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E-Survey of Road users' Attitudes

Public support for policy measures in road safety

ESRA2 Thematic report Nr. 9

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Table of contents

List of Abbreviations

Country codes

AT	Austria
AU	Australia
BE	Belgium
CA	Canada
CH	Switzerland
CZ	Czech Republic
DE	Germany
DK	Denmark
EG	Egypt
EL	Greece
ES	Spain
FI	Finland
FR	France
HU	Hungary
IE	Ireland
IL	Israel
IN	India
IT	Italy
JP	Japan
KE	Kenya
KR	Republic of Korea
MA	Morocco
NG	Nigeria
NL	Netherlands
PL	Poland
PT	Portugal
RS	Serbia
SE	Sweden
SI	Slovenia
UK	United Kingdom
US	United States
ZA	South Africa

Other abbreviations

ESRA	E-Survey of Road Users' Attitudes
BAC	Blood Alcohol Concentration
ISA	Intelligent Speed Assistance
Europe20	The 20 European countries in the first wave of ESRA2
Africa5	The 5 African countries in the first wave of ESRA2
NorthAmerica2	The 2 countries from North America in the first wave of ESRA2
AsiaOceanie5	The 5 countries from Asia and Oceania in the first wave of ESRA2

Executive summary

Objective and methodology

ESRA (E-Survey of Road users' Attitudes) is a joint initiative of road safety institutes, research centres, public services, and private sponsors from all over the world. The aim is to collect and analyse comparable data on road safety performance, 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 coordinates ESRA, in cooperation with eleven core group partners (BASt, BFU, CTL, IATSS, IFSTTAR, ITS, KFV, NTUA, PRP, SWOV, TIRF). At the heart of ESRA is a jointly developed questionnaire survey, which is translated into national language versions. The themes covered include self-declared behaviour, attitudes and opinions on unsafe traffic behaviour, enforcement experiences and support for policy measures. The survey addresses different road safety topics (e.g. driving under the influence of alcohol, drugs and medicines, speeding, distraction) and targets car occupants, motorcycle and moped drivers, cyclists and pedestrians.

The present report is based on the second edition of this global survey, which was conducted in 2018 (ESRA2_2018). In total this survey collected data from more than 35.000 road users across 32 countries. An overview of the ESRA initiative and the project-results is available on www.esranet.eu.

This thematic ESRA report on support for policy measures describes the findings in relation to 15 possible policy measures in the field of road safety that were included in ESRA2: three measures in relation to drunk driving, two in relation to speeding, four in relation to preventive systems, three in relation to helmet use and three in relation to distraction. The measures considered target different groups of road users: car drivers, cyclists, pedestrians and motorcyclists/moped drivers.

The report presents and discusses the level of support for the measures considered, including differences across world regions, countries, age groups and gender. The support for measures is also compared to attitudes to existing traffic rules, the number of road fatalities and characteristics of national culture.

Main results

This report is based upon the analysis of the answers to the following question in ESRA2:

"Do you oppose or support a legal obligation to …

1. *install an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion*
2. *have zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2 years)*
3. *have zero tolerance for alcohol (0,0 ‰) for all drivers*
4. *install Intelligent Speed Assistance (ISA) in new cars (which automatically limits the maximum speed of the vehicle and can be turned off manually)*
5. *install Dynamic Speed Warning signs (traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold)*
6. *have a seatbelt reminder system for the front and back seats in new cars*
7. *require all cyclists to wear a helmet*
8. *require cyclists under the age of 12 to wear a helmet*
9. *require all moped drivers and motorcyclists to wear a helmet*
10. *require pedestrians to wear reflective material when walking in the streets in the dark*
11. *require cyclists to wear reflective material when cycling in the dark*
12. *require moped drivers and motorcyclists to wear reflective material when driving in the dark*

13. *have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers*
14. *not using headphones (or earbuds) while walking in the streets*
15. *not using headphones (or earbuds) while riding a bicycle"*

Respondents could indicate their answer on a scale from 1 to 5, where 1 was "oppose" and 5 was "support". The answers were dichotomized into support (= score 4-5) and oppose/neutral (= score 1-3). Throughout this report the percentage of respondents who were supportive was used as the key indicator for analysis.

The main results were as follows:

- The survey results show that the level of acceptability of policies and measures differs significantly according to country, gender and age.
- Overall, the majority of the respondents tend to support the policy measures that were proposed in the survey. For some measures, even over 3/4 of the respondents are in favour. We can conclude that the level of public support for policy measures in the field of road safety, most of which tend to limit personal freedom, is higher than what is often assumed by politicians. This illustrates the concern of people for avoiding harm caused by road crashes.
- Yet, this overall finding cannot be generalised to all countries and all measures. For most measures there are at least a few countries where less than half of the adult population support the measure. There are also differences in the level of support across regions across the world. Such differences reflect the variety of national circumstances, existing road safety measures, levels of enforcement and national cultures.
- Almost systematically, females tend to be more supportive for road safety measures than men. Similarly, and in particular in Europe20, often the older people are, the more they tend to be in favour of the measures proposed. But for some measures and regions this general trend does not apply.
- Policy measures in the field of driving under the influence of alcohol appear to be welcomed by the majority of respondents in countries across the world. The lowest level of support is related to the measure: "zero tolerance for alcohol for all drivers" in Europe20 and NorthAmerica2, but even in these regions of the world, on average about two thirds of the adult population is in favour of the measure.
- Support for measures against speeding – install Intelligent Speed Assistance (ISA) and Dynamic Speed Warning signs in new cars – is higher in Africa5 (77.2%) and AsiaOceania5 (78.7%) than in Europe20 (60.8%) and NorthAmerica2 (44.4%). The level of support also varies across age groups by region. In Europe20, the support of the 65+ group for ISA (70.2%) and Dynamic Speed Warning signs (76.6%) is significantly higher than that of other age groups. In Africa5 and AsiaOceania5 there is a similar trend, while in NorthAmerica2 there is no such age related trend.
- The measure to have a seatbelt reminder system for the front and back seats in new cars received more support in AsiaOceania5 (84.9%), and Africa5 (83.2%), than in Europe20 (78.8%) and NorthAmerica2 (74.4%) - but also in those two regions three quarters of the population was supportive. In each of the four regions, the level of support for requiring cyclists to wear helmets was high; it was even higher for those under 12 than for all cyclists. In AsiaOceania5 (90.1%) and Africa5 (85.3%) there was a high level of public support for requiring all moped drivers and motorcyclists to wear a helmet.

- Concerning the requirement of wearing reflective material in the dark – for pedestrians, cyclists, and moped drivers and motorcyclists – the level of support depends significantly on the road user concerned. Implementing such a measure for cyclists receives high levels of support in Europe20 (85.2%), NorthAmerica2 (82.8%), AsiaOcean5 (80.8%) and Africa5 (83.0%). Similar levels of support were found for motorcyclists, in Europe20 (83.1%), NorthAmerica2 (79.7%), AsiaOcean5 (78.3%) and Africa5 (81.9%). The support for a similar measure targeted at pedestrians was lower, although the majority of the population in the 4 regions is still in favour: 57.4% in Europe20, 56.7% in NorthAmerica2, 58.0% in AsiaOceania5 and 54.8% Africa5.

- The youngest age group (18-24) is the least in favour of measures that would not allow cyclists and pedestrians to use headphones or earbuds. This also applies to the measure to forbid the use of any type of mobile phone (handheld or handsfree) by car drivers. In only 9 of the 32 countries considered there is (slight) majority of the population in favour of forbidding pedestrians to use headphones (or earbuds) while walking in the streets. The level of support to forbid this for cyclists is much higher. Forbidding the use of any type of mobile phone use by car drivers is supported by the majority of the population in 22 of the 32 countries participating.

Additional findings

Some additional more advanced analyses were undertaken:

- A comparison between the European data from ESRA1 and ESRA2 showed consistency between the two surveys. The support for alcohol-related measures is high in both the first and the second edition of the survey; support for installing an alcohol interlock system with recidivists has even increased. Another striking similarity between ESRA1 and ESRA2 is the systematic higher support of females, compared to males, for policy measures in the field of road safety.

- An analysis on the association between, on the one hand, the views on current traffic rules in the areas of speeding, driving under the influence of alcohol and distraction by mobile phone, and on the other hand, the level of support for additional measures in these areas, showed that the more people consider the current traffic rules to be too strict, the more they are opposed to additional policy measures in this area.

- When someone systematically engages in risky or unsafe behaviour in traffic, e.g. speeding or driving under the influence of alcohol, it is plausible to assume that he or she may be opposed to policy measures that sanction or further restrict such behaviour. The analyses undertaken on the basis of the ESRA2 data show that this assumption is often true, with all correlations between support for measures and self-reported risky behaviour being negative.

- Another analysis, on the impact of national culture on the support for policy measures in road safety, showed that national culture, and in particular the dimension "Independence", is highly correlated with the level of support for policy measures. A high score on "Independence" implies that a country has a relatively high percentage of people who value independent thinking. A low value means that many people in a country base their opinions on the interests and needs of their in-group (family, clan, professional group, local community). For several of the measures considered, over half of the statistical variation across countries can be explained by this single dimension. The higher the level of Independence, the lower is, in general, the declared support for policy measures. However, national culture seems to be less a factor at play when the support for the measure is very high in all countries and/or when the measure has already been implemented (which could have been the result of a supportive national culture).

Key recommendations

Even if the set of measures included in ESRA2 does only include a fraction of the policy measures that could be undertaken, the results illustrate that the support for measures in the field of road safety is often higher than policy-makers think. This could be used as an argument for experts, road safety agencies and representatives of road users to convince policy-makers to implement new road safety measures, even if at first sight they may not look popular.

Of course, a high level of public support should not be the only argument to implement new measures. Expected effectiveness and cost-efficiency should also be prime considerations. Each country, region or locality should determine in which areas most progress in road safety can be achieved at a reasonable cost. It is also important to inform the public of the relevance of the measure and the anticipated benefits – while recognizing that there could be also negative side effects like some limitation of freedom or even additional costs.

This report also illustrates that it is useful to collect data on public support for certain measures and also to identify the factors that may explain the level of support for a particular measure. The ESRA data provides some elements as to why people support or oppose policy measures, but more data collection and research is needed as to what factors determine public support for measures and how public support for policy measures could be increased.

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

1 Introduction

According to the World Health Organization's 2018 Global status report on road safety (WHO, 2018), in 2016 some 1.35 million people died as a result of road traffic crashes and as many as 50 million more people were injured. Road crashes are the leading cause of death among people aged 5-29 years. Worldwide, more people die as a result of road traffic injuries than from HIV/AIDS, tuberculosis or diarrhoeal diseases. Moreover, the number of road injuries and fatalities continues to increase, in particular in low- and middle-income countries. Even in some developed countries one sees now, after 4 decades of decrease, a stagnation or even increase in road fatalities (European Commision, 2019). Moreover, it appears highly unlikely that the EU's medium-term target, to halve the number of road fatalities between 2010 and 2020, will be reached – and even less progress has been reached in serious injuries.

Yet, fatalities and long-term injuries from road accidents are a largely predictable and avoidable problem, which is amenable to rational analysis and remedy (European Commission, 2018). Road safety improvements don't come by itself. They require an integrated approach and actions in different fields – road infrastructure, vehicle technology, human behaviour – and also different types of actions such as targeted education and communication, appropriate policy measures and effective enforcement.

It is obvious that appropriate policy measures are needed – and will continue to be needed in the future – if we want the road fatality numbers to further down. But there are several reasons why such measures are not being implemented. Two major factors make policy-makers reluctant to implement road safety policy measures, even when there is sufficient evidence that such measures would be effective. The first factor is the expected cost, either for the public authorities (be it at national, regional or local level) or for the road users. The cost may be seen as too high for the expected effects – or the required funding may not be available or considered to be more useful for other public needs.

The other factor which makes policy-makers reluctant to implement the measures is insufficient public support, and the feeling (or evidence) that a (large) majority of the population would oppose the measure – for whatever reason: cost, restriction of freedom, no belief in just implementation, perceived discrimination, etc.

Support for certain policy measures in the field of road safety has been analysed in some countries for certain measures (e.g. Boudry, 2020; Smith et al., 2014). It has rarely been examined on across a large number of countries; exceptions are some items that are discussed in the reports on SARTRE4 (Antov et al., 2010) and ESRA1 (Buttler, 2016; Meesmann, Torfs, & Van den Berghe, 2017)

Although in ESRA2 the focus is on human behaviour and road safety culture, the survey also includes questions on public support for policy measures and people's attitude to the current traffic rules. In the first wave of ESRA2, data from 32 countries were collected in relation to the level of support for 15 measures in the field of road safety. For most countries in which the data was collected, these measures were not yet implemented, but in some countries one or more of the measures (e.g. in relation to drunk driving) were already implemented.

The ESRA2 findings which are discussed in this report address the following research questions:

- How high is the level of support for the measures considered?
- How does the level of support vary across countries, age groups and gender?
- How is the level of support for new policy measures associated with the people's attitude to the current traffic rules?
- How is national culture related to the support for policy measures in road safety?

Please note that the variation between countries in public support for policy measures is the result of many factors. Variables relating to some of these factors were included in the ESRA survey, but some other factors were not. This implies that the question on the causes of variation of the level of support for policy measures across countries cannot be answered adequately on the basis of the ESRA data alone. But the findings in this report can be considered as a first step to address this question as well.

2 Methodology

2.1 ESRA methodology

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

ESRA data is collected through online panel surveys, using a representative sample of the national adult populations in each participating country (at least N = 1000 per country). At the heart of this survey is a jointly developed questionnaire, which is translated into national language versions. The themes covered include self-declared behaviour, attitudes and opinions on unsafe traffic behaviour, enforcement experiences and support for policy measures. The survey addresses different road safety topics (e.g. driving under the influence of alcohol, drugs and medicines, speeding, distraction) and targets car occupants, motorcycle and moped drivers, cyclists and pedestrians. The present report is based on the first wave of the second edition of this global survey, which was conducted in 2018 ("ESRA2_2018"). In total this survey collected data from more than 35 000 road users across 32 countries.

The participating countries in ESRA2_2018 were:

- Europe ("Europe20" further in this report): Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, United Kingdom;
- America ("NorthAmerica2"): Canada, USA;
- Asia and Oceania ("AsiaOceania5"): Australia, India, Israel, Japan, Republic of Korea;
- Africa ("Africa5"): Egypt, Kenya, Morocco, Nigeria, South Afrika.

Vias institute in Brussels (Belgium) initiated and coordinates ESRA, in cooperation with eleven core 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)). The common results of the ESRA2_2018 survey will be published in a Main Report, a Methodology Report and at least sixteen Thematic Reports. Furthermore, for every participating country a country fact sheet is produced, in which national key results are compared to a regional mean (benchmark). In addition, many scientific articles, national reports and conference presentations are produced by national ESRA partners. An overview of the results and news on the ESRA initiative is available on: www.esranet.eu

Table 1: ESRA2 Thematic Reports (in addition to the current one on support for policy measures)

Driving under influence	Support for policy measures	Cyclists
Speeding	Unsafety feeling & risk perception	Moped drivers & motorcyclists
Distraction (mobile phone use)	Enforcement	Young road users
Fatigue	Vehicle automation	Elderly road users
Seat belt (incl. child restraints)	Pedestrians	Gender aspects

2.2 Support for policy measures within ESRA2

The present report summarizes the ESRA2_2018 results with respect to support for policy measures on road safety. An overview of the data collection method and the sample per country can be found in (Meesmann, Torfs, & Van den Berghe, 2019). This report is based upon the analysis of the answers to the following question in ESRA2 (see Question Q18 in Appendix 1): *"Do you oppose or support a legal obligation to …*

1. *install an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion*
2. *have zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2 years)*
3. *have zero tolerance for alcohol (0,0 ‰) for all drivers*
4. *install Intelligent Speed Assistance (ISA) in new cars (which automatically limits the maximum speed of the vehicle and can be turned off manually)*
5. *install Dynamic Speed Warning signs (traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold)*
6. *have a seatbelt reminder system for the front and back seats in new cars*
7. *require all cyclists to wear a helmet*
8. *require cyclists under the age of 12 to wear a helmet*
9. *require all moped drivers and motorcyclists to wear a helmet*
10. *require pedestrians to wear reflective material when walking in the streets in the dark*
11. *require cyclists to wear reflective material when cycling in the dark*
12. *require moped drivers and motorcyclists to wear reflective material when driving in the dark*
13. *have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers*
14. *not using headphones (or earbuds) while walking in the streets*
15. *not using headphones (or earbuds) while riding a bicycle*

For this question, respondents could indicate their answer on a scale from 1 to 5, where 1 was "oppose" and 5 was "support". The answers were dichotomized into support (= score 4-5) and oppose/neutral (= score 1-3). Throughout this report the percentage of respondents who were supportive was used as the key indicator for analysis.

Before performing the descriptive analyses, the 15 policy measures were grouped as follows:

- measures against driving under the influence of alcohol
- measures against speeding
- protective measures
- measures to improve visibility of vulnerable road users
- measures against distraction

In the descriptive part of the analyses, the answers to these questions were compared across regions, countries, age groups and gender. Particular attention was paid to whether differences between different groups were statistically significant. For measuring the significance of the differences, Pearson's Chi-square test was used, and for the effect size Cramer's V. The results of these tests have been grouped in Annex 3 of the report.

For the additional advanced analyses, the focus was on examining bivariate associations. A comparison of ESRA1 and ESRA data for 24 countries was based on paired sample T-tests. A second set of analyses examined the association between support for policy measures and attitudes towards existing traffic rules. The third set of analyses measured the correlation between self-declared behaviour and the support for certain measures. A final set of analyses considered the association between support for policy measures, road fatalities and national culture, on the basis of correlations and partial correlations.

Note that a weighting of the data was applied to the descriptive analyses. This weighting took into account small corrections with respect to national representativeness of the sample based on gender

and six age groups: 18-24y, 25-34y, 35-44y, 45-54y, 55-64y, 65y+; based on population statistics from United Nations data (UNdata, 2019). For the regions, the weighting also took into account the relative size of the population of each country within the total set of countries from this region.

The statistical programmes SPSS 25.0 and R 3.6.0 were used for the different analyses undertaken.

2.3 Limitations of the data

In general, self-report data are vulnerable to a number of biases (Choi & Pak, 2005; Krosnick & Presser, 2010) including desirability bias – the tendency of respondents to provide answers which present a favourable image of themselves, e.g. individuals may over-report good behaviour or under-report bad, or undesirable behaviour; bias through misunderstanding of questions (e.g. questions with difficult words, long questions); or recall error – unintentional faulty answers due to memory errors. Although we expect such biases to be low when it comes to expressing support for measures, respondents' opinions may be strongly dependent on whether the measure would affect them or not, on their expectations on how strong the measure will be enforced and the risk that they may be caught when not respecting the rules. Such factors may affect the level of support for legal obligations. Also, when there is a strong political debate in a country about a particular measure – e.g. the recent reduction of speed limits on rural roads in France – people may change, possibly temporarily, their views.

Despite the advantages of online surveys using large panels to select from - in terms of cost, speed and data quality - the representativeness of the surveyed populations may be a problem, mainly for countries with low rates of internet use. That is the case of some of the countries of ESRA2 survey where the percentage of population using the internet is low (lower than 30% in Kenya and Nigeria, and lower than 50% in India and Egypt – although the penetration is higher for the 18+). The number of Africa5n respondents aged 65 or older was quite low, so that the answers of this particular age group in Africa5n countries cannot be considered to be representative.

Another consideration is that a sample size of 35.036 road users from 32 different countries (including 25.535 car drivers) is quite large. A very large sample size leads to the fact that even relatively small differences between subsamples become significant. That may explain why many chi-squared tests show a significant difference when comparing e.g. results among the four different regions. Despite the statistical significance of many of the differences mentioned in this report, the effect sizes were often small (Cramer's V of 0.1 or lower). This aspect should be considered when interpreting the results.

Finally, as said in the introduction, public support depends on many factors, some of which are country specific. Only some of these factors were included in the ESRA survey. This implies that the research question on why the level of support for particular measures differs between countries cannot be answered adequately on the basis of the ESRA data alone.

3 Descriptive analyses

3.1 Measures against driving under the influence of alcohol

The support for policy measures was assessed by asking respondents the question: "*Do you oppose or support a legal obligation to …?"* followed by a number of (possible) policy measures. Three of these were measures in relation to combatting driving under the influence of alcohol:

a. *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)*
b. *Have zero tolerance for alcohol for novice drivers (licence obtained less than 2 years)*
c. *Have zero tolerance for alcohol for all drivers.*

Respondents could answer on a Likert scale from 1 (oppose) to 5 (support). The answers were dichotomized into support (= score 4-5) and oppose/neutral (= score 1-3). Throughout this report the percentage of respondents who were supportive was used as the key indicator for analysis.

As Figure 1 on the next page shows, respondents in the 4 world regions considered are quite supportive for measures related to driving under the influence of alcohol. As regards the installation of an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion, the proportions of respondents in AsiaOceania5 and Africa5 (respectively 83.7% and 84.9%) in supporting this measure, were higher than in the other two regions (Europe20 78.7% and NorthAmerica2 80.4%, p-value < 0.01).

Proportions in support of zero tolerance for alcohol (BAC 0.0 ‰) for novice drivers were lower – but statistically significantly different in Europe20 (77.9%) compared to the other regions. The three other regions did not differ significantly (p-value > 0.01): AsiaOceania5 (80.2%), NorthAmerica2 (79.9%), and Africa5 (81.7%).

In relation to a possible legal prohibition of any alcohol (0.0 ‰) for all drivers ("zero tolerance"), Europe20 and NorthAmerica2 are the regions with the lowest percentage of people supporting this measure (67.3% and 62% respectively) while in AsiaOceania5 the percentage is 80.5% and in Africa5 82.2%. It should be noted that these figures mean that also in Europe and North America still about 2/3 of the adult population is in favour.

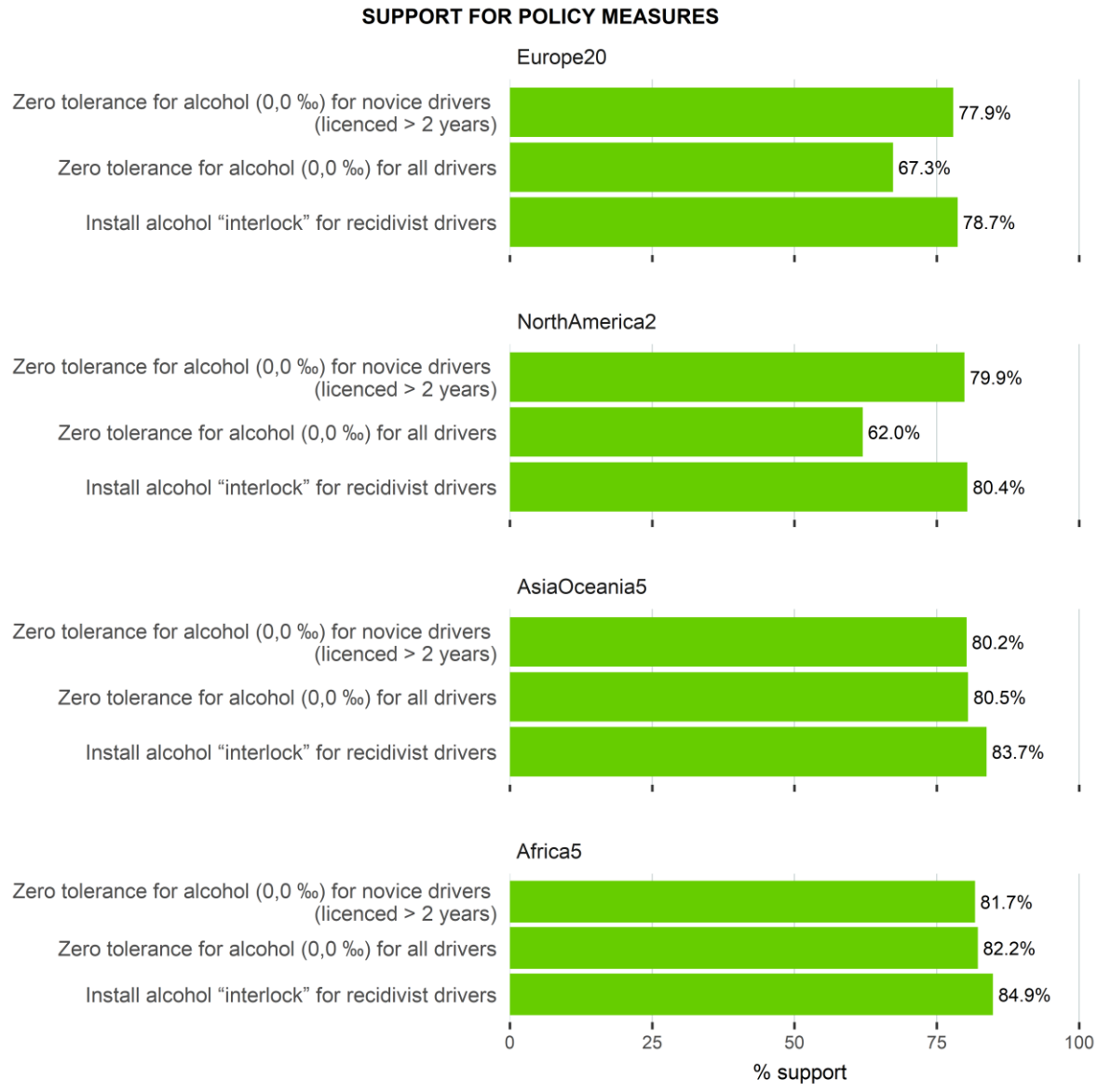
Results by country (Figure 2) show that, in Europe20 and AsiaOceania5, the level of support for particular measures is high, although it varies across countries. Switzerland is the European country with the lowest level of support for installing an alcohol "interlock" and for zero tolerance for alcohol (0.0 ‰) for recidivists and all drivers while in Italy there is low level of support for zero tolerance for novice drivers.

Among the 5 Africa5 countries, Nigeria and Kenya are the ones where the support is highest, while in NorthAmerica2, the Canadians are the ones to support most (85%) a legal obligation to install an alcohol "interlock" and to have zero tolerance for alcohol (0.0 ‰) for novice drivers.

In Europe20 there appears to be a significant difference between the [18-24] age group and the ones older than 45 and 65+ (p-value < 0.01) when it comes to the compulsory installation of an alcohol "interlock" (Figure 3). Young people are the least supportive of this measure. There are also significant differences between those aged 18 to 24 and those over 65+ concerning zero tolerance for novice drivers (p-value < 0.01). The level of support for zero tolerance for all drivers increases by age and differs significantly between all age groups, except between those aged 55 to 64 and those over 65.

In NorthAmerica2 the association between age and support for measures is less strong, although often the older people are more supportive for alcohol related measures then the younger ones. There are

no significant differences between the ones aged from 18 to 24 with the ones aged until 54 (p-value > 0.01), concerning the legal obligation to install an alcohol interlock for recidivist drunk drivers, but there were differences between these respondents and the ones aged over 65+ (p-value < 0.01). With respect to zero tolerance for alcohol (0.0 ‰) for novice drivers, there are significant differences between the three age groups of users aged 18 to 44 years and those over 45 years (p-value < 0.01), while support for zero tolerance for alcohol (0.0 ‰) for all drivers is particularly well supported by those aged 65+.



Reference population: all road users

Figure 1: Support for policy measures concerning driving under the influence of alcohol, by region

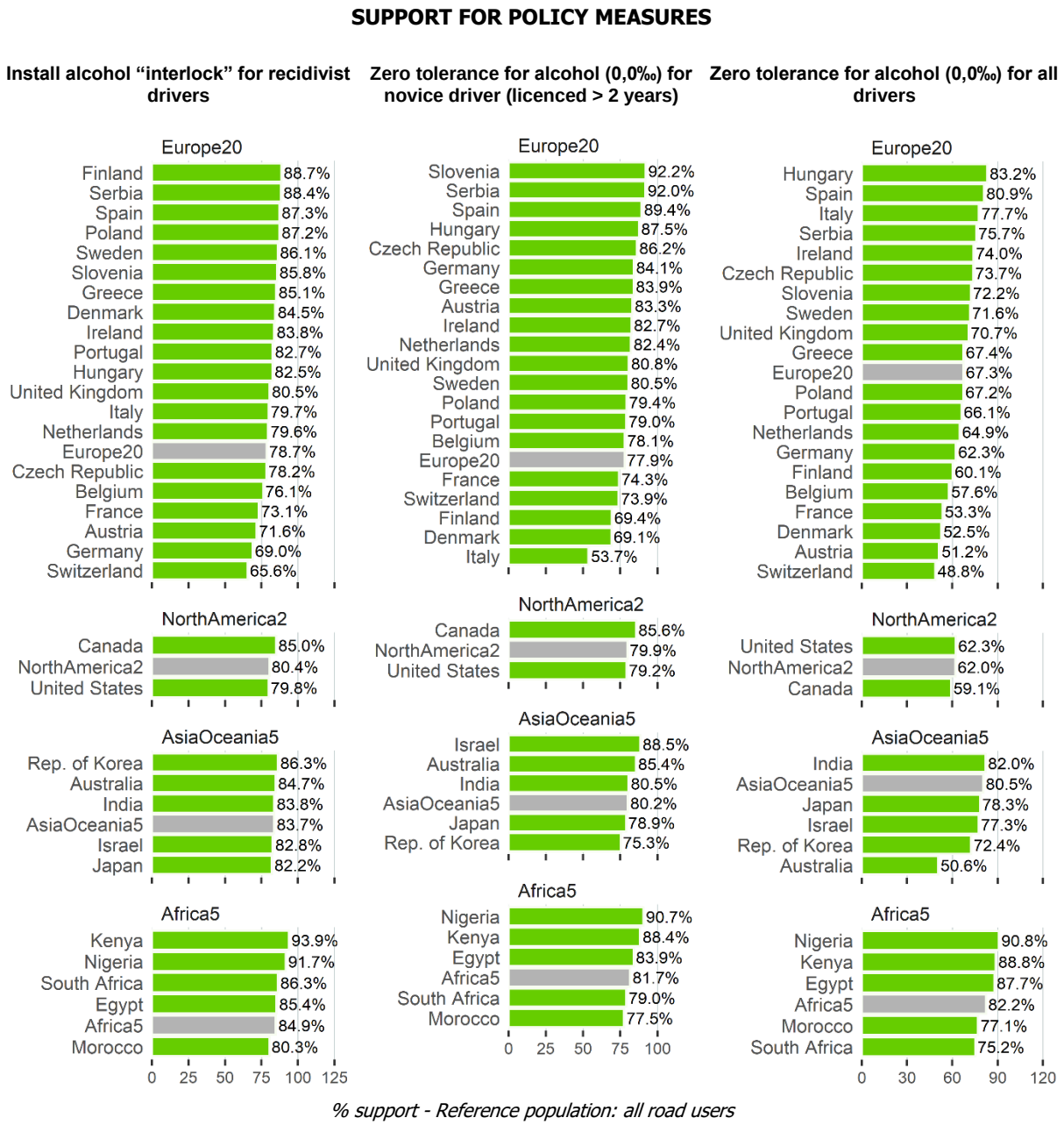


Figure 2: Support for policy measures concerning driving under the influence of alcohol, by region and country

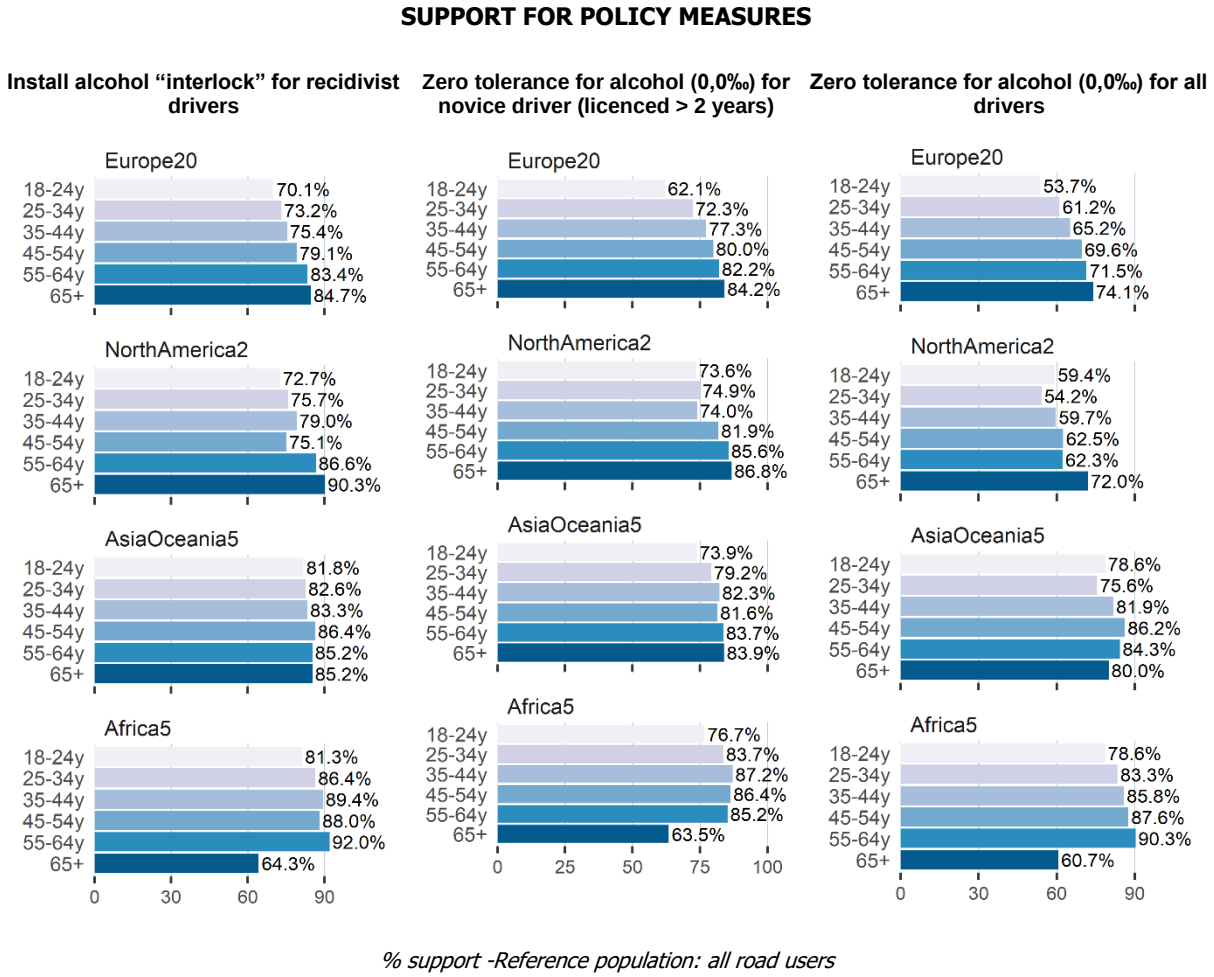


Figure 3: Support for policy measures concerning driving under the influence of alcohol, by region and gender.

Interestingly, in the Africa5 countries considered, the three measures related were far less supported[1] among the respondents aged 65+. There were no significant differences between the respondents aged 25-34 years and those up to 64 years old (p-value > 0.01).

In AsiaOceania5 all ages groups responded positively to the idea of supporting measures concerning driving under the influence of alcohol. There were no significant differences between the age groups (p-value > 0.01).

Results by gender (Figure 4) show that females are more supportive for policy measures concerning driving under the influence of alcohol. The only exception is AsiaOceania5 where both males and females are supporting at the same level a legal obligation to have zero tolerance for alcohol (0.0 ‰) for all drivers (p-value > 0.01).

[1] It is recognized, however, that the 65+ sample for Africa was small, and that there are concerns about its representativity. So the differences may be related to the small samples

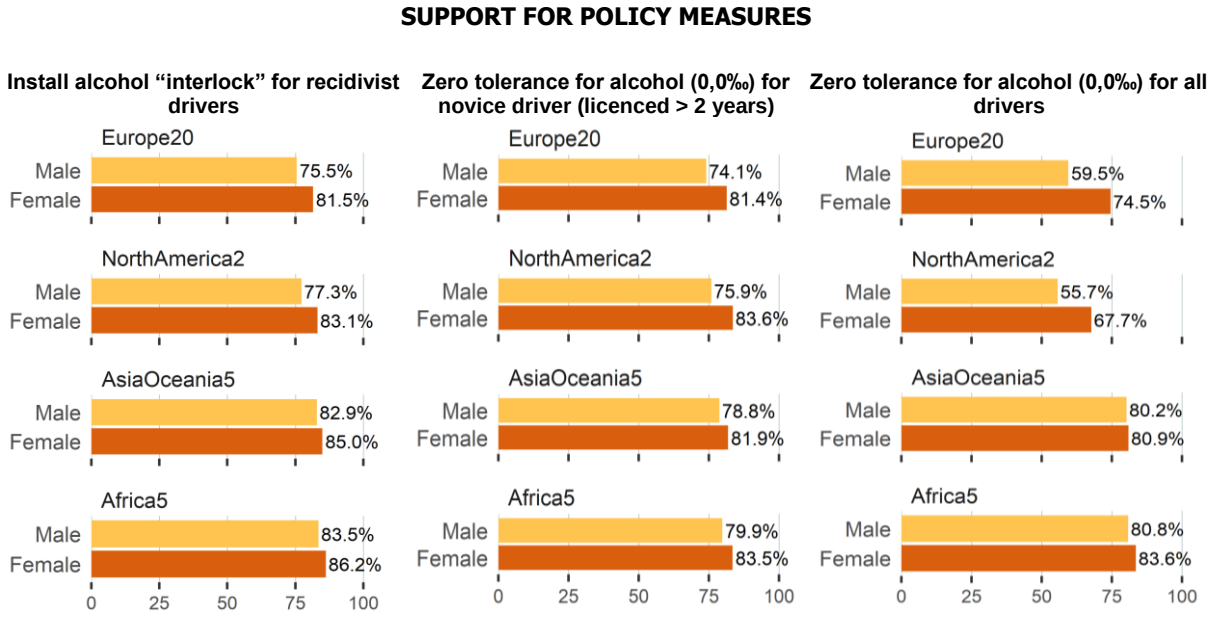


Figure 4: Support for policy measures concerning driving under the influence of alcohol, by region and gender.

3.2 Measures against speeding

The support for policy measures was assessed by asking respondents the question: "*Do you oppose or support a legal obligation to …?"* followed by a number of (possible) policy measures. Two of these were measures in relation to speeding:

a. *Install Intelligent Speed Assistance (ISA) in new cars (which automatically limits the maximum speed of the vehicle and can be turned off manually)*
b. *Install Dynamic Speed Warning signs (traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold)*

The level of support by region is displayed in Figure 5. The proportion of respondents who supported the compulsory installation of ISA in new cars, appears to vary significantly by region. Proportions were not significantly different between AsiaOceania5 (78.7%) and Africa5 (77.2%). But the support was much lower in Europe20 (60.8%) and NorthAmerica2 (44.4%). The reason for the strong differences in the acceptance of ISA between the different regions is not clear. According to SWOV (2015), several factors seem to determine user acceptance of ISA: the type of ISA system, the type of road environment and the type of driver. The regional difference may be related to the culture of driving and speeding.

Similarly, the proportions of respondents who supported a legal obligation to install Dynamic Speed Warning depended significantly on the region. The pattern was similar as that for ISA, where Africa5 (83.8%) and AsiaOceania5 (80.7%), presented greater support than Europe20 (67.6%) and NorthAmerica2 (56.7%). In any case, in all regions there is greater support for the dynamic speed warning than the ISA system. This could be because ISA automatically limits the speed, while the dynamic speed warning system only informs the speed limit being exceeded.

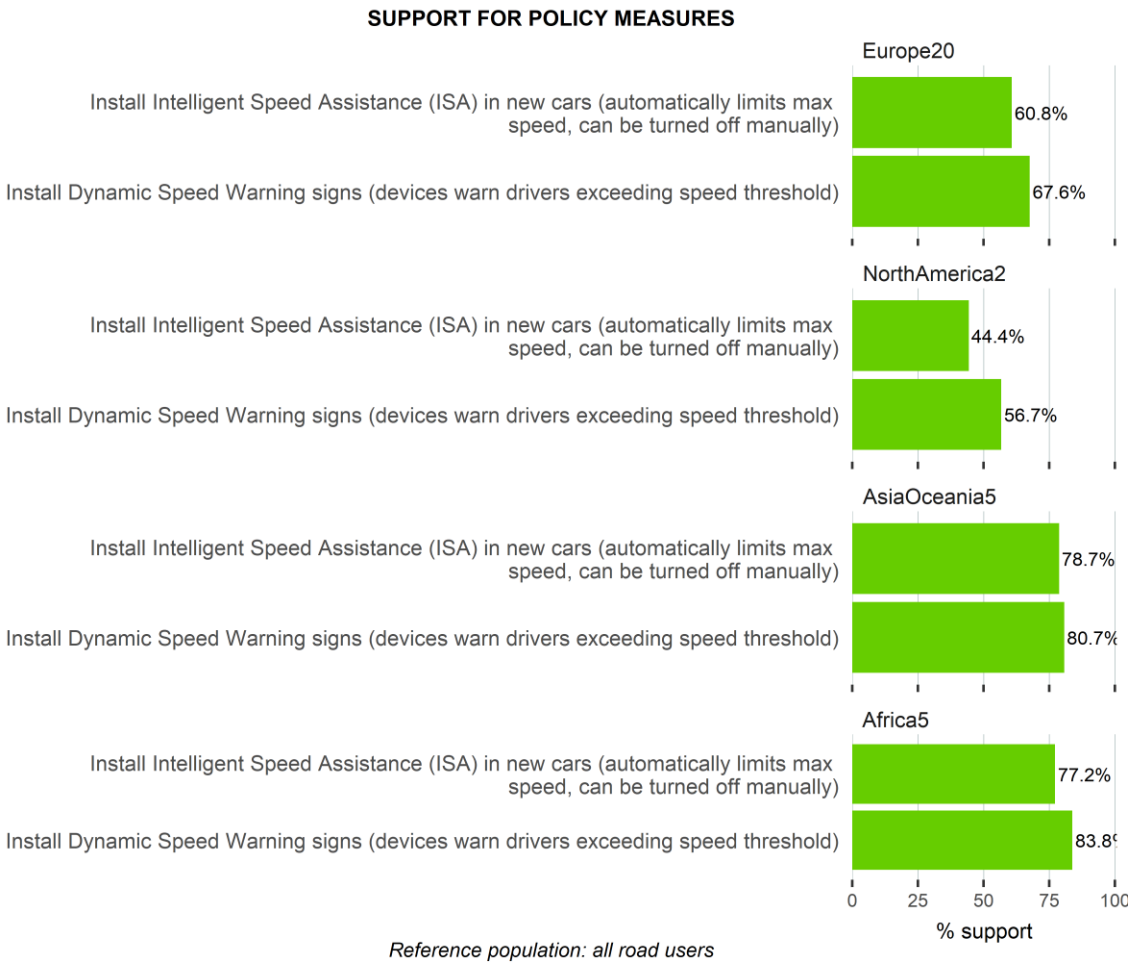


Figure 5: Support for policy measures concerning speeding, by region

The level of support also varies according to the age of the respondents by region (Figure 6). In Europe20 the support of the 65+ group for ISA (70.2%) and Dynamic Speed Warning signs (76.6%) is significantly higher than that of the other age groups. In Europe20 53.3% of the age group 18-24 supports installation of ISA, which is far lower than the 65+ (70.2%). As regards the Dynamic Speed Warning signs, 59.9% of the age group 18-24 agree with the measure, to be compared with 76.6% in the 65+ group.

In AsiaOceania5 the level of support of the 65+ group for ISA (79.4%) and Dynamic Speed Warning signs (79.1%) is significantly higher than that of the other age groups; they have the highest values among the world regions considered.

For both measures, the level of support is higher among females for all the regions (Figure 7). However, the difference between men and women is significant only in Europe20. 64.2% of the females and 57.0% of the males support ISA, while for Dynamic Speed Warning signs the figures are 70.0% and 65.0% respectively.

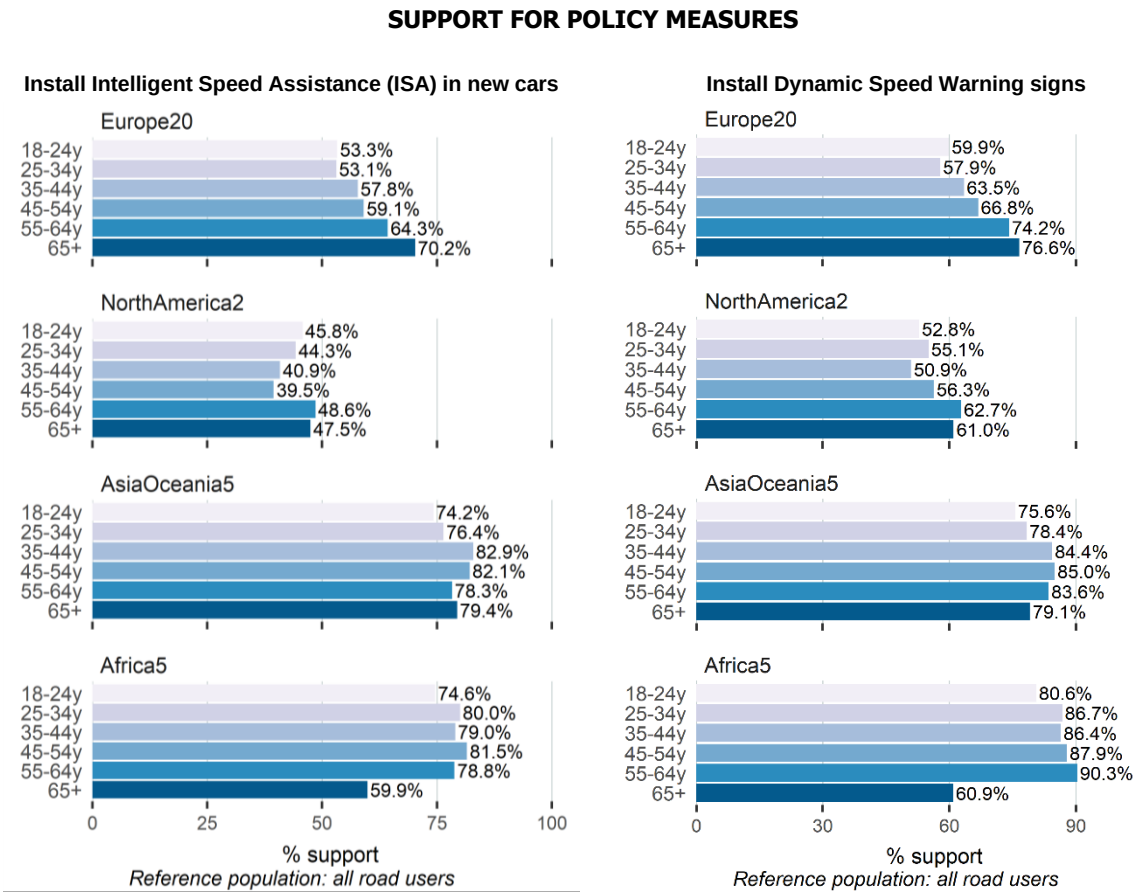


Figure 6: Support for policy measures concerning speeding, by region and age.

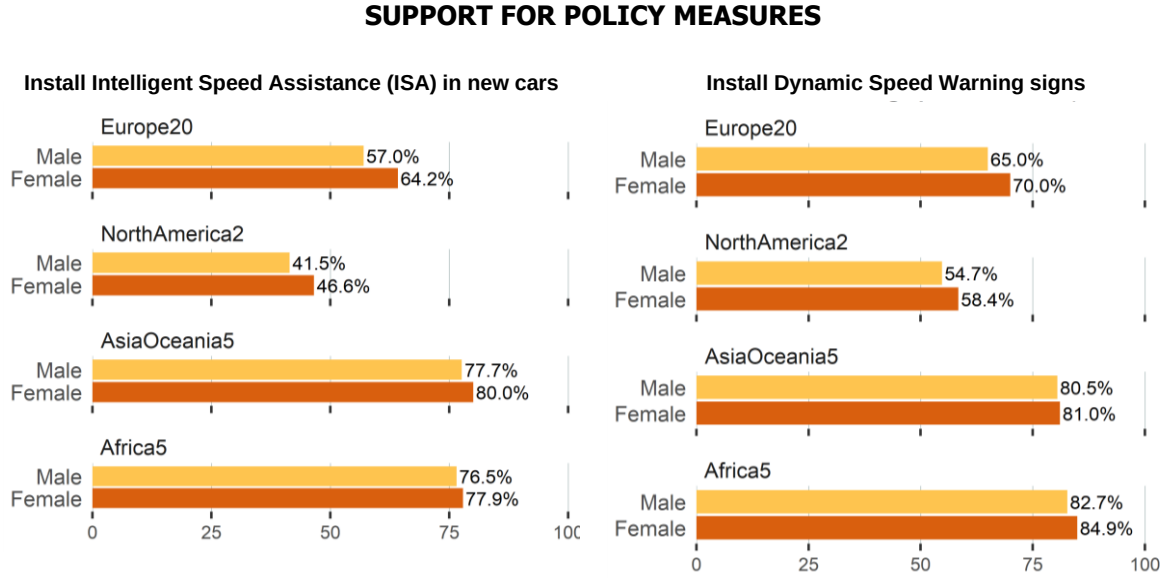


Figure 7: Support for policy measures concerning speeding, by region and gender.

3.3 Protective measures

The support for policy measures was assessed by asking respondents the question: "*Do you oppose or support a legal obligation to …?"* followed by a number of (possible) policy measures. Four of these were measures in relation to protective systems:

a. *Have a seatbelt reminder system for the front and back seats in new cars*
b. *Require all cyclists to wear a helmet*
c. *Require cyclists under the age of 12 to wear a helmet*
d. *Require all moped drivers and motorcyclists to wear a helmet*

The overall results by region are displayed in Figure 8. The proportions of respondents who support that these four protective measures should become legally required vary considerably by region.

The requirement for a seatbelt reminder system for both the front and back seats in new cars received higher support in AsiaOceania5 (84.9%) and Africa5 (83.2%) than in Europe20 (78.8%) and NorthAmerica2 (74.4%).

The support for requiring cyclists under 12 to wear a helmet was high (Europe20, 85.0%; NorthAmerica2, 85.2%; AsiaOceania5, 78.9%; and Africa5 86.6%). In each region, the figures were also somewhat higher than those for the support for requiring cyclists of all ages the wear a helmet (Europe20, 67.5%; NorthAmerica2, 72.8%; AsiaOceania5, 67.9%; and Africa5, 85.0%) – yet also these figures are quite high.

A review of studies on ASEAN[2] countries shows that a significant proportion of motorcycle drivers do not wear a helmet. The values were: 11–20% in Indonesia, 35–66% in Cambodia, 25–97% in Laos, 24–67% in Malaysia, 44%–56% in Thailand and 10–70% in Vietnam to 53-55% (Peltzer & Pengpid, 2014). For Ghana a study found that 63.1% of motorcyclists were not wearing a helmet (Akaateba, Amoh-Gyimah, & Yakubu, 2014). Yet, there is a high level of support for a legal obligation for all moped riders and motorcyclists to wear a helmet even in AseaOceania5 (90.1%) and Africa5 (85.3%).

Further analyses show that in Europe20 the level of support for seatbelt reminders depends significantly on the age group (Figure 9). In this region, respondents older than 65 tend to support this system (85.4%) much more than the 18-24-year-old age group with 71.8%.

The analysis by gender reveals in each region the support for seatbelt reminder systems is higher among females for all the regions (Figure 10). However, only NorthAmerica2 presented a significant difference between men (71.0%) and women (77.4%).

Figure 11 displays country differences in relation to opinions on measures concerning helmet use. The requirement for all cyclists to wear a helmet has the lowest support in the Netherlands (22.7%) and Japan (41.1%). It is interesting to note that these happen to be countries with high numbers of cyclists and bike trips. According to ESRA2 data, almost half of the Dutch adult population rides on a bicycle at least 1-3 days a week (see also the data displayed in Figure 29 in Section 4.4.4) further down in this report). When people perceive cycling as sufficiently safe, the number of bike trips increases but possibly also the perception that a helmet is not really needed. This may partially explain why in countries like the Netherlands the willingness to wear cyclists' helmets is so low.

[2] The Association of Southeast Asian Nations (ASEAN) is a collaborative group of 10 countries (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam) located in South-East Asia. In most ASEAN countries, the majority of road users are motorcyclists (including moped drivers).

The distribution by age group (Figure 12) shows that in Europe20 the level of support depends significantly on the age group – this pattern is less clear in the other regions. In Europe20, respondents older than 65 tend to support this measure for all cyclists (76.2%) much more than the 18-24-year-old age group with 57.2%; 90.8% of the 65+ group support the measure for cyclists under the age of 12, to be compared with 76.8% of the 18-24-year-olds. For moped riders and motorcyclists 94.7% of the 65+ group supports this measure, but only 79.6% of those aged 18 to 24.

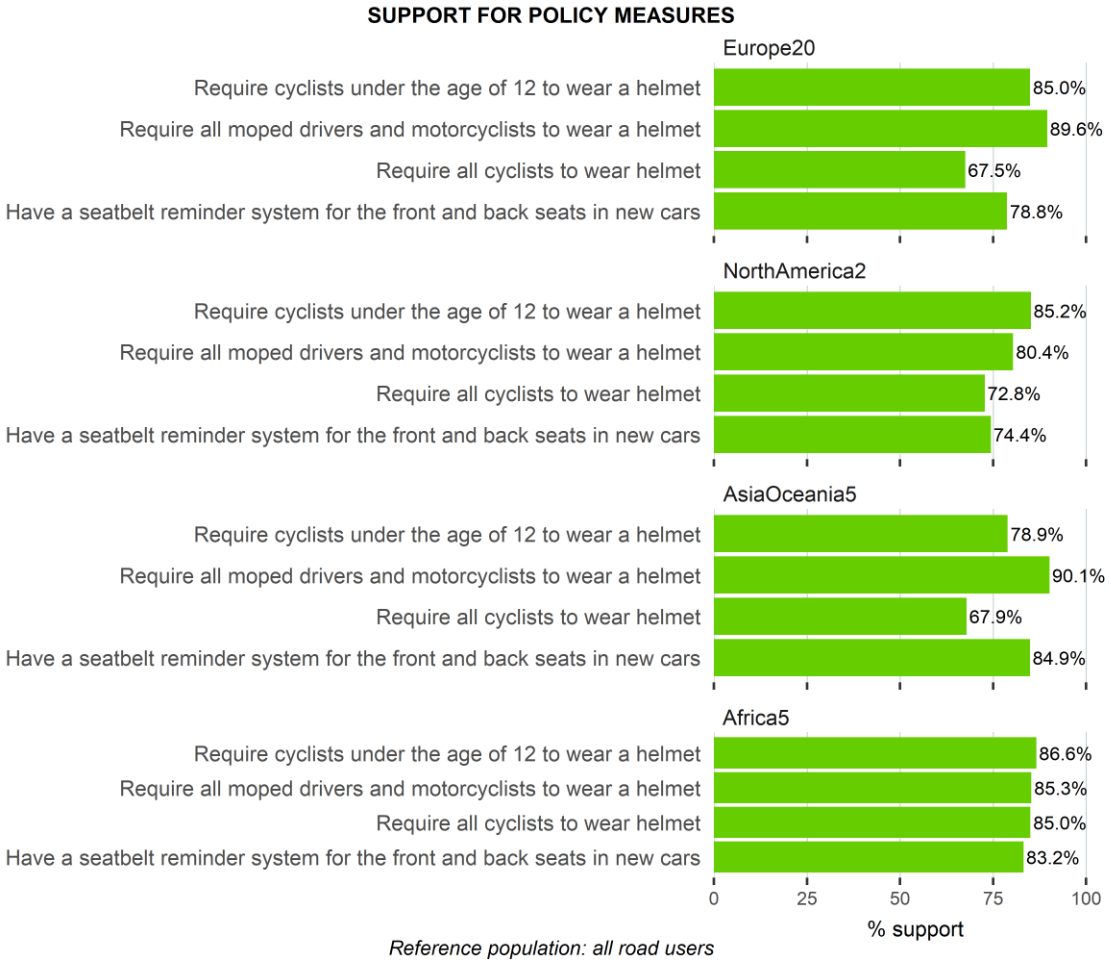


Figure 8: Support for policy measures concerning protective systems, by region

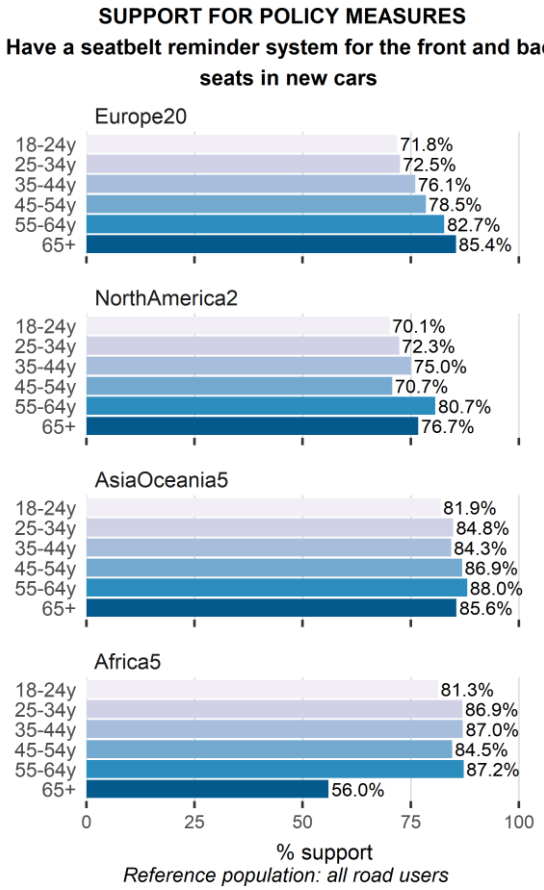


Figure 9: Support for policy measures concerning seatbelt reminder systems, by region and age

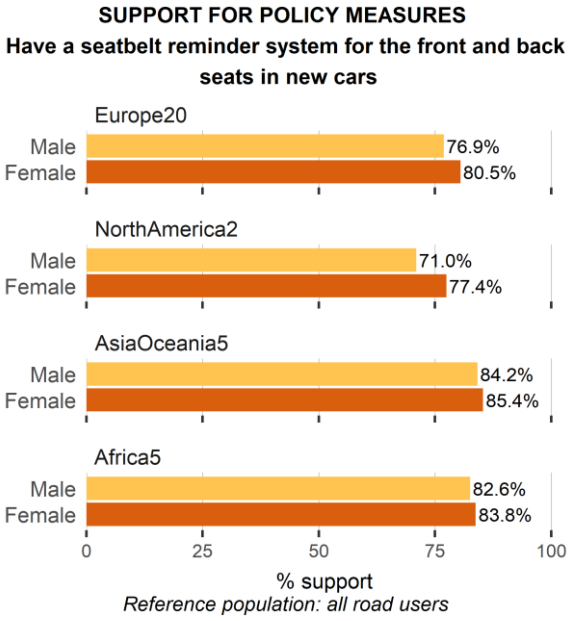


Figure 10: Support for policy measures concerning seatbelt reminder systems, by region and gender

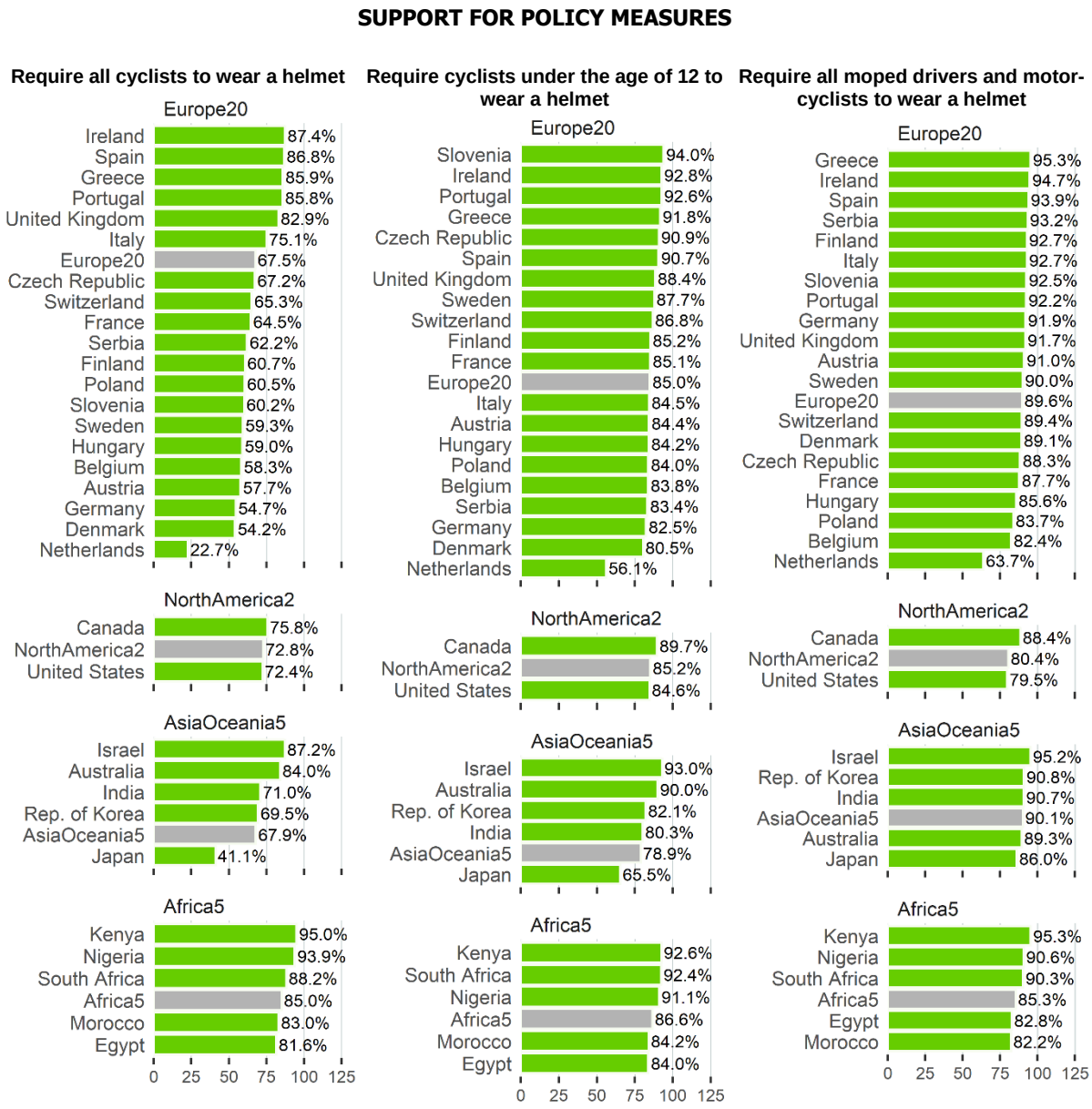


Figure 11: Support for policy measures concerning helmet use, by region and country.

For the measure concerning helmets, an analysis of differences by gender revealed that the level of support is higher among females in each of the regions for the three 'helmet' measures considered (Figure 13); all these differences are statistically significant.

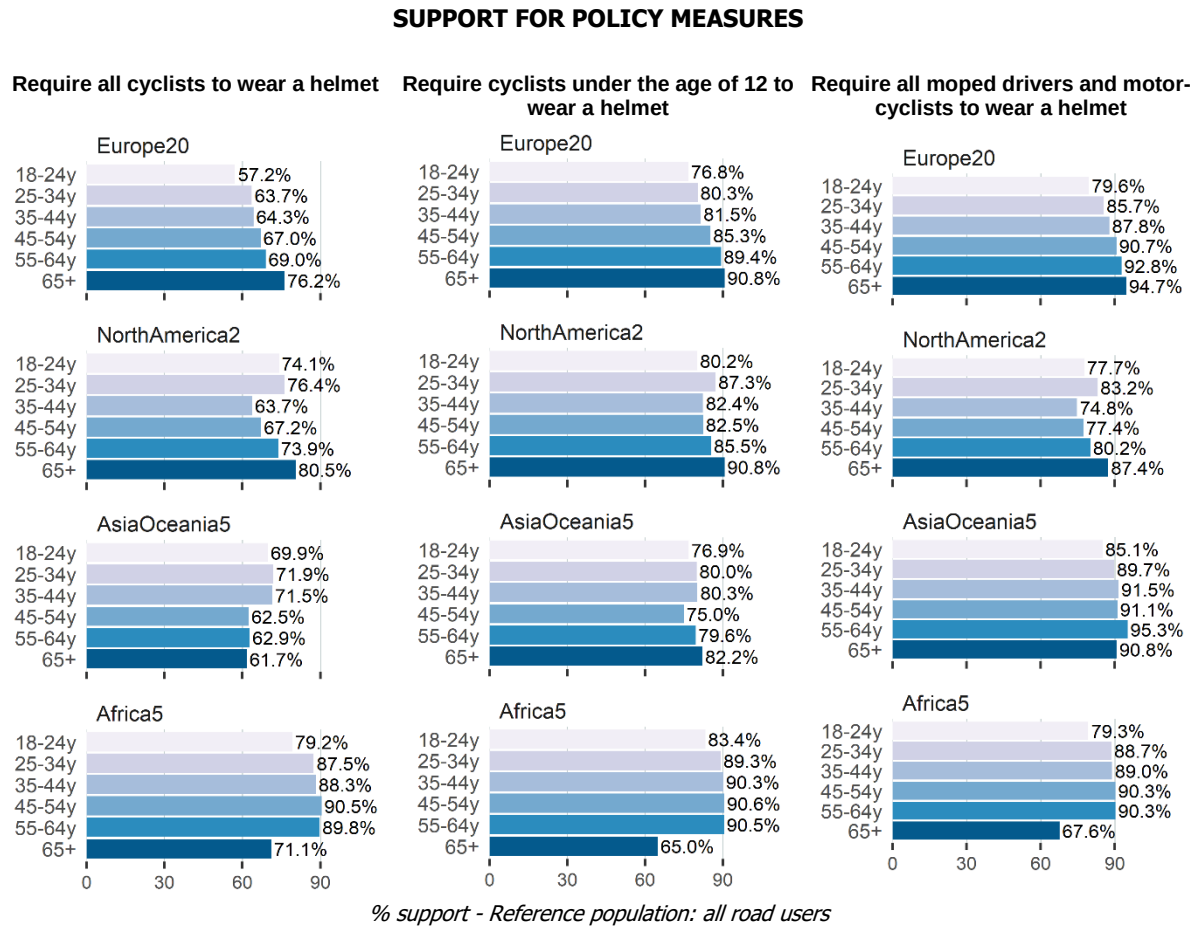


Figure 12: Support for policy measures concerning helmet use, by region and age.

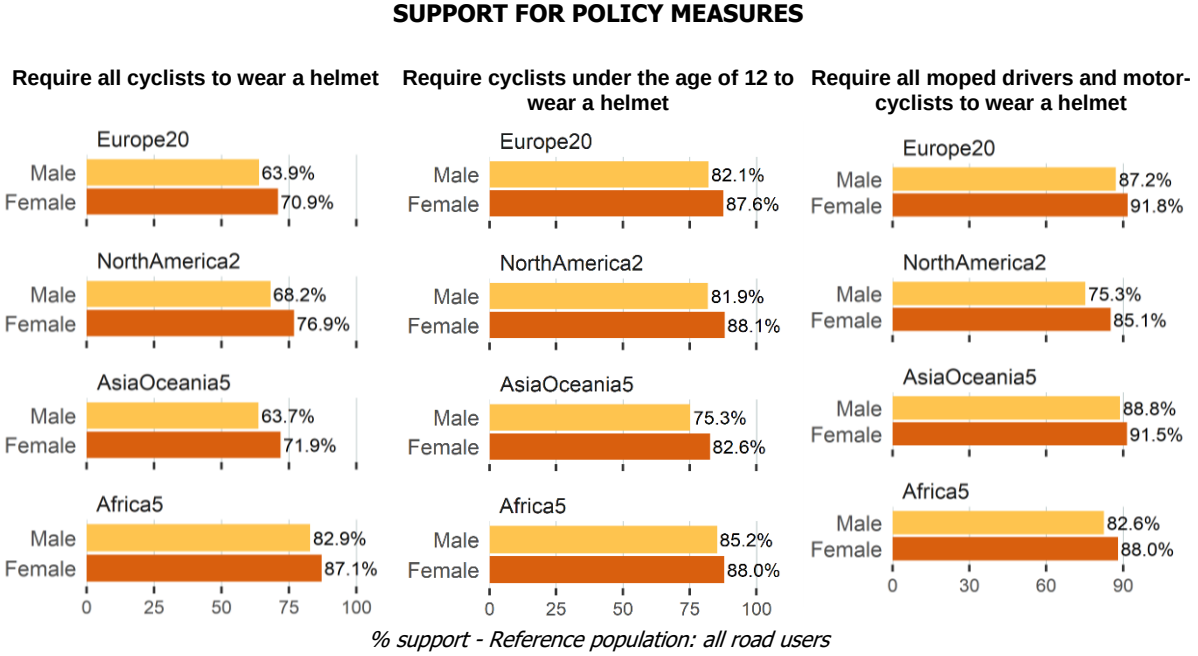


Figure 13: Support for policy measures concerning helmet use, by region and gender.

3.4 Measures to improve visibility of vulnerable road users

The support for policy measures was assessed by asking respondents the question: "*Do you oppose or support a legal obligation to …?"* followed by a number of (possible) policy measures. Three of these were measures in relation to visibility of vulnerable road users in the dark:

a. *Require moped drivers and motorcyclists to wear retroreflective material when driving in the dark*
b. *Require pedestrians to wear retroreflective material when walking in the streets in the dark*
c. *Require cyclists to wear retroreflective material when cycling in the dark*

The overall results by region are presented in Figure 14. For all 3 measures considered – pedestrians to wear reflective material; cyclists to wear reflective material; and moped drivers and motorcyclists to wear reflective material in the dark – the level of support varied considerably across regions.

The highest support among the three measures is to make wearing reflective materials compulsory for cyclists: Europe20 (85.2%), NorthAmerica2 (82.8%), AsiaOceania5 (80.8%), and Africa5 (83.0%). It was also very high for moped drivers and motorcyclists: Europe20 (83.1%), NorthAmerica2 (79.7%), AsiaOceania5 (78.3%), and Africa5 (81.3%). Support was much lower – but still on average more than the majority of the population – for requiring pedestrians to wear retroreflective clothing: 57.4% in Europe20, 56.7% in NorthAmerica2, 58.0% in AsiaOceania5 and 54.8% in Africa5.

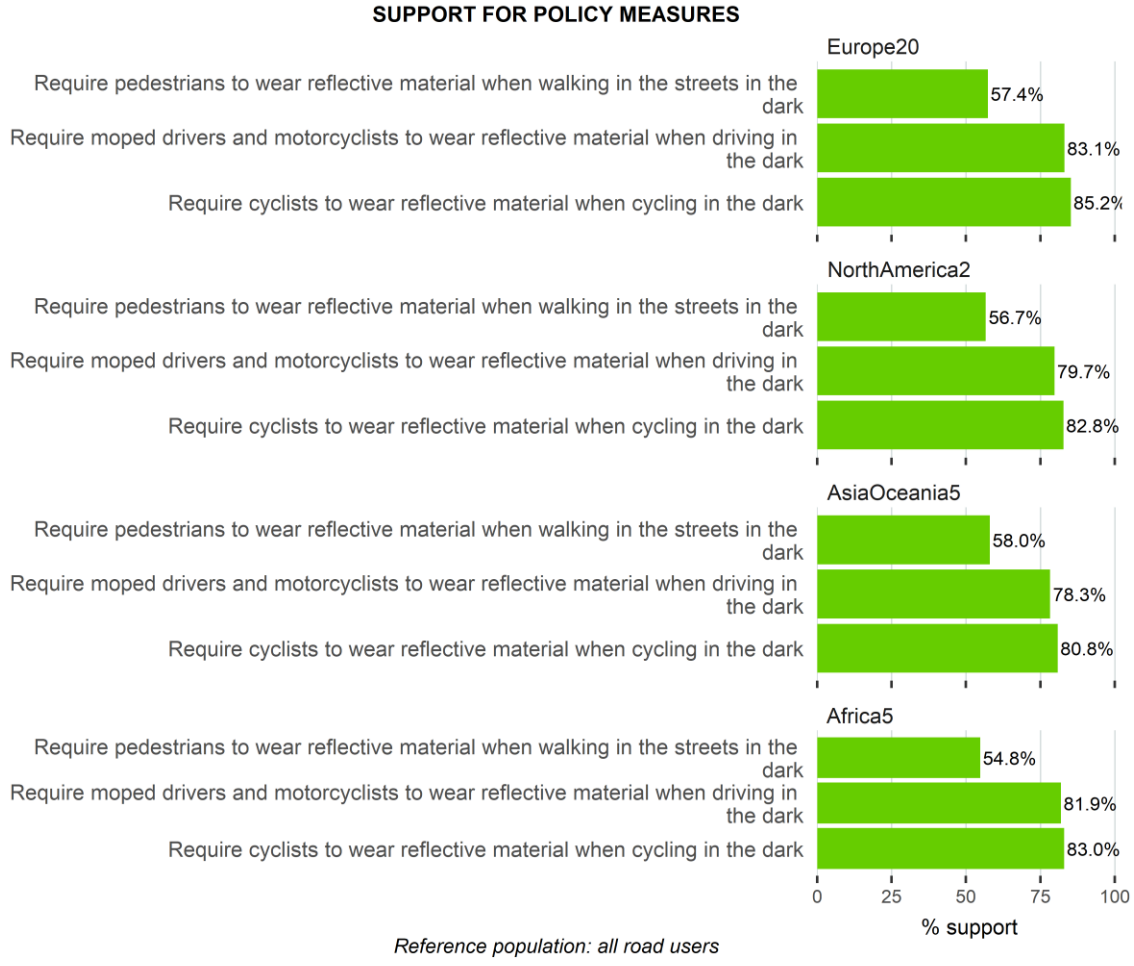


Figure 14: Support for policy measures concerning retroreflective material, by region

Figure 15 displays the variation across countries in relation to opinions on measures that make wearing retroreflective material compulsory. Regarding cyclists, as with the measure about the use of a helmet, Netherlands (54.7%) and Japan (75.0%) were the countries with the lowest level of support (although for this measure, a majority of the population is in favour). Kenya is a country with an extremely high level of support (97.9%).

For pedestrians, the greatest support for the use of reflective material was in the Europe20 countries Slovenia (84.9%) and Finland (81.8%). The countries with the lowest level of support were Australia (31.1%) and Israel (42.1%). In relation to the obligation for moped drivers and motorcyclists to wear retroreflective material when driving in the dark, Kenya was again the country with the highest level of support (96.9%). Countries with lowest support are the Netherlands (59.1%) and Japan (72.3%).

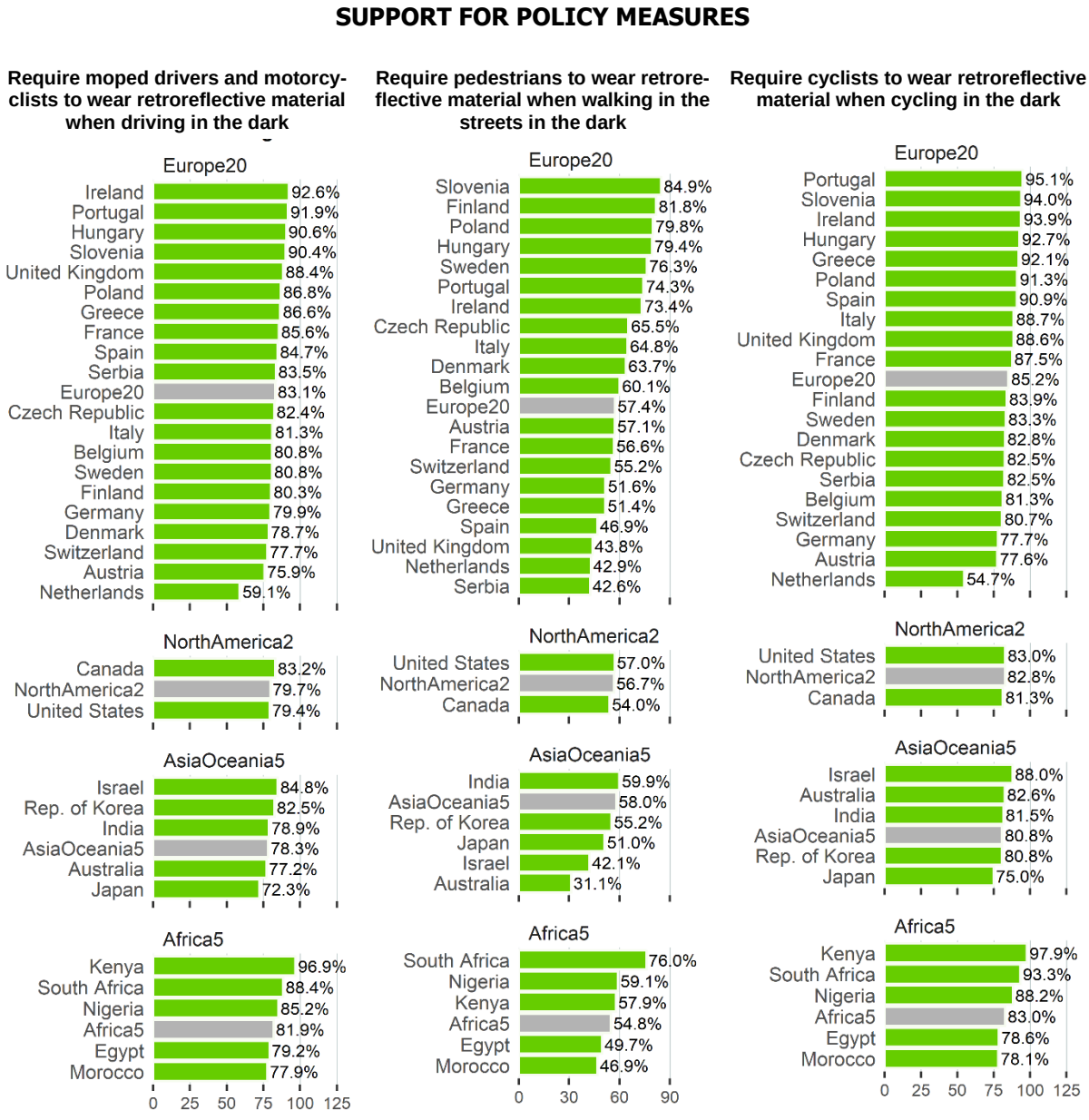


Figure 15: Support for policy measures concerning retroreflective material, by region and country.

The analysis by age group shows that in Europe20 the level of support depends significantly on age (Figure 16). In Europe20, respondents older than 65 tend to support this measure for pedestrians (67.4%) much more than the 18-24-year-old age group with 41.9%; for cyclists, 93.2% of the 65+ group support this measure, compared to 72.8% of the 18-24-year-old age group. For moped drivers and motorcyclists 91.9% of the 65+ group support this measure and 66.2% of the 18-24-year-old age group.

In the other regions, we do not find such quite linear relationships – sometimes the support even decreases with age.

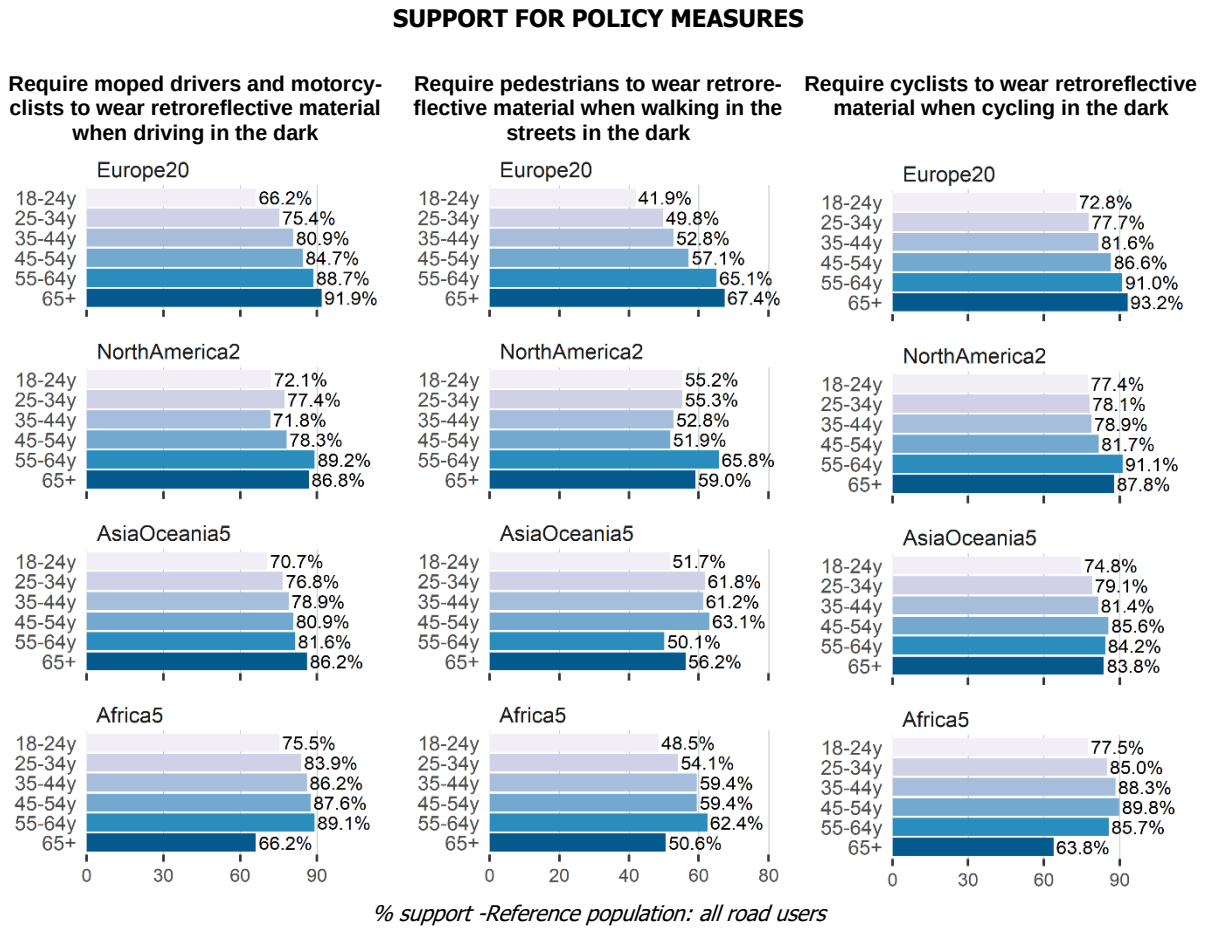


Figure 16: Support for policy measures concerning retroreflective material, by region and age group.

For all three measures the level of support is higher among women than among men in each of the regions (Figure 17). Most of these differences are significant, except for pedestrians in the region AsiaOceania5. In Europe20, the gender differences are often more pronounced than in other regions.

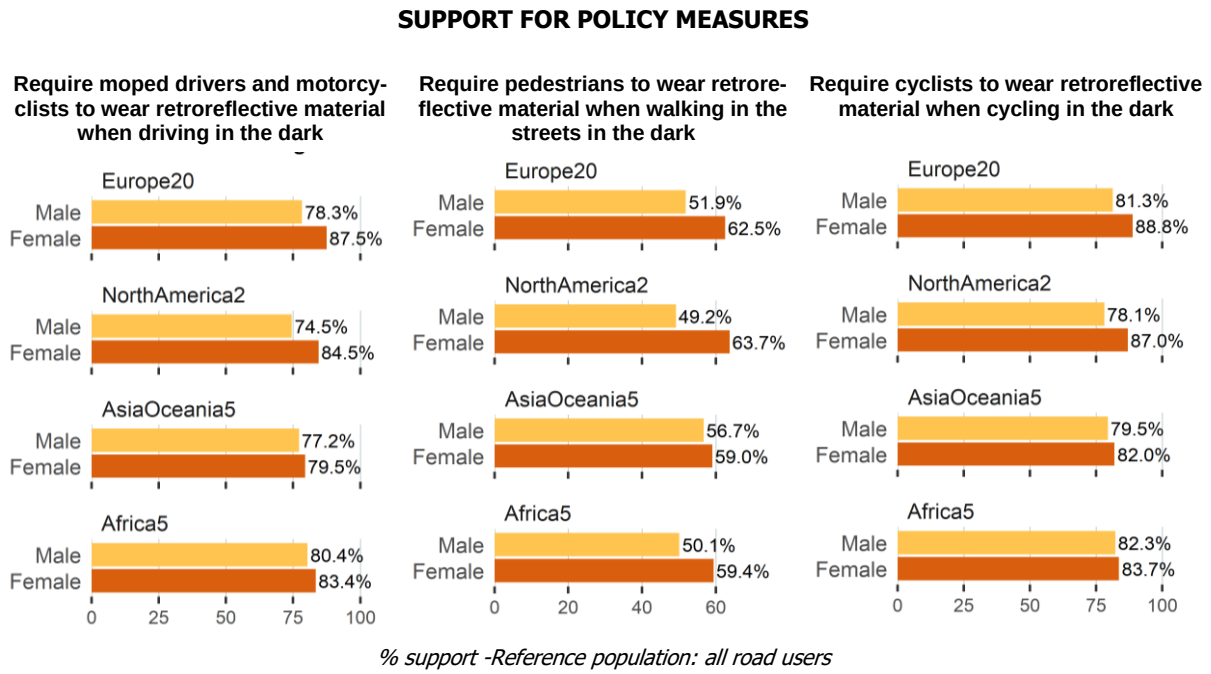


Figure 17: Support for policy measures concerning retroreflective material, by region and gender.

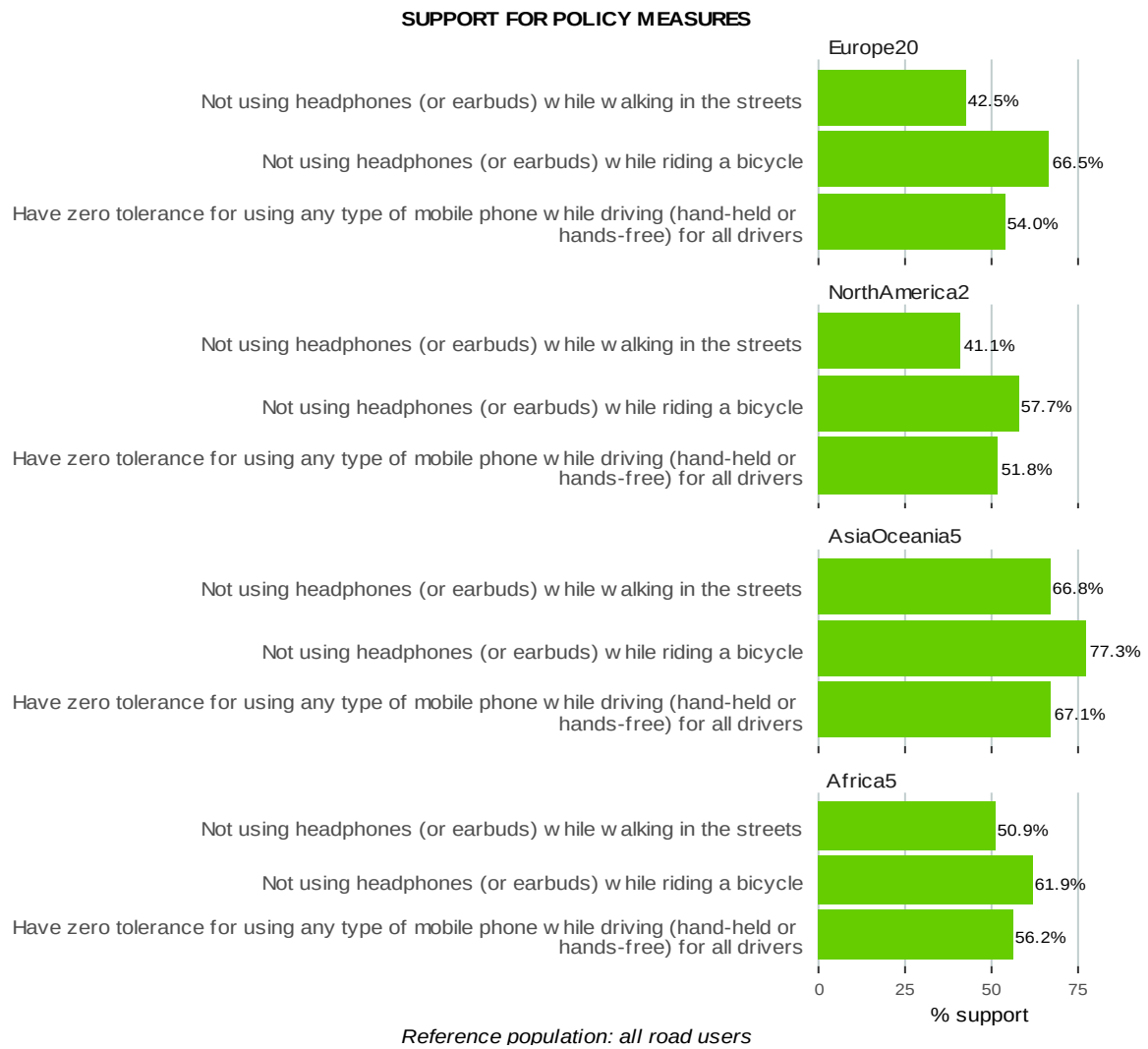
3.5 Measures against distraction

The support for policy measures was assessed by asking respondents the question: "*Do you oppose or support a legal obligation to …?*" followed by a number of (possible) policy measures. Three of these were measures in relation to distraction:

a. *Have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers*
b. *Not use headphones (or earbuds) while walking in the streets*
c. *Not use headphones (or earbuds) while riding a bicycle*

As Figure 18 shows, many respondents in the 4 regions support such policy measures against distraction; however, the support is often lower than for most other measures discussed so far, and in some cases less than half of the adult population is in in favour.

As regards the prohibition of using headphones (or earbuds) while walking or riding a bicycle, the level of support in AsiaOceania5 (respectively 66.8% and 77.3%) was significantly higher than in the other regions. Similarly, the support for zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers was significantly higher in AsiaOceania5 (67.1%) than elsewhere.



Reference population: all road users

Figure 18 Support for policy measures concerning distraction, by region

Results by country (Figure 19) show that, in Europe20 the level of support for policy measures in relation to distraction varies considerably between countries – and also differs according to the measure considered. But for all three measures, the lowest support is found in Finland. In the other regions, the ranking of the countries is quite consistent, e.g. when the support is high for one measure, it is also so for the other two. The countries with the highest level of support for the three measures in the three regions are Canada, India and Kenya.

From inspecting Figure 20 it is obvious that in AsiaOceania5 both males and females are very supportive for policy measures in the field of distraction. In each region, females are more in favour of such measures than males. Proportions were significantly different – although sometimes small – between respondents in NorthAmerica2 for all the three policy measures considered.

Finally, as shown in Figure 21, the effect of age on the support for policy measures related to distraction is very significant, in particular in Europe20 and NorthAmerica2, with younger people far less supportive than older ones. In each region, the percentage of respondents who are against the proposed policy measures is highest in the 18–24 age group[3]. As to the use of headphones (or earbuds) while walking

[3] With the exception of Africa5 where the highest opposition was the group over 65+. However, as we indicated earlier, we have some doubts about the representativity of the 65+ sample in some African countries.

in the streets, there was a significant difference in Europe20 between the respondents of all six age groups. A similar situation applied for the two other measures. In NorthAmerica2 there were no significant differences between 18-24 year olds and those under 45 years of age in relation to the three policy measures, but there were differences between respondents under 55 years of age and those 65 years of age and older.

On the contrary, in AsiaOceania5 all ages groups tend to support the policy measures against distraction. There were no significant differences between the age groups. Also, in Africa5 there were no significant difference between the respondents aged 25-34 and those up to 64 years old, but there was a significant difference between these groups and the youngest age group [18-24].

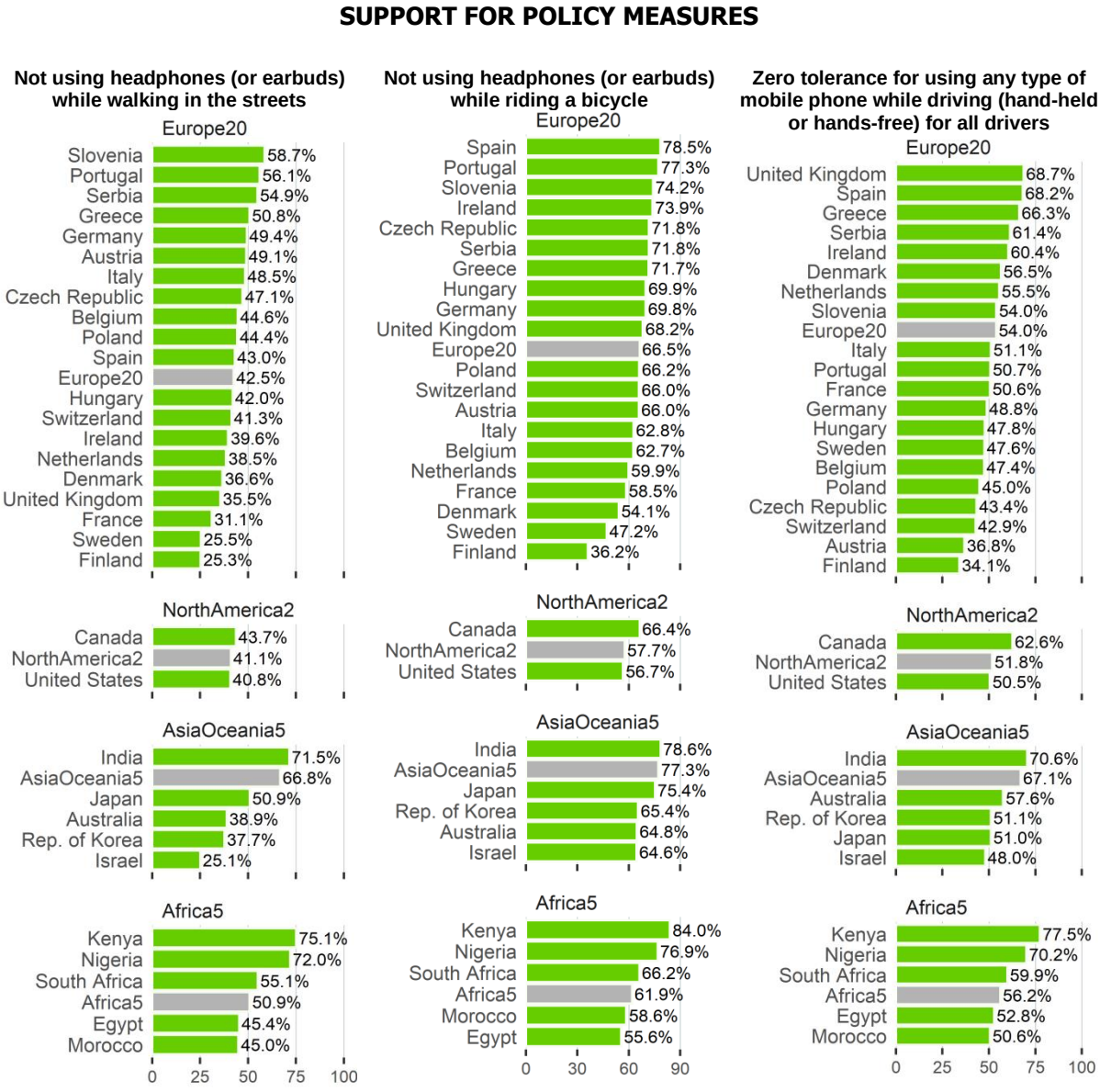


Figure 19: Support for policy measures against distraction by region and country

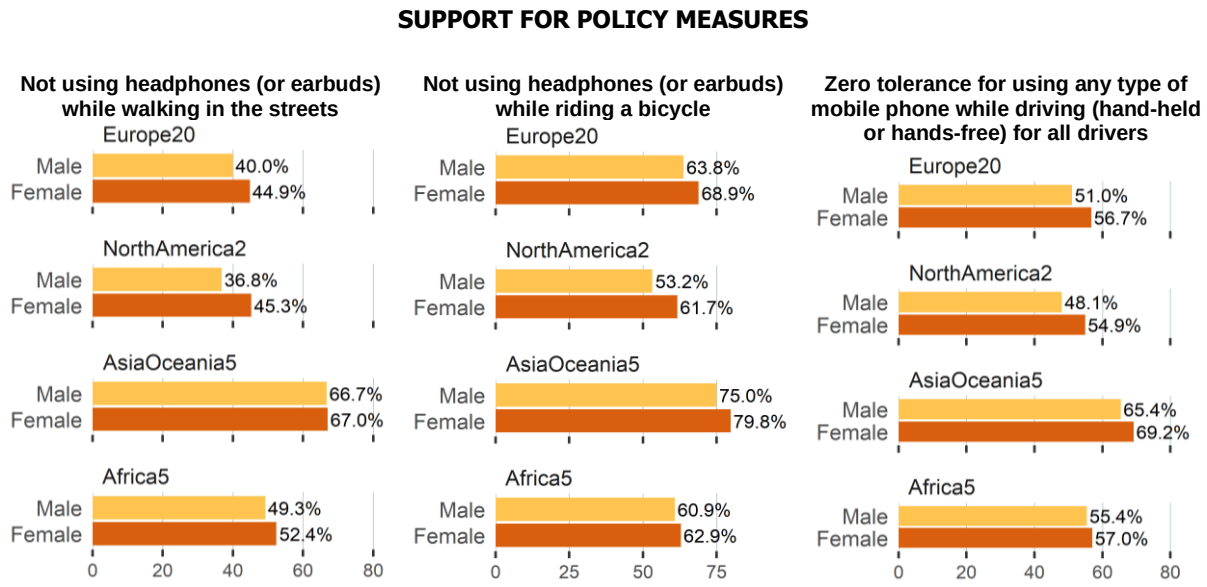


Figure 20: Support for policy measures against distraction by region and gender

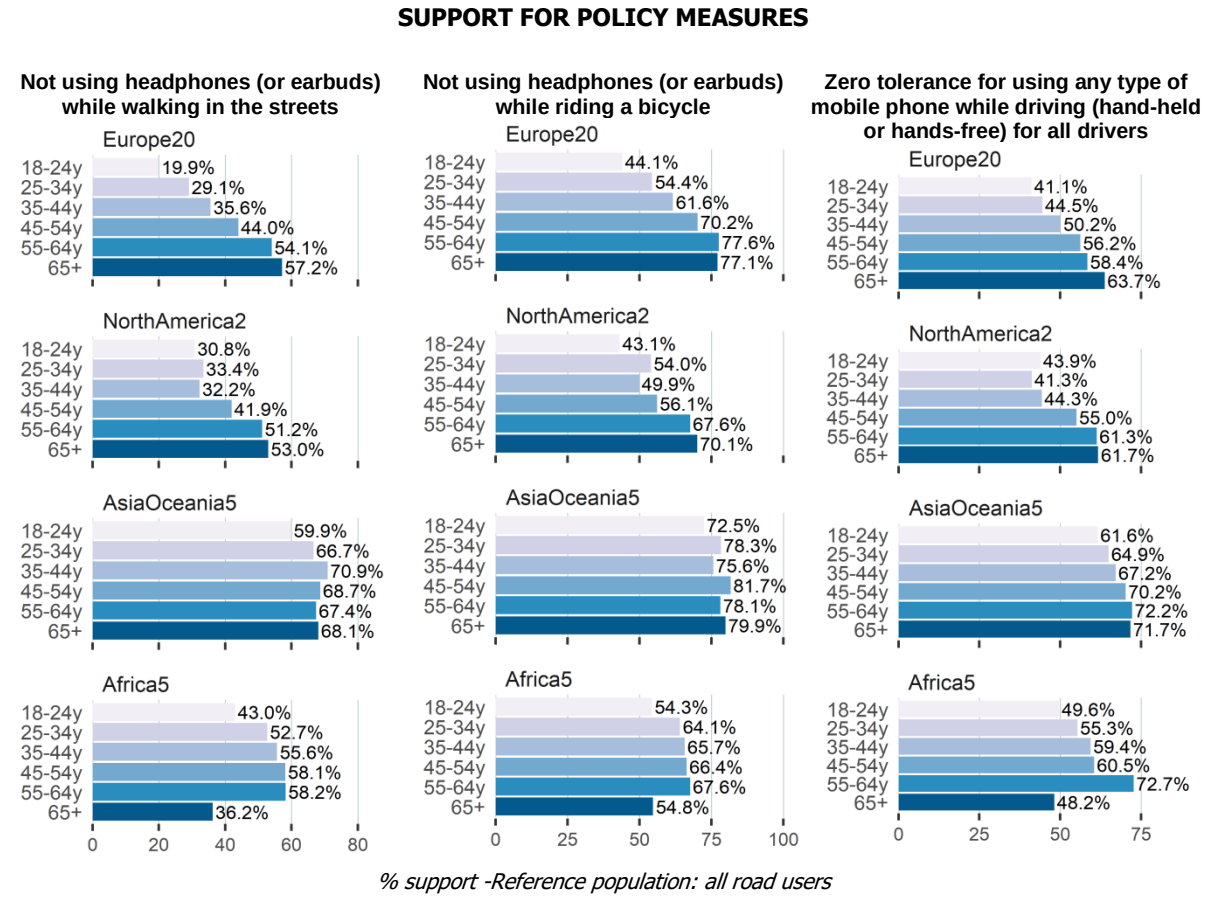


Figure 21: Support for policy measures against distraction by age group and region

4 Advanced analyses

4.1 Comparison with ESRA1 findings

In the ESRA1 survey, respondents were asked to assess 11 preventive measures. 7 of these were formulated in a similar (or almost identical) way as some in ESRA2. These are listed in Table 2.

Table 2: Comparison between the formulation of measures in ESRA1 and ESRA2

Some measures listed within the ESRA1 survey *"Do you support each of the following measures?" (yes/no)*	**Similar measures listed in the ESRA2 survey** *Do you oppose or support a legal obligation to …? (score 1-5, with 1= oppose and 5= support)*
Drivers who have been caught drunk driving on more than one occasion should be required to install an alcohol inter-lock	*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)*
Zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2y)	*Have zero tolerance for alcohol (0,0 ‰) for novice drivers (licence obtained less than 2 years)*
Zero tolerance for alcohol (0,0 ‰) for all drivers	*Have zero tolerance for alcohol (0,0 ‰) for all drivers*
Zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers	*Have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers*
Having a law requiring all cyclists to wear a helmet	*Require all cyclists to wear a helmet*
Obligation for pedestrians and cyclists to wear high-visibility vests when in the dark	*2 different measures:* • *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*
Ban of using headphones (or earbuds) by pedestrians and cyclists	*2 different measures:* • *Not using headphones (or earbuds) while walking in the streets* • *Not using headphones (or earbuds) while riding a bicycle*

Please note that the formulation of the questions on support for policy measures was posed in a somewhat different way in ESRA1 and ESR2. In ESRA1 for some measures it was not explicitly stated that it concerned a legal obligation, like in ESRA2. Moreover, the answer scales in the surveys were different. Also, in relation to measures on reflective materials and the use of headphones/earbuds, in ESRA1 cyclists and pedestrians were combined.

Despite these differences, it makes sense to compare the ESRA1 and ESRA2 data. For ESRA1 we use the sample of the first wave (17 European countries) which was discussed in a previous report (Buttler, 2016). For ESRA2 we use the sample of 20 European countries of the first wave. A comparison between both samples is displayed in Table 3. In this table the description of the measures has been shortened.

Table 3: Rough comparison of the support for policy measures in Europe between ESRA1 and ESRA2

	ESRA1 - EUR17 ("yes")	ESRA2 - Europe20 (score 4 or 5)
Alcohol interlock for recidivists	76%	79%
Zero alcohol for novice drivers	80%	78%
Zero alcohol for all drivers	60%	67%
All cyclists wear helmet	59%	68%
Cyclists wear reflective material	62%	85%
Pedestrians wear reflective material		57%
No use headphones/earbuds by cyclists	56%	67%
No use headphones/earbuds by pedestrians		42%
No use mobile phones in cars	47%	54%

Overall one can observe that the indicators are quite similar. This similarity was further explored for the 24 countries that were both included in ESRA1 and in the first wave in of ESRA2. It concerns 24 countries of which 17 were European. For the 5 measures were the question was almost identical, a pairwise comparison was undertaken at country level (i.e. the country averages were taken as sample cases). The results are shown in Table 4.

Table 4: Average difference between national support for measures between ESRA1 and ESRA2 (paired sample test)

	Country average ESRA1	Country average ESRA2	Difference	Significance (p)
Alcohol interlock for recidivists	78.7%	81.1%	+2.3%	0.028
Zero alcohol for novice drivers	82.5%	80.2%	-2.3%	0.251
Zero alcohol for all drivers	69.9%	65.7%	-4.1%	0.141
All cyclists wear helmet	69.5%	68.2%	-1.3%	0.810
No use mobile phones in cars	54.2%	51.9%	-2.3%	0.431

As can be seen, differences between ESRA1 and ESRA2 are relatively small; moreover, most differences are not statistically significant at country level. An exception is the increased support for the obligation to install an alcohol interlock system with drunk driving recidivists. But even here we should be cautious when interpreting the result, since the increase may be due to somewhat different formulation of questions and answer options.

Table 4.

Table 4 show that both in ESRA1 and ESRA2, alcohol related measures receive high support. It is recalled that some of these measures exist already in several of the countries included in the survey. Moreover, it appears to have been a good decision to separate measures for pedestrians and cyclists in relation to mobile phone and reflective clothing, since the public support for measures related to cyclists is much higher than for pedestrians.

In ESRA1 a strong relationship was found between gender and support for measures – females being in general more in favour than males – and often (but less systematic) between age and level of support

(Buttler, 2016). As we have seen from the previous analyses discussed in this report, these trends were confirmed in ESRA2, at least in Europe.

A further analysis at country level also shows that within Europe, the ranking of countries hasn't changed much between ESRA1 and ESRA2: countries that were in the top, middle or bottom group for support typically stay in that group. For instance, the support for cyclists to wear a helmet (a measure for which the formulation in ESRA1 and ESRA2 was almost identical) was and stays very low in the Netherlands and low in Denmark; it was and stays high in Southern European countries as well as in the UK. These patterns were found both in ESRA1 and in ESRA2. As regards measures related to distraction, the previous chapter has illustrated that the support for banning all mobile phone use in cars is lowest in Finland and Austria; this was already the case in ESRA1 (Meesmann et al., 2017).

4.2 Association between attitudes towards traffic rules and support for measures

A plausible hypothesis is that the support for new policy measures is linked to the opinion on the existing situation in terms of traffic rules and enforcement. For instance, road users considering traffic rules for driving under the influence of alcohol (DUI) not being strict enough or penalties not being severe enough might be more supportive for new measures addressing DUI. The opposite could be assumed for those who feel that the existing traffic regulations in their country suffice.

In order to test this hypothesis, we conducted a bivariate (Pearson) correlation analysis between on the one hand, opinions on current traffic rules and penalties in a country related to three risky behaviours (driving under the influence of alcohol, speeding, use of mobile phone while driving) and on the other hand the level of support of new policies for these behaviours has been undertaken. These opinions were measured through questions about the level of agreement with the severity of the current traffic rules, the level of enforcement and the severity of penalties (see Q19 in Appendix 1). The level of support for measures addressing DUI were compared with opinions on country DUI traffic rules, support for measures addressing speeding with opinions on speeding traffic rules, and support for measures in relation to distraction with opinions on distraction related regulated.

As shown in the results of the analysis (Table 5), the assumption was confirmed for some associations but not for all.

In the fields of speeding and mobile phone use, a positive correlation was found between the view that traffic rules should be stricter and the support for new measures in these areas. In other words: those who feel that the current rules on speeding and distraction (mobile phone use) should be stricter are also in favour of introducing new measures to reduce the occurrence of those behaviours. A small positive correlation can also be observed between the agreement with stricter traffic rules and the supporting level for alcohol interlock; however, no such associations were found with the two measures on zero tolerance.

In most cases, no correlation seems to exist between the satisfaction on current enforcement levels and the support for new measures (except for the measure on distraction of cyclists). No correlation was observed between the level of support for new policies and the attitudes towards the current severity of penalties.

Table 5: Association between the level of support for new measures and opinions on current traffic rules.

	The traffic rules for DUI / distraction / speeding should be stricter		The traffic rules for DUI / distraction / speeding are not being checked sufficiently		The penalties for DUI / distraction / speeding are too severe	
	R-squared	*p-value*	*R-squared*	*p-value*	*R-squared*	*p-value*
Install an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion	0.135	0.042*	0.109	0.069	0.002	0.836
Have zero tolerance for alcohol (0,0 ‰) for novice drivers	0.004	0.730	0.001	0.854	0.023	0.416
Have zero tolerance for alcohol (0,0 ‰) for all drivers	0.049	0.231	0.117	0.060	0.058	0.191
Have zero tolerance for using any type of mobile phone while driving for all drivers	0.229	0.006**	0.082	0.118	0.000	0.975
Not using headphones (or earbuds) while walking in the streets	0.039	0.040*	0.039	0.288	0.035	0.316
Not using headphones (or earbuds) while riding a bicycle	0.262	0.003**	0.126	0.050*	0.002	0.798
Install Intelligent Speed Assistance (ISA) in new cars	0.275	0.002**	0.119	0.057	0.023	0.417
Install Dynamic Speed Warning signs	0.230	0.006**	0.120	0.056	0.012	0.565

*p-value<0.05, **p-value<0.01

In the following figures we consider some of the observed correlations in more detail.

The analysis of the association between installation of alcohol interlock and opinions on severity of alcohol related traffic rules (Figure 22), shows that the higher the support agreement with stricter traffic rules on drunk driving, the higher the level of support for the introduction of alcohol interlock for drivers who have been caught drunk driving on more than one occasion. Egypt is an outlier. If one would leave out Egypt, the correlation coefficient would be higher.

The analysis of the association between opinions on the severity traffic rules concerning mobile phone and the support for the restriction of the use of mobile phones (Figure 23 and Figure 24) shows that the higher the agreement to stricter rules the higher the support for "Zero tolerance for using mobile phones" as well as for "not using headphones while walking" (where the correlation is very low, even of significant). The association is again negatively influenced by Egypt; when removing Egypt, the correlation coefficient becomes higher.

Figure 25 and Figure 26 show the association between the support for the compulsory installation of an ISA or Speed Warning system and opinions on the severity of traffic rules for speeding. Results show a positive correlation indicating the higher the agreement with stricter traffic rules on speeding, the higher the level of support for the introduction of ISA and Dynamic Speed Warning signs. Egypt is again an outlier. Without Egypt, the correlation coefficients are even higher.

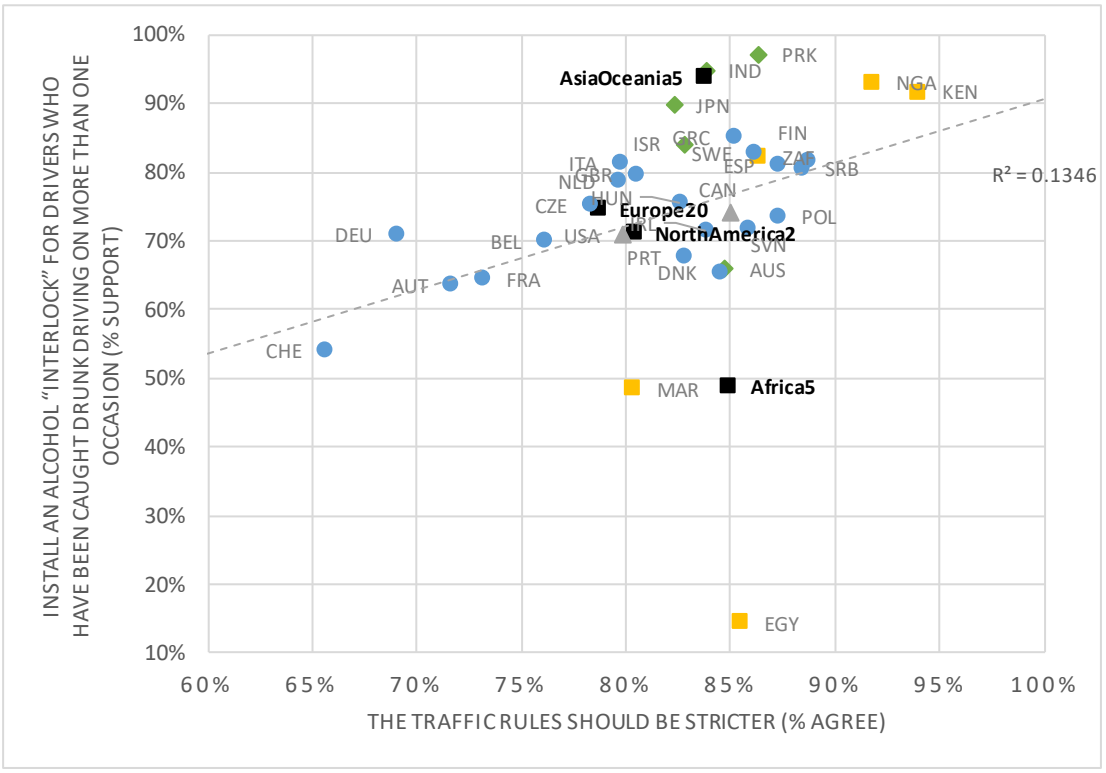


Figure 22: Association between the support for "Installation of alcohol interlocks" and the agreement with "Traffic rules on driving under the influence should be stricter"

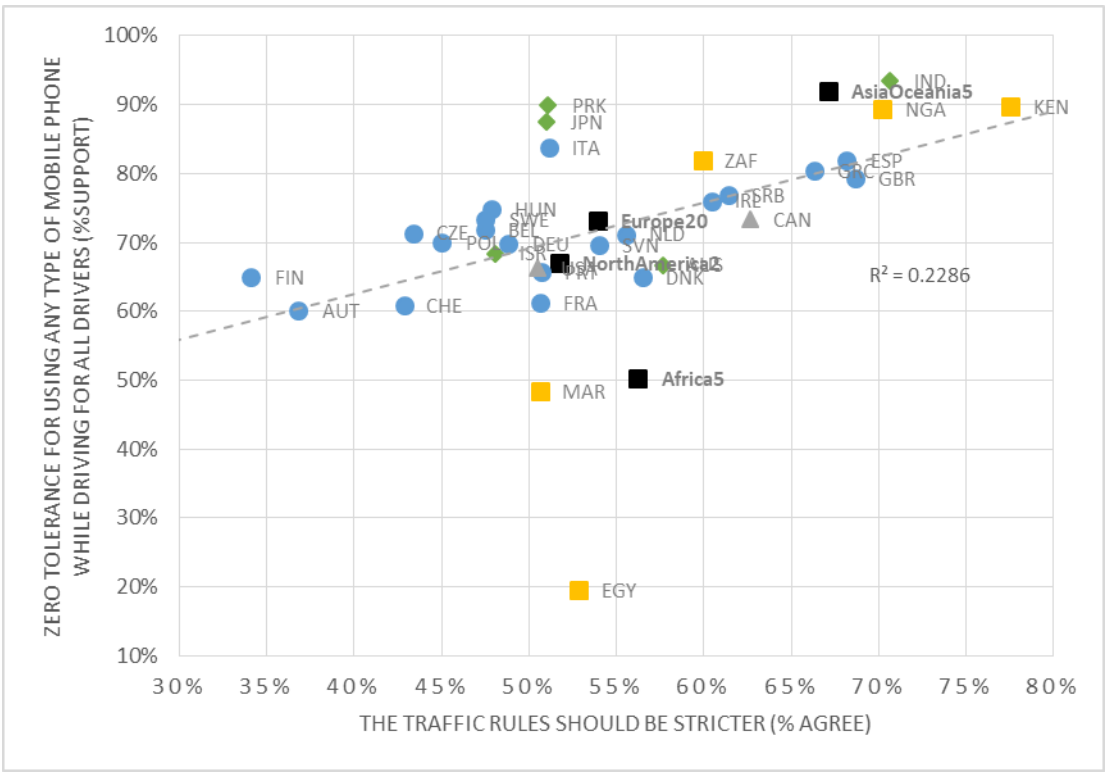


Figure 23: Association between the support for "Zero tolerance for using mobile phone" and the agreement with "Traffic rules on distraction by mobile phone should be stricter"

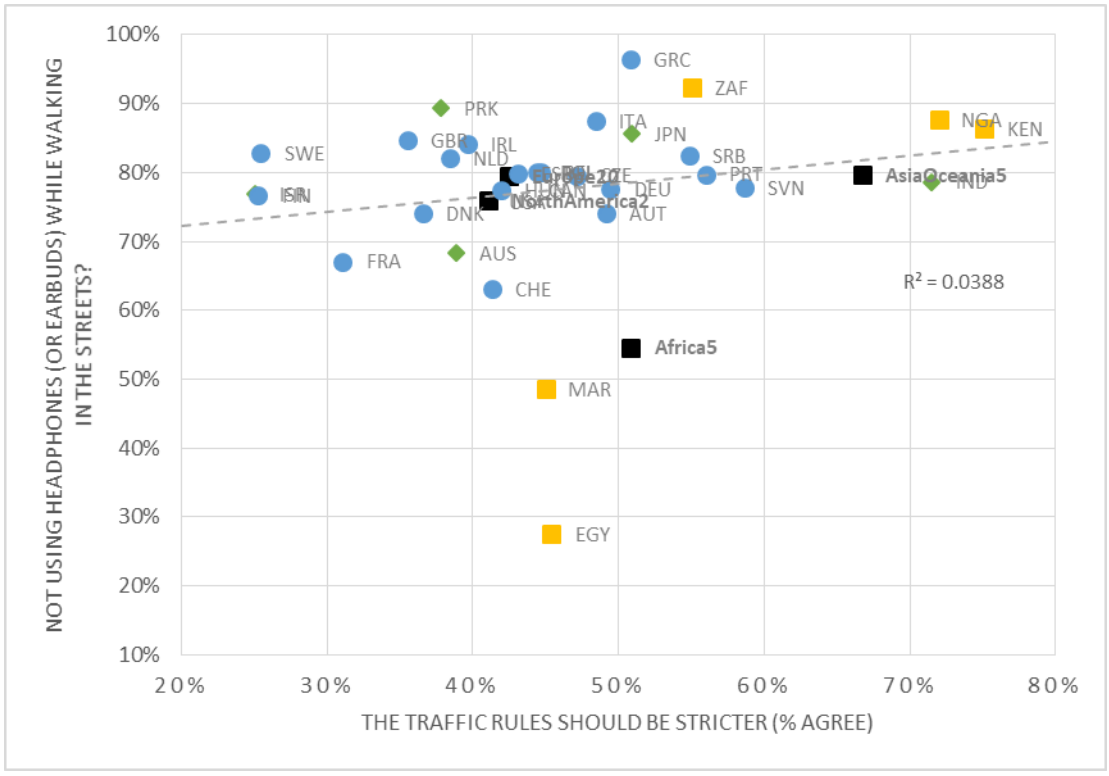


Figure 24: Association between the support for "Not using headphones while walking" and the agreement with "Traffic rules on distraction by mobile phone should be stricter"

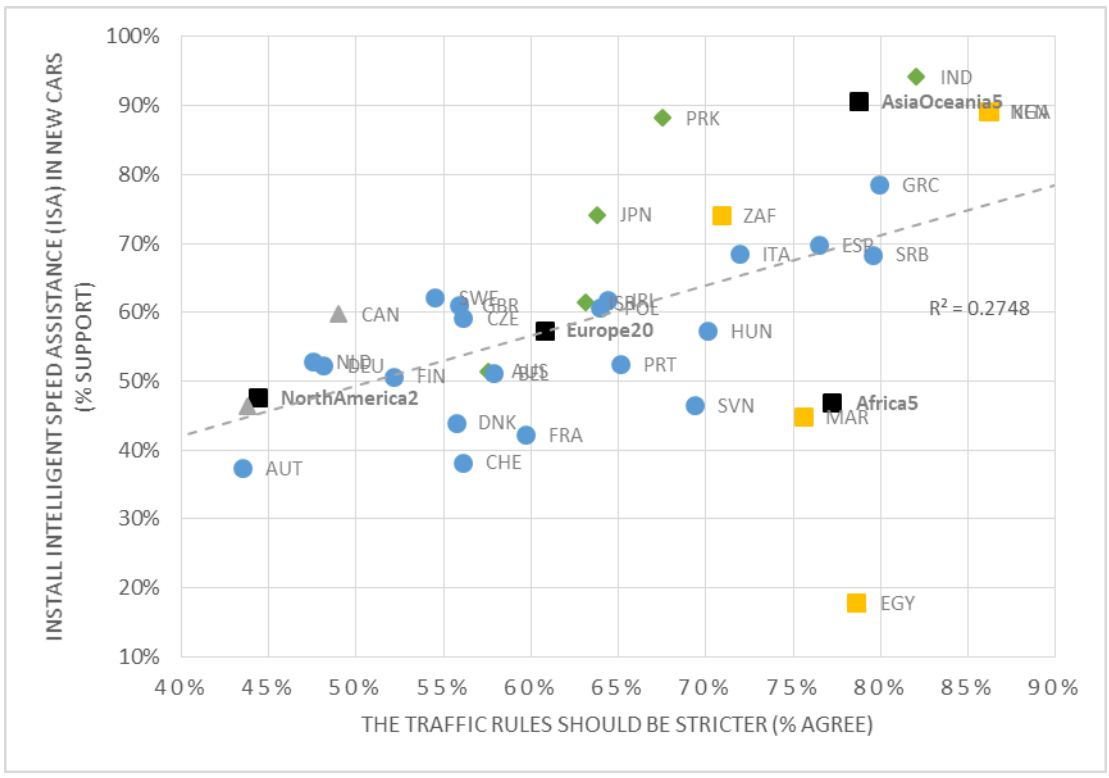


Figure 25: Association between the support for the installation of Intelligent speed assistance systems and the agreement with "The traffic rules on speeding should be stricter".

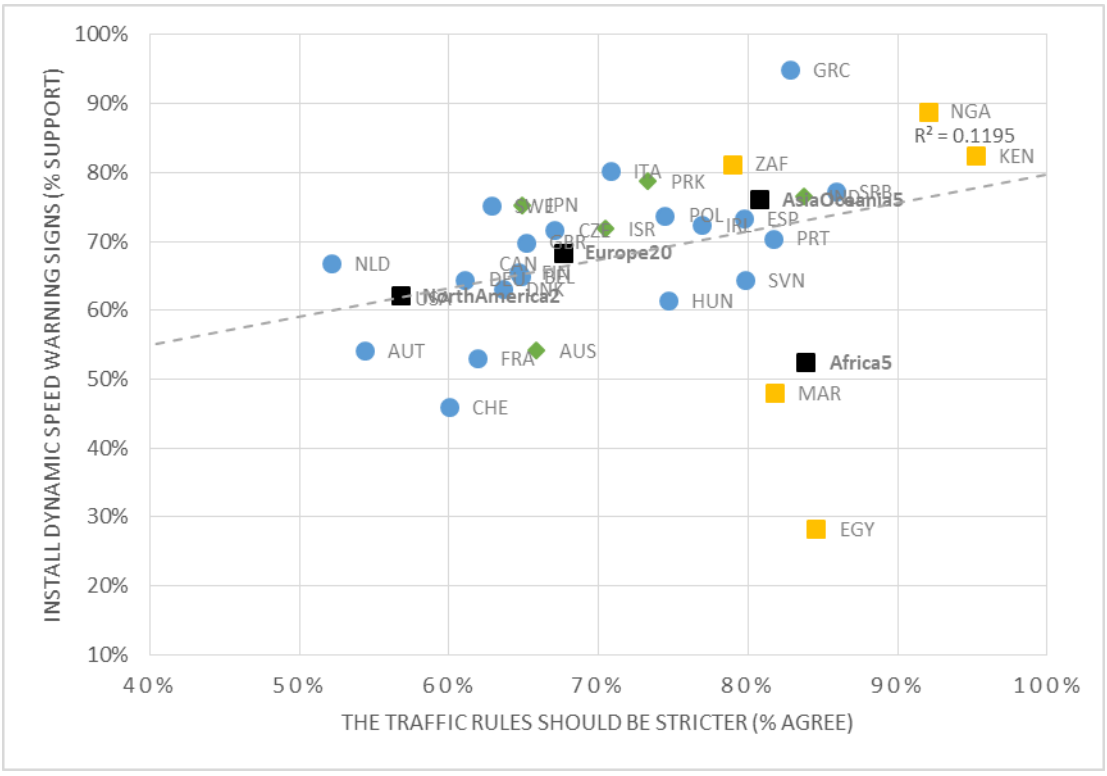


Figure 26: Association between the support for the installation of Dynamic Speed Warning signs and the agreement with "The traffic rules on speeding should be stricter"

4.3 Driving behaviour and support for policy measures

When someone systematically engages in risky or unsafe behaviour in traffic, e.g. speeding or driving under the influence of alcohol, it is plausible to assume that he or she may be opposed to policy measures that sanction or further restrict such behaviour. An analysis of data from the ESRA2 survey shows that this assumption is often true. In order to illustrate this, correlations have been calculated between on the one hand the prevalence of certain behaviour – more precisely whether such behaviour had taken place over the last 30 days – and the level of support for the policy measures related to that behaviour. All such correlations were negative and significant, although they were not very high (typically between -0.1 and -0.2), which is partially due to the limited range of values considered. Some examples of correlations are show in Table 6.

Table 6: Some examples of correlations between unsafe behaviour and support for measures.

Risky behaviour (at least once last 30 days)	Correlation	Support for policy measure
Driving while being above the BAC limit for alcohol	-0.213	Alcohol interlock for recidivists
Driving while being above the BAC limit for alcohol	-0.198	Zero alcohol for novice drivers
Driving while being above the BAC limit for alcohol	-0.229	Zero alcohol for all drivers
Drive faster than the speed limit on motorways	-0.187	Install an ISA system
Drive faster than the speed limit on motorways	-0.162	Install Speed Warning Signs
Drive without wearing seatbelts	-0.171	Seatbelt reminder for all seats
Ride a bicycle without a helmet	-0.280	All cyclists wearing helmets
Talk on a handsfree mobile phone while driving	-0.242	No use of mobile phones inside cars

It would be interesting to be able to generalise such relationships at a higher level, i.e. to identify one or more "generic" cultural dimensions that can predict the level of support for policy measures. In the following paragraphs, it will be illustrated that this is indeed possible to some extent, in particular if the data is analysed at national level.

4.4 The relation between culture and support for policy measures

4.4.1 Operationalizing national culture

Hofstede defined culture as the 'programming of the human mind' by which one group of people distinguishes itself from another group (Hofstede, Hofstede, & Minkov, 2010). 'Programming of the human mind' refers to norms, beliefs, values and practices that are found more frequently among some people compared to others. Schwartz viewed culture as 'the rich complex of meanings, beliefs, practices, symbols, norms, and values prevalent among people in a society' (Schwartz, 1999).

Based on these perspectives, *national* culture can be described as the norms, beliefs, values, and practices that distinguish the citizens of one country from those of another. Moreover, culture also determines how and to what extent our behaviour can be changed. Public institutions seek to increase the quality of life of their citizens, but this may require them to adapt their behaviour. There is a natural resistance of people to policy measures of which they doubt the relevance and/or which may require them to change their habits. The level and nature of support for new policy measures is strongly determined by the national culture.

Recently some new measures of national culture have been developed, leading to new values for two major national "cultural dimensions": "Individualism versus Collectivism" and "Long term orientation/ Flexibility". More information on these two dimensions can be found in Minkov et al. (2017) and Minkov et al., (2018). In this report we will focus on the first dimension which we will abbreviate to "Independence" (and capitalize the word to make it distinct from the normal meaning of the word). The values for this construct are based on questions to people identifying non-conformism such as *"I decide myself which social rules to respect"* and "*If I could, I would allow people to break useless or meaningless laws and rules."* (Minkov et al., 2017). In societies with a high degree of independence, people value their freedom and independent thinking highly and one can expect a "natural" opposition against measures which are seen to restrict freedom and/or regarded as of limited value. The other kind of the spectrum are the more collectivistic societies, where the social norms and the interests of the "in-group" (family, social-cultural group to which one belongs) are given a higher value. So "Collectivism" as the opposite of Independence should not be understood as "Egalitarian" but rather centred on the own cultural community.

4.4.2 The relationship between Independence and support for policy measures

The national values for Independence were provided by Hofstede Insights. We examined the correlation between these values and the support for policy measures that were part of the ESRA2 survey. For the national values we used the weighted national values for each country. For example, if in a country 72% of the respondents gives a score of 4 or 5 on the question on the extent of support for the legal obligation for cyclists to wear a helmet, then the "support level" in that country is set at 72%.

Table 7 shows for all 15 measures included in ESRA2 the correlation between the percentage of people supporting these measures and the values of the cultural dimension Independence. The results are based on 29 countries, since for 3 of the countries in the ESRA2-sample, no values for Independence were available. As can be seen, there is a (very) strong negative and statistically significant correlation

between 11 of the 15 policy measures and Independence. For all measures, the correlation coefficients are negative.

Table 7: Pearson correlation between Independence and national public support for policy measures

Measure	Correlation	Significance (p)
Alcohol interlock for recidivists	-0.539**	0.003
Zero alcohol for novice drivers	-0.256	0.181
Zero alcohol for all drivers	-0.711**	0.000
Install ISA system	-0.782**	0.000
Install Speed Warning signs	-0.828**	0.000
Seatbelt reminder for all seats	-0.586**	0.001
All cyclists wearing helmet	-0.615**	0.000
Children cyclists wearing helmet	-0.328	0.082
All PTW riders wearing helmet	-0.261	0.172
Pedestrians wearing reflective material	-0.089	0.645
Cyclists wearing reflective material	-0.411*	0.027
PTW wearing reflective material	-0.413*	0.026
No use of mobile phones inside cars	-0.500**	0.006
No use of headphones/earbuds by cyclists	-0.424*	0.022
No use of headphones/earbuds by pedestrians	-0,718**	0.000

*p-value<0.05, **p-value<0.01

People in societies with a high level of autonomy have a strong desire to determine themselves which rules to follow (e.g. whether to wear a helmet or not) but also let others decide for themselves – as long as it does not affect themselves negatively. Strongly collectivist societies, on the other hand, don't think that people should be left to decide for themselves as they are afraid that this would result in chaos. When inspecting Table 7 it appears that in Independent societies the measures examined are perceived as an infringement of personal freedom, and hence it is fairly self-evident that in countries where independence is valued high, there is opposition against such measures.

Of course, culture is not the only factor which influences the support for measures; for some measures, other factors may even be much more important than culture. For instance, the data in Table 7 show that national culture isn't really an important factor for explaining the level of support for the measure "pedestrians should wear reflective clothing when walking in the dark on public streets".

4.4.3 Interaction between fatality rate, support for policy measures and Independence

An analysis was made of the association between the road fatality rate and the level of support for the 15 policy measures that were included in the ESRA2 questionnaire. The data on fatality rates, more specifically the number of road fatalities per 100 000 inhabitants in 2016, was derived from the WHO Global Road Safety Report (WHO, 2018). The level of support was measured at national level, i.e. the national (weighted) average of the ESRA2 sample was used.

The information in Table 8 below shows the results of this analysis. The second column includes the correlation coefficients between the fatality rate on the one hand, and the 15 policy measures that were included in ESRA2 on the other. The correlation results are based on 32 countries. As one can observe, for 8 of the 15 measures the correlations with fatality rates are positive and (highly) statistically significant, for 3 measures the correlation is positive (about 0.3) but not significant, and for 4 measures the correlation is very low (below 0.2). In other words, in general the lower the number of road fatalities in

a country, the higher the resistance against new policy measures in the field of road safety. It is further recalled that most measures in the table with low correlations – like riders of PTW (powered two/three wheelers) needing to wear helmets – are supported by a very large majority of the population in all the countries (see Section 3.3). For such measures with a high level of support but no difference between countries, it would be difficult to find any correlations with other national indicators.

Table 8: Pearson correlation between the fatality rate and the public support for policy measures

	Number of road fatalities per 100 000 inhabitants	
	Correlation	Significance (p)
Alcohol interlock for recidivists	0.436*	0.013
Zero alcohol for novice drivers	0.154	0.400
Zero alcohol for all drivers	0.518**	0.002
Install ISA system	0.610**	0.000
Install Speed Warning signs	0.648**	0.000
Seatbelt reminder for all seats	0.526**	0.002
All cyclists wearing helmet	0.473**	0.006
Children cyclists wearing helmet	0.194	0.286
All PTW riders wearing helmet	0.054	0.767
Pedestrians wearing reflective material	0.088	0.630
Cyclists wearing reflective material	0.275	0.128
PTW riders wearing reflective material	0.294	0.102
No use of mobile phones inside cars	0.496**	0.004
No use of headphones/earbuds by cyclists	0.321	0.073
No use of headphones/earbuds by pedestrians	0.694**	0.000

*p-value<0.05, **p-value<0.01

Overall, these results seem logical in the sense that in countries with a low level of road safety performance (a high number of road traffic fatalities) the support for the additional measures is higher than in countries with lower numbers of road traffic fatalities, where people feel less the need to have additional measures.

So how do these three types of variables – Fatality rate, Support for measures, Independence – interact? For that question we calculated partial correlations (for the 26 countries for which the data were available): on the one hand the correlation between Autonomy and Support for measures, controlled for Fatality rate, and on the other hand the correlation between fatality rate and support for measures, controlled for Autonomy. The results are displayed in Table 9. The second column should be compared with the values in Table 7 and the fourth column with the values in Table 8.

The values in the second column show whether Independence, when controlled for fatality rate, is still a factor at play in the level of support for policy measures. This is actually the case for several measures: *Zero alcohol for all drivers, Install ISA system, Install Speed Warning signs* and *All cyclists wearing helmets* – and the correlations remain high. In other words, in countries with similar numbers of road traffic fatalities per population, the resistance against the policy measures that restrain individuals' behaviours will be higher in those countries that score higher on Independence. However, this relation does not apply for the other measures, such as *Zero alcohol for novice drivers* or *Pedestrians wearing reflective materials*.

Table 9: Partial correlations for Autonomy, Fatality rate and Support for policy measures

	Correlation between Independence and support for measures, controlled for fatality rate	Signi-ficance (p)	Correlation between fatality rate and support for measures, controlled for Independence	Signi-ficance (p)
Alcohol interlock for recidivists	-0.264	0.174	0.111	0.574
Zero alcohol for novice drivers	-0.129	0.512	0.024	0.902
Zero alcohol for all drivers	-0.586**	0.001	-0.166	0.398
Install ISA system	-0.600**	0.001	-0.042	0.831
Install Speed Warning signs	-0.644**	0.000	-0.004	0.985
Seatbelt reminder for all seats	-0.260	0.182	0.179	0.363
All cyclists wearing helmet	-0.478*	0.010	-0.117	0.554
Children cyclists wearing helmet	-0.255	0.191	-0.079	0.689
All PTW riders wearing helmet	-0.275	0.156	-0.157	0.426
Pedestrians wearing reflective material	0.093	0.637	0.174	0.376
Cyclists wearing reflective material	-0.227	0.246	0.029	0.885
PTW riders wearing reflective material	-0.211	0.282	0.052	0.791
No use of mobile phones inside cars	-0.104	0.598	0.277	0.154
No use of headphones/earbuds by cyclists	-0.183	0.351	0.099	0.618
No use of headphones/earbuds by pedestrians	-0.242	0.214	0.442*	0.019

*p-value<0.05, **p-value<0.01

One can observe that often the strong correlations that disappear between Autonomy and support for measures after controlling for fatality rates – e.g. *Alcohol interlock for recidivists*, *No mobile phone use by drivers inside cars* – are measures that increase the protection of the individual road user against the unsafe behaviour of others, whilst the correlations that remain statistically significant and negative – e.g *Zero alcohol for all drivers, Install ISA systems, Cyclists having to wear helmets* - concern measures that constrain individual behaviour. This could be interpreted as that a high level of Independence increases resistance to measures that restrict freedom of behaviour, but less to measures that are seen to protect the individual. Whether such an observation can be generalised requires further research.

When considering the 4th column in Table 9, it appears that, apart from one exception (*No use of headphones/ earbuds by pedestrians)*, all partial correlations are low and statistically insignificant. This actually means that in countries with similar levels of Independence (e.g. many West-European countries), the fatality rate is not a factor that can statistically be related to the support for measures. Thus, although fatality rate and Independence are correlated, the level of Independence could be a better "predictor" for the (lack of) public support for measures than fatality rate.

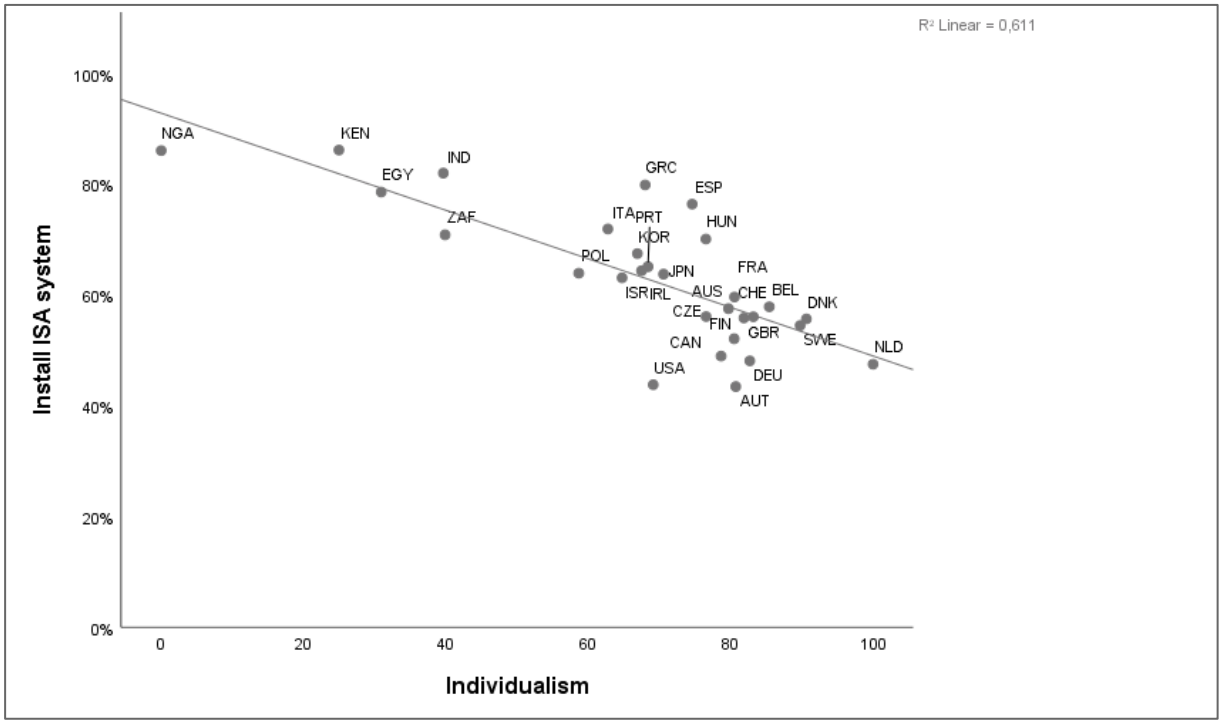
Why this general rule does not seem to apply to the support for the policy measure "No use of headphones/earbuds by pedestrians" is less clear. It may be related to the very different perceptions of pedestrian safety across countries, which are not linked to the predominant culture.

4.4.4 A closer look at some measures

In the following paragraphs the relationships for some of the measures are discussed. Figure 27**Error! Reference source not found.** shows a scatter plot for the relationship between "Install ISA systems" and Independence/Individualism, for which there is a very high negative correlation (-0.782). One can observe from Figure 27 that the highest level of support is found in some less developed countries,

which have a high degree of collectivism. But even when these countries would be left out, the strong negative correlation would persist.

Figure 27: Scatterplot of Independence/Individualism versus "Compulsory installation of an ISA system"



Another example is the level of support for the obligation that all cyclists should wear a helmet (Figure 28). It can be observed again that the higher the level of Independence, the higher the opposition against the measure. The level of support for this measure is also remarkably high, in particular given the fact that such an obligation now only exists in a few countries and that in countries with a large number of cyclists the majority of cyclists do not wear a helmet (in particular when it concerns recreational cycling). The Netherlands are an outlier, with extremely low support. It is useful to mention in his context that it is the country with the top score on Independence as well as the highest number of cyclists per capita in the world, with very few adult cyclists currently wearing a helmet.

Actually, there seems to be a reverse relationship between the amount of cycling in a country and the willingness to wear a cycle helmet. Based on a construct from ESRA data – the percentage of people almost never riding a bicycle – the relationship was analysed between the amount of cycling in a country and the support for a measure requiring all cyclists to wear a helmet (Figure 29). As Figure 29 illustrates, in general the lower the proportion of people in a country cycling regularly, the higher the support for helmet use. One explanation could be that people who are little affected by a measure are not very worried that the measure would be implemented, since it would not affect them anyway. But it could also be because in countries with a lot of cyclists, the safety of cyclists is better (or at least perceived to be better) and these cyclists hence see less the need to wear a helmet. So the resistance against wearing a helmet could be the results of the so-called "safety in numbers" effect (see e.g. Fyhri, Sundfør, Bjørnskau, & Laureshyn, (2017)). Thus, in this case "cycling behaviour" and "cycling habits" would be key explanatory factors for explaining the level of support of mandatory cyclist helmets.

Figure 28: Scatterplot of Independence/Individualism versus "All cyclists to wear a helmet"

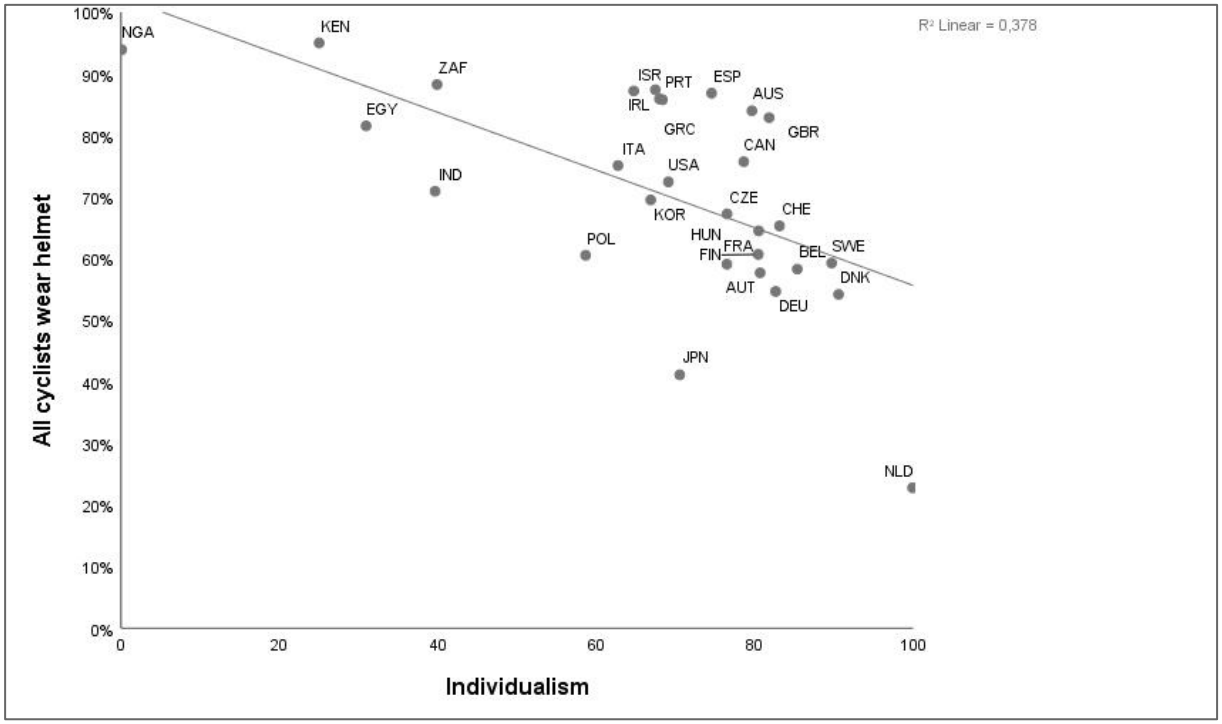
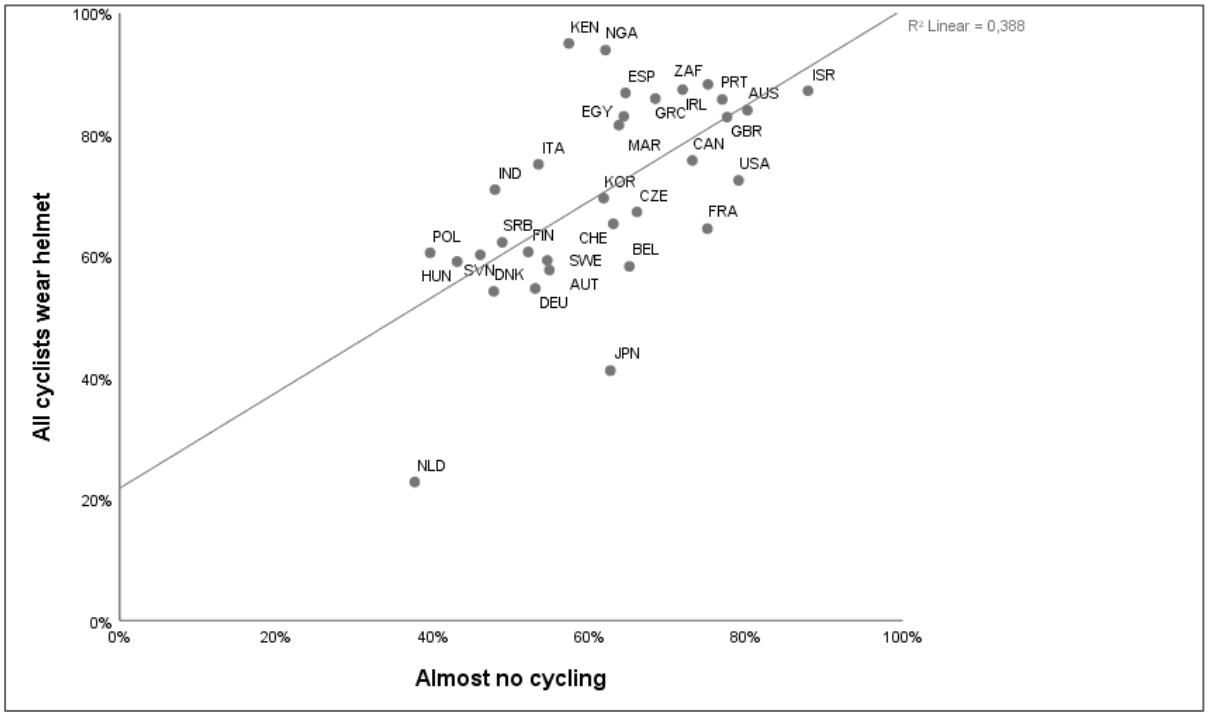


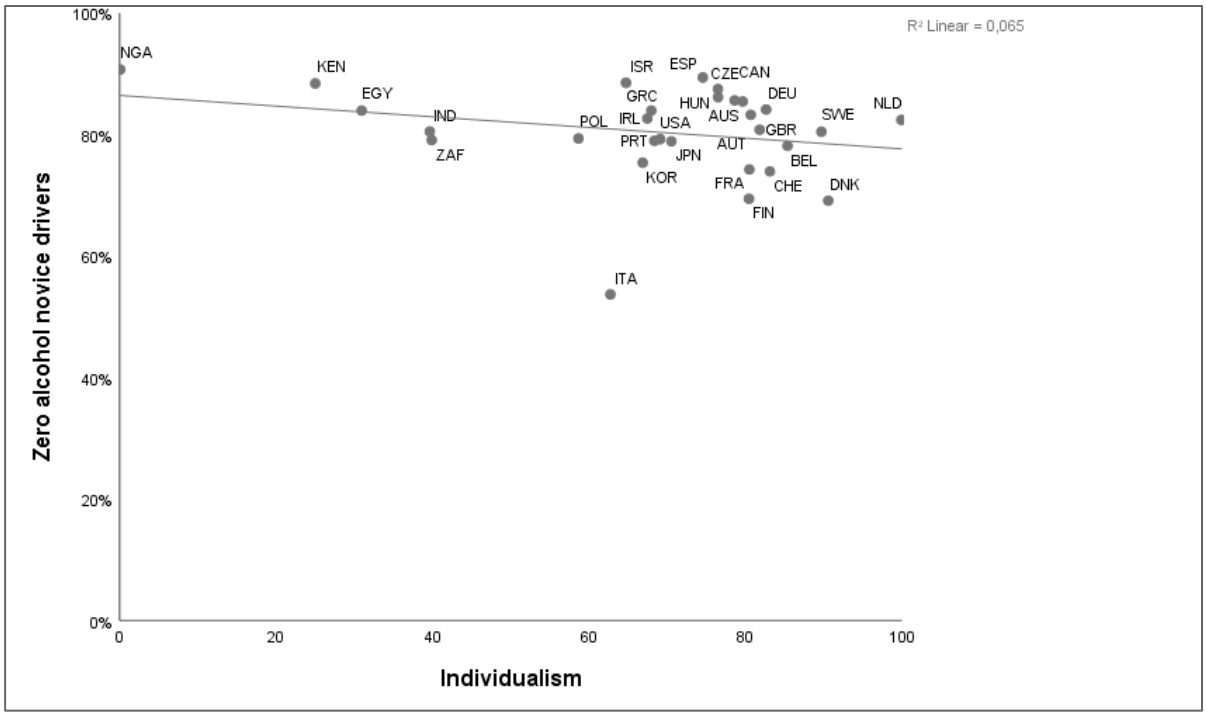
Figure 29: Scatterplot on the relationship between the level of cycling and the support for obligatory helmet use



An example of a policy measure for which no significant correlation exists with independence is "Zero alcohol for novice drivers" (Figure 30). It should be noted that such legislation already exists in many

countries (including most European countries) and that the support for this measure is already very high in almost all countries considered (except Italy). Because of these two phenomena, national culture does not really play a role in differentiating between countries. On the other hand, if a measure is not yet implemented and the level of support varies a lot across countries, one can expect culture to play a more important role.

Figure 30: Scatterplot of Independence/Individualism versus "Zero tolerance for novice drivers"



5 Summary and conclusion

5.1 Overall findings

The initial aim of ESRA was to develop a system for gathering reliable and comparable information about people's attitudes towards road safety in a number of 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.

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

This thematic report on support or policy measures described the findings in relation to 15 possible policy measures that were included in ESRA2: 3 measures in relation to drunk driving, 2 in relation to speeding, 4 in relation to protective systems, 3 in relation to improve visibility of vulnerable road users and 3 in relation to distraction. The measures considered target different groups of road users: car drivers, cyclists, pedestrians and motorcyclists/moped drivers.

The survey results show that the level of acceptability of policies and measures differs significantly according to country, gender and age. Overall, the majority of the respondents tend to support the policy measures that were proposed in the survey. For some measures, even over three quarters of the respondents are in favour. We can conclude that the level of public support for policy measures in the field of road safety, most of which tend to limit personal freedom, is higher than what is often assumed by politicians. This illustrates the concern of people for avoiding harm caused by road crashes.

Yet, this overall finding cannot be generalised to all countries and all measures. For most measures there are at least a few countries where less than the majority of the adult population is in favour of it. There are also differences in levels of support across regions across the world. Such differences reflect the variety of national circumstances, existing road safety measures, levels of enforcement and national cultures.

Almost systematically, females tend to be more supportive for road safety measures than men. Similarly, often and in particular in Europe20, the older people are, the more they tend to be in favour of the measures proposed. But for some measures and regions this general trend does not apply.

5.2 Key results

Measures against driving under the influence of alcohol

Policy measures in the field of driving under the influence of alcohol appear to be welcomed by the majority of respondents in countries across the world. The lowest level of support is related to the measure: "zero tolerance for alcohol for all drivers" in Europe20 and NorthAmerica2, but even in these regions of the world, on average about two thirds of the adult population is in favour of the measure.

Measures against speeding

There is more support for measures against speeding – install Intelligent Speed Assistance (ISA) and Dynamic Speed Warning signs in new cars – in the regions Africa5 and AsiaOceania5 than in Europe20 and NorthAmerica2. The level of support also varies across age groups by region. In Europe20, the support of the 65+ group for ISA (70.2%) and Dynamic Speed Warning signs (76.6%) is significantly higher than that of other age groups. In Africa5 and AsiaOceania5 there is a similar trend, while in NorthAmerica2 there is no clear trend. For both measures, support rates are higher among females in all regions.

Protective measures

The measure to have a seatbelt reminder system for the front and back seats in new cars received more support in AsiaOceania5 (84.9%), and Africa5 (83.2%), than in Europe20 (78.8%) and NorthAmerica2 (74.4%) - but also in these two regions three quarters of the population was supportive. In each of the four regions, the level of support for requiring cyclists to wear helmets was high; it was also higher for those under 12 than for all cyclists. In AsiaOceania5 (90.1%) and Africa5 (85.3%) there was a high level of public support for requiring all moped drivers and motorcyclists to wear a helmet. The analyses confirmed again that support rates for measures related to protective systems are higher among women in all regions.

Measures to improve visibility of vulnerable road users

For each of the three measures considered – pedestrians / cyclists / moped drivers and motorcyclists to wear reflective material in the dark – the level of support depends significantly on the country and region. Implementing such a measure for cyclists receives high levels of support in Europe20 (85.2%), NorthAmerica2 (82.8%), AsiaOcean5 (80.8%) and Africa5 (83.0%). The support for a similar measure targeted at pedestrians was lower, although the majority of the population in the 4 regions is still in favour: 57.4% in Europe20, 56.7% in NorthAmerica2, 58.0% in AsiaOceania5 and 54.8% Africa5. For the three measures, the level of support is higher among females than males in all the regions.

Measures against distraction

Forbidding pedestrians to use headphones (or earbuds) while walking in the streets is supported by a (slight) majority in only 9 of the 32 countries considered. The support to forbid this for cyclists is much higher. Forbidding the use of any type of mobile phone use by car drivers is supported by the majority of the population in 22 of the 32 countries participating. Not be allowed to use headphones or earbuds by walking or cycling receives least support by the youngest age group (18-24). This also applies to the measure to forbid the use of any type of mobile phone (handheld or handsfree) by car drivers.

Comparison between ESRA1 and ESRA2

A comparison between the European data from ESRA1 and ESRA2 showed consistency between the two surveys. The support for alcohol-related measures is high in both the first and the second edition of the survey; support for installing an alcohol interlock system with recidivists has even increased. Another striking similarity between ESRA1 and ESRA2 is the systematic higher support of females, compared to males, for policy measures in the field of road safety.

Association between the view on current traffic rules and support for new measures

An analysis on the association between, on the one hand, the views on current traffic rules in the areas of speeding, driving under the influence of alcohol and distraction by mobile phone, and on the other hand, the level of support for additional measures in these areas, showed that the more people consider

the current traffic rules to be too strict, the more they are opposed to additional policy measures in this area.

When someone systematically engages in risky or unsafe behaviour in traffic, e.g. speeding or driving under the influence of alcohol, it is plausible to assume that he or she may be opposed to policy measures that sanction or further restrict such behaviour. The analyses undertaken on the basis of the ESRA2 data show that this assumption is often true, with all correlations between support for measures and self-reported risky behaviour being negative.

Another analysis, on the impact of national culture on the support for policy measures in road safety, showed that national culture, and in particular the dimension "Independence", is highly correlated with the level of support for policy measures. A high score on "Independence" implies that a country has a relatively high percentage of people who value independent thinking. A low value means that many people in a country base their opinions on the interests and needs of their in-group (family, clan, professional group, local community). For several of the measures considered, over half of the statistical variation across countries can be explained by this single dimension. The higher the level of Independence, the lower is, in general, the declared support for policy measures. However, national culture seems to be less a factor at play when the support for the measure is very high in all countries and/or when the measure has already been implemented (which could have been the result of a supportive national culture).

List of tables

List of figures

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Appendix 1: ESRA2_2018 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, 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 for all items: 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 …?
You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.
Binary variable for all items: 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 …? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.
Binary variable for all items: 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 …? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.
Binary variable for all items: 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

Q12_4) Over the last 30 days, how often did you as a CYCLIST …? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.
Binary variable for all items: 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 for all items: 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):
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_1) 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_1) In the past 12 months, how many times have you been checked by the police for using alcohol while DRIVING A CAR (i.e., being subjected to a Breathalyser test)? never – 1 time – at least 2 times - I prefer not to respond to this question
Binary variable: at least once - never (removing "I prefer not to respond to this Q)

Q22_1) 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 are 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.
Europe20 weight	European weighting factor based on the 20 Europe20 countries participating in ESRA2_2018, considering individual country weight and population size of the country as retrieved from the UN population statistics.
NorthAmerica2 weight	North American weighting factor based on the 2 NorthAmerica2 countries participating in ESRA2_2018, considering individual country weight and population size of the country as retrieved from the UN population statistics.
AsiaOceania5 weight	Asian and Oceanian weighting factor based on all 5 Asian and Oceanian countries participating in ESRA2_2018, considering individual country weight and population size of the country as retrieved from the UN population statistics.
Africa5 weight	African weighting factor based on the 5 African countries participating in ESRA2_2018, considering individual country weight and population size of the country as retrieved from the UN population statistics.

Appendix 3: ESRA2 statistical tests' tables

Do you support or oppose a legal obligation to install an alcohol "interlock" for drivers who have been caught drunk driving on more than one occasion?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	138,08	3	0,000
Cramer's V	0,066		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	106,45	1	0,000
Cramer's V	0,073		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	3,99	1	0,046
Cramer's V	0,028		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	10,71	1	0,001
Cramer's V	0,073		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	7,07	1	0,008
Cramer's V	0,038		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	310,25	5	0,000
Cramer's V	0,125		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	9,43	5	0,093
Cramer's V	0,043		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	52,74	5	0,000
Cramer's V	0,162		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	160,82	5	0,000
Cramer's V	0,179		

Do you support or oppose a legal obligation to have zero tolerance for alcohol (0.0 ‰) for novice drivers (licence obtained less than 2 years)?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	42,45	3	0,000
Cramer's V	0,036		

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	152,26	1	0,000
Cramer's V	0,087		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	7,54	1	0,006
Cramer's V	0,039		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	18,21	1	0,000
Cramer's V	0,096		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	11,26	1	0,001
Cramer's V	0,047		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	489,21	5	0,000
Cramer's V	0,156		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	37,45	5	0,000
Cramer's V	0,087		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	38,11	5	0,000
Cramer's V	0,138		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	131,35	5	0,000
Cramer's V	0,162		

Do you support or oppose a legal obligation to have zero tolerance for alcohol (0.0 ‰) for all drivers?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	739,65	3	0,000
Cramer's V	0,152		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	506,93	1	0,000
Cramer's V	0,159		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	0,37	1	0,544
Cramer's V	0,009		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	30,43	1	0,000
Cramer's V	0,124		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	6,39	1	0,011
Cramer's V	0,036		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	356,57	5	0,000
Cramer's V	0,134		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	41,73	5	0,000
Cramer's V	0,091		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	27,33	5	0,000
Cramer's V	0,117		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	155,52	5	0,000
Cramer's V	0,176		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to install Intelligent Speed Assistance (ISA) in new cars (which automatically limits the maximum speed of the vehicle and can be turned off manually)?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1273,13	3	0,000
Cramer's V	0,199		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	108,27	1	0,000
Cramer's V	0,074		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	4,21	1	0,040
Cramer's V	0,029		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	5,21	1	0,022
Cramer's V	0,051		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1,30	1	0,254
Cramer's V	0,016		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	334,84	5	0,000
Cramer's V	0,129		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	31,13	5	0,000
Cramer's V	0,079		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	9,46	5	0,092
Cramer's V	0,069		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	77,49	5	0,000
Cramer's V	0,125		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to install Dynamic Speed Warning signs (traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold)?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	942,03	3	0,000
Cramer's V	0,172		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	56,73	1	0,000
Cramer's V	0,053		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	0,23	1	0,630
Cramer's V	0,007		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	2,61	1	0,106
Cramer's V	0,036		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	4,62	1	0,032
Cramer's V	0,030		

*** age group**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	452,77	5	0,000
Cramer's V	0,150		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	40,86	5	0,000
Cramer's V	0,090		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	14,23	5	0,014
Cramer's V	0,084		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	173,80	5	0,000
Cramer's V	0,186		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to have a seatbelt reminder system for the front and back seats in new cars?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	164,37	3	0,000
Cramer's V	0,072		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	38,23	1	0,000
Cramer's V	0,044		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1,42	1	0,234
Cramer's V	0,017		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	10,83	1	0,001
Cramer's V	0,074		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1,27	1	0,260
Cramer's V	0,016		

*** age group**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	299,61	5	0,000
Cramer's V	0,122		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	13,93	5	0,016
Cramer's V	0,053		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	13,32	5	0,021
Cramer's V	0,082		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	209,21	5	0,000
Cramer's V	0,205		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to require all cyclists to wear a helmet?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	615,87	3	0,000
Cramer's V	0,139		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	110,72	1	0,000
Cramer's V	0,074		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	37,84	1	0,000
Cramer's V	0,087		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	19,00	1	0,000
Cramer's V	0,098		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	17,46	1	0,000
Cramer's V	0,059		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	298,89	5	0,000
Cramer's V	0,122		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	43,25	5	0,000
Cramer's V	0,093		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	33,59	5	0,000
Cramer's V	0,130		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	122,94	5	0,000
Cramer's V	0,157		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to require cyclists under the age of 12 to wear a helmet?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	137,10	3	0,000
Cramer's V	0,065		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	118,86	1	0,000
Cramer's V	0,077		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	39,32	1	0,000
Cramer's V	0,089		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	15,45	1	0,000
Cramer's V	0,088		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	8,44	1	0,004
Cramer's V	0,041		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	361,44	5	0,000
Cramer's V	0,134		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	15,34	5	0,009
Cramer's V	0,055		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	19,37	5	0,002
Cramer's V	0,098		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	180,66	5	0,000
Cramer's V	0,190		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to require all moped drivers and motorcyclists to wear a helmet?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	213,43	3	0,000
Cramer's V	0,082		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	111,30	1	0,000
Cramer's V	0,075		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	10,20	1	0,001
Cramer's V	0,045		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	30,44	1	0,000
Cramer's V	0,124		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	28,72	1	0,000
Cramer's V	0,076		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	443,74	5	0,000
Cramer's V	0,149		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	46,39	5	0,000
Cramer's V	0,096		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	23,40	5	0,000
Cramer's V	0,108		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	162,87	5	0,000
Cramer's V	0,180		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to require pedestrians to wear reflective material when walking in the streets in the dark?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	13,03	3	0,005
Cramer's V	0,020		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	231,13	1	0,000
Cramer's V	0,108		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	2,70	1	0,100
Cramer's V	0,023		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	42,86	1	0,000
Cramer's V	0,147		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	43,64	1	0,000
Cramer's V	0,093		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	565,47	5	0,000
Cramer's V	0,168		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	49,25	5	0,000
Cramer's V	0,099		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	17,51	5	0,004
Cramer's V	0,094		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	46,28	5	0,000
Cramer's V	0,096		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to require cyclists to wear reflective material when cycling in the dark?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	66,28	3	0,000
Cramer's V	0,046		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	223,01	1	0,000
Cramer's V	0,106		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	4,82	1	0,028
Cramer's V	0,031		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	27,75	1	0,000
Cramer's V	0,118		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1,81	1	0,178
Cramer's V	0,019		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	742,42	5	0,000
Cramer's V	0,193		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	43,71	5	0,000
Cramer's V	0,093		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	37,59	5	0,000
Cramer's V	0,137		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	161,43	5	0,000
Cramer's V	0,180		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to require moped drivers and motorcyclists to wear reflective material when driving in the dark?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	68,34	3	0,000
Cramer's V	0,046		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	298,52	1	0,000
Cramer's V	0,122		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	3,70	1	0,055
Cramer's V	0,027		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	30,64	1	0,000
Cramer's V	0,124		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	7,67	1	0,006
Cramer's V	0,039		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	878,38	5	0,000
Cramer's V	0,210		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	62,81	5	0,000
Cramer's V	0,112		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	54,08	5	0,000
Cramer's V	0,164		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	134,47	5	0,000
Cramer's V	0,164		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to have zero tolerance for using any type of mobile phone while driving (hand-held or hands-free) for all drivers?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	298,75	3	0,000
Cramer's V	0,097		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	64,37	1	0,000
Cramer's V	0,057		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	8,11	1	0,004
Cramer's V	0,040		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	9,23	1	0,002
Cramer's V	0,068		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1,33	1	0,249
Cramer's V	0,016		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	477,03	5	0,000
Cramer's V	0,154		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	30,96	5	0,000
Cramer's V	0,079		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	57,73	5	0,000
Cramer's V	0,170		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	82,49	5	0,000
Cramer's V	0,128		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to not using headphones (or earbuds) while walking in the streets?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	999,63	3	0,000
Cramer's V	0,177		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	48,17	1	0,000
Cramer's V	0,049		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	0,06	1	0,814
Cramer's V	0,003		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	14,80	1	0,000
Cramer's V	0,086		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	5,04	1	0,025
Cramer's V	0,032		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1295,96	5	0,000
Cramer's V	0,255		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	30,28	5	0,000
Cramer's V	0,078		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	66,08	5	0,000
Cramer's V	0,182		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	92,70	5	0,000
Cramer's V	0,136		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

Do you support or oppose a legal obligation to not using headphones (or earbuds) while riding a bicycle?

Reference population: all road users

*** region**

Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	379,81	3	0,000
Cramer's V	0,109		

Each subscript letter denotes a region whose column proportions do not differ significantly from each other at the 0.01 level.

*** gender**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	58,83	1	0,000
Cramer's V	0,054		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	16,46	1	0,000
Cramer's V	0,058		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	14,41	1	0,000
Cramer's V	0,085		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	2,26	1	0,133
Cramer's V	0,021		

*** age group**

Europe20			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	1114,62	5	0,000
Cramer's V	0,236		
AsiaOceania5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	25,82	5	0,000
Cramer's V	0,072		
NorthAmerica2			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	68,73	5	0,000
Cramer's V	0,185		
Africa5			
Tests	*Value*	*df*	*p-value*
Pearson Chi-Square	57,89	5	0,000
Cramer's V	0,108		

Each subscript letter denotes a subset of gender / age categories whose column proportions do not differ significantly from each other at the 0.01 level.

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E-Survey of Road users' Attitudes