5%	77.6%	81.5%	84.0%	82.7%	49.7%	78.5%	79.2%	52.8%	45.4%	55.6%
Finland	88.6%	69.4%	60.1%	52.1%	64.6%	77.6%	60.7%	85.2%	92.8%	81.8%	83.9%	80.3%	34.1%	25.3%	36.2%
France	73.1%	74.2%	53.3%	59.7%	61.9%	79.9%	64.5%	85.1%	87.7%	56.6%	87.5%	85.6%	50.6%	31.1%	58.5%
Germany	69.0%	84.1%	62.3%	48.1%	61.0%	70.4%	54.7%	82.5%	91.9%	51.6%	77.7%	79.9%	48.8%	49.4%	69.8%
Ghana	92.1%	84.1%	89.2%	84.9%	91.8%	94.7%	94.2%	94.2%	94.4%	69.6%	92.6%	91.0%	75.7%	71.7%	80.4%
Greece	85.1%	83.9%	67.4%	79.9%	82.8%	90.0%	85.9%	91.7%	95.3%	51.4%	92.1%	86.6%	66.3%	50.8%	71.6%
Hungary	82.5%	87.5%	83.2%	70.1%	74.7%	82.8%	59.1%	84.1%	85.6%	79.4%	92.7%	90.5%	47.8%	41.9%	69.9%
Iceland	74.8%	64.4%	57.1%	58.8%	67.8%	79.7%	77.2%	85.2%	80.9%	78.9%	87.9%	80.6%	45.0%	32.2%	44.1%
India	83.8%	80.5%	82.0%	82.0%	83.8%	87.3%	70.9%	80.3%	90.6%	59.9%	81.5%	78.9%	70.6%	71.5%	78.6%
Ireland	83.8%	82.6%	74.0%	64.4%	76.9%	89.9%	87.4%	92.8%	94.8%	73.4%	93.9%	92.6%	60.4%	39.7%	73.9%
Israel	82.7%	88.5%	77.3%	63.1%	70.4%	85.5%	87.2%	93.0%	95.2%	42.1%	88.0%	84.9%	48.1%	25.1%	64.6%
Italy	79.7%	53.7%	77.7%	71.9%	70.8%	80.0%	75.1%	84.5%	92.7%	64.8%	88.7%	81.3%	51.1%	48.5%	62.9%
Ivory Coast	91.6%	82.1%	81.8%	88.1%	94.2%	94.2%	88.4%	95.3%	91.8%	44.9%	83.9%	82.3%	56.5%	46.4%	62.5%
Japan	82.2%	78.9%	78.3%	63.8%	64.9%	69.8%	41.1%	65.5%	86.0%	51.0%	75.0%	72.3%	51.0%	50.9%	75.4%
Kenya	93.9%	88.4%	88.8%	86.2%	95.2%	95.4%	95.0%	92.6%	95.3%	57.9%	97.9%	96.9%	77.5%	75.1%	84.0%
Lebanon	88.9%	86.6%	83.9%	84.2%	89.4%	87.9%	93.3%	93.4%	93.8%	67.4%	88.6%	90.4%	67.9%	47.4%	59.1%
Luxembourg	68.3%	77.8%	41.8%	52.4%	60.0%	82.2%	48.1%	89.5%	92.4%	58.4%	87.6%	84.3%	39.3%	36.9%	63.8%

	install an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion	have zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2 years)	have zero tolerance for alcohol (0,0 ‰) for all drivers	install Intelligent Speed Assistance (ISA) in new cars	install Dynamic Speed Warning signs	have a seatbelt reminder system for the front and back seats in new cars	require all cyclists to wear a helmet	require cyclists under the age of 12 to wear a helmet	require all moped drivers and motorcyclists to wear a helmet	require pedestrians to wear reflective material when walking in the streets in the dark	require cyclists to wear reflective material when cycling in the dark	require moped drivers and motorcyclists to wear reflective material when driving in the dark	have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers	not using headphones (or earbuds) while walking in the streets	not using headphones (or earbuds) while riding a bicycle
Malaysia	84.9%	79.6%	84.7%	75.0%	80.3%	88.7%	82.2%	84.7%	87.9%	73.7%	87.7%	83.4%	58.0%	56.1%	63.1%
Morocco	80.3%	77.6%	77.1%	75.5%	81.8%	81.9%	83.0%	84.1%	82.2%	46.9%	78.1%	77.8%	50.6%	45.0%	58.5%
Netherlands	79.7%	82.4%	64.9%	47.5%	52.1%	75.4%	22.8%	56.2%	63.7%	42.9%	54.7%	59.1%	55.5%	38.5%	59.9%
Nigeria	91.7%	90.7%	90.8%	86.1%	92.0%	94.6%	93.9%	91.1%	90.6%	59.1%	88.2%	85.2%	70.2%	72.0%	76.9%
Norway	82.4%	80.1%	73.7%	48.3%	53.4%	80.2%	67.5%	84.6%	90.6%	77.0%	84.6%	79.7%	48.8%	29.6%	45.7%
Poland	87.2%	79.4%	67.2%	63.9%	74.4%	78.2%	60.5%	84.0%	83.7%	79.9%	91.2%	86.8%	45.0%	44.4%	66.2%
Portugal	82.8%	79.0%	66.1%	65.1%	81.7%	87.2%	85.8%	92.7%	92.2%	74.3%	95.1%	91.9%	50.7%	56.0%	77.4%
Republic of Korea	86.3%	75.4%	72.5%	67.5%	73.3%	79.5%	69.5%	82.1%	90.8%	55.1%	80.7%	82.6%	51.1%	37.8%	65.5%
Serbia	88.4%	91.9%	75.7%	79.5%	85.9%	82.8%	62.2%	83.5%	93.2%	42.6%	82.5%	83.6%	61.4%	54.9%	71.9%
Slovenia	85.8%	92.2%	72.2%	69.4%	79.8%	88.7%	60.2%	94.0%	92.5%	84.8%	93.9%	90.3%	54.0%	58.6%	74.2%
South Africa	86.3%	79.1%	75.1%	70.9%	79.0%	87.0%	88.3%	92.4%	90.3%	76.0%	93.4%	88.5%	59.9%	55.1%	66.2%
Spain	87.2%	89.4%	80.8%	76.4%	79.7%	89.1%	86.8%	90.7%	93.9%	46.9%	90.9%	84.7%	68.2%	43.1%	78.5%
Sweden	86.1%	80.4%	71.5%	54.5%	62.8%	78.6%	59.3%	87.7%	90.0%	76.3%	83.3%	80.7%	47.5%	25.4%	47.2%
Switzerland	65.6%	73.9%	48.8%	56.1%	60.0%	65.7%	65.3%	86.8%	89.4%	55.2%	80.7%	77.7%	42.8%	41.4%	66.0%
Thailand	79.9%	65.5%	60.3%	71.9%	82.0%	85.1%	77.6%	74.9%	81.2%	64.1%	77.3%	73.4%	56.9%	59.7%	59.1%
Tunisia	85.6%	82.0%	77.8%	82.2%	84.9%	87.5%	85.9%	90.9%	89.8%	50.9%	88.5%	82.2%	52.0%	48.8%	63.4%
Uganda	93.1%	88.1%	85.7%	86.5%	93.9%	94.4%	93.9%	86.2%	94.4%	65.6%	93.9%	92.3%	73.3%	74.6%	83.6%
United Kingdom	80.5%	80.8%	70.7%	55.9%	65.1%	80.7%	82.9%	88.4%	91.7%	43.8%	88.6%	88.4%	68.6%	35.5%	68.2%
United States	79.8%	79.2%	62.3%	43.8%	56.1%	74.1%	72.4%	84.6%	79.5%	57.0%	83.0%	79.3%	50.5%	40.8%	56.7%
Vietnam	83.4%	74.7%	71.6%	79.0%	83.7%	82.3%	49.3%	65.5%	84.8%	46.6%	54.3%	55.0%	71.8%	56.0%	63.0%
Zambia	92.7%	88.9%	84.7%	85.1%	94.4%	95.2%	93.5%	93.9%	90.8%	74.9%	97.3%	93.9%	70.1%	71.1%	82.2%
Europe24	78.8%a	78.0%a	67.5%a	60.9%a	67.6%a	78.8%a	67.6%a	85.0%a	89.6%a	57.7%a	85.3%a	83.2%a	53.7%a	42.5%a	66.3%a
AsiaOceania9	82.9%b	78.0%a	77.9%b	77.1%b	79.4%b	83.7%b	68.0%a	77.6%b	88.5%b	57.6%a	77.8%b	75.3%b	64.8%b	63.9%b	74.4%b
America3	81.4%b	80.7%b	64.5%c	47.6%c	59.6%c	75.9%c	74.8%b	86.0%a	81.8%c	56.0%a	83.8%a	81.0%c	53.1%a	42.0%a	58.9%c
Africa12	87.1%c	82.9%c	82.7%d	80.5%d	87.0%d	87.0%d	87.4%c	88.5%c	88.2%b	56.9%a	85.7%a	84.0%a	59.8%c	55.3%c	66.6%a
p-value [(1)]	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.218	<0.001	<0.001	<0.001	<0.001	<0.001
Cramer's V	0.089	0.053	0.155	0.220	0.205	0.096	0.190	0.101	0.058	0.010	0.080	0.083	0.089	0.173	0.082

Reference population: all road users.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

[(1)] p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Vehicle automation (Q24/Q25)

Table 16: Interest in automated vehicles, by country and region ("How interested would you be in using the following types of automated passenger car?" – % of interested – scores 5 to 7 on a 7-point scale from 1 "not at all interested" to 7 "very interested").

	Semi-automated passenger car	Fully-automated passenger car
Australia	37.4%	32.6%
Austria	36.8%	28.8%
Belgium	39.4%	29.3%
Benin	62.4%	34.3%
Bulgaria	53.7%	49.5%
Cameroon	64.7%	56.4%
Canada	39.8%	31.8%
Colombia	59.2%	56.6%
Czech Republic	36.4%	33.3%
Denmark	39.2%	29.4%
Egypt	51.7%	64.5%
Finland	38.3%	27.1%
France	37.5%	27.9%
Germany	33.4%	29.6%
Ghana	67.2%	60.1%
Greece	65.2%	31.8%
Hungary	55.0%	42.0%
Iceland	51.8%	40.7%
India	72.1%	69.5%
Ireland	41.8%	28.9%
Israel	55.7%	40.1%
Italy	47.0%	40.7%
Ivory Coast	67.5%	50.4%
Japan	53.6%	55.0%
Kenya	73.9%	62.2%
Lebanon	58.8%	42.0%
Luxembourg	43.8%	24.5%
Malaysia	51.2%	54.3%
Morocco	58.4%	55.0%
Netherlands	36.7%	27.6%
Nigeria	67.2%	58.9%
Norway	16.4%	13.9%
Poland	45.7%	39.8%
Portugal	56.8%	39.6%
Republic of Korea	63.3%	56.5%
Serbia	56.0%	37.9%
Slovenia	59.2%	40.4%
South Africa	61.5%	43.1%
Spain	46.8%	39.7%
Sweden	35.4%	29.0%
Switzerland	43.2%	32.0%
Thailand	58.8%	63.4%
Tunisia	55.6%	60.6%
Uganda	56.9%	58.2%
United Kingdom	30.9%	26.9%
United States	38.3%	31.6%
Vietnam	65.2%	60.2%
Zambia	65.3%	50.8%
Europe24	40.6%[a]	33.0%[a]
AsiaOceania9	67.8%[b]	65.8%[b]
America3	40.3%[a]	33.8%[a]
Africa12	59.8%[c]	56.3%[c]
p-value [(1)]	<0.001	<0.001
Cramer's V	0.230	0.279

Reference population: all road users.

Green cells – countries with percentage significantly lower than the mean (0.01 level); orange cells – countries with percentage significantly higher than the mean (0.01 level); white cells – countries that do not differ significantly from the mean (0.01 level).

(1) p-value of Chi-Square Test of Independence for comparison among regions; each superscript letter denotes a region whose proportions do not differ significantly from each other at the 0.01 level.

Appendix 6: Selected publications based on ESRA2

Goldenbeld, C., Torfs, K., Vlakveld, W., & Houwing, S. (2020). Impaired driving due to alcohol or drugs: International differences and determinants based on E-Survey of Road Users' Attitudes first-wave results in 32 countries. IATSS research, 44(3), 188-196. DOI: 10.1016/j.iatssr.2020.07.005

Granié, M. A., Thevenet, C., Varet, F., Evennou, M., Oulid-Azouz, N., Lyon, C., ... & Van den Berghe, W. (2021). Effect of culture on gender differences in risky driver behavior through comparative analysis of 32 countries. Transportation research record, 2675(3), 274-287. DOI: 10.1016/j.iatssr.2020.07.005

Holló, P., & Pauer, G. (2020). A közlekedők magatartásának, attitűdjének elektronikus felmérése (ESRA projekt: E-Survey of Road Users' Attitudes). ÚTÜGYI LAPOK: A KÖZLEKEDÉSÉPÍTÉSI SZAKTERŰLET MÉRNÖKI ÉS TUDOMÁNYOS FOLYÓIRATA, 8(13). DOI: 10.36246/UL.2020.1.03

Laiou, A., Theofilatos, A., Yannis, G., Meesmann, U., & Torfs, K. (2021). An exploration of European road users' safety attitudes towards speeding. Journal of Transportation Safety & Security, 13(5), 552-573. DOI: 10.1080/19439962.2019.1650144

Lyon, C., Mayhew, D., Granié, M. A., Robertson, R., Vanlaar, W., Woods-Fry, H., ... & Soteropoulos, A. (2020). Age and road safety performance: focusing on elderly and young drivers. IATSS research, 44(3), 212-219. DOI: 10.1016/j.iatssr.2020.08.005

Meesmann, U., & Nakamura, H. (2020). Guest Editorial. The ESRA initiative: Towards global monitoring and analysis of road safety performance. IATSS Research, 44(3), 163-165. DOI: 10.1016/j.iatssr.2020.10.001

Meesmann, U., Torfs, K., & Cools, M. (2020). Socio-cognitive factors in road safety monitoring–Cross-national comparison of driving under the influence of alcohol, drugs or medication. IATSS research, 44(3), 180-187. DOI: 10.1016/j.iatssr.2020.09.004

Pires, C., Torfs, K., Areal, A., Goldenbeld, C., Vanlaar, W., Granié, M. A., ... & Meesmann, U. (2020). Car drivers' road safety performance: A benchmark across 32 countries. IATSS research, 44(3), 166-179. DOI: 10.1016/j.iatssr.2020.08.002

Usami, D. S., Persia, L., & Sgarra, V. (2020). Determinants of the use of safety restraint systems in Italy. Transportation research procedia, 45, 143-152. DOI: 10.1016/j.trpro.2020.03.001

Van den Berghe, W., Schachner, M., Sgarra, V., & Christie, N. (2020). The association between national culture, road safety performance and support for policy measures. IATSS research, 44(3), 197-211. DOI: 10.1016/j.iatssr.2020.09.002

Woods-Fry, H., Vanlaar, W. G., Robertson, R. D., Torfs, K., Kim, W., Van den Berghe, W., & Meesmann, U. (2018). Comparison of Self-Declared Mobile Use While Driving in Canada, the United States, and Europe: Results from the European Survey of Road Users' Safety Attitudes. Transportation research record, 2672(37), 74-83. DOI: 10.1177/0361198118787631

Yannis, G., Nikolaou, D., Laiou, A., Stürmer, Y. A., Buttler, I., & Jankowska-Karpa, D. (2020). Vulnerable road users: Cross-cultural perspectives on performance and attitudes. IATSS research, 44(3), 220-229. DOI: 10.1016/j.iatssr.2020.08.006

Ziakopoulos, A., Nikolaou, D., & Yannis, G. (2021). Correlations of multiple rider behaviors with self-reported attitudes, perspectives on traffic rule strictness and social desirability. Transportation Research Part F: Traffic Psychology and Behaviour, 80, 313-327. DOI: 10.1016/j.trf.2021.05.011

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E-Survey of Road users' Attitudes

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