



# ESRA

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## E-Survey of Road users' Attitudes



### Moped riders and motorcyclists

ESRA3 Thematic report Nr. 4



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# Moped riders and motorcyclists

## ESRA3 Thematic report Nr. 4

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## List of abbreviations

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

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

### Other abbreviations

ESRA	E-Survey of Road users' Attitudes
EU	European Union
ICW	Individual country weight used in ESRA3
HIC	High income countries based on World Bank classification 2023 (The World Bank Group, 2023)
UMIC	Upper-middle income countries based on World Bank classification 2023 (The World Bank Group, 2023)
LMIC	Lower-middle income countries based on World Bank classification 2023 (The World Bank Group, 2023)

## Executive summary

### Objective and methodology

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

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

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

This thematic ESRA3 report on moped riders and motorcyclists describes the frequency of riding a moped or a motorcycle, the use of infrastructure, the road crash involvement, the acceptability of unsafe traffic behaviour, the safety perception of using moped and motorcycle, the rates of self-declared drink and riding, riding faster than the speed limit outside built-up areas (but not on motorways/freeways), riding without a helmet, reading a text message/email or checking social media while riding, riding within 1 hour after taking drugs (other than prescribed or over the counter medication) and riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users) among road users in 39 countries. It includes comparisons among the participating countries as well as results in relation to age and gender.

### Major findings

Below for each research question the major findings are described.

*What is the frequency of riding a moped or a motorcycle?*

- The use of mopeds and motorcycles as a transport mode is more widespread in America when compared to Europe and Asia-Oceania.

*Which type of infrastructure do moped riders and motorcyclists use?*

- The use of thoroughfares and high-speed roads within cities varies from 36.4% in Asia-Oceania to 64.3% in America, while the rate in Europe is 50.6%.
- Regarding the use of rural roads and roads connecting towns and villages, the respective rates vary from 46.9% in America to 54.7% in Europe, while the rate for Asia-Oceania is 52.3%.
- The percentages of the use of other streets and roads in urban areas vary from 51.8% in Europe to 59.8% in Asia-Oceania. The rate for America is 54.5%.



*During the past 12 months, have you personally been involved in a road crash where at least one person was injured (light, severe or fatal crashes)?*

- Regarding the three ESRA3 regions, the highest rates for moped riders and motorcyclists involved in road crashes correspond to Asia-Oceania (3.9%).

*What is the safety perception of using a moped or a motorcycle?*

- In all the examined countries, the safety perception scores for mopeds and motorcycles do not exceed 8 points. This fact indicates that road users do not consider these transport modes to be safe enough.

*Which is the personal acceptability of riding a moped or a motorcycle when he/she may have been over the legal limit for drinking and driving?*

- Road users considering acceptable for a moped rider or motorcyclist to ride when he/she may have been over the legal limit for drinking and driving vary from 2.2% in Europe to 3.7% in America. The rate for Asia-Oceania is 2.9%.
- The personal acceptability is higher for male road users in Europe and America, while the opposite is the case in the Asia-Oceania.
- People aged over 55 years accept less this driver behaviour than younger people (18-24 years old).

*Which is the personal acceptability of riding faster than the speed limit outside built-up areas (except motorways/freeways)?*

- People considering it acceptable for a moped rider or motorcyclist to ride faster than the speed limit outside built-up areas (except motorways/freeways) vary from 5.7% in America to 7.5% in Europe. The rate for Asia-Oceania is 6.5%.
- The personal acceptability in all examined regions is higher for male road users than females.
- People aged 18 to 24 years accept more this driver behaviour than older people.

*Which is the personal acceptability of not wearing a helmet on a moped or motorcycle?*

- Road users considering it acceptable for a moped rider or motorcyclist not to wear a helmet vary from 3.9% in Europe to 5.3% in America and Asia-Oceania.
- The personal acceptability varies between females and males across all examined regions, except for Asia-Oceania where the percentages are similar.
- Young people accept more this driver behaviour than older people.

*Which is the personal acceptability of reading a message or checking social media/news while riding?*

- People considering it acceptable for a moped rider or motorcyclist to read a message or check social media/news while riding vary from 2.3% in Europe to 4.0% in America. The respective rate for Asia-Oceania is 3.1%.
- The personal acceptability is higher for males than females in Europe and America, while the opposite can be observed in Asia-Oceania.
- Younger people tend to accept more this driver behaviour than older people.



*What is the prevalence of self-declared drink and riding by moped riders and motorcyclists? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to drinking and riding in the past 30 days varies for the majority of the countries from 15% to 25%.
- A comparable pattern is not observed for drink and riding among the different age groups in the three world regions.
- In America and Asia-Oceania, the self-declared drink and riding rates are higher for male moped riders and motorcyclists, while in Europe the respective rates are higher for female respondents.

*What is the level of self-declared speeding outside built-up areas (but not on motorways/freeways) by moped riders and motorcyclists? And what are the differences?*

- In most participating countries worldwide, almost half of the moped riders and motorcyclists admit to speeding outside built-up areas (not on motorways/freeways) in the past 30 days.
- In Europe, the self-declared speeding is higher among the younger age groups. In America the self-declared speeding is far higher for the oldest age group (65+). In Asia-Oceania, the distribution is similar among all age groups.
- In Europe, Asia-Oceania and America, male moped riders and motorcyclists report higher speeding rates.

*What is the level of self-declared riding without a helmet? And what are the differences?*

- In most countries, the percentage of moped riders and motorcyclists who admit to riding without a helmet in the past 30 days varies from 20% to 40%.
- Worldwide, the self-declared behaviour of riding without a helmet is higher among younger aged moped riders and motorcyclists than among older age groups except for America, where the highest rates are recorded in the age group 55-64.
- Only in America male moped riders and motorcyclists report higher rates of riding without a helmet than female riders.

*What is the level of self-declared reading a text message/email or checking social media while riding? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to reading a text message/email or checking social media while riding varies from 20.7% in Europe to 24.9% in Asia-Oceania.
- A comparable pattern is not found among the different age groups in the three world regions.
- In all the examined regions with the exception of Europe, the rates of male moped riders and motorcyclists are higher than the respective rates of female moped riders and motorcyclists.

*What is the prevalence of self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication)? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to riding within 1 hour after taking drugs (other than prescribed or over the counter medication) varies from 17.1% in Europe to 22.7% in Asia-Oceania.
- A comparable pattern is not found for riding within 1 hour after taking drugs among the different age groups in the three world regions.
- In all the examined regions with the exception of Europe, the rates of male moped riders and motorcyclists are higher than the respective rates of female respondents.

*What is the prevalence of self-declared riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to this behaviour varies from 26.6% in America to 30.3% in Europe and Asia-Oceania.
- In all the examined regions, the rates of male moped riders and motorcyclists are higher than the respective rates of female moped riders and motorcyclists.

*What factors are related to self-declared drink and riding?*

- Female moped riders and motorcyclists in Europe are 23% less likely to report drink and riding than males.
- Moped riders and motorcyclists aged over 35 years are less likely to commit such behaviour compared to people aged 18-34.
- Moped riders and motorcyclists who support a legal obligation of forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0% (zero tolerance) are 56% less likely to report drink and riding.
- Respondents who believe that this behaviour is acceptable are almost 19 times more likely to commit such behaviour.

*What factors are related to self-declared speeding outside built-up areas (but not on motorways/freeways)?*

- Women are 37% less likely to report speeding when compared to men.
- Moped riders and motorcyclists who are currently students are 24% more likely to commit such behaviour compared to respondents that are not students.
- Moped riders and motorcyclists who support the legal obligation of limiting the speed limit to a maximum of 80 km/h on all rural roads without a median strip are 46% less likely to report speeding outside built-up areas (except motorways/freeways).
- Respondents who believe that this behaviour is acceptable are more than nine times more likely to commit such behaviour.

*What factors are related to self-declared riding without a helmet?*

- Moped riders and motorcyclists aged over 35 years are less likely to report not wearing a helmet on a moped or motorcycle when compared to people aged 18-34 years.
- Respondents who believe that this behaviour is acceptable are almost 11 times more likely to commit such behaviour.
- Moped riders and motorcyclists living inside urban or semi-urban areas are 24% less likely to ride without a helmet compared to those who live in rural areas.

*What factors are related to self-declared reading a text message/email or checking social media while riding)?*

- Female moped riders and motorcyclists are 14% less likely to report reading a message or check social media/news while riding.
- People aged over 35 years are less likely to report this driving behaviour when compared to people aged 18-34 years.
- Respondents who believe that this behaviour is acceptable are almost 18 times more likely to commit such behaviour.

- Moped riders and motorcyclists who have been personally involved in a road crash where at least one person was injured (light, severe or fatal crashes) are 74% more likely to read a message or check social media/news while riding.

*What factors are related to self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication)?*

- Female moped riders and motorcyclists are 26% less likely to report riding within 1 hour after taking drugs (other than prescribed or over the counter medication).
- People aged over 55 years are less likely to report this driving behaviour when compared to people aged 18-34 years.
- Moped riders and motorcyclists living inside urban or semi-urban areas are 25% less likely to declare riding within 1 hour after taking drugs compared to people who live in rural areas.

*What factors are related to self-riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)?*

- Female moped riders and motorcyclists are 36% less likely to report riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users).
- People aged over 35 years are less likely to report this driving behaviour when compared to people aged 18-34 years.
- Individuals who support the legal obligation of limiting the speed limit to 30km/h in all built-up areas (except on main thoroughfares) are 43% less likely to adopt this driver behaviour.
- People who believe that this behaviour is acceptable are over six times more likely to commit such behaviour.

### **Key recommendations**

- Motorcyclists and moped riders constitute one of the most vulnerable road user groups. This fact in combination with the high percentages of self-declared adoption of risky behaviours by them imposes targeted measures to improve their behaviour on the road.
- Given that risky behaviours are more common among males and young moped riders and motorcyclists, measures for the elimination of such behaviours should concern the general moped riders and motorcyclists' population but also particularly target the male young riders.
- Awareness raising campaigns should be organised at local level to explain the increased risk and vulnerability of moped riders and motorcyclists with the ultimate aim to develop a traffic safety culture promoting safety and mutual respect of all road users.
- Moped and motorcycle safety enforcement should be well-structured, systematic and visible. The respective results should be recorded and communicated to the public in order to the impact of enforcement actions.
- Road infrastructure should be adapted to particular moped and motorcycles' characteristics and needs (e.g. installation of appropriate barriers), creating a self-explaining and forgiving road environment.

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

## 1. Introduction

Mopeds and motorcycles form an important component of the transport system as they offer increased mobility at a reduced cost, as well as a special sense of pleasure. Therefore, they serve different purposes in different areas of the world. In low and middle income countries mopeds and motorcycles are more commonly used for the transport of goods and people and as an income source (e.g. taxis or delivery vehicles). In high-income countries they are commonly used as transport means suitable for urban traffic congestion but also for recreation (European Commission, 2018; WHO, 2017).

Moped riders and motorcyclists constitute a very vulnerable group of road users, while riding a moped or a motorcycle is considerably more dangerous than using any other motor vehicle (Ziakopoulos et al., 2021). Moped riders and motorcyclists face a higher risk of fatal or serious injury than most other road users compared by mileage or number of trips, as well as a higher crash risk (2BeSafe, 2012). Mopeds and motorcycles accounted for 18% of the total number of road deaths in the EU countries during the period 2018-2020 (CARE, 2023). Globally, users of motorised two- and three-wheelers represent 21% of all deaths. The global share of fatalities has fallen by 2% among two- and three-wheeler users since 2010 (WHO, 2023).

A number of studies on mopeds and motorcycles regarding the correlation of injury severity with external variables such as speeding, drink-driving, road geometry and weather conditions among others have been published in the literature. When the interactions between behaviour, crash rates and severity are co-investigated with other contributory factors, the crash causes and the related solutions are better identified (Theofilatos and Yannis, 2015). Results show that a large number of these variables influence road crash severity considerably. Examples include negative influence on crashes while speeding and at junctions, while in darkness, and for specific crash types. Overcompensation effects for adverse weather conditions have also been identified, resulting in more conservative driving. Vehicle age and lack of helmet use have been found to have an impact on increased crash severity as well (Ziakopoulos et al., 2018).

Meteorological factors are usually considered in moped and motorcycle studies owing to their impact on the state of the roadway surface, most often whether dry or wet (Alnawmasi and Mannering, 2019; Waseem et al., 2019). Regarding crash circumstances, it is found that the highest amount of moped and motorcycle crashes are observed in residential and commercial areas, during daylight conditions, in good weather and dry surface conditions and on local or collector roads. This is explained via exposure, as these conditions are the more favourable ones for two-wheeler trips. The majority of crashes happen within areas with a speed limit of 50km/h followed by 30 km/h, again indicating that two-wheelers are favoured for more urban routes (Ziakopoulos et al., 2018).

Annual investment in road construction and maintenance can lead to a reduction of moped and motorcycle crashes. Other variables that show a reducing effect on the number of crashes are the proportion of high-capacity roadways, GDP per capita, age, unemployment rate, and the implementation of the demerit point system (Navarro-Moreno et al., 2023). Furthermore, road traffic conditions can affect the mopeds and motorcycles crash risk. The frequency, exposure, and severity of moped and motorcycle crashes are positively correlated with area-density. During the capacity conditions, the moped riders and motorcyclists are relatively less vigilant, while moped riders and motorcyclists respond early to an unsafe situation in congested and free-flow conditions (Venthuruthiyil et al., 2023).

Behavioural issues are major moderating factors to moped and motorcycle crashes. Moped and motorcycle drivers present a great variability in their attitudes towards safety. Risk taking and sensation seeking are typical riders' behaviours which are usually expressed through speeding, disobeying traffic signals and signs, ignoring overtaking restrictions or pedestrian crossings, maintaining short gaps with the following vehicles, usual lane sharing etc. (Gupta et al., 2024; Vlahogianni et al., 2012).

Moped riders and motorcyclists behaviour is related to age and riding exposure. Riders that speed seem to be more often younger and male. This might be attributed to the needs of younger people for speed, manoeuvrability and sensation seeking. Overconfidence is a primary cause of risky riding behaviour of young riders (Vlahogianni et al., 2012). A literature review paper pointed out that robust investigations of risk factors among children using motorcycles are relatively scarce (Brown et al., 2018).

On the other hand, elder people might seek slower travelling speeds or the comfort of a private car, switch to a bicycle or on foot travelling, or limit their exposure by travelling less (Ziakopoulos et al.,

2018). Older drivers are less likely to indulge in red-light running and lane sharing (Gupta et al., 2024). Older motorcyclists are more likely to be admitted to hospital, have more severe injuries, require intensive care, have a longer length of stay and suffer more complications. Head and thoracic injuries are more common and injuries at all sites are more severe in older adults. Comorbidities and reduced physiologic reserve predispose older motorcyclists to higher mortality and more severe injuries (Fitzpatrick and O'Neill, 2016). A period of absence from riding might lead to a decline in safety related motorcycle skills, whereas high exposure appears to moderate crash risk (Vlahogianni et al., 2012). An increasing proportion of older motorcyclists are returning riders whose riding skill has likely depreciated over time but are riding on powerful machines (Fitzpatrick and O'Neill, 2016).

Regarding the protective equipment usage, most two-wheeler riders recognise the essentiality of helmet use while riding. The same cannot be said for reflective clothing. Headlights are also used in order to increase conspicuity, meaning to be detected by other users (Ziakopoulos et al., 2018). Back protectors may be an effective measure to limit the consequences of spine injuries in moped riders and motorcyclists. However, a systematic review on the effectiveness of back protectors for motorcyclists highlighted lack of appropriate evidence on efficacy of back protectors and the need for further research into this topic (Ekmejian et al., 2016).

Research suggests that some interventions might be indicated, particularly in terms of reducing speed as a contributory/causal factor in moped and motorcycle crashes. However, from a technology perspective, it is difficult to imagine what might work effectively (SaferWheels, 2018). Active safety systems, such as antilock braking are going to play an important role to improve moped and motorcycle safety. A systematic review shows that multiple active safety systems for mopeds and motorcycles have been considered but the levels of development are diverse. A few systems are available in the series production, whereas other systems are still at the level of early stage prototypes. So far, safety benefit assessments have been conducted only at single system level (Savino et al., 2019).

More tangible benefits might be derived through rider education, campaigns and more aggressive enforcement of speed limits. For non-speed related moped and motorcycle crashes, particularly junction crashes (which are the most common crash scenarios), technology might be more effective – particularly Intelligent Transport System-related functions, which can inform vehicle drivers of the presence of the mopeds and motorcycles (SaferWheels, 2018).

Riding a motorcycle will never be risk-free. This fact does not mean that motorcyclists are not conscious about their safety. A previous study showed that motorcyclists are well aware and concerned about their own safety. However, they have different opinions to other road users. They do not make the same priorities of actions that authorities do (Nordqvist and Gregersen, 2010). The moped and motorcycle safety situation, risk factors and underlying socio-demographic conditions will vary across regions, countries and within states, territories and provinces, and it is not possible to provide (in a single document) suggestions that will be equally useful across all settings and locales.

The ESRA3 survey asks questions on frequency of riding a moped or motorcycle, safety perception of using them, moped riders and motorcyclists' self-declared behaviour, attitudes, support for policy measures, road crash involvement, infrastructure use and personal acceptability. In terms of self-declared behaviour, it was explored how moped riders and motorcyclists in different regions, countries, age and gender groups, differ in self-declared drink and riding, speeding outside built-up areas (but not on motorways/freeways), riding without a helmet and reading a text message/email or checking social media while riding, riding within 1 hour after taking drugs and riding too fast for the road/traffic conditions at the time.

The ESRA3 findings are exploited to answer the following research questions:

- What is the frequency of riding a moped or a motorcycle?
- Which type of infrastructure do moped riders and motorcyclists use?
- During the past 12 months, have you personally been involved in a road crash where at least one person was injured (light, severe or fatal crashes)?
- What is the safety perception of using a moped or a motorcycle?
- Which is the personal acceptability of riding a moped or a motorcycle when he/she may have been over the legal limit for drinking and driving?

- Which is the personal acceptability of riding faster than the speed limit outside built-up areas (except motorways/freeways)?
- Which is the personal acceptability of not wearing a helmet on a moped or motorcycle?
- Which is the personal acceptability of reading a message or checking social media/news while riding?
- What is the prevalence of self-declared drink and riding by moped riders and motorcyclists? And what are the differences?
- What is the level of self-declared speeding outside built-up areas (but not on motorways/freeways) by moped riders and motorcyclists? And what are the differences?
- What is the level of self-declared riding without a helmet? And what are the differences?
- What is the level of self-declared reading a text message/email or checking social media while riding? And what are the differences?
- What is the prevalence of self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication)? And what are the differences?
- What is the prevalence of self-declared riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)? And what are the differences?
- What factors are related to self-declared drink and riding?
- What factors are related to self-declared speeding outside built-up areas (but not on motorways/freeways)?
- What factors are related to self-declared riding without a helmet?
- What factors are related to self-declared reading a text message/email or checking social media while riding)?
- What factors are related to self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication)?
- What factors are related to self- riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)?



## 2. Methodology

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

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

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

The participating countries in ESRA3 were:

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

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

Table 1: ESRA3 Thematic Reports.

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



The present report summarizes the ESRA3 results with respect to moped riders and motorcyclists. A more detailed overview of the data collection method and the sample per country can be found in the ESRA3 methodology report (Meesmann & Wardenier, 2024).

Note that a weighting of the data was applied in the analyses. This weighting took into account small corrections with respect to national representativeness of the sample based on gender and six age groups: 18-24y, 25-34y, 35-44y, 45-54y, 55-64y, 65-74y (United Nations Statistics Division, 2023). For the regional means, the weighting also took into account the relative size of the population of each country within the total set of countries from this region. SPSS 26.0 and R 4.3.1 was used for all analyses.

## 3. Results

### 3.1 Descriptive analysis

This section presents the results of ESRA3 questions on riding a moped or a motorcycle. These questions cover the following topics:

- frequency of riding or being a passenger on a moped or a motorcycle in the past 12 months (Section 3.1.1),
- use of infrastructure (Section 3.1.2),
- road crash involvement (Section 3.1.3),
- safety perception of using a moped or a motorcycle (Section 3.1.4),
- personal acceptability (Section 3.1.5),
- self-declared behaviour (Section 3.1.6)

As also noted in the Section of the Methodology, in each country about 1000 road users participated in the survey, with a few exemptions. The precise moped riders and motorcyclists sample sizes (respondents rode a moped/motorcycle at least a few days per month) are presented in Appendix 3.

#### 3.1.1 Frequency of riding a moped or a motorcycle (in the past 12 months)

In the ESRA3-survey, road users were asked to answer the question "During the past 12 months, how often did you use each of the following transport modes?" About twenty modes of transport were listed, including moped ( $\leq 50$  cc or  $\leq 4$  kW) and motorcycle ( $> 50$  cc and  $> 4$  kW). Tables 2 to 4 present the respective frequency of riding each moped or motorcycle both as a driver or as a passenger by country and region.

Table 2: Self-declared frequency of riding a moped ( $\leq 50$  cc or  $\leq 4$  kW) among all road users by country and region ("During the past 12 months, how often did you drive a moped ( $\leq 50$  cc or  $\leq 4$  kW)").

Country	at least 4 days a week	1 to 3 days a week	a few days a month	a few days a year	never
Armenia	0.0%	0.0%	0.4%	1.1%	98.5%
Australia	2.4%	9.1%	11.0%	5.8%	71.7%
Austria	1.1%	1.3%	2.6%	4.7%	90.3%
Belgium	2.1%	3.5%	3.7%	4.2%	86.4%
Bosnia and Herzegovina	2.0%	2.4%	3.5%	14.0%	78.1%
Brazil	2.4%	4.4%	6.9%	11.0%	75.3%
Canada	1.1%	3.3%	3.8%	3.1%	88.7%
Chile	0.9%	1.5%	3.0%	3.4%	91.1%
Colombia	2.7%	3.6%	5.3%	8.2%	80.1%
Czech Republic	0.7%	1.1%	2.9%	5.5%	89.8%
Denmark	2.8%	4.2%	3.8%	4.8%	84.5%
Finland	0.7%	2.1%	3.2%	11.0%	82.9%
France	1.7%	5.7%	7.3%	5.0%	80.3%
Germany	1.3%	6.3%	5.5%	5.0%	81.8%
Greece	4.4%	2.7%	3.8%	11.2%	77.9%
Ireland	1.0%	2.4%	1.8%	2.3%	92.5%
Israel	0.3%	0.5%	1.4%	2.5%	95.3%
Italy	2.7%	5.5%	6.2%	7.6%	78.0%
Japan	1.6%	2.3%	1.9%	1.1%	93.1%
Kazakhstan	1.0%	0.5%	2.2%	7.6%	88.7%
Kyrgyzstan	0.4%	0.2%	0.4%	1.1%	97.9%
Latvia	0.3%	0.5%	0.9%	5.3%	92.9%
Luxembourg	1.1%	1.3%	1.0%	3.0%	93.6%
Mexico	1.6%	3.0%	3.9%	4.5%	87.0%
Netherlands	2.4%	5.6%	4.1%	5.8%	82.1%
Panama	0.8%	1.1%	3.5%	6.4%	88.2%
Peru	1.6%	3.2%	4.1%	8.4%	82.8%
Poland	0.8%	2.1%	3.8%	9.5%	83.8%
Portugal	1.2%	1.3%	2.7%	8.1%	86.7%
Serbia	1.1%	1.1%	2.8%	9.4%	85.6%
Slovenia	2.7%	3.2%	4.4%	9.9%	79.7%
Spain	1.5%	3.0%	4.4%	5.8%	85.2%
Sweden	1.2%	2.3%	3.2%	5.5%	87.7%
Switzerland	1.4%	5.4%	7.6%	4.8%	80.8%
Thailand	16.3%	15.6%	11.0%	6.6%	50.5%
Türkiye	3.0%	6.5%	9.5%	9.8%	71.2%
United Kingdom	2.1%	8.3%	6.4%	2.6%	80.6%
United States	4.9%	15.4%	17.8%	7.3%	54.5%
Uzbekistan	1.2%	1.9%	1.9%	1.9%	93.1%
Region	at least 4 days a week	1 to 3 days a week	a few days a month	a few days a year	never
Europe22	1.7%	4.9%	5.2%	5.9%	82.3%
America8	3.2%	8.7%	10.7%	7.5%	69.9%
AsiaOceania6*	5.1%	6.5%	6.3%	5.0%	77.1%

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

Based on Table 2, the three countries with the highest proportions of respondents that reported riding a moped at least a few days a year are Bosnia and Herzegovina, Greece, Finland and Brazil. However, the countries with the most frequent use of mopeds (at least 4 days a week) are Thailand, United States and Greece.

Table 3: Self-declared frequency of riding a motorcycle (> 50 cc or > 4 kW) among all road users by country and region ("During the past 12 months, how often did you drive a motorcycle (> 50 cc or > 4 kW)").

Country	at least 4 days a week	1 to 3 days a week	a few days a month	a few days a year	never
Armenia	0.0%	0.2%	1.1%	1.1%	97.6%
Australia	3.0%	11.3%	12.6%	5.6%	67.5%
Austria	1.2%	2.4%	4.7%	5.1%	86.6%
Belgium	2.1%	3.7%	4.5%	3.7%	86.0%
Bosnia and Herzegovina	2.5%	2.3%	2.9%	15.4%	76.9%
Brazil	7.4%	8.7%	12.8%	11.2%	59.8%
Canada	1.7%	3.6%	4.7%	4.4%	85.7%
Chile	1.2%	2.9%	5.2%	6.3%	84.3%
Colombia	9.7%	9.6%	9.5%	11.1%	60.1%
Czech Republic	0.5%	1.9%	3.5%	7.5%	86.6%
Denmark	2.2%	3.1%	4.8%	4.0%	85.9%
Finland	0.7%	3.7%	2.6%	6.2%	86.8%
France	2.6%	6.4%	7.8%	5.7%	77.6%
Germany	2.1%	4.8%	5.7%	5.5%	82.0%
Greece	8.5%	4.9%	4.3%	12.1%	70.2%
Ireland	1.3%	1.7%	2.3%	3.5%	91.2%
Israel	0.8%	0.9%	0.7%	3.0%	94.5%
Italy	4.1%	8.4%	8.0%	5.9%	73.6%
Japan	1.0%	2.4%	2.0%	1.8%	92.9%
Kazakhstan	1.2%	0.9%	1.8%	7.7%	88.5%
Kyrgyzstan	0.2%	0.2%	0.2%	0.9%	98.5%
Latvia	0.8%	0.8%	2.1%	4.4%	91.9%
Luxembourg	1.6%	1.8%	4.4%	4.8%	87.4%
Mexico	4.0%	6.7%	7.8%	8.2%	73.3%
Netherlands	3.0%	4.2%	4.9%	4.9%	83.1%
Panama	1.7%	1.5%	5.0%	7.7%	84.1%
Peru	6.3%	7.8%	9.4%	11.1%	65.4%
Poland	1.0%	1.9%	5.0%	9.3%	82.8%
Portugal	1.7%	1.6%	3.5%	8.7%	84.4%
Serbia	0.9%	1.1%	3.5%	10.4%	84.1%
Slovenia	2.8%	3.4%	6.3%	9.1%	78.3%
Spain	3.3%	4.5%	5.4%	7.2%	79.6%
Sweden	1.2%	2.3%	2.8%	5.2%	88.5%
Switzerland	2.7%	6.5%	9.1%	6.1%	75.7%
Thailand	31.4%	22.6%	12.9%	5.5%	27.6%
Türkiye	4.7%	8.9%	11.4%	12.8%	62.3%
United Kingdom	3.3%	8.6%	6.0%	2.5%	79.6%
United States	6.8%	13.8%	18.2%	7.8%	53.4%
Uzbekistan	2.0%	1.2%	2.2%	1.9%	92.8%
Region	at least 4 days a week	1 to 3 days a week	a few days a month	a few days a year	never
Europe22	2.7%	5.3%	5.9%	6.0%	80.2%
America8	6.2%	10.1%	13.4%	8.8%	61.5%
AsiaOceania6*	8.6%	8.8%	7.3%	5.7%	69.6%

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

Regarding the use of motorcycles, high percentages of respondents in Thailand, Colombia and Greece answered that they used a motorcycle at least 4 days a week, which indicates that motorcycles are very widespread mode of transport in these countries, especially in Thailand. On the other hand, more than 94% of respondents in Armenia, Israel and Kyrgyzstan stated that they have never ridden a motorcycle in the past year. Similarly to the use of mopeds, the use of motorcycles as a transport mode is more popular in America.

Table 4: Self-declared frequency of being a passenger on a moped ( $\leq 50$  cc or  $\leq 4$  kW) or motorcycle ( $> 50$  cc or  $> 4$  kW) among all road users by country and region ("During the past 12 months, how often did you ride as a passenger on a moped or motorcycle").

Country	at least 4 days a week	1 to 3 days a week	a few days a month	a few days a year	never
Armenia	0.2%	0.2%	0.2%	0.6%	98.7%
Australia	3.7%	8.8%	11.8%	7.3%	68.4%
Austria	0.8%	1.9%	3.0%	6.5%	87.9%
Belgium	1.7%	3.3%	4.3%	6.0%	84.6%
Bosnia and Herzegovina	1.8%	2.2%	4.9%	20.4%	70.8%
Brazil	5.1%	8.7%	17.5%	20.0%	48.6%
Canada	0.5%	3.4%	5.0%	5.8%	85.4%
Chile	0.9%	2.8%	6.5%	10.4%	79.3%
Colombia	10.8%	13.2%	22.0%	17.9%	36.1%
Czech Republic	0.7%	1.8%	2.3%	8.3%	86.8%
Denmark	2.1%	3.9%	2.7%	6.7%	84.7%
Finland	0.7%	2.1%	3.4%	12.0%	81.9%
France	1.9%	6.0%	8.0%	6.3%	77.8%
Germany	1.1%	5.9%	5.3%	6.7%	81.0%
Greece	8.6%	7.7%	12.8%	23.5%	47.4%
Ireland	0.8%	1.8%	2.0%	4.3%	91.1%
Israel	0.4%	0.7%	1.7%	5.1%	92.2%
Italy	2.4%	7.3%	9.4%	12.9%	68.0%
Japan	0.7%	1.7%	2.2%	1.3%	94.2%
Kazakhstan	1.5%	0.7%	3.6%	14.8%	79.4%
Kyrgyzstan	0.8%	0.2%	0.6%	1.5%	96.8%
Latvia	0.1%	0.4%	1.5%	10.2%	87.7%
Luxembourg	0.4%	0.5%	2.7%	3.8%	92.7%
Mexico	3.3%	7.3%	11.6%	13.6%	64.1%
Netherlands	2.1%	4.6%	5.4%	7.5%	80.4%
Panama	1.9%	1.9%	3.9%	10.9%	81.4%
Peru	5.3%	9.8%	18.8%	17.7%	48.4%
Poland	0.6%	2.3%	4.4%	14.5%	78.2%
Portugal	1.4%	1.4%	3.5%	15.3%	78.5%
Serbia	1.3%	0.8%	2.3%	12.2%	83.3%
Slovenia	1.7%	2.3%	3.7%	11.0%	81.2%
Spain	1.3%	3.3%	6.6%	11.7%	77.1%
Sweden	0.9%	2.2%	3.2%	7.2%	86.4%
Switzerland	2.7%	7.0%	6.4%	7.0%	76.8%
Thailand	15.6%	21.6%	21.2%	16.6%	25.0%
Türkiye	4.1%	8.4%	11.9%	13.8%	61.9%
United Kingdom	2.9%	6.3%	7.7%	4.0%	79.1%
United States	5.8%	13.6%	18.1%	9.1%	53.5%
Uzbekistan	0.5%	1.9%	1.9%	3.3%	92.3%
Region	at least 4 days a week	1 to 3 days a week	a few days a month	a few days a year	never
Europe22	1.9%	4.9%	6.4%	9.0%	77.8%
America8	5.1%	10.4%	16.1%	13.0%	55.3%
AsiaOceania6*	5.0%	8.0%	9.3%	8.7%	69.0%

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

According to Table 4, the three countries with the highest proportions of respondents that reported being a passenger in a moped or motorcycle at least 4 days a week are Thailand, Colombia and Greece.

## 3.1.2 Infrastructure

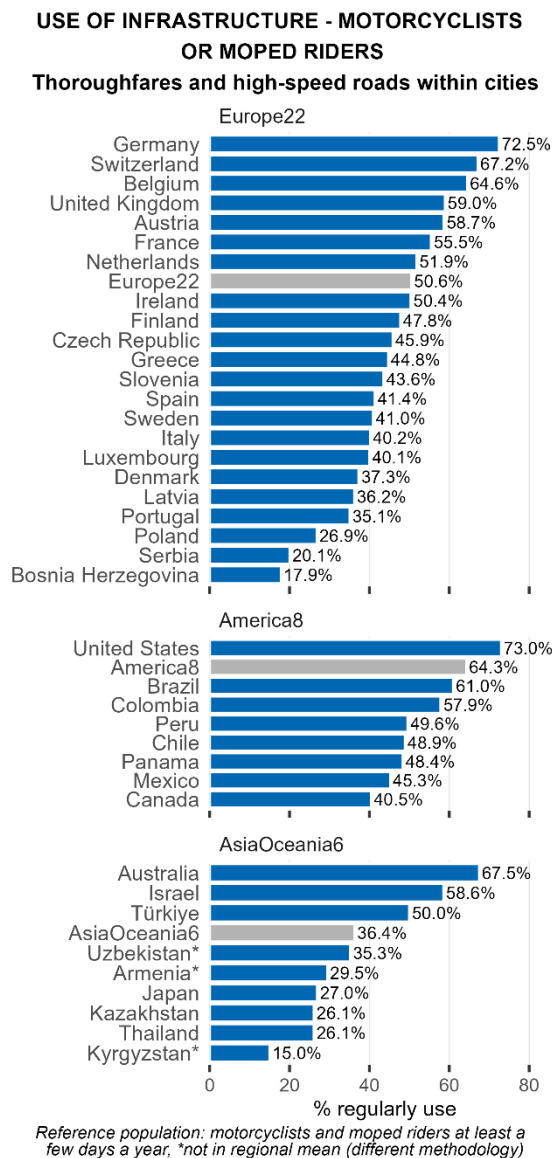


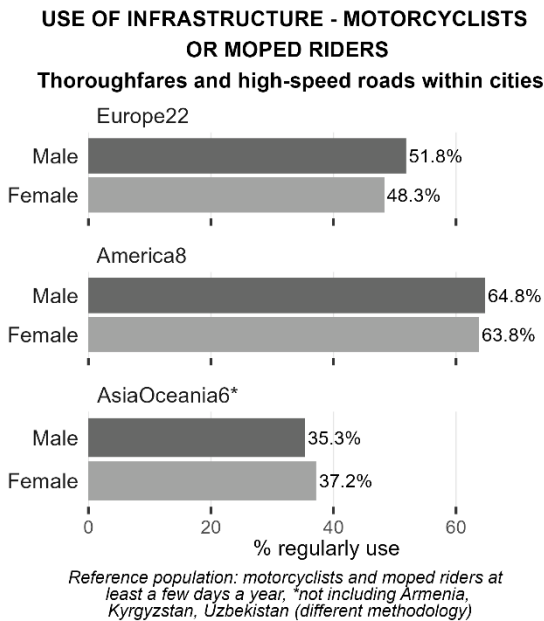
Figure 1 demonstrates that the results of moped riders and motorcyclists using thoroughfares and high-speed roads within cities regularly, vary from 36.4% in Asia-Oceania to 64.3% in America. The rate for Europe is 50.6%.

In Europe, the highest rates of using thoroughfares and high-speed roads within cities are recorded in Germany and Switzerland (72.5% and 67.2% respectively). On the other hand, moped riders and motorcyclists in Poland (26.9%), Serbia (20.1%) and Bosnia Herzegovina (17.9%) report the lowest rates.

Among the eight participating countries of America, the highest rates are found in the United States (73.0%), while the lowest are recorded in Mexico and Canada (45.3% and 40.5% respectively).

Regarding the rates of Asian-Oceanian moped riders and motorcyclists, the highest rates are found in Australia (67.5%), while the lowest rates are recorded in Kyrgyzstan (15.0%).

Figure 1: Self-declared use of thoroughfares and high-speed roads within cities per region and country (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).



The results are further split out by region and gender in Figure 2. As can be seen in this figure, the usage of thoroughfares and high-speed roads within cities by moped riders and motorcyclists in all examined regions is similar for females and males.

Figure 2: Self-declared use of thoroughfares and high-speed roads within cities per region and gender (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).

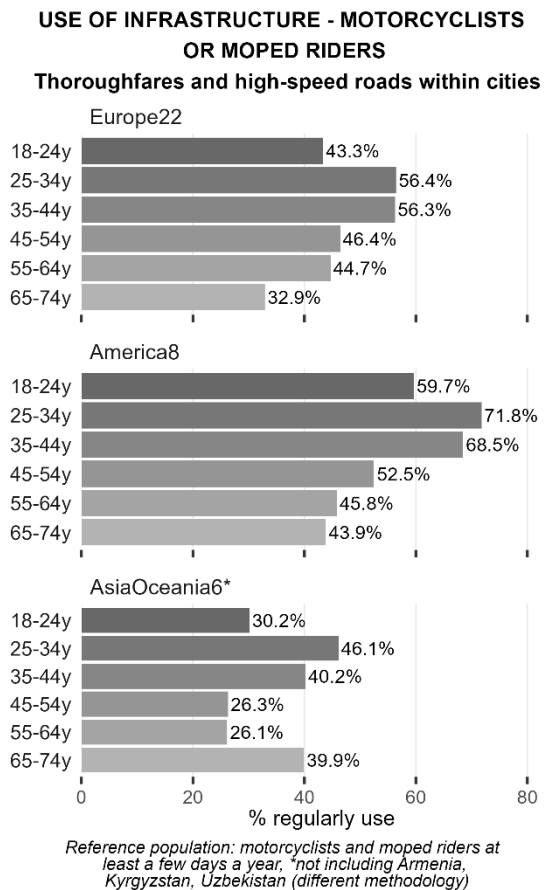


Figure 3 presents the results on self-declared use of thoroughfares and high-speed roads within cities by moped riders and motorcyclists by region and age group.

As can be clearly seen in Figure 3, the percentage of moped riders and motorcyclists using thoroughfares and high-speed roads within cities is higher in all regions for people aged 25 to 44 years.

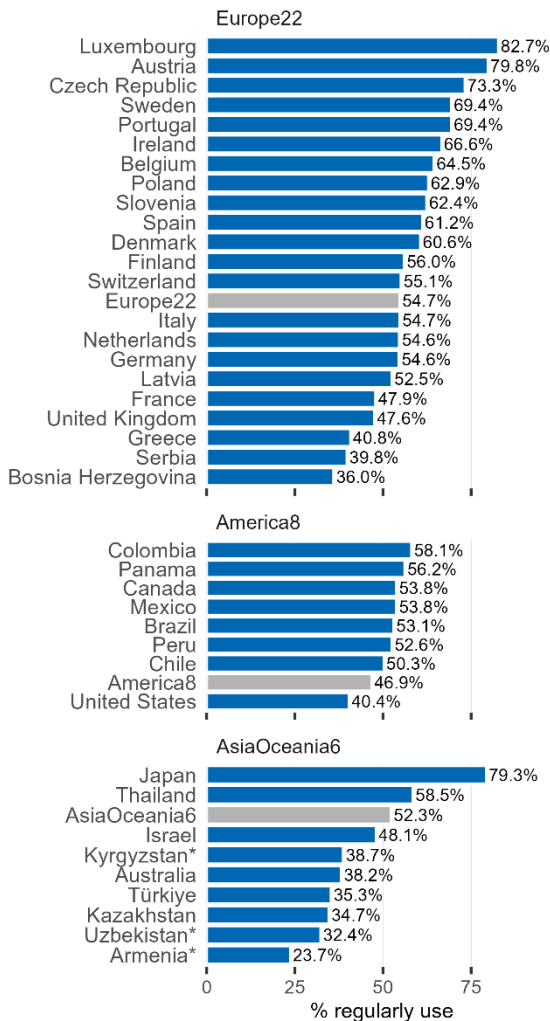
In Europe and America, the lowest rates are found among the age group 65-74 (32.9% and 43.9% respectively). On the contrary, in Asia-Oceania moped riders and motorcyclists aged 65-74 use more the thoroughfares and high-speed roads within cities than people aged 45 to 64 years.

Figure 3: Self-declared use of infrastructure of thoroughfares and high-speed roads within cities per region and age group (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).



### USE OF INFRASTRUCTURE - MOTORCYCLISTS OR MOPED RIDERS

#### Rural roads and roads connecting towns and villages



Reference population: motorcyclists and moped riders at least a few days a year, \*not in regional mean (different methodology)

Figure 4 shows that the results of moped riders and motorcyclists using rural roads and roads connecting towns and villages vary from 46.9% in America to 54.7% in Europe. The rate for Asia-Oceania is 52.3%.

In Europe, the highest rates of using rural roads and roads connecting towns and villages are recorded in Luxembourg and Austria (82.7% and 79.8% respectively). On the other hand, moped riders and motorcyclists in Greece (40.8%), Serbia (39.8%) and Bosnia Herzegovina (36.0%) report the lowest rates.

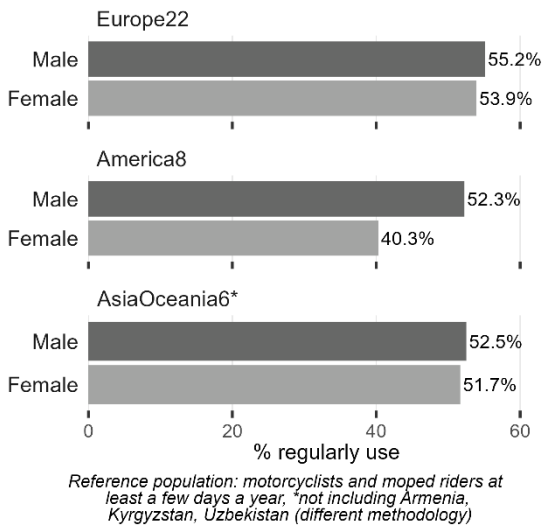
In America, over a half of moped riders and motorcyclists use rural roads and roads connecting towns and villages except for the United States (40.4%).

In Asia-Oceania, significant differences are observed between the countries. The highest rates are found in Japan (79.3%), while the lowest rates in Armenia (23.7%).

Figure 4: Self-declared use of rural roads and roads connecting towns and villages per region and country (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).

### USE OF INFRASTRUCTURE - MOTORCYCLISTS OR MOPED RIDERS

#### Rural roads and roads connecting towns and villages

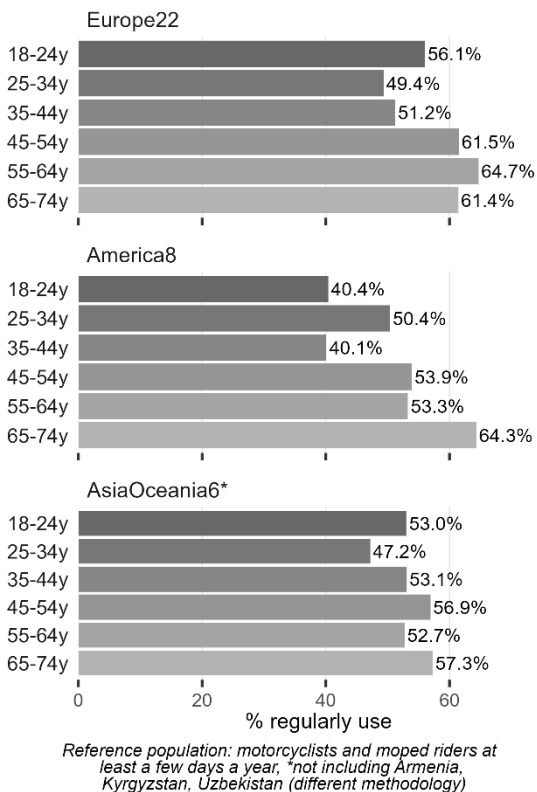


In Figure 5, the results of self-declared use of rural roads and roads connecting towns and villages by region and gender are presented. The percentages for females and males are similar, except for America, where the percentage of female moped riders and motorcyclists is lower than the respective percentage of males.

Figure 5: Self-declared use of rural roads and roads connecting towns and villages per region and gender (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).

### USE OF INFRASTRUCTURE - MOTORCYCLISTS OR MOPED RIDERS

#### Rural roads and roads connecting towns and villages



The results are further split out by region and age group in Figure 6. As can be seen in this Figure, the use of rural roads and roads connecting towns and villages is higher for people aged 65 to 74 years in America and Asia-Oceania.

In Europe, moped riders and motorcyclists aged 25 to 34 years record the lowest percentage of using these types of roads, while the highest use is for the age group 55-64.

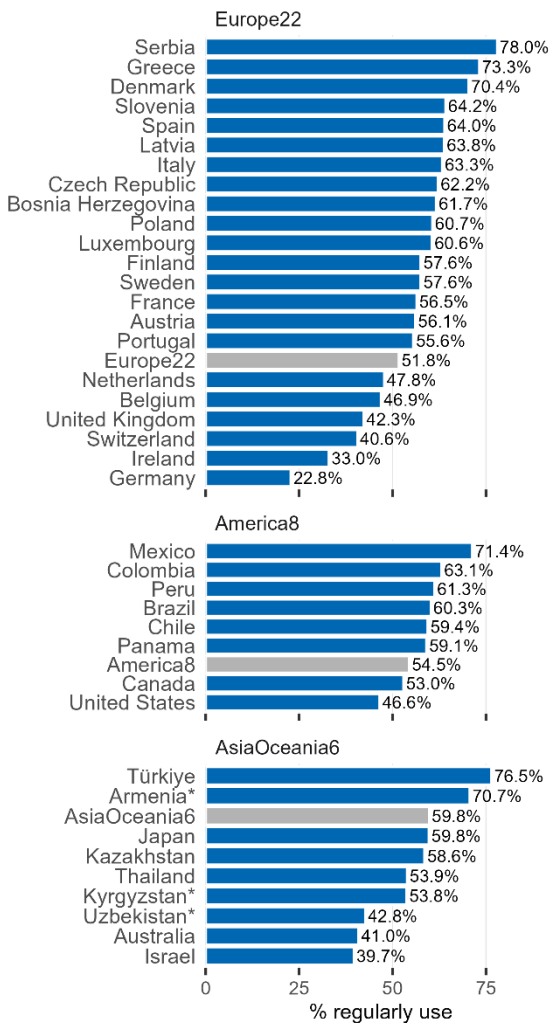
In America, the distribution towards age groups is different than in Europe, with the highest share of use of these types of roads recorded for moped riders and motorcyclists aged 65 to 74 years and the lowest for the age group 35-44.

Asia-Oceania records higher use of this type of infrastructure for people aged 65 to 74 years and the lowest use for age group 25-34.

Figure 6: Self-declared use of rural roads and roads connecting towns and villages per region and age group (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).

**USE OF INFRASTRUCTURE - MOTORCYCLISTS OR MOPED RIDERS**

**Other streets and roads in urban areas**



Reference population: motorcyclists and moped riders at least a few days a year, \*not in regional mean (different methodology)

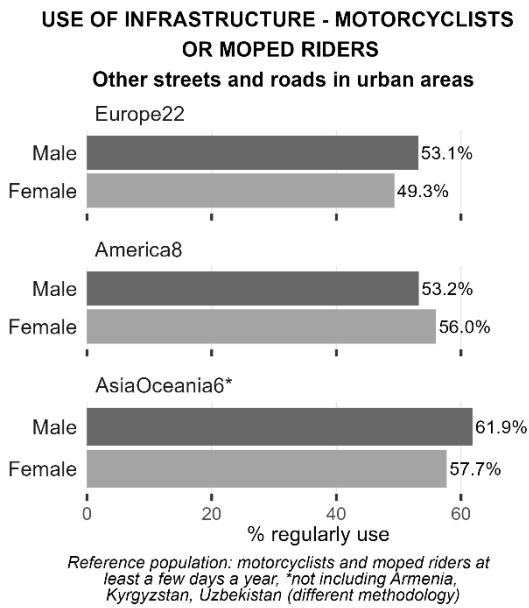
Figure 7 demonstrates that the results of moped riders and motorcyclists using other streets and roads in urban areas vary from 51.8% in Europe to 59.8% in Asia-Oceania. The rate for America is 54.5%.

In Europe, the highest rates are recorded in Serbia (78.0%) and Greece (73.3%), while the lowest are recorded in Ireland (33.0%) and Germany (22.8%).

Among the countries of America, over a half of moped riders and motorcyclists use other streets and roads in urban areas except for the United States (46.6%).

In Asia-Oceania, the highest rates are found in Türkiye (76.5%) and Armenia (70.7%), while the lowest rates are recorded in Israel (39.7%).

Figure 7: Self-declared use of other streets and roads in urban areas per region and country (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).



In Figure 8, the results of self-declared use of other streets and roads in urban areas by region and gender are presented. The percentages of male moped riders and motorcyclists using such types of roads are slightly higher than the respective rates of female riders in Europe and Asia-Oceania, while the opposite is the case for America.

Figure 8: Self-declared use of other streets and roads in urban areas per region and gender (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).

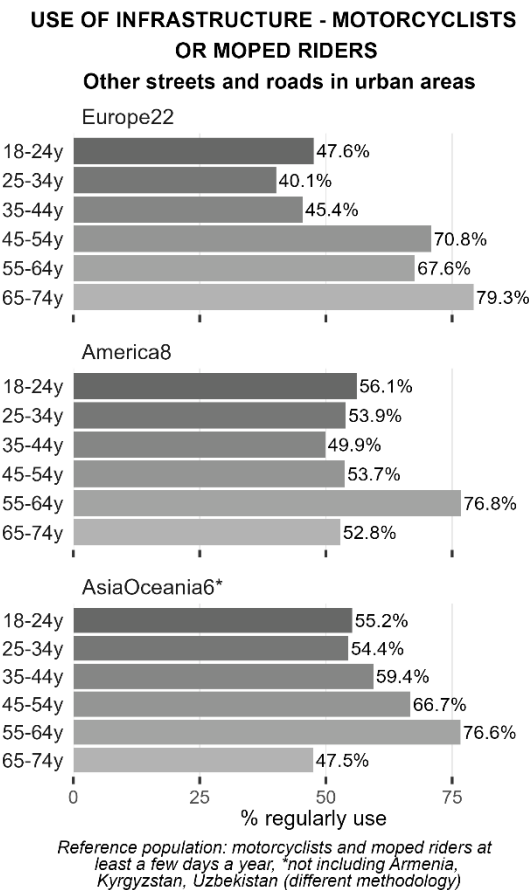


Figure 9 presents the results on self-declared use of other streets and roads in urban areas by moped riders and motorcyclists' age group and region.

In Europe, people aged 65 to 74 years (79.3%) use more frequently this type of infrastructure than younger moped riders and motorcyclists.

In America, moped riders and motorcyclists aged 55 to 64 years use mostly other streets and roads in urban areas (76.8%).

Regarding Asia-Oceania, the highest percentage of using this type of roads is recorded for moped riders and motorcyclists aged 55 to 64 years (76.6%).

Figure 9: Self-declared use of other streets and roads in urban areas per region and age group (% of moped riders and motorcyclists that used this infrastructure regularly in the past year).

## 3.1.3 Road crash involvement

Table 5: Self-declared road crash involvement as a moped/motorcycle rider or moped/motorcycle passenger by country and region (“During the past 12 months, have you personally been involved in a road crash where at least one person was injured (light, severe or fatal crashes?)”, Reference population: all road users who used each specific transport type in the past 12 months).

<b>Country</b>	<b>As a moped or motorcycle rider</b>	<b>As a moped or motorcycle passenger</b>
Armenia	0.0%	0.0%
Australia	2.1%	1.9%
Austria	2.6%	2.4%
Belgium	4.8%	5.7%
Bosnia and Herzegovina	0.3%	0.3%
Brazil	1.9%	1.5%
Canada	1.3%	1.8%
Chile	2.5%	1.9%
Colombia	4.1%	1.8%
Czech Republic	1.2%	0.0%
Denmark	3.7%	4.8%
Finland	0.9%	0.5%
France	3.0%	1.9%
Germany	1.6%	3.1%
Greece	2.2%	0.0%
Ireland	9.0%	7.7%
Israel	1.6%	0.0%
Italy	1.2%	0.6%
Japan	1.0%	0.0%
Kazakhstan	0.6%	1.1%
Kyrgyzstan	0.0%	0.0%
Latvia	0.0%	1.0%
Luxembourg	0.0%	0.0%
Mexico	2.6%	2.5%
Netherlands	5.9%	2.4%
Panama	1.7%	2.5%
Peru	3.6%	1.8%
Poland	0.5%	1.1%
Portugal	1.6%	0.0%
Serbia	0.0%	0.0%
Slovenia	1.4%	0.7%
Spain	2.9%	1.4%
Sweden	0.7%	3.7%
Switzerland	2.2%	2.9%
Thailand	6.3%	3.8%
Türkiye	1.8%	1.4%
United Kingdom	8.4%	8.3%
United States	1.9%	1.9%
Uzbekistan	0.0%	0.0%
<b>Region</b>	<b>As a moped or motorcycle driver</b>	<b>As a moped or motorcycle passenger</b>
Europe22	2.9%	2.5%
America8	2.2%	1.8%
AsiaOceania6*	3.9%	2.6%

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

Based on Table 5, the highest rate of moped riders and motorcyclists that have been involved in a road crash, where at least one person was injured, was found in Ireland (9%), which is much higher than the respective European average (2.9%). Regarding the three ESRA3 regions, the highest rates for riders involved in road crashes correspond to AsiaOceania (3.9%). Regarding passengers, the highest crash rates are recorded in the United Kingdom and Ireland (8.3% and 7.7% respectively).

## 3.1.4 Safety perception of using a moped or a motorcycle

All respondents who used moped and motorcycle both as a driver and as a passenger in the past 12 months were asked how safe they had felt using these transport modes. They could answer on a scale from 0 to 10, where 0 is "very unsafe" and 10 is "very safe". The mean results per country are presented in Table 6.

Table 6: Average safety perception of using moped and motorcycle by country (11-point scale from 0= very unsafe to 10= very safe).

Country	Moped ( $\leq 50\text{cc}$ or $\leq 4\text{kW}$ )	Motorcycle ( $> 50\text{cc}$ or $> 4\text{kW}$ )	Be a passenger on a moped or motorcycle
Armenia	4.7	6.8	3.3
Australia	7.1	7.3	7.2
Austria	6.1	6.4	5.5
Belgium	6.0	6.1	5.8
Bosnia and Herzegovina	5.8	5.2	4.7
Brazil	5.9	5.7	5.2
Canada	6.4	6.2	6.0
Chile	4.8	5.0	4.3
Colombia	5.0	5.3	4.6
Czech Republic	5.5	5.5	4.6
Denmark	6.1	6.1	5.6
Finland	6.5	6.1	5.9
France	7.0	6.5	6.6
Germany	6.4	6.3	6.4
Greece	5.2	5.1	4.6
Ireland	5.7	6.3	5.3
Israel	5.2	4.6	4.5
Italy	5.6	5.8	4.9
Japan	4.9	4.4	4.4
Kazakhstan	5.4	5.3	5.0
Kyrgyzstan	3.9	3.8	4.9
Latvia	5.7	6.2	4.9
Luxembourg	5.5	6.0	5.1
Mexico	5.3	5.5	5.0
Netherlands	5.8	5.5	5.6
Panama	4.8	4.7	4.1
Peru	4.8	4.9	4.2
Poland	5.4	5.2	4.7
Portugal	6.2	6.1	6.0
Serbia	5.2	5.4	4.5
Slovenia	5.3	5.4	4.4
Spain	5.2	5.5	5.2
Sweden	6.1	6.0	5.1
Switzerland	6.2	6.5	6.3
Thailand	6.7	6.6	6.3
Türkiye	5.3	5.0	4.9
United Kingdom	5.9	5.7	6.3
United States	7.8	7.6	7.5
Uzbekistan	5.4	5.0	6.2
Region	Moped ( $\leq 50\text{cc}$ or $\leq 4\text{kW}$ )	Motorcycle ( $> 50\text{cc}$ or $> 4\text{kW}$ )	Be a passenger on a moped or motorcycle
<b>Europe22</b>	6.0	5.9	5.6
<b>America8</b>	7.0	6.6	6.1
<b>AsiaOceania6*</b>	6.1	6.0	5.8

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

According to Table 6, in all the examined countries, the safety perception scores for moped riders and motorcyclists do not exceed 8 points. This fact indicates that road users do not consider these transport modes to be safe enough. The lowest perceived safety scores for riders correspond to Kyrgyzstan (3.9 for mopeds and 3.8 for motorcycles), while the lowest scores for passengers are recorded in Armenia (3.3).

3.1.5 Personal acceptability

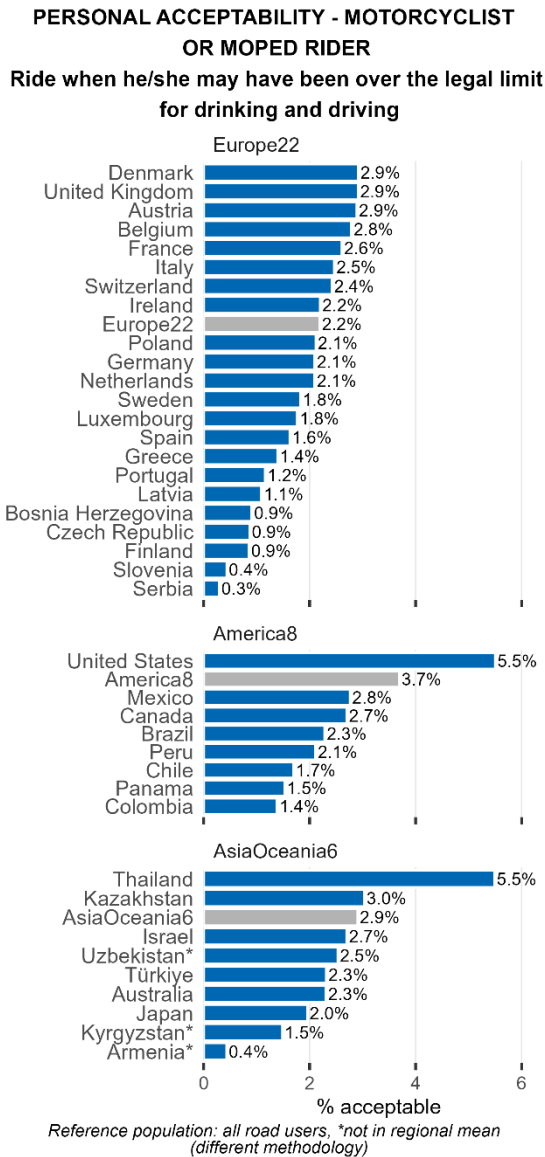


Figure 10 demonstrates that the results of road users considering it is acceptable for a moped rider or motorcyclist to ride when he/she may have been over the legal limit for drinking and driving vary from 2.2% in Europe to 3.7% in America. The rate for Asia-Oceania is 2.9%.

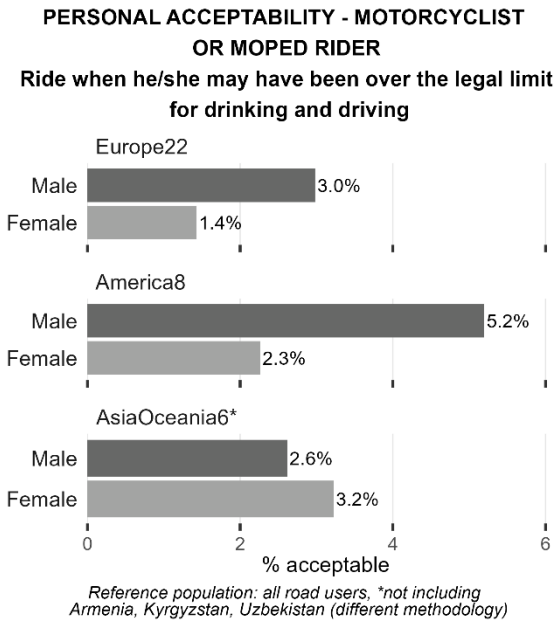
In Europe, the highest rates are recorded in Denmark, United Kingdom and Austria (2.9%). On the other hand, the lowest rates are reported in Serbia (0.3%), Slovenia (0.4%) and Finland (0.9%).

Among the eight American countries, the highest rates are found in United States (5.5%), while the lowest are recorded in Colombia and Panama (1.4% and 1.5% respectively).

Regarding the rates of Asia-Oceania, the highest rates are found in Thailand (5.5%), while the lowest rates are recorded in Armenia (0.4%).

Figure 10: Personal acceptability for riding when moped riders and motorcyclists may have been over the legal limit for drinking and driving by region and country.





The results are further split out by region and gender in Figure 11. As can be seen in this figure, the personal acceptability for a moped rider or motorcyclist to ride over the legal alcohol limit is higher for male road users in Europe and America, while the opposite is the case in the Asia-Oceania.

Figure 11: Personal acceptability for riding when moped riders and motorcyclists may have been over the legal limit for drinking and driving per region and gender.

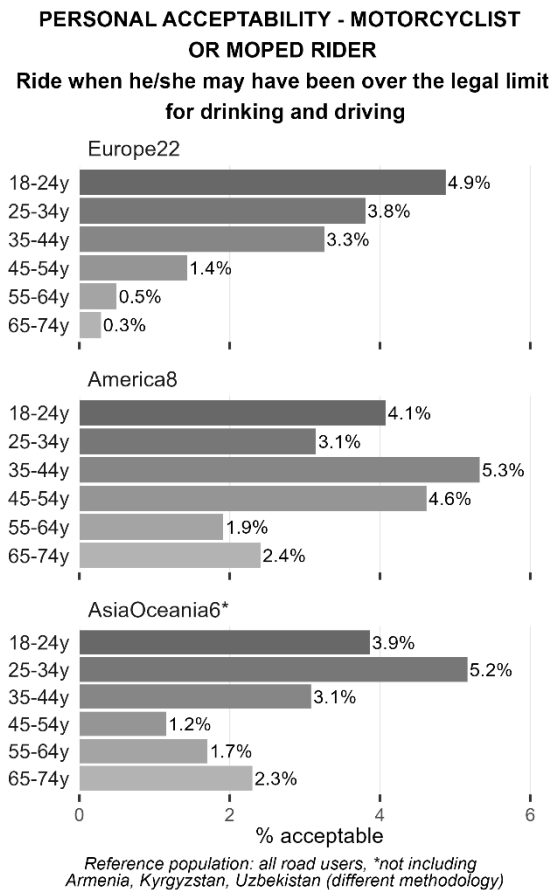


Figure 12 presents the results of road users considering it is acceptable for a moped rider or motorcyclist to ride when he/she may have been over the legal limit for drinking and driving per region and age group.

As can be clearly seen in Figure 12, people aged over 55 years accept this driver behaviour less than younger people (18-24 years old).

In Europe, the lowest rates are found among the age group 65-74 years old (0.3%).

In Asia-Oceania people aged 25-34 consider it is more acceptable for a moped rider or motorcyclist to ride when he/she may have been over the legal limit for drinking and driving than the other age groups.

Figure 12: Personal acceptability for riding when moped riders and motorcyclists may have been over the legal limit for drinking and driving per region and age group.

### PERSONAL ACCEPTABILITY - MOTORCYCLIST OR MOPED RIDER

Ride faster than the speed limit outside built-up areas (except motorways/freeways)

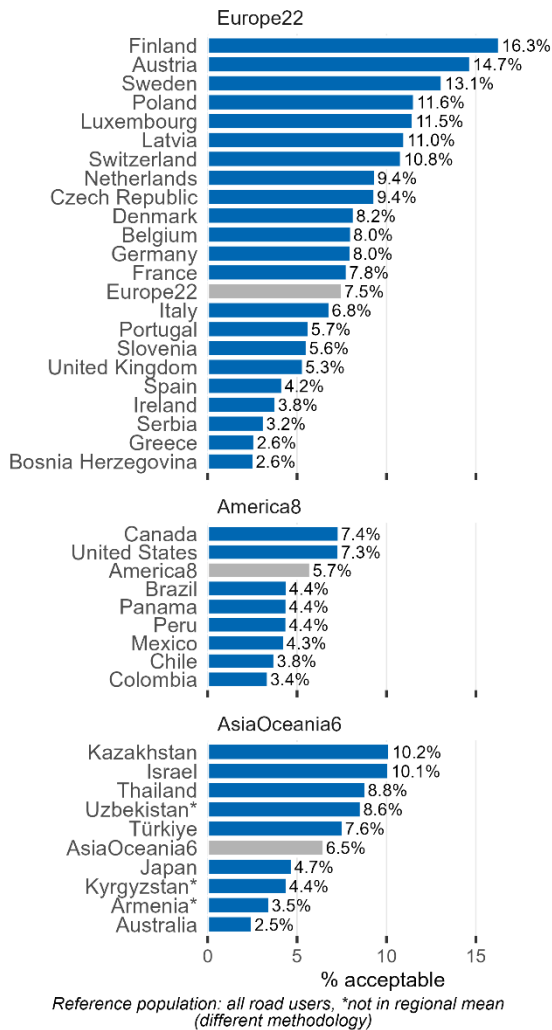


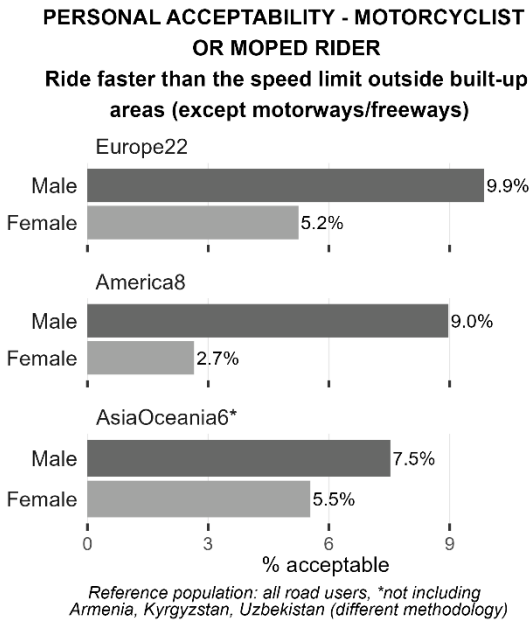
Figure 13 demonstrates that the results of people considering it is acceptable for a moped rider or motorcyclist to ride faster than the speed limit outside built-up areas (except motorways/freeways) vary from 5.7% in America to 7.5% in Europe. The rate for Asia-Oceania is 6.5%.

In Europe, the highest rates are recorded in Finland and Austria (16.3% and 14.7% respectively). On the other hand, the lowest rates are reported in Bosnia Herzegovina and Greece (2.6%).

Among the eight participating countries of America, the highest rates are found in Canada (7.4%) and the United States (7.3%), while the lowest are recorded in Colombia and Chile (3.4% and 3.8% respectively).

Regarding the rates of Asia-Oceania, the highest rates are found in Kazakhstan (10.2%), while the lowest rates are recorded in Australia (2.5%).

Figure 13: Personal acceptability for riding a moped or motorcycle faster than the speed limit outside built-up areas (except motorways/freeways).



The results are further split out by region and gender in Figure 14. As can be observed in this figure, the personal acceptability for a moped rider or motorcyclist to ride faster than the speed limit outside built-up areas (except motorways/freeways) in all examined regions is higher for male road users than females.

Figure 14: Personal acceptability for riding a moped or motorcycle faster than the speed limit outside built-up areas (except motorways/freeways) per region and gender.

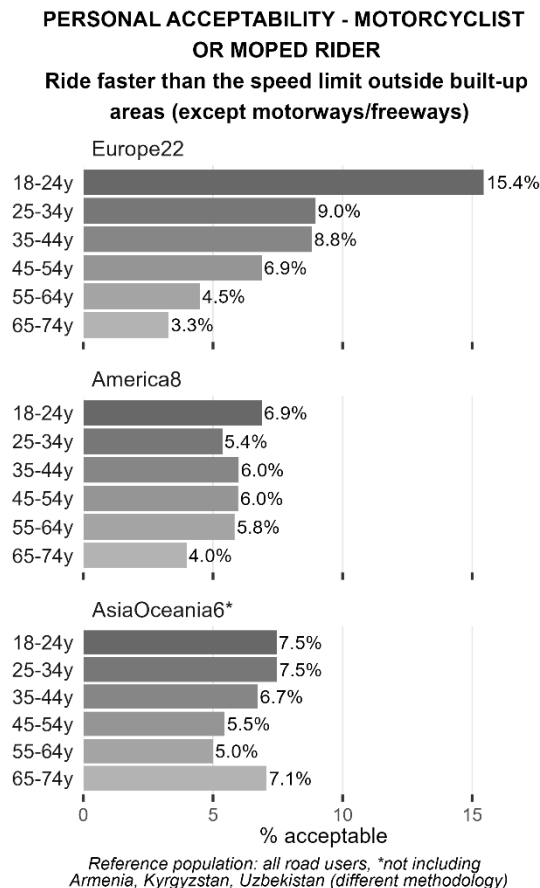


Figure 15 presents the results of road users considering it is acceptable for a moped rider or motorcyclist to ride faster than the speed limit outside built-up areas (except motorways/freeways) per region and age group.

As can be clearly seen in Figure 15, people aged 18 to 24 years accept more this driver behaviour than older people.

In Europe and America, the lowest rates are found among the age group 65-74 years old (3.3% and 4.0% respectively).

In Asia-Oceania people aged 55-64 consider this behaviour less acceptable than the other age groups.

Figure 15: Personal acceptability for riding a moped or motorcycle faster than the speed limit outside built-up areas (except motorways/freeways) per region and age group.

### PERSONAL ACCEPTABILITY - MOTORCYCLIST OR MOPED RIDER

#### Not wear a helmet on a moped or motorcycle

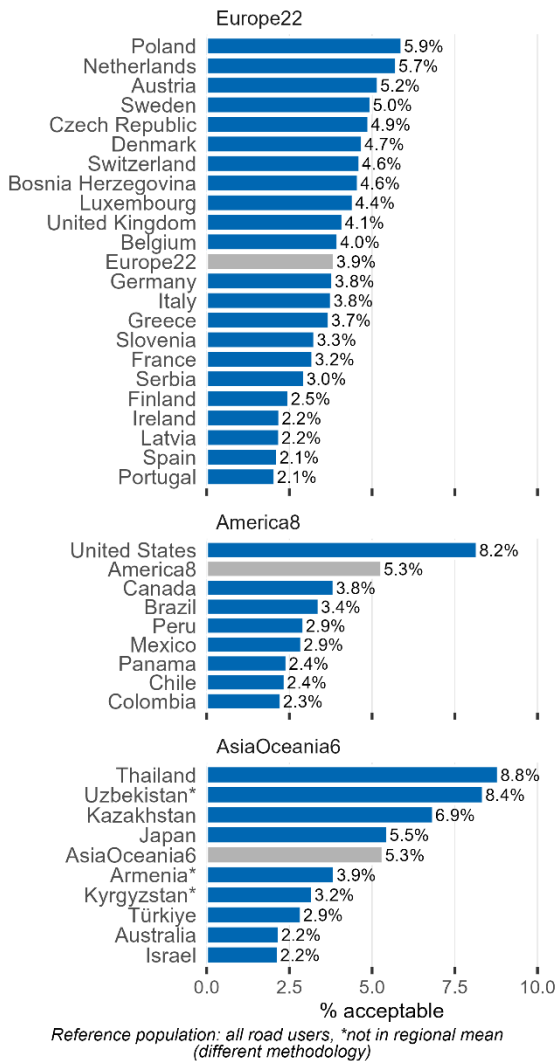


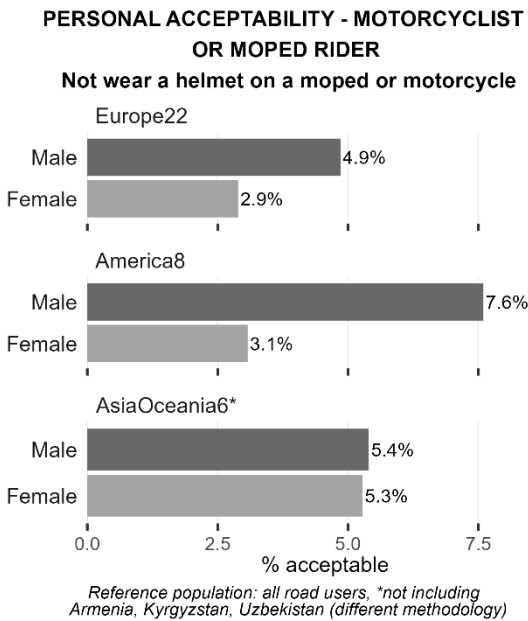
Figure 16 demonstrates that the results of road users considering it is acceptable for a moped rider or motorcyclist not to wear a helmet vary from 3.9% in Europe to 5.3% in America and Asia-Oceania.

In Europe, the highest rates are recorded in Poland and the Netherlands (5.9% and 5.7% respectively). On the other hand, the lowest rates are reported in Portugal and Spain (2.1%).

Among the eight participating countries of America, the highest rates are found in the United States (8.2%), while the lowest are recorded in Colombia (2.3%).

Regarding the rates of countries in Asia-Oceania, the highest rates are found in Thailand (8.8%), while the lowest rates are recorded in Israel and Australia (2.2%).

Figure 16: Personal acceptability of not wearing a helmet on a moped or motorcycle per region and country.



The results are further split out by region and gender in Figure 17. As can be seen in this figure, the personal acceptability of not wearing a helmet while riding a moped or motorcycle varies between females and males across all examined regions except for Asia-Oceania where the percentages are similar.

Figure 17: Personal acceptability of not wearing a helmet on a moped or motorcycle per region and gender.

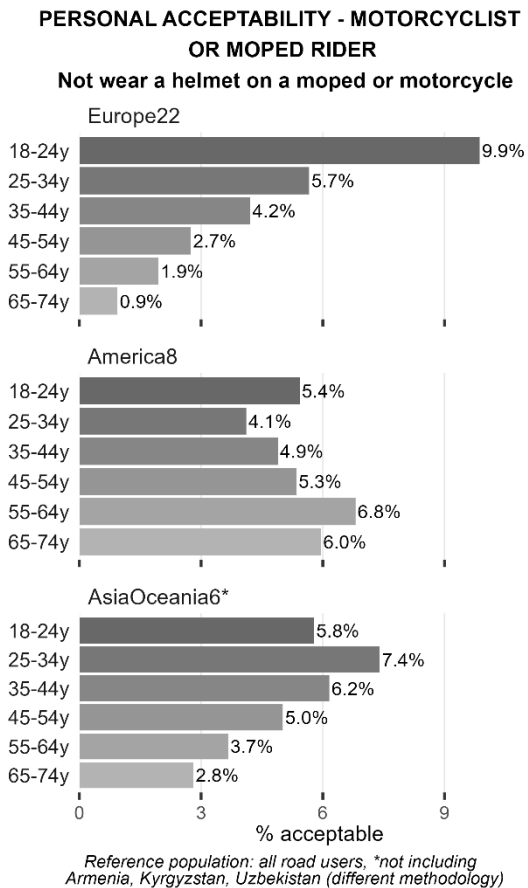


Figure 18 presents the results of road users considering it is acceptable for a moped rider or motorcyclist not to wear a helmet per region and age group.

As can be clearly seen in Figure 18, younger people accept this driver behaviour more than older people.

In Europe, the lowest rates are found among the age group 65-74 years old (0.9%).

In Asia-Oceania people aged 25-34 record the highest rates, while the lowest rates are recorded for this age group in America.

Figure 18: Personal acceptability of not wearing a helmet on a moped or motorcycle per region and age group.

**PERSONAL ACCEPTABILITY - MOTORCYCLIST  
OR MOPED RIDER**

**Read a message or check social media/news while riding**

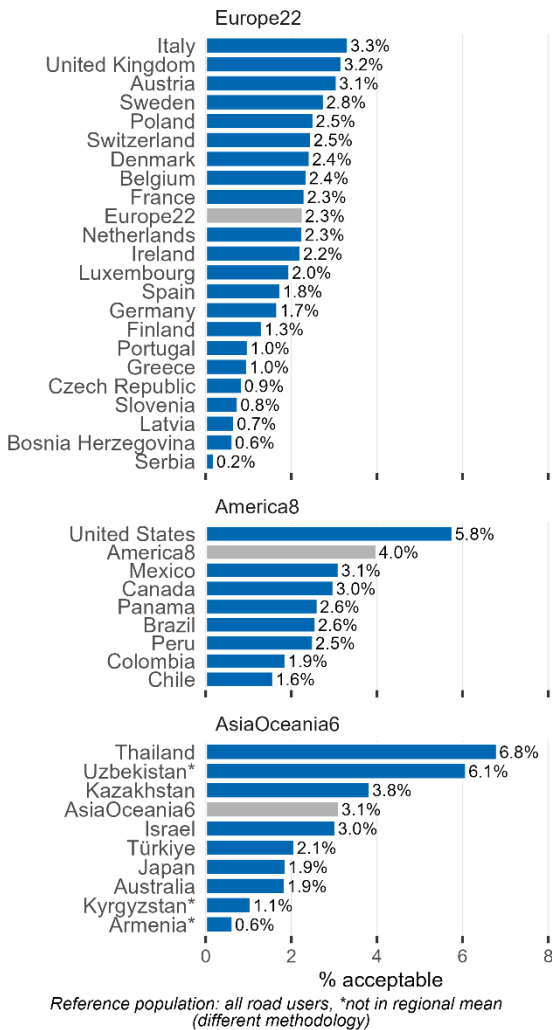


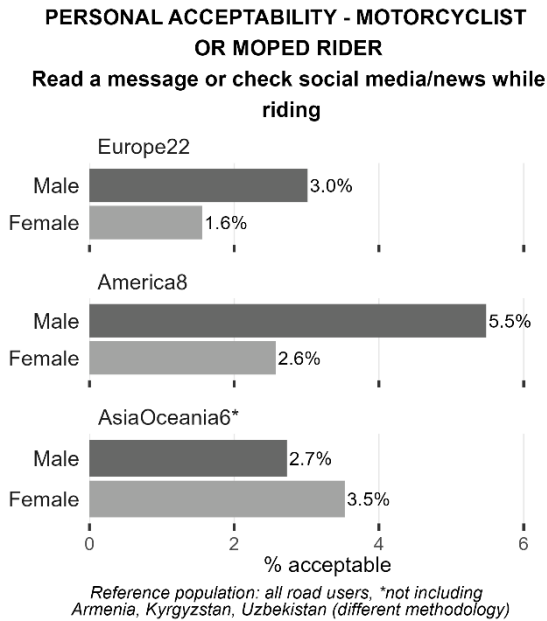
Figure 19 demonstrates that the results of people considering it is acceptable for a moped rider or motorcyclist to read a message or check social media/news while riding vary from 2.3% in Europe to 4.0% in America. The respective rate for Asia-Oceania is 3.1%.

In Europe, the highest rates are recorded in Italy and the United Kingdom (3.3% and 3.2% respectively). On the other hand, the lowest rates are reported in Serbia (0.2%).

Among the eight participating countries of America, the highest rates are found in the United States (5.8%), while the lowest are recorded in Chile (1.6%).

Regarding the rates of Asia-Oceania, the highest rates are found in Thailand (6.8%), while the lowest rates are recorded in Armenia (0.6%).

Figure 19: Personal acceptability of reading a message or check social media/news while riding per region and country.



The results are further split out by region and gender in Figure 20. As can be seen in this figure, the personal acceptability of reading a message or checking social media/news while riding is higher for males than females in Europe and America, while the opposite can be observed in Asia-Oceania.

Figure 20: Personal acceptability of reading a message or checking social media/news while riding per region and gender.

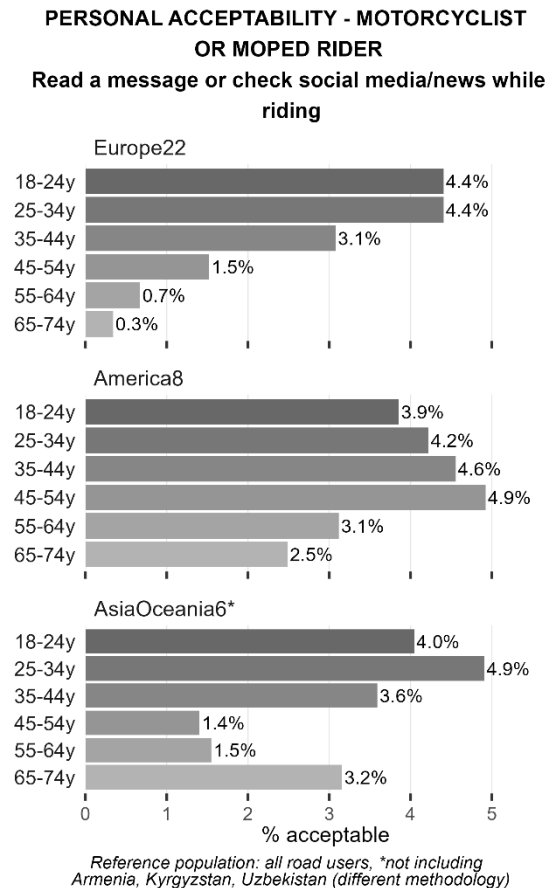


Figure 21 presents the results of road users considering it is acceptable for a moped rider or motorcyclist to read a message or check social media/news while riding.

As can be clearly seen in Figure 21, younger people tend to accept this driver behaviour more than older people.

In Europe and America, the lowest acceptability rates are found among the age group 65-74 years old (0.3% and 2.5% respectively).

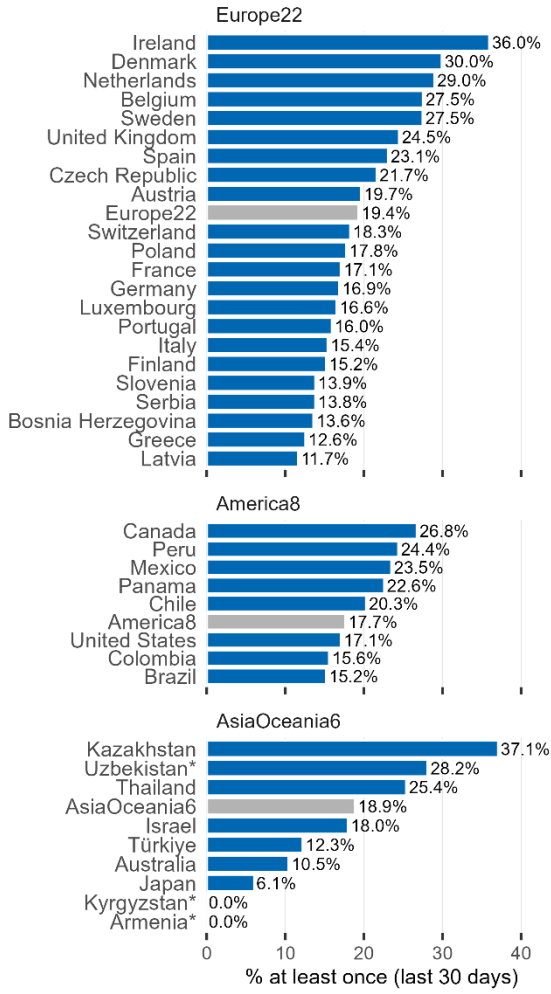
In Asia-Oceania people aged 45-54 record the lowest rates, while the highest rates are recorded for this age group in America (1.4%).

Figure 21: Personal acceptability of reading a message or checking social media/news while riding per region and age group.



3.1.6 Self-Declared Behaviour

**SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER**  
**Ride when you may have been over the legal limit for drinking and driving**



Reference population: motorcyclists and moped riders at least a few days a month, \*not in regional mean (different methodology)

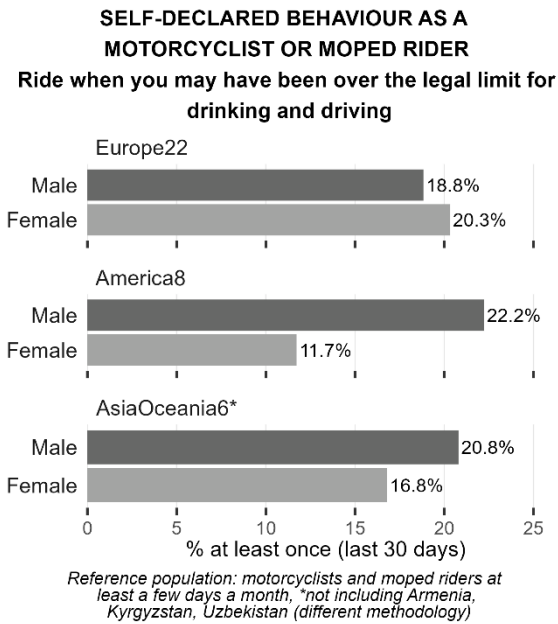
Figure 22 demonstrates that the self-declared behaviour for a moped rider or motorcyclist to ride when he/she may have been over the legal limit for drinking and driving varies from 17.7% in America to 19.4% in Europe. The rate for Asia-Oceania is 18.9%.

In Europe, the highest rates are recorded in Ireland (36%). On the other hand, the lowest rates are reported in Latvia (11.7%) and Greece (12.6%).

Among the eight participating countries of America, the highest rates are found in Canada (26.8%), while the lowest are recorded in Brazil and Colombia (15.2% and 15.6% respectively).

Regarding the rates of Asia-Oceania, the highest rates are found in Kazakhstan (37.1%), while the lowest rates are recorded in Armenia and Kyrgyzstan (0.0%).

Figure 22: Self-declared drink and riding by moped riders and motorcyclists per region and country (% of moped riders and motorcyclists that did it at least once in the past 30 days).



The results are further split out by region and gender in Figure 23. As can be seen in this figure, self-declared drink and riding in the past 30 days is higher for males in America and Asia-Oceania, while the opposite is the case in Europe.

Figure 23: Self-declared drink and driving by moped riders and motorcyclists per region and gender (% of moped riders and motorcyclists that did it at least once in the past 30 days).

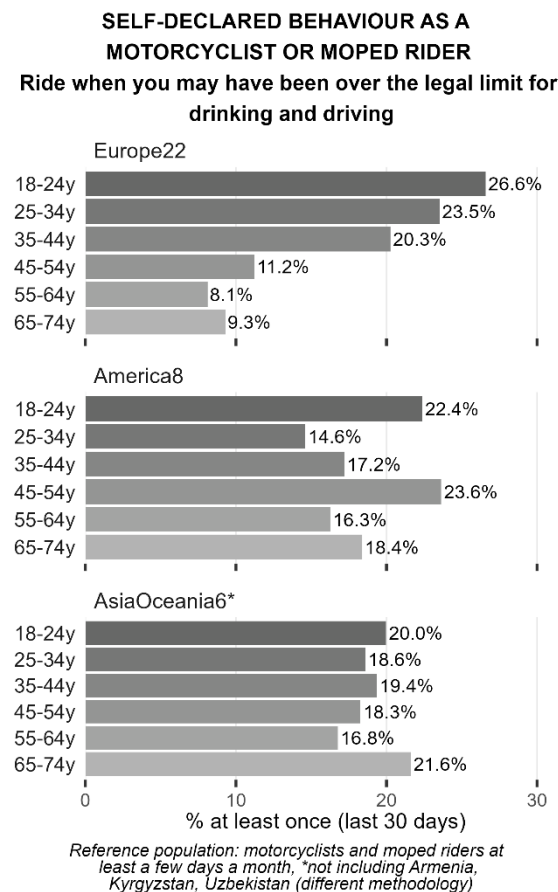


Figure 24 presents the results of moped riders and motorcyclists for self-declared drink and riding in the past 30 days per world region and age group.

A comparable pattern cannot be observed for drink and riding among the different age groups in the three world regions.

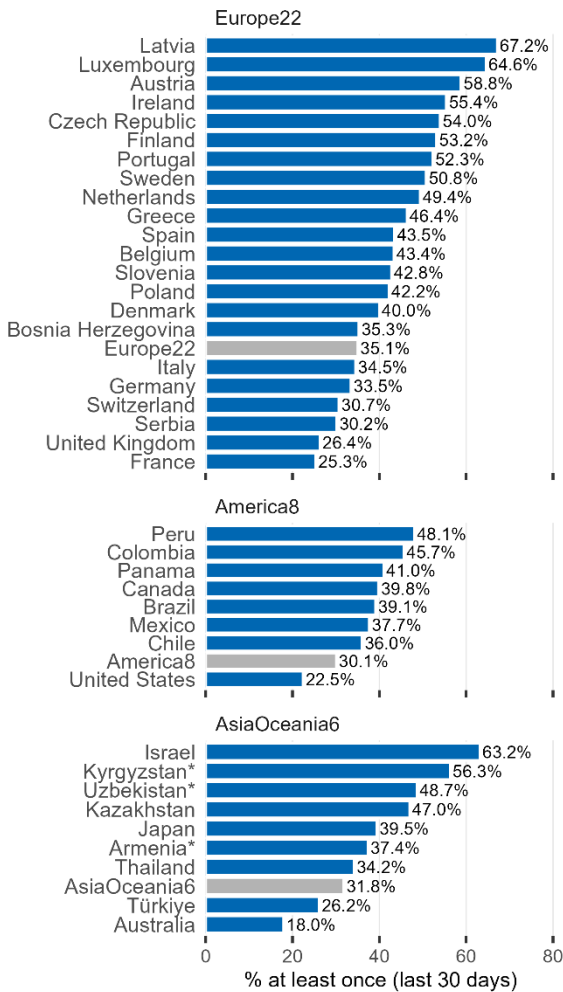
In Europe, the highest rates are found among the youngest riders, aged 18 to 24 (26.6%) and the lowest rates are found among the age group 55 to 64 (8.1%).

Contrary to Europe, in America the highest rates for self-declared drink and driving are reported for riders aged 45 to 54 years (23.6%).

In Asia-Oceania, rates are not much different between age groups. Moped riders and motorcyclists aged 65-74 report drink and riding more frequently (21.6%) than the other age groups.

Figure 24: Self-declared drink and driving by moped riders and motorcyclists per region and age group (% of moped riders and motorcyclists that did it at least once in the past 30 days).

**SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER**  
**Ride faster than the speed limit outside built-up areas (except motorways/freeways)**



Reference population: motorcyclists and moped riders at least a few days a month, \*not in regional mean (different methodology)

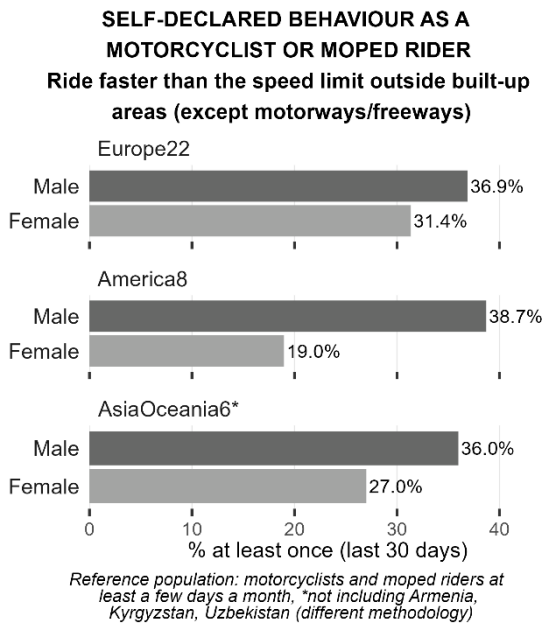
Figure 25 demonstrates that the rates of moped riders and motorcyclists who admit to speeding outside built-up areas (except motorways/freeways) vary from 30.1% in America to 35.1% in Europe. The respective rate for Asia-Oceania is 31.8%.

In Europe, the highest rates are recorded in Latvia and Luxembourg (67.2% and 64.6% respectively). On the other hand, the lowest rates are reported in France and the United Kingdom (25.3% and 26.4% respectively).

Among American countries, the highest rates are found in Peru (48.1%) and Colombia (45.7%), while the lowest are recorded in the United States (22.5%).

Regarding the rates of Asia-Oceania, the highest rates are found in Israel (63.2%), while the lowest rates are recorded in Australia (18.0%).

Figure 25: Self-declared speeding outside built-up areas (except motorways/freeways) by moped riders and motorcyclists per region and country (% of moped riders and motorcyclists that did it at least once in the past 30 days).



The results are further split out by region and gender in Figure 26. As can be seen in this figure, in all examined world regions self-declared speeding rates are higher for male moped riders and motorcyclists.

Figure 26: Self-declared speeding outside built-up areas (except motorways/freeways) by moped riders and motorcyclists per region and gender (% of moped riders and motorcyclists that did it at least once in the past 30 days).

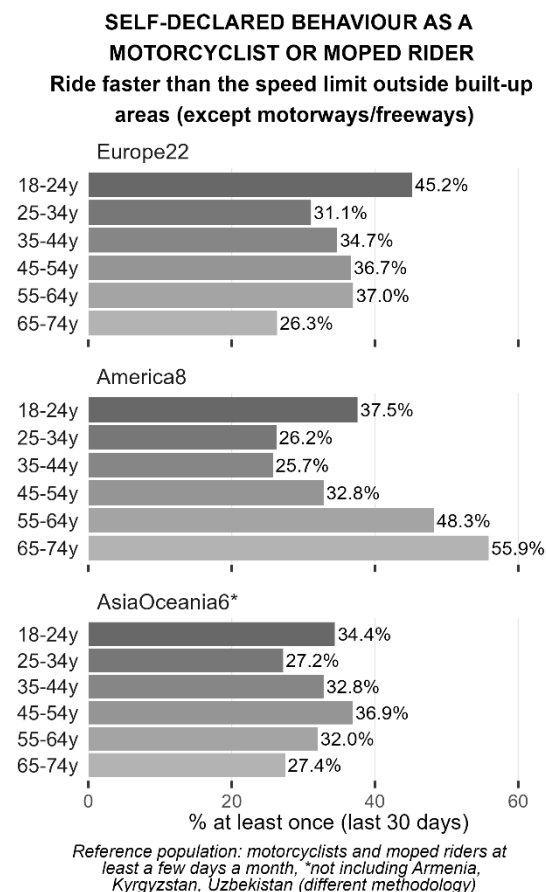


Figure 27 presents the results of self-declared speeding outside built-up areas, but not on motorways/freeways, per region and age group.

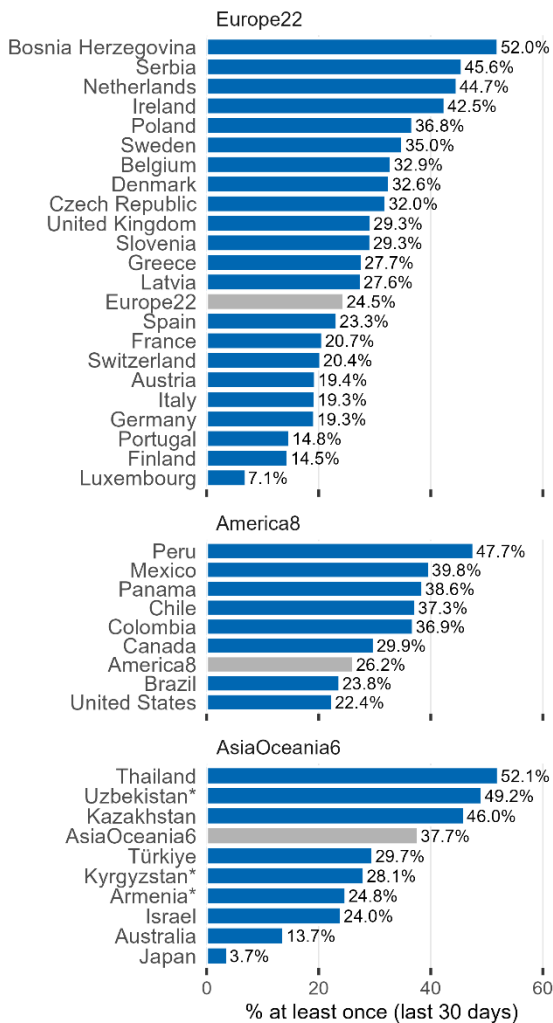
As can be clearly seen in Figure 27, in Europe people aged 18 to 24 years ride faster than the speed limit outside built-up areas (45.2%) than older people.

Contrary to Europe, in America the highest rates are found among older people and more specifically for the age group 65-74 years old (55.9%).

In Asia-Oceania, the distribution is similar among all age groups with a higher rate of moped riders and motorcyclists aged 45 to 64 years and a lower rate of riders in the age group 25-34.

Figure 27: Self-declared speeding outside built-up areas (except motorways/freeways) by moped riders and motorcyclists per region and age group (% of moped riders and motorcyclists that did it at least once in the past 30 days).

**SELF-DECLARED BEHAVIOUR AS A  
MOTORCYCLIST OR MOPED RIDER**  
**Ride without a helmet**



Reference population: motorcyclists and moped riders at least a few days a month, \*not in regional mean (different methodology)

Figure 28 shows that the results of moped riders and motorcyclists for self-declared behaviour of riding without a helmet vary from 24.5% in Europe to 37.7% in Asia-Oceania. The respective rate for America is 26.2%.

In Europe, the highest rates are recorded in Bosnia Herzegovina and Serbia (52.0% and 45.6% respectively). On the other hand, the lowest rates are reported in Luxembourg (7.1%).

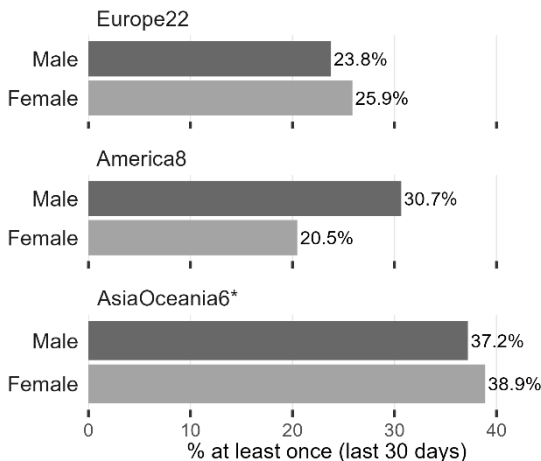
Among the eight participating countries of America, the highest rates are found in Peru (47.7%), while the lowest are recorded in the United States (22.4%).

Regarding the rates of Asia-Oceania, the highest rates are found in Thailand (52.1%), while the lowest rates are recorded in Japan (3.7%).

Figure 28: Self-declared behaviour of riding without a helmet by moped riders and motorcyclists per region and country (% of moped riders and motorcyclists that did it at least once in the past 30 days).

**SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER**

**Ride without a helmet**



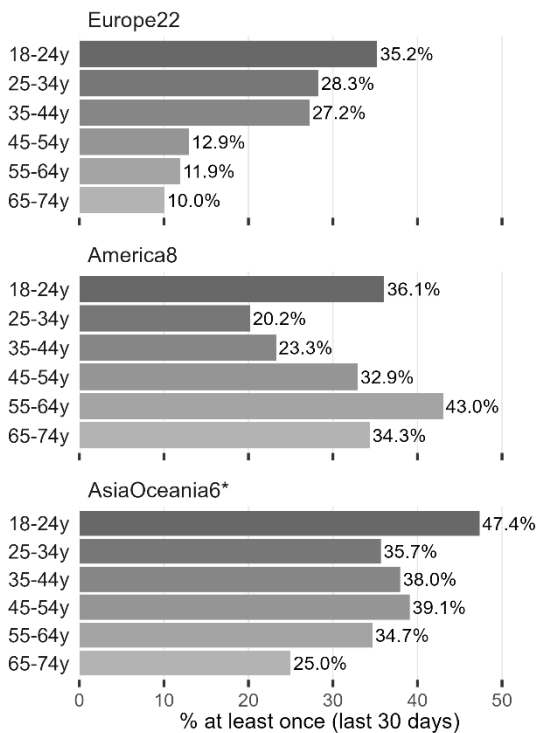
Reference population: motorcyclists and moped riders at least a few days a month, \*not including Armenia, Kyrgyzstan, Uzbekistan (different methodology)

The results are further split out by region and gender in Figure 29. As can be seen in this figure, with respect to self-declared behaviour of riding without a helmet, in all examined world regions apart from America, female riders record higher non-helmet use rates than males.

Figure 29: Self-declared behaviour of riding without a helmet by moped riders and motorcyclists per region and gender (% of moped riders and motorcyclists that did it at least once in the past 30 days).

**SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER**

**Ride without a helmet**



Reference population: motorcyclists and moped riders at least a few days a month, \*not including Armenia, Kyrgyzstan, Uzbekistan (different methodology)

Figure 30 presents the results of self-declared behaviour of riding without a helmet per region and age group.

As can be clearly seen in Figure 30, the self-declared behaviour of riding without a helmet is higher among the younger aged moped riders and motorcyclists than among older age groups in Europe and in Asia-Oceania.

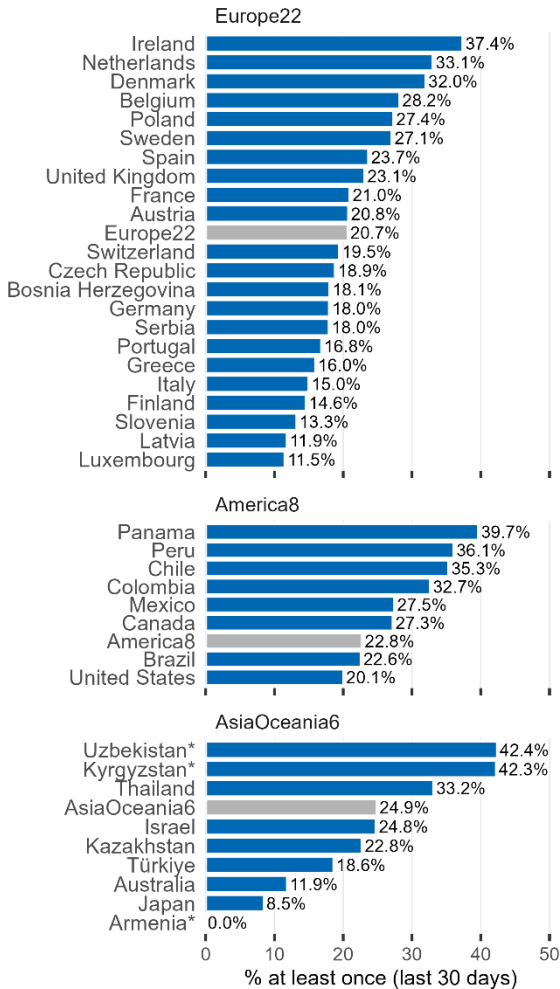
In Europe, the highest rates are found among the age group 18-24 years old (35.2%), while in America the highest rates are recorded for the age group 55-64 (43.0%).

In Asia-Oceania, as in Europe, people aged 18-24 record the highest rates of self-declared riding without wearing a helmet (47.4%).

Figure 30: Self-declared behaviour of riding without a helmet by moped riders and motorcyclists per region and age group (% of moped riders and motorcyclists that did it at least once in the past 30 days).

### SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER

Read a message or check social media/news while riding



Reference population: motorcyclists and moped riders at least a few days a month, \*not in regional mean (different methodology)

Figure 31 demonstrates that the results for self-declared behaviour of reading a text message/email or check social media while riding vary from 20.7% in Europe to 24.9% in Asia-Oceania. The respective rate for America is 22.8%.

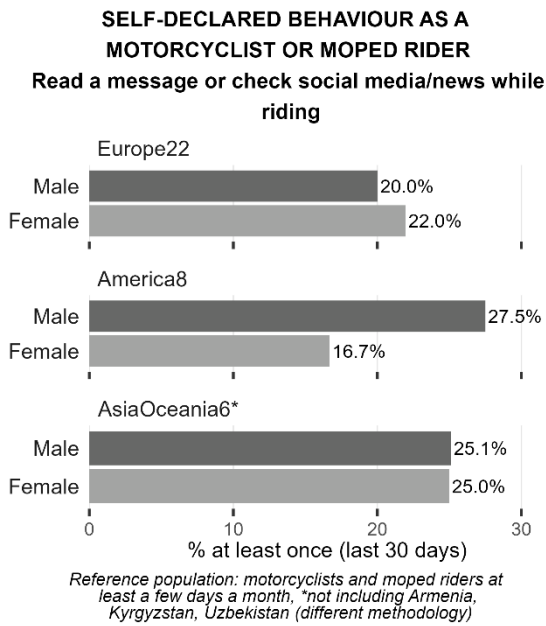
In Europe, the highest rates are recorded in Ireland and the Netherlands (37.4% and 33.1% respectively). On the other hand, the lowest rates are reported in Luxembourg (11.5%).

Among the American countries, the highest rates are found in Panama (39.7%), while the lowest are recorded in the United States (20.1%).

Regarding the rates of Asia-Oceania, the highest rates are found in Uzbekistan (42.4%), while the lowest rates are recorded in Armenia (0.0%).

Figure 31: Self-declared behaviour of reading a message or check social media/news while riding per region and country (% of moped riders and motorcyclists that did it at least once in the past 30 days).





The results are further split out by region and gender in Figure 32. As can be seen in this figure, with respect to self-declared behaviour of reading a text message/email or checking social media while riding, the rates of female moped riders and motorcyclists reporting such behaviour are slightly higher than the respective rates of males in Europe. On the contrary, in America, significantly higher rates correspond to male riders when compared to female riders. Lastly, in Asia-Oceania the percentages for the two gender groups are almost equal.

Figure 32: Self-declared behaviour of reading a message or check social media/news while riding per region and gender (% of moped riders and motorcyclists that did it at least once in the past 30 days).

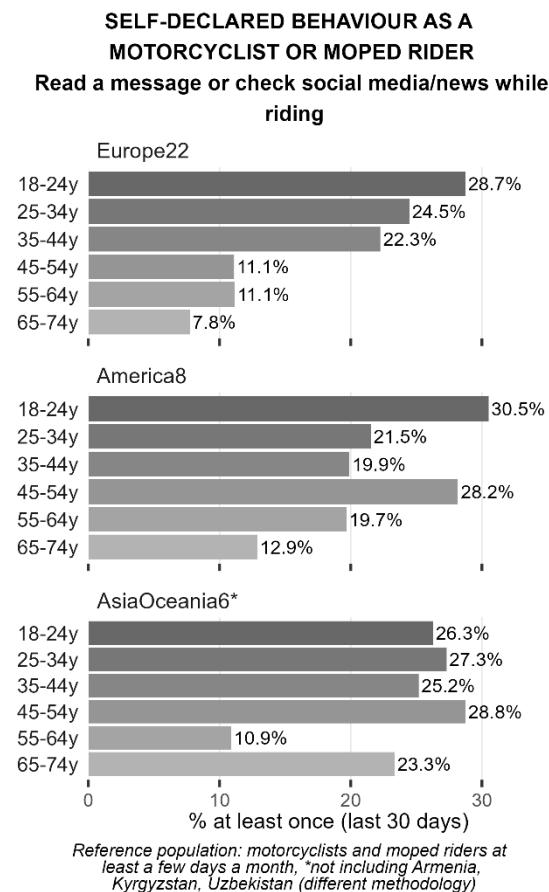


Figure 33 presents the results of self-declared behaviour of reading a message or checking social media/news while riding a moped or a motorcycle per region and age group.

As can be clearly seen in Figure 33, the self-declared behaviour of reading a text message/email or checking social media while riding by Europeans is higher among the younger aged riders than among older age groups. The highest rates are found among the moped riders and motorcyclists aged 18 to 24 (28.7%).

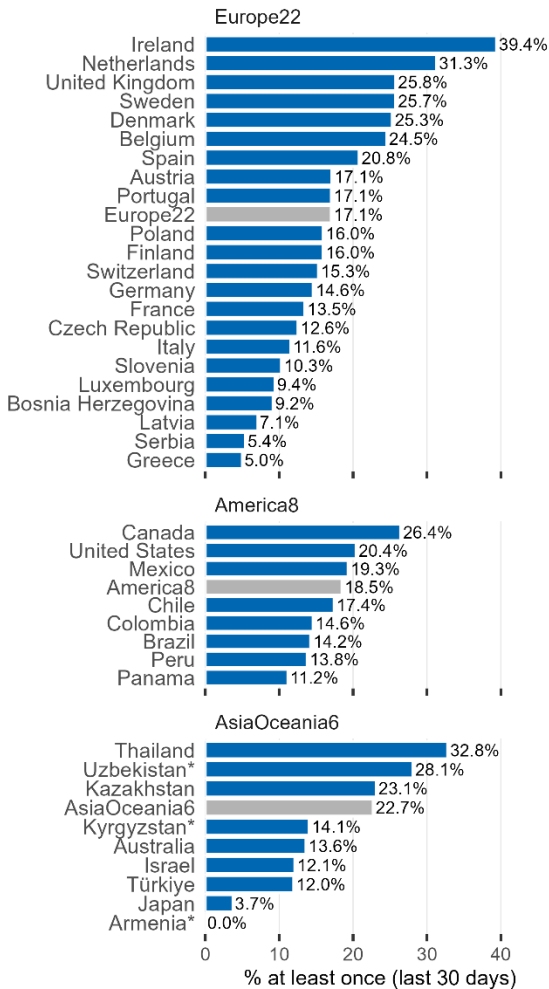
In America, as in Europe, the highest rates are found among the age group 18-24 years old (30.5%).

In Asia-Oceania, the self-declared rates are not much different among young and older age groups. In this region, the respective rates are the highest for moped riders and motorcyclists aged 45-54 (28.8%).

Figure 33: Self-declared behaviour of reading a message or check social media/news while riding per region and age group (% of moped riders and motorcyclists that did it at least once in the past 30 days).



**SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER**  
**Ride within 1 hour after taking drugs (other than prescribed or over the counter medication)**



Reference population: motorcyclists and moped riders at least a few days a month, \*not in regional mean (different methodology)

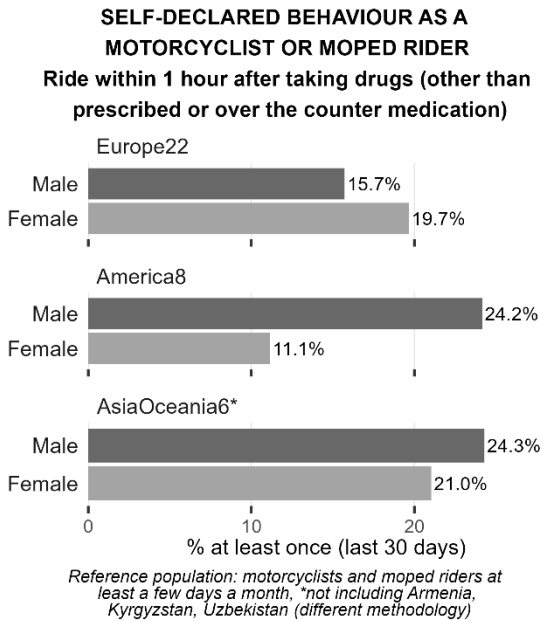
Figure 34 demonstrates that the results for self-declared behaviour of riding within 1 hour after taking drugs (other than prescribed or over the counter medication) vary from 17.1% in Europe to 22.7% in Asia-Oceania. The respective rate for America is 18.5%.

In Europe, the highest rates are recorded in Ireland and the Netherlands (39.4% and 31.3% respectively). On the other hand, the lowest rates are reported in Greece (5%).

Among the American countries, the highest rates are found in Canada (26.4%), while the lowest are recorded in Panama (11.2%).

Regarding the rates of Asia-Oceania, the highest rates are found in Thailand (32.8%), while the lowest rates are recorded in Armenia (0.0%).

Figure 34: Self-declared behaviour of riding within 1 hour after taking drugs (other than prescribed or over the counter medication) per region and country (% of moped riders and motorcyclists that did it at least once in the past 30 days).



The results are further split out by region and gender in Figure 35. As can be seen in this figure, with respect to self-declared behaviour of riding within 1 hour after taking drugs, in all the examined regions with the exception of Europe, the rates of male moped riders and motorcyclists are higher than the respective rates of females.

Figure 35: Self-declared behaviour of riding within 1 hour after taking drugs (other than prescribed or over the counter medication) per region and gender (% of moped riders and motorcyclists that did it at least once in the past 30 days).

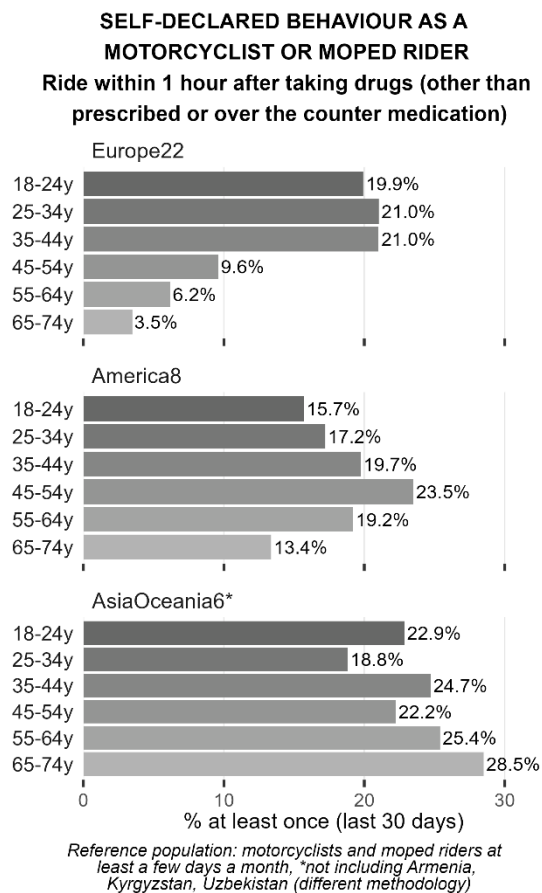


Figure 36 presents the results of self-declared behaviour of riding within 1 hour after taking drugs per region and age group.

As can be clearly seen in Figure 36, the self-declared behaviour of riding within 1 hour after taking drugs by European moped riders and motorcyclists is higher among the younger aged riders than among older age groups. The highest rates are found among people aged 25 to 44 (21%).

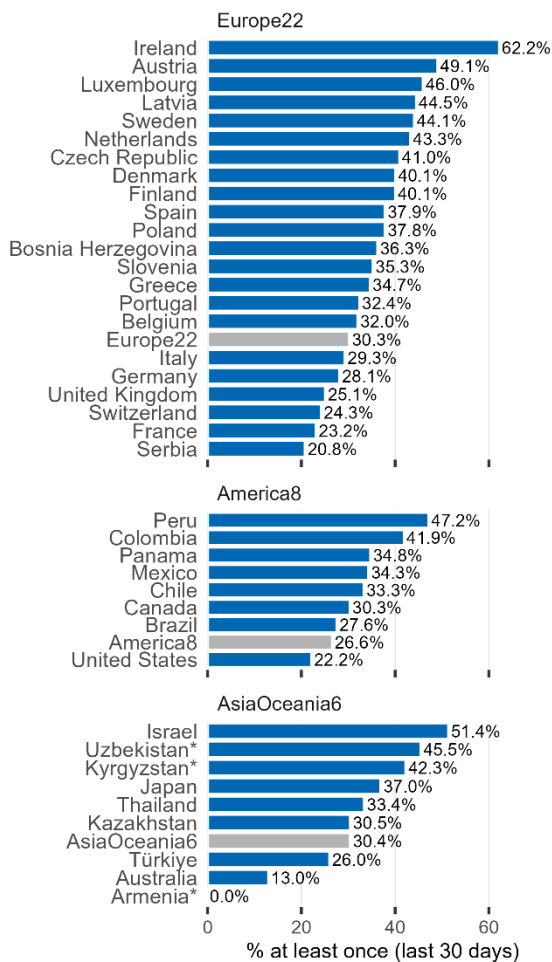
In addition, in America the highest rates are found among the age group 45-54 years old (23.5%).

Contrary to the other regions, in Asia-Oceania, the self-declared rates are not much different among younger and older age groups. In this region, the respective rates are the highest for respondents aged 65-74 (28.5%).

Figure 36: Self-declared behaviour of riding within 1 hour after taking drugs (other than prescribed or over the counter medication) per region and age group (% of moped riders and motorcyclists that did it at least once in the past 30 days).

### SELF-DECLARED BEHAVIOUR AS A MOTORCYCLIST OR MOPED RIDER

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



Reference population: motorcyclists and moped riders at least a few days a month, \*not in regional mean (different methodology)

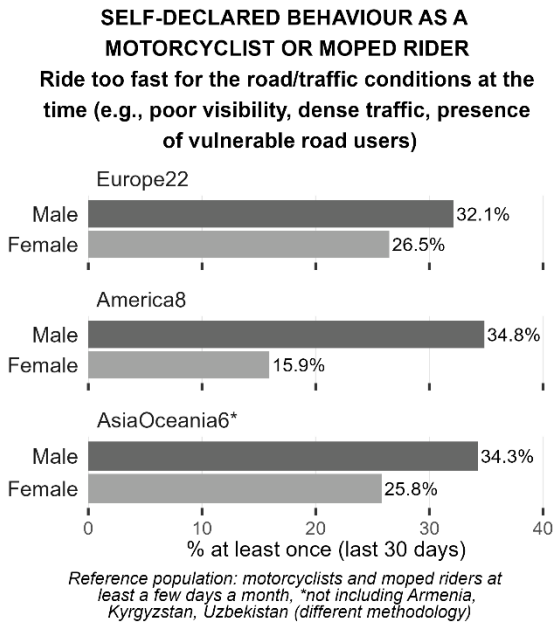
Figure 37 demonstrates that the results for self-declared behaviour of riding too fast for the road/traffic conditions at the time vary from 26.6% in America to 30.4% in Asia-Oceania. The respective rate for Europe is 30.3%.

In Europe, the highest rates are recorded in Ireland and Austria (62.2% and 49.1% respectively). On the other hand, the lowest rates are reported in Serbia (20.8%).

Among the American countries, the highest rates are found in Peru (47.2%), while the lowest are recorded in the United States (22.2%).

Regarding the rates of Asia-Oceania, the highest rates are found in Israel (51.4%), while the lowest rates are recorded in Armenia (0.0%).

Figure 37: Self-declared behaviour of riding too fast for road/traffic conditions at the time (e.g. poor visibility, dense traffic, presence of vulnerable road users) per region and country (% of moped riders and motorcyclists that did it at least once in the past 30 days).



The results are further split out by region and gender in Figure 38. As can be seen in this figure, with respect to self-declared behaviour of riding too fast for road/traffic conditions at the time, in all the examined regions, the rates of male moped riders and motorcyclists are higher than the respective rates of females.

Figure 38: Self-declared behaviour of riding too fast for road/traffic conditions at the time (e.g. poor visibility, dense traffic, presence of vulnerable road users) per region and gender (% of moped riders and motorcyclists that did it at least once in the past 30 days).

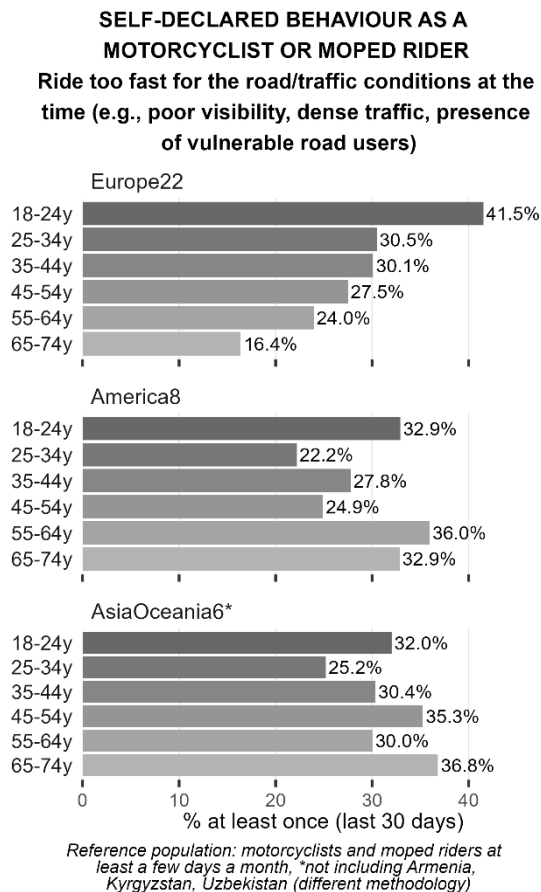


Figure 39 presents the results of self-declared behaviour of riding too fast for the road/traffic conditions at the time per region and age group.

As can be clearly seen in Figure 39, the self-declared behaviour of riding too fast for the road/traffic conditions at the time by Europeans is higher among the younger aged moped riders and motorcyclists than among older age groups. The highest rates are found among the youngest respondents, aged 18 to 24 (41.5%).

In addition, in America the highest rates are found among the age group of 55-64 years old (36.0%).

Contrary to the other regions, in Asia-Oceania, the self-declared rates are not much different among younger and older age groups. In this region, the respective rates are the highest for moped riders and motorcyclists aged 65-74 (36.8%).

Figure 39: Self-declared behaviour of riding too fast for road/traffic conditions at the time (e.g. poor visibility, dense traffic, presence of vulnerable road users) per region and age group (% of moped riders and motorcyclists that did it at least once in the past 30 days).

### 3.2 Advanced Analysis

In this report the mixed effects logistic regression model approach under the generalized linear mixed models (GLMMs) framework was used. This approach has been also followed by Nikolaou et al. (2023) in order to analyze factors associated with pedestrians' unsafe self-declared behaviours using ESRA2 data. GLMMs are an extension of linear mixed models that allow dependent variables from different distributions, such as binary responses. Mixed effects logistic regression is used to model binary outcome variables, in which the log odds of the outcomes are modeled as a linear combination of the independent variables when there are both fixed and random effects.

The following equation shows the general matrix form of the model:

$$y = X\beta + Zu + \varepsilon \quad (1)$$

Where:

$y$  is a  $N \times 1$  column vector containing the outcome variable,

$X$  is a  $N \times p$  matrix containing the  $p$  predictor variables,

$\beta$  is a  $p \times 1$  column vector of the fixed-effects regression coefficients,

$Z$  is the  $N \times q$  design matrix for the  $q$  random effects (the random complement to the fixed  $X$ ),

$u$  is a  $q \times 1$  vector of the random effects (the random complement to the fixed  $\beta$ ),

$\varepsilon$  is a  $N \times 1$  column vector of the residuals, i.e. the error terms.

The adjusted odds ratio (OR) is a helpful measure of association between the independent variable and an outcome, which is often used to ease interpretation. In particular, the odds ratio is the ratio of odds of the event occurring given  $X = 0$  and  $X = 1$ . Taking the anti-log of the regression coefficient, the odds ratio can be provided. An odds ratio higher than one demonstrates a positive association between the dependent and explanatory variables, while value less than one indicates a negative relationship between them. An odds ratio, which is equal to one, shows that there is no association among the variables.

The corrected Akaike Information Criterion (AICc), which accounts and corrects for the number of included independent variables, is used for the process of model selection between models with different combination of explanatory variables. It is important to mention that the extra value of any random effects is assessed by conducting a custom ANOVA between the fixed effects binary Generalized Linear Model (GLM) and any formulated GLMMs.

The present analysis was conducted in R-studio with lme4 package following Bates et al. (2008).

## 3.2.1 Factors associated with self-declared drink and riding

Possible factors affecting self-declared drink and riding are presented in Table 7.

Table 7: Logistic regression model for drink and riding in the last 30 days.

Independent variable (reference category)	Dependent variable: self-declared behaviour (past 30 days) – <b>ride when you may have been over the legal limit for drinking and driving</b> {0=never; 1=at least once}				
	Beta Estimate	S.E.	z-value	P(>[z])	Adj. Odds Ratio
(Intercept)	-1.057	0.090	-11.707	<b>&lt;0.001</b>	-
<b>Gender</b> (ref: Male)					
<b>Female</b>	-0.257	0.079	-3.261	<b>0.001</b>	0.773
<b>Age</b> (ref: 18-34)					
<b>35-54</b>	-0.178	0.077	-2.293	<b>0.022</b>	0.837
<b>55-74</b>	-0.590	0.126	-4.692	<b>&lt;0.001</b>	0.554
<b>Do you oppose or support the legal obligation of forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0% (zero tolerance)</b> (ref: oppose)					
<b>Support</b>	-0.822	0.075	-10.995	<b>&lt;0.001</b>	0.440
<b>How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to ...? ride when he/she may have been over the legal limit for drinking and driving</b> (ref: unacceptable)					
<b>Acceptable</b>	2.931	0.129	22.806	<b>&lt;0.001</b>	18.746

The fixed effects results of the first model indicate that women are 23% less likely to report being over the legal limit for drinking and driving when compared to men (OR=0.77). Furthermore, moped riders and motorcyclists aged over 35 years old are less likely to commit such behaviour compared to people aged 18-34 (35-54: OR= 0.84, 55-74: OR= 0.55). Moped riders and motorcyclists who support the legal obligation of forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0% (zero tolerance) are 56% less likely to report self-declared drinking and riding than people who oppose to this statement. Overall, respondents who believe that this behaviour is acceptable are almost 19 times more likely to commit such behaviour.

The visual representation of the countries' random intercepts for the dependent variable of self-declared drinking and riding is presented in Figure 40. Moped riders and motorcyclists in countries that present positive values are more likely to ride when they have been over the legal limit for drinking and driving (e.g. Thailand, Peru, etc.), while negative values indicate a less probability of self-declared drinking and riding.

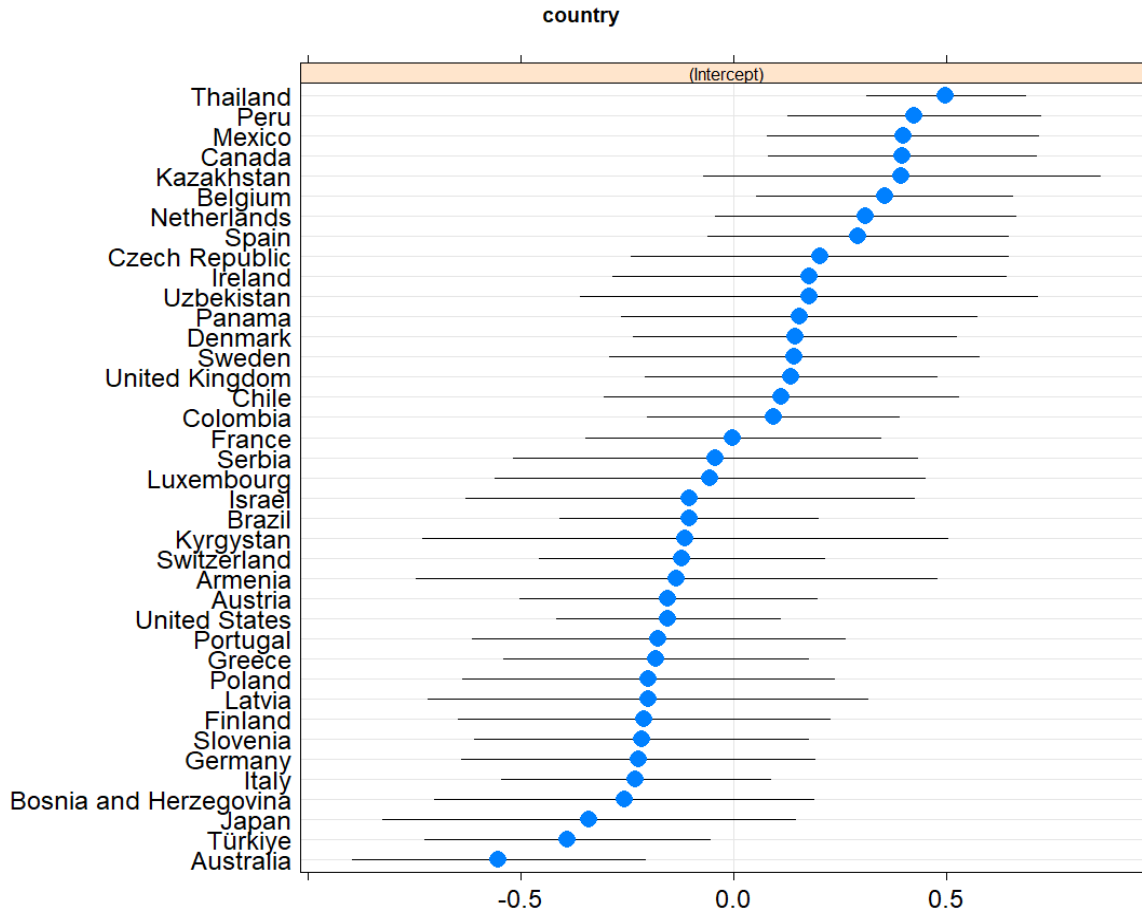


Figure 40: Random intercepts for countries in the Binary GLMM for self-declared behaviour of riding when you may have been over the legal limit for drinking and driving.

The extra value of the inclusion of random effects in the model was assessed by conducting a custom ANOVA between the fixed effects binary GLM and the formulated GLMMs. These assessments are shown in Table 8 for self-declared behaviour of drink and riding. The ANOVA results presented in Table 8 indicate that the added value occurring from the inclusion of random intercepts improves the quality of the model by a statistically significant amount.

Table 8: Log-likelihood comparison for self-declared drink and riding binary logistic models.

Model Family	Model Configuration	D.f.	$\chi^2$	P( $\chi^2$ )
GLM	Fixed effects	6		
GLMM	Fixed effects & Random Intercepts	7	50.50	<0.001

### 3.2.2 Factors associated with self-declared speeding outside built-up areas (but not on motorways/freeways)

Possible factors affecting self-declared speeding outside built-up areas are presented in Table 9.

**Table 9: Logistic regression model for speeding outside built-up areas (but not on motorways/freeways) in the last 30 days.**

Independent variable (reference category)	Dependent variable: self-declared behaviour (past 30 days) – <b>ride faster than the speed limit outside built-up areas (except motorways/freeways)</b> {0=never; 1=at least once}				
	Beta Estimate	S.E.	z-value	P(>[z])	Adj. Odds Ratio
(Intercept)	-0.121	0.105	-1.157	0.247	-
<b>Gender</b> (ref. Male) <b>Female</b>	-0.454	0.063	-7.219	<b>&lt;0.001</b>	0.635
<b>Are you currently a student?</b> (ref: No) <b>Yes</b>	0.215	0.075	2.870	<b>0.004</b>	1.240
<b>Do you oppose or support a legal obligation ...? limiting the speed limit to a maximum of 80 km/h on all rural roads without a median strip</b> (ref: oppose/neutral) <b>Support</b>	-0.616	0.061	-10.117	<b>&lt;0.001</b>	0.540
<b>How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to ...? ride faster than the speed limit outside built-up areas (except motorways/freeways)</b> (ref: unacceptable/neutral) <b>Acceptable</b>	2.254	0.107	20.977	<b>&lt;0.001</b>	9.526
<b>Urbanization level</b> (ref: Rural) <b>Urban/ semi-urban</b>	-0.139	0.085	-1.640	0.101	0.870

The fixed effects results of the second model indicate that women are 37% less likely to report speeding outside built-up areas (except motorways/freeways) when compared to men (OR=0.635). Furthermore, moped riders and motorcyclists who are currently students are 24% more likely to commit such



behaviour compared to people that are not students (OR=1.24). Moped riders and motorcyclists who support the legal obligation of limiting the speed limit to a maximum of 80 km/h on all rural roads without a median strip are 46% less likely for self-declared speeding outside built-up areas (except motorways/freeways) than people who are opposed to this statement. Overall, people who believe that this behaviour is acceptable are more than nine times more likely to commit such behaviour.

The visual representation of the countries' random intercepts for the dependent variable of self-declared speeding outside built-up areas is presented in Figure 41. Moped riders and motorcyclists in countries that present positive values are more likely to ride faster than the speed limit outside built-up areas (e.g. Colombia, Greece), while negative values indicate a less probability for self-declared speeding outside built-up areas.

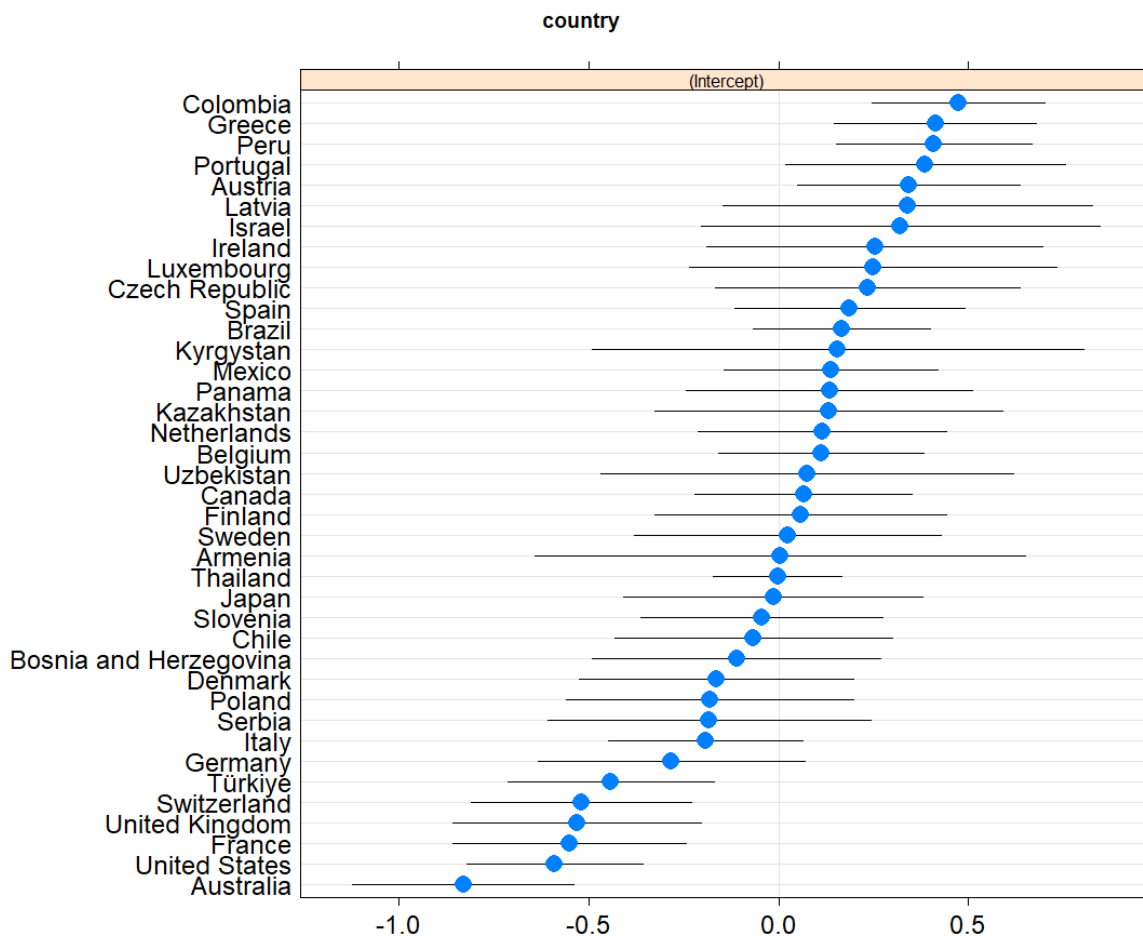


Figure 41: Random intercepts for countries in the Binary GLMM for self-declared speeding outside built-up areas (but not on motorways/freeways).

The extra value of the inclusion of random effects in the model was assessed by conducting a custom ANOVA between the fixed effects binary GLM and the formulated GLMMs. These assessments are shown in Table 10 for self-declared behaviour of speeding outside built-up areas. The ANOVA results presented in Table 10 indicate that the added value occurring from the inclusion of random intercepts improves the quality of the model by a statistically significant amount.

Table 10: Log-likelihood comparison for self-declared speeding outside built-up areas binary logistic models.

Model Family	Model Configuration	D.f.	$\chi^2$	P( $\chi^2$ )
GLM	Fixed effects	6		
GLMM	Fixed effects & Random Intercepts	7	111.14	<0.001

### 3.2.3 Factors associated with self-declared riding without a helmet

Possible factors affecting self-declared riding without a helmet are presented in Table 11.

Table 11: Logistic regression model for riding without a helmet in the last 30 days.

Independent variable (reference category)	Dependent variable: self-declared behaviour (past 30 days) – <b>not wear a helmet on a moped or motorcycle</b> {0=never; 1=at least once}				
	Beta Estimate	S.E.	z-value	P(>[z])	Adj. Odds Ratio
(Intercept)	-0.741	0.131	-5.652	<0.001	-
<b>Age</b> (ref: 18-34)					
<b>35-54</b>	-0.317	0.066	-4.789	<0.001	0.728
<b>55-74</b>	-0.618	0.102	-6.046	<0.001	0.539
<b>How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to ...? not wear a helmet on a moped or motorcycle</b> (ref: unacceptable/ neutral)					
<b>Acceptable</b>	2.395	0.118	20.330	<0.001	10.968
<b>Urbanization level</b> (ref: Rural)					
<b>Urban/ semi-urban</b>	-0.275	0.088	-3.131	0.002	0.760

The fixed effects results of the third model indicate that people aged over 35 years old are less likely to report not wearing a helmet on a moped or motorcycle when compared to people aged 18-34 years old (35-54: OR=0.73, 55-74: OR=0.54). Furthermore, people who believe that this behaviour is acceptable are almost 11 times more likely to commit such behaviour. Moped riders and motorcyclists living inside urban or semi-urban areas are 24% less likely to ride without a helmet compared to those who live in rural areas (OR=0.76).

The visual representation of the countries' random intercepts for the dependent variable of self-declared riding without wearing a helmet is presented in Figure 42. Moped riders and motorcyclists in countries that present positive values are more likely not to wear a helmet on a moped or motorcycle (e.g. Thailand, Bosnia and Herzegovina), while negative values indicate a less probability for self-declared riding without a helmet.

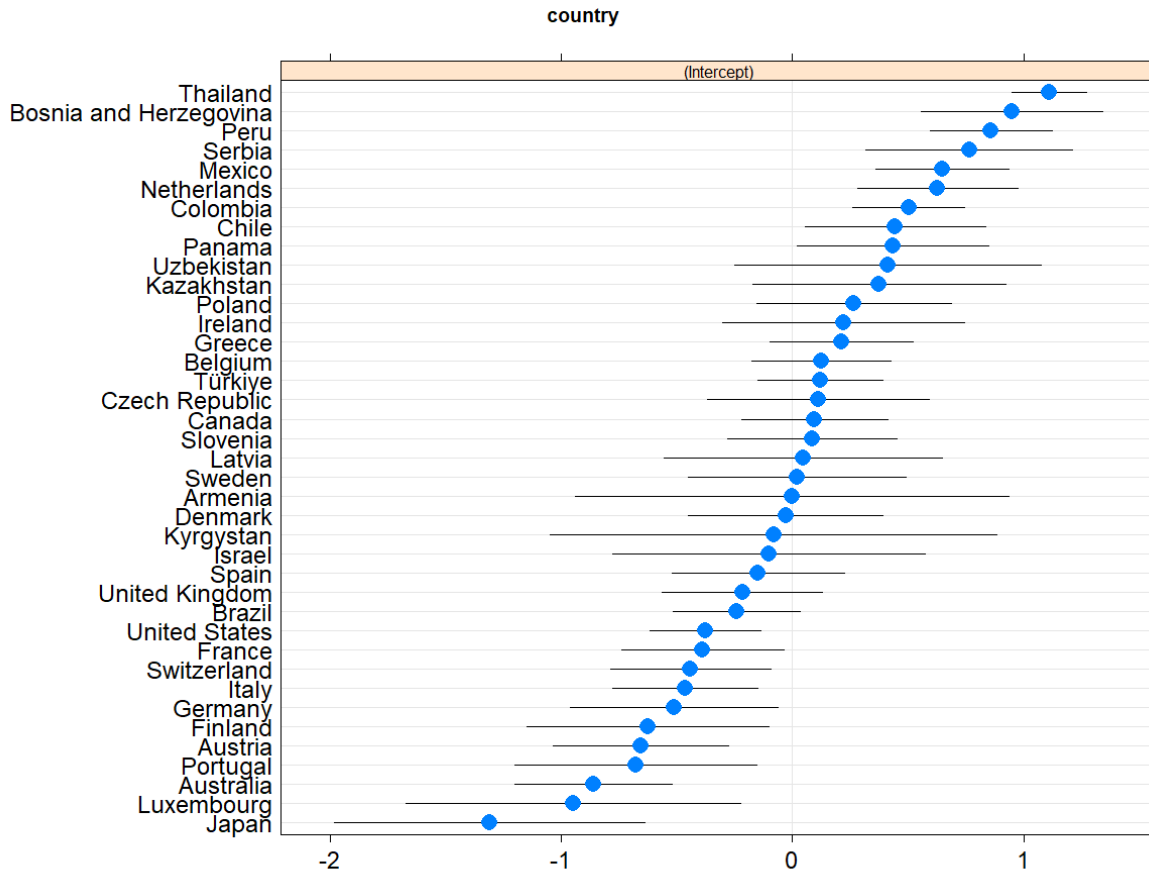


Figure 42: Random intercepts for countries in the Binary GLMM for self-declared riding without a helmet.

The extra value of the inclusion of random effects in the model was assessed by conducting a custom ANOVA between the fixed effects binary GLM and the formulated GLMMs. These assessments are shown in Table 12 for self-declared behaviour of not wearing a helmet during driving. The ANOVA results presented in Table 12 indicate that the added value occurring from the inclusion of random intercepts improves the quality of the model by a statistically significant amount.

Table 12: Log-likelihood comparison for self-declared riding without a helmet binary logistic models.

Model Family	Model Configuration	D.f.	$\chi^2$	P( $\chi^2$ )
GLM	Fixed effects	5		
GLMM	Fixed effects & Random Intercepts	6	325.46	<0.001

### 3.2.4 Factors associated with self-declared behaviour such as reading a text message/email or check social media while riding

Table 13 shows the results of the logistic regression model for reading a text message/email or checking social media while riding a moped or a motorcycle.

**Table 13: Factors that influence the self-declared behaviour of reading a text message/email or checking social media (e.g. Facebook, twitter, etc.) while riding a moped or a motorcycle.**

<b>Independent variable</b> (reference category)	<b>Dependent variable: self-declared behaviour (past 30 days) – read a message or check social media/news while riding</b> {0=never; 1=at least once}				
	Beta Estimate	S.E.	z-value	P(>[z])	Adj. Odds Ratio
(Intercept)	-1.198	0.086	-13.893	<b>&lt;0.001</b>	-
<b>Gender</b> (ref: Male)					
<b>Female</b>	-0.148	0.071	-2.094	<b>0.036</b>	0.862
<b>Age</b> (ref: 18-34)					
<b>35-54</b>	-0.372	0.071	-5.241	<b>&lt;0.001</b>	0.689
<b>55-74</b>	-1.114	0.127	-8.786	<b>&lt;0.001</b>	0.328
<b>How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to ...? read a message or check social media/news while riding</b> (ref: unacceptable/neutral)					
<b>Acceptable</b>	2.889	0.137	21.095	<b>&lt;0.001</b>	17.975
<b>Motorcyclists/moped riders who have been personally involved in a road crash where at least one person was injured (light, severe or fatal crashes)</b> (ref: No)					
<b>Yes</b>	0.551	0.164	3.365	<b>&lt;0.001</b>	1.735

The fixed effects results of the fourth model indicate that that women are 14% less likely to report reading a message or check social media/news while riding when compared to men (OR=0.86). Moreover, people aged over 35 years are less likely to report this driving behaviour when compared to people aged 18-34 years (35-54: OR=0.69, 55-74: OR=0.33). Furthermore, respondents who believe that this behaviour is acceptable are almost 18 times more likely to commit such behaviour. Finally, moped riders and motorcyclists who have been personally involved in a road crash where at least one person was injured (light, severe or fatal crashes) are 74% more likely to read a message or check social media/news while riding.

The visual representation of the countries' random intercepts for the dependent variable of self-declared reading a message or checking social media/news while riding is presented in Figure 43. Moped riders

and motorcyclists in countries that present positive values are more likely to read a text message/email or checking social media (e.g. Facebook, twitter, etc.) while riding a moped or a motorcycle. (e.g. Peru, Panama, Thailand), while negative values indicate a less probability for this behaviour.

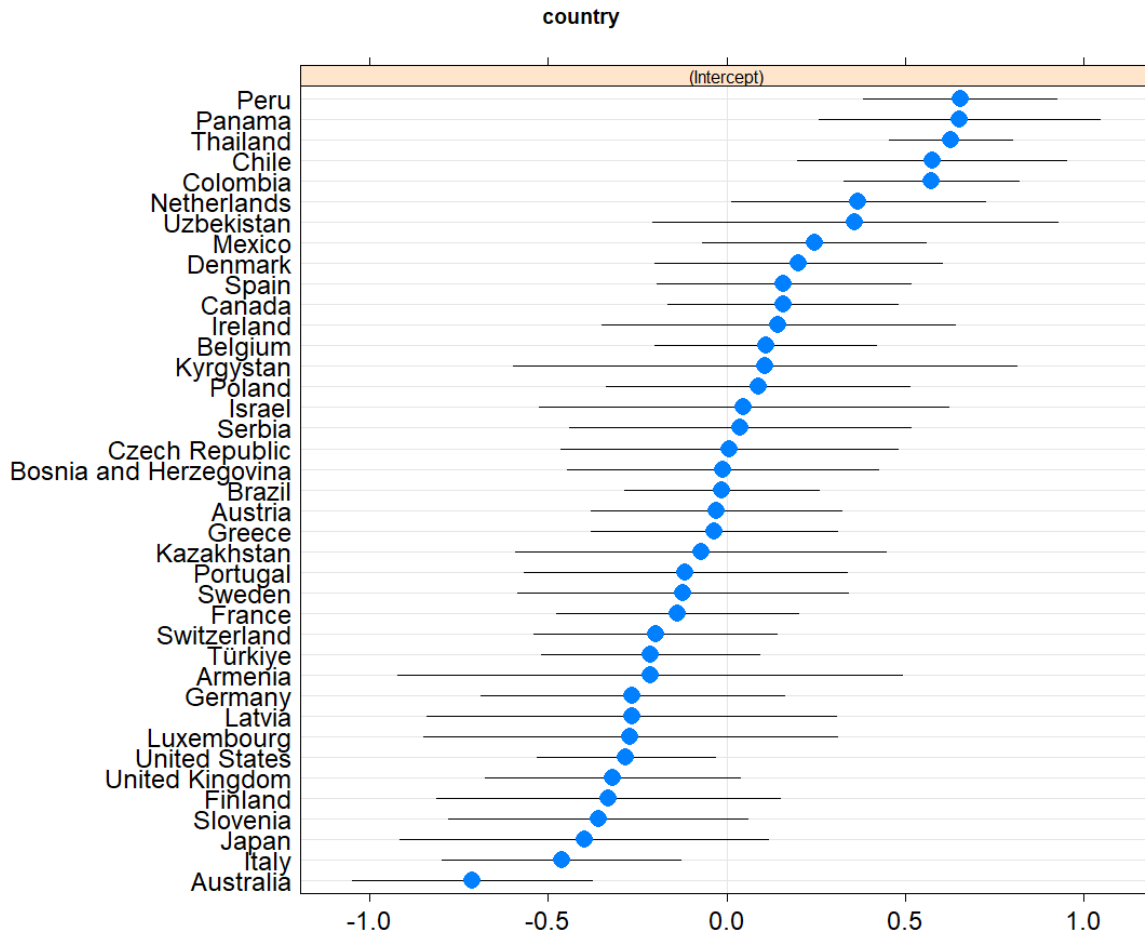


Figure 43: Random intercepts for countries in the Binary GLMM for self-declared reading a text message/email or checking social media (e.g. Facebook, twitter, etc.) while riding a moped or a motorcycle.

The extra value of the inclusion of random effects in the model was assessed by conducting a custom ANOVA between the fixed effects binary GLM and the formulated GLMMs. These assessments are shown in Table 14 for self-declared behaviour of reading a message or checking social media/news during driving. The ANOVA results presented in Table 14 indicate that the added value occurring from the inclusion of random intercepts improves the quality of the model by a statistically significant amount.

Table 14: Log-likelihood comparison for self-declared reading a text message/email or checking social media (e.g. Facebook, twitter, etc.) binary logistic models.

Model Family	Model Configuration	D.f.	$\chi^2$	P( $\chi^2$ )
GLM	Fixed effects	6		
GLMM	Fixed effects & Random Intercepts	7	108.89	<0.001

### 3.2.5 Factors associated with self-declared behaviour such as riding within 1 hour after taking drugs (other than prescribed or over the counter medication)

Possible factors affecting self-declared riding within 1 hour after taking drugs are presented in Table 15.

Table 15: Factors that influence the self-declared behaviour of riding within 1 hour after taking drugs (other than prescribed or over the counter medication).

Independent variable (reference category)	Dependent variable: self-declared behaviour (past 30 days) – <b>ride within 1 hour after taking drugs (other than prescribed or over the counter medication)</b> {0=never; 1=at least once}				
	Beta Estimate	S.E.	z-value	P(>[z])	Adj. Odds Ratio
(Intercept)	-0.564	0.549	-1.026	0.305	-
<b>Gender</b> (ref: Male)					
<b>Female</b>	-0.295	0.074	-3.980	<b>&lt;0.001</b>	0.745
<b>Age</b> (ref: 18-34)					
<b>35-54</b>	-0.088	0.073	-1.201	0.230	0.916
<b>55-74</b>	-0.611	0.125	-4.885	<b>&lt;0.001</b>	0.543
<b>What is the highest qualification or educational certificate that you have obtained?</b> (ref: None)					
<b>Primary education</b>	-0.695	0.576	-1.206	0.223	0.499
<b>Secondary education</b>	-0.894	0.542	-1.648	0.099	0.409
<b>Bachelor's degree or similar</b>	-0.614	0.541	-1.135	0.256	0.541
<b>Master's degree or higher</b>	-0.513	0.544	-0.943	0.346	0.599
<b>Urbanization level</b> (ref: Rural)					
<b>Urban/ semi-urban</b>	-0.285	0.097	-2.928	<b>0.003</b>	0.752

The fixed effects results of the fifth model indicate that women are 26% less likely to report riding within 1 hour after taking drugs (other than prescribed or over the counter medication) when compared to men (OR=0.745). Furthermore, people aged over 55 years are less likely to report this behaviour when compared to people aged 18-34 years (55-74: OR=0.54). Moped riders and motorcyclists living in urban or semi-urban areas are 25% less likely to declare riding within 1 hour after taking drugs compared to those who live in rural areas (OR=0.75).

The visual representation of the countries' random intercepts for the dependent variable of self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication) is presented in Figure 44. Moped riders and motorcyclists in countries that present positive values are

more likely to commit such behaviour (e.g. Thailand, Ireland), while negative values indicate a less probability for self-declared riding within 1 hour after taking drugs.

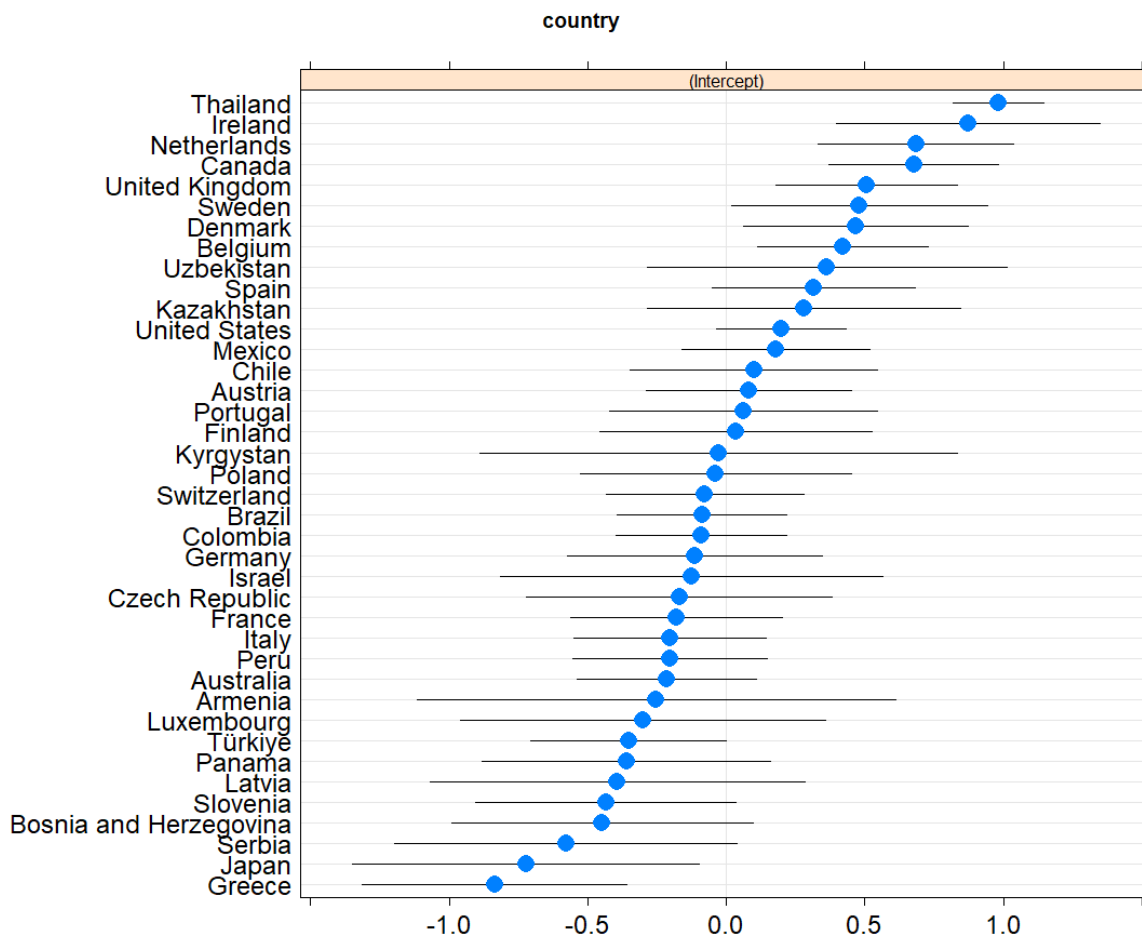


Figure 44: Random intercepts for countries in the Binary GLMM for self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication).

The extra value of the inclusion of random effects in the model was assessed by conducting a custom ANOVA between the fixed effects binary GLM and the formulated GLMMs. These assessments are shown in Table 16 for self-declared behaviour of riding a moped or a motorcycle within 1 hour after taking drugs. The ANOVA results presented in Table 16 indicate that the added value occurring from the inclusion of random intercepts improves the quality of the model by a statistically significant amount.

Table 16: Log-likelihood comparison for self-declared riding within 1 hour after taking drugs binary logistic models.

Model Family	Model Configuration	D.f.	$\chi^2$	P( $\chi^2$ )
GLM	Fixed effects	9		
GLMM	Fixed effects & Random Intercepts	10	149.70	<0.001

### 3.2.6 Factors associated with self-declared behaviour such as riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)

Possible factors affecting self-declared riding too fast for the road/traffic conditions at the time are presented in Table 17.

Table 17 Factors that influence the self-declared behaviour of riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users).

Independent variable (reference category)	Dependent variable: self-declared behaviour (past 30 days) – <b>ride too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)</b> {0=never; 1=at least once}				
	Beta Estimate	S.E.	z-value	P(>[z])	Adj. Odds Ratio
(Intercept)	-0.443	0.084	-5.256	<b>&lt;0.001</b>	-
<b>Gender</b> (ref: Male)					
<b>Female</b>	-0.437	0.065	-6.764	<b>&lt;0.001</b>	0.646
<b>Age</b> (ref: 18-34)					
<b>35-54</b>	-0.147	0.064	-2.273	<b>0.023</b>	0.863
<b>55-74</b>	-0.362	0.095	-3.826	<b>&lt;0.001</b>	0.696
<b>Do you oppose or support a legal obligation ...? limiting the speed limit to 30 km/h in all built-up areas (except on main thoroughfares)</b> (ref: oppose/neutral)					
<b>Support</b>	-0.563	0.062	-9.118	<b>&lt;0.001</b>	0.569
<b>How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to ...? ride faster than the speed limit outside built-up areas (except motorways/freeways)</b> (ref: unacceptable/neutral)					
<b>Acceptable</b>	1.865	0.093	20.144	<b>&lt;0.001</b>	6.456

The fixed effects results of the last model indicate that women are 36% less likely to report riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users) when compared to men (OR=0.646). Moreover, people aged over 35 years are less likely to report this driving behaviour when compared to people aged 18-34 years (35-54: OR=0.86, 55-74: OR=0.696). Individuals who support the legal obligation of limiting the speed limit to 30km/h in all built-up areas (except on main thoroughfares) are 43% less likely to adopt this driver behaviour than people



opposed to this statement. Overall, people who believe that this behaviour is acceptable are over six times more likely to commit such behaviour.

The visual representation of the countries' random intercepts for the dependent variable of self-declared riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users) is presented in Figure 45. Riders in countries that present positive values are more likely to commit such behaviour (e.g. Ireland, Peru), while negative values indicate a less probability for self-declared riding too fast for the current road and traffic conditions.

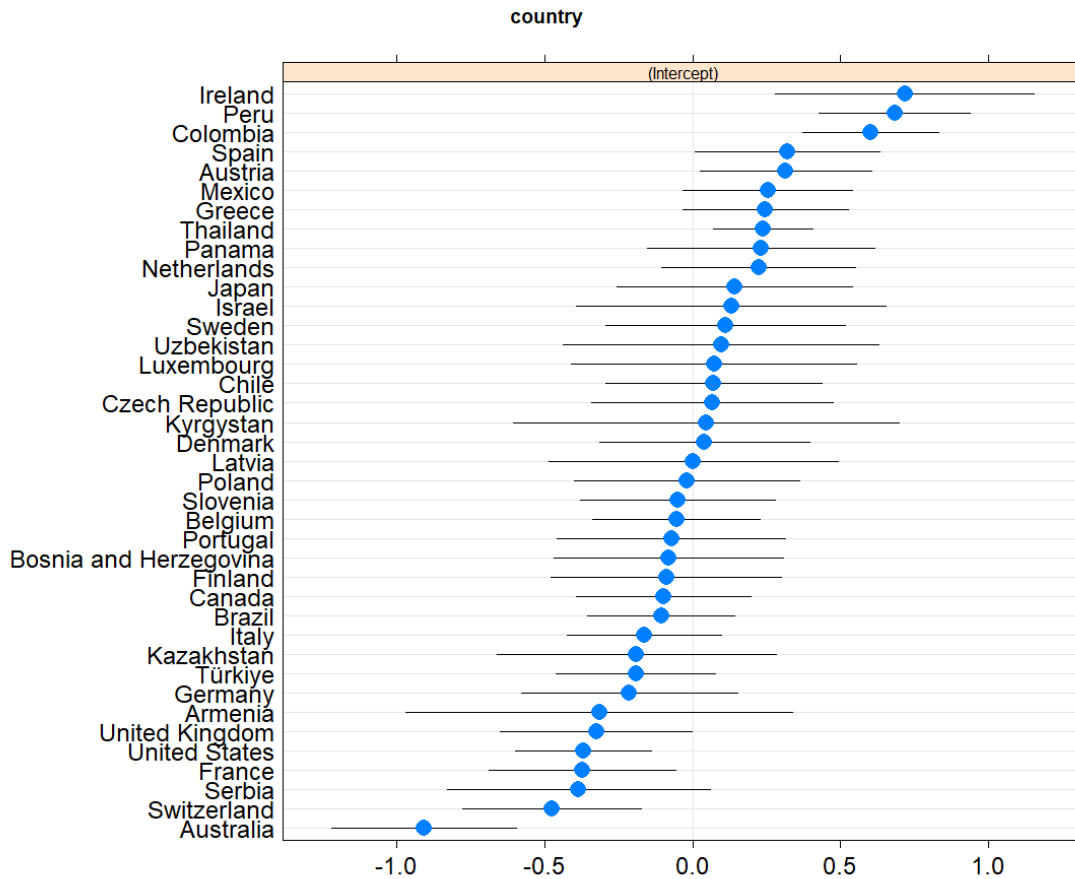


Figure 45: Random intercepts for countries in the Binary GLMM for self-declared riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users).

The extra value of the inclusion of random effects in the model was assessed by conducting a custom ANOVA between the fixed effects binary GLM and the formulated GLMMs. These assessments are shown in Table 18 for self-declared behaviour of riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users). The ANOVA results presented in Table 18 indicate that the added value occurring from the inclusion of random intercepts improves the quality of the model by a statistically significant amount.

Table 18: Log-likelihood comparison for self-declared riding too fast for the road/traffic conditions at the time binary logistic models.

Model Family	Model Configuration	D.f.	$\chi^2$	P( $\chi^2$ )
GLM	Fixed effects	6		
GLMM	Fixed effects & Random Intercepts	7	109.98	<0.001

### 3.3 Comparisons over time (ESRA2-ESRA3)

This chapter compares ESRA3 results with ESRA2 results. The ESRA2 results that are shown in this chapter are different from the results published in ESRA2 publications. Because of methodological differences the ESRA2 results were recalculated in order to be comparable with the ESRA3 results. Between ESRA2 and ESRA3 there are differences on sample level and on question/item level. On sample level there is a difference in population between ESRA2 and 3: in ESRA2 the population consisted out of adults aged 18 years and older, while in ESRA3 the population was adults between 18 and 74 years old. In ESRA3 we also applied a stricter data cleaning compared to ESRA2 (for more information see also the methodology reports (Meesmann et al., 2023; Meesmann & Wardenier, 2024)). To take these two differences into account, ESRA2 results were reweighted and recalculated so that the population is the same as in ESRA3 and consequently the results are comparable. On question and item level there are also differences between ESRA2 and ESRA3. For some questions, there is a difference in reference population, e.g., in ESRA2 attitudes towards safe and unsafe traffic behaviour were surveyed for all road users while in ESRA3 they were only surveyed for car drivers. This means that the results do not have the same reference, for example 30% of all road users or 30% of all car drivers does not have the same meaning. Differences in reference populations can often be recalculated and so these were also taken into account in the recalculated ESRA2 results. Furthermore, some questions and/or items of questions have a different formulation between ESRA2 and ESRA3. For some questions/items we considered the formulation between the two editions too different to be compared, therefore these questions/items are not included in the comparisons. Lastly, comparisons only focus on country level as the countries included in the according regional means are also too different between ESRA2 and ESRA3 (e.g., in ESRA2 the region America includes three countries, while in ESRA3 this region includes eight countries).

Despite the efforts of the ESRA initiative to make the presented ESRA2 and ESRA3 results as comparable as possible, these comparisons have limitations and should be interpreted with caution. There can still be potential methodological effects that can explain differences in the results. It concerns elements on which we have little to no control due to various reasons. Examples of such kind of methodological differences are changes in the characteristics or composition of the sample (e.g., level of education, rural vs. urban population or number of moped riders in the mixed group of moped riders and motorcyclists) and changes in answer patterns due to different presentation of the question (e.g., matrix questions with many items vs. single item questions). Secondly, when comparing the results between ESRA2 and ESRA3, the presented confidence intervals should also be considered. A difference in the percentage between ESRA2 and ESRA3 can seem large, while in fact the confidence intervals overlap or are not far apart. Because of these reasons, differences between ESRA2 and ESRA3 should not always be interpreted as actual changes in the population.

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

The comparison between ESRA2 and ESRA3 results regarding self-declared behaviours of drinking and riding, speeding outside built-up areas (excluding motorways/freeways), and not wearing a helmet in the past 30 days is illustrated in the following figures.

It is important to emphasize that these comparisons should be approached with caution, considering the small sample sizes and relatively large confidence intervals. For detailed information on estimates of self-declared behaviour, sample sizes, and confidence intervals for the three examined behaviours, the reader can consult Appendix 4. Moreover, the group moped riders and motorcyclists is a heterogeneous group of riders, of which the ratio between the two groups can differ between countries and between ESRA editions within a country.

Based on Figure 46, it can be observed that self-declared drinking and riding decreased in only 6 out of 22 countries (Australia, Canada, France, Greece, Slovenia and United States), while the opposite trend is observed in the remaining 16 countries. For some countries there is a large increase from ESRA2 to ESRA3 in the self-declared behaviour drinking and riding such as Ireland, Czech Republic, Finland and Israel. It should be noted that for those countries small sample sizes are observed, for example Israel

had in ESRA2 and ESRA3 a sample size of respectively 42 and 33 moped riders and motorcyclists. With such small sample sizes the representativity for the group of moped riders and motorcyclists in a country can be questioned.

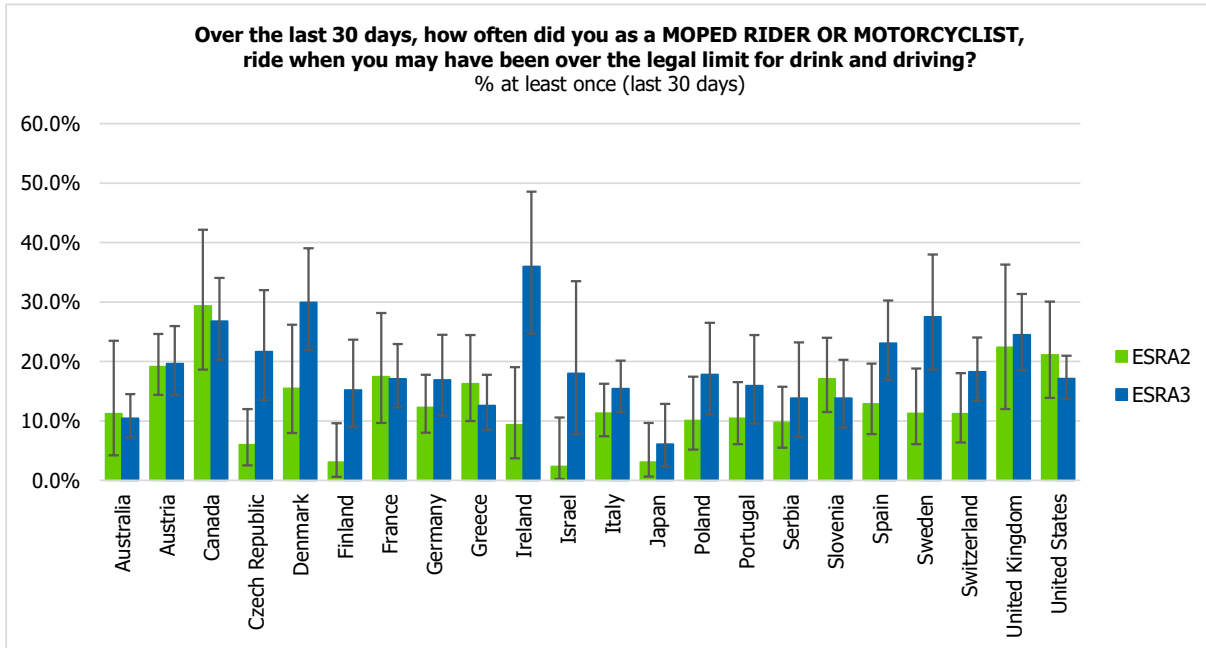


Figure 46: Comparison between ESRA2 and ESRA3 findings regarding self-declared drink and riding (Note: ESRA2 results recalculated for comparability).

Regarding self-declared not wearing a helmet on a moped or motorcycle, it can be observed that this unsafe behaviour decreased only in 4 out of the 22 examined countries (Finland, Greece, Japan, and in the United States), while a steady or increasing trend of not wearing a helmet can be seen in the rest of the participating countries. Again large increases are observed for some countries like Ireland, Israel and Sweden. In this case the confidence intervals still overlap and also small sample sizes are observed, for example Ireland with a sample size of 64 moped riders and motorcyclists in ESRA2 and 62 in ESRA3.

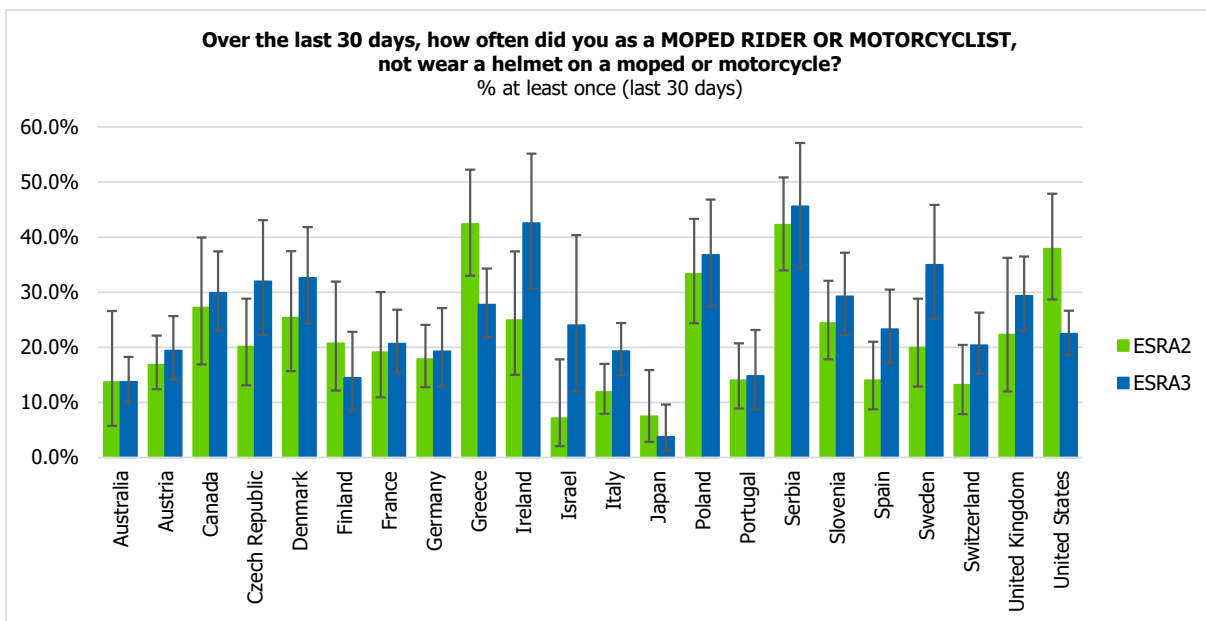


Figure 47: Comparison between ESRA2 and ESRA3 findings regarding self-declared riding without wearing a helmet (Note: ESRA2 results recalculated for comparability).

It is worth noting that in the last two editions of the ESRA survey, self-declared speeding outside built-up areas (except motorways/freeways) is more prevalent than both drinking and riding and not wearing a helmet for the majority of participating countries. Regarding the evolution of self-declared speeding outside built-up areas, an increase in such behaviour was observed in 7 out of the 22 countries (Austria, Czech Republic, Greece, Ireland, Israel, Portugal, Spain), while a decreasing or stable trend was observed in the remaining countries. As mentioned above, the results should be approached with caution as methodological differences in ESRA2 and ESRA3 surveys and small sample sizes may explain large differences observed in some countries.

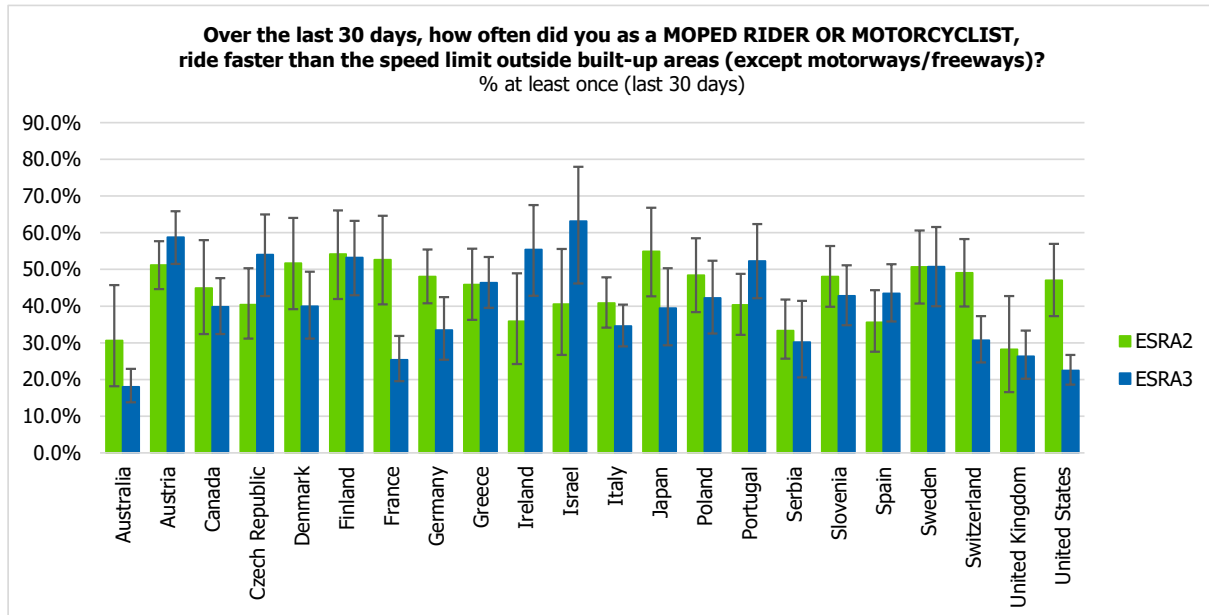


Figure 48: Comparison between ESRA2 and ESRA3 findings regarding self-declared speeding outside built-up areas (except motorways/freeways) (Note: ESRA2 results recalculated for comparability).

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

### 3.4 Limitations of the data

This report is based on self-reported behaviours on road safety issues, which have known limitations regarding their accuracy and lack of direct observation capabilities (Kelley et al., 2003). In general, self-reported data are vulnerable to a number of biases. Common biases are (Choi & Pak, 2005; Krosnick and Presser, 2010):

- 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. In other words, subjects may make the more socially acceptable answer rather than being truthful;
- bias through misunderstanding of questions - the wording of the questions may be confusing or have different meanings to different subjects;
- recall error - unintentional faulty answers due to memory errors.

In the ESRA3 survey the six main questions about moped riders and motorcyclists' self-declared behaviour (drink and riding, speeding outside built-up areas but not on motorways/freeways, riding without a helmet, reading a text message/email or checking social media, riding within 1 hour after taking drugs (other than prescribed or over the counter medication) and riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)) provide a clear behavioural criterion and refer to a recent time period. In view of this, it is expected that problems with understanding the question and recall errors may be very modest. Given the fact that a rather large percentage of respondents had no problems indicating that they had experienced the afore-mentioned behaviours in the past 30 days, we also think that social desirability bias may have played a minor role.

## 4 Summary and discussion

### Major findings

Below for each research question the major findings are described.

*What is the frequency of riding a moped or a motorcycle?*

- The use of mopeds and motorcycles as a transport mode is more widespread in America when compared to Europe and Asia-Oceania.

*Which type of infrastructure do moped riders and motorcyclists use?*

- The use of thoroughfares and high-speed roads within cities varies from 36.4% in Asia-Oceania to 64.3% in America, while the rate in Europe is 50.6%.
- Regarding the use of rural roads and roads connecting towns and villages, the respective rates vary from 46.9% in America to 54.7% in Europe, while the rate for Asia-Oceania is 52.3%.
- The percentages of the use of other streets and roads in urban areas vary from 51.8% in Europe to 59.8% in Asia-Oceania. The rate for America is 54.5%.

*During the past 12 months, have you personally been involved in a road crash where at least one person was injured (light, severe or fatal crashes)?*

- Regarding the three ESRA3 regions, the highest rates for moped riders and motorcyclists involved in road crashes correspond to Asia-Oceania (3.9%).

*What is the safety perception of using a moped or a motorcycle?*

- In all the examined countries, the safety perception scores for mopeds and motorcycles do not exceed 8 points. This fact indicates that road users do not consider these transport modes to be safe enough.

*Which is the personal acceptability of riding a moped or a motorcycle when he/she may have been over the legal limit for drinking and driving?*

- Road users considering acceptable for a moped rider or motorcyclist to ride when he/she may have been over the legal limit for drinking and driving vary from 2.2% in Europe to 3.7% in America. The rate for Asia-Oceania is 2.9%.
- The personal acceptability is higher for male road users in Europe and America, while the opposite is the case in the Asia-Oceania.
- People aged over 55 years accept less this driver behaviour than younger people (18-24 years old).

*Which is the personal acceptability of riding faster than the speed limit outside built-up areas (except motorways/freeways)?*

- People considering it acceptable for a moped rider or motorcyclist to ride faster than the speed limit outside built-up areas (except motorways/freeways) vary from 5.7% in America to 7.5% in Europe. The rate for Asia-Oceania is 6.5%.
- The personal acceptability in all examined regions is higher for male road users than females.
- People aged 18 to 24 years accept more this driver behaviour than older people.

*Which is the personal acceptability of not wearing a helmet on a moped or motorcycle?*

- Road users considering it acceptable for a moped rider or motorcyclist not to wear a helmet vary from 3.9% in Europe to 5.3% in America and Asia-Oceania.
- The personal acceptability varies between females and males across all examined regions, except for Asia-Oceania where the percentages are similar.
- Young people accept more this driver behaviour than older people.

*Which is the personal acceptability of reading a message or checking social media/news while riding?*

- People considering it acceptable for a moped rider or motorcyclist to read a message or check social media/news while riding vary from 2.3% in Europe to 4.0% in America. The respective rate for Asia-Oceania is 3.1%.
- The personal acceptability is higher for males than females in Europe and America, while the opposite can be observed in Asia-Oceania.
- Younger people tend to accept more this driver behaviour than older people.

*What is the prevalence of self-declared drink and riding by moped riders and motorcyclists? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to drinking and riding in the past 30 days varies for the majority of the countries from 15% to 25%.
- A comparable pattern is not observed for drink and riding among the different age groups in the three world regions.
- In America and Asia-Oceania, the self-declared drink and riding rates are higher for male moped riders and motorcyclists, while in Europe the respective rates are higher for female respondents.

*What is the level of self-declared speeding outside built-up areas (but not on motorways/freeways) by moped riders and motorcyclists? And what are the differences?*

- In most participating countries worldwide, almost half of the moped riders and motorcyclists admit to speeding outside built-up areas (not on motorways/freeways) in the past 30 days.
- In Europe, the self-declared speeding is higher among the younger age groups. In America the self-declared speeding is far higher for the oldest age group (65+). In Asia-Oceania, the distribution is similar among all age groups.
- In Europe, Asia-Oceania and America, male moped riders and motorcyclists report higher speeding rates.

*What is the level of self-declared riding without a helmet? And what are the differences?*

- In most countries, the percentage of moped riders and motorcyclists who admit to riding without a helmet in the past 30 days varies from 20% to 40%.
- Worldwide, the self-declared behaviour of riding without a helmet is higher among younger aged moped riders and motorcyclists than among older age groups except for America, where the highest rates are recorded in the age group 55-64.
- Only in America male moped riders and motorcyclists report higher rates of riding without a helmet than female riders.

*What is the level of self-declared reading a text message/email or checking social media while riding? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to reading a text message/email or checking social media while riding varies from 20.7% in Europe to 24.9% in Asia-Oceania.
- A comparable pattern is not found among the different age groups in the three world regions.
- In all the examined regions with the exception of Europe, the rates of male moped riders and motorcyclists are higher than the respective rates of female moped riders and motorcyclists.

*What is the prevalence of self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication)? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to riding within 1 hour after taking drugs (other than prescribed or over the counter medication) varies from 17.1% in Europe to 22.7% in Asia-Oceania.
- A comparable pattern is not found for riding within 1 hour after taking drugs among the different age groups in the three world regions.
- In all the examined regions with the exception of Europe, the rates of male moped riders and motorcyclists are higher than the respective rates of female respondents.

*What is the prevalence of self-declared riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)? And what are the differences?*

- The percentage of moped riders and motorcyclists who admit to this behaviour varies from 26.6% in America to 30.3% in Europe and Asia-Oceania.
- In all the examined regions, the rates of male moped riders and motorcyclists are higher than the respective rates of female moped riders and motorcyclists.

*What factors are related to self-declared drink and riding?*

- Female moped riders and motorcyclists in Europe are 23% less likely to report drink and riding than males.
- Moped riders and motorcyclists aged over 35 years are less likely to commit such behaviour compared to people aged 18-34.
- Moped riders and motorcyclists who support a legal obligation of forbidding all drivers of motorized vehicles to drive with a blood alcohol concentration above 0.0% (zero tolerance) are 56% less likely to report drink and riding.
- Respondents who believe that this behaviour is acceptable are almost 19 times more likely to commit such behaviour.

*What factors are related to self-declared speeding outside built-up areas (but not on motorways/freeways)?*

- Women are 37% less likely to report speeding when compared to men.
- Moped riders and motorcyclists who are currently students are 24% more likely to commit such behaviour compared to respondents that are not students.
- Moped riders and motorcyclists who support the legal obligation of limiting the speed limit to a maximum of 80 km/h on all rural roads without a median strip are 46% less likely to report speeding outside built-up areas (except motorways/freeways).
- Respondents who believe that this behaviour is acceptable are more than nine times more likely to commit such behaviour.



*What factors are related to self-declared riding without a helmet?*

- Moped riders and motorcyclists aged over 35 years are less likely to report not wearing a helmet on a moped or motorcycle when compared to people aged 18-34 years.
- Respondents who believe that this behaviour is acceptable are almost 11 times more likely to commit such behaviour.
- Moped riders and motorcyclists living inside urban or semi-urban areas are 24% less likely to ride without a helmet compared to those who live in rural areas.

*What factors are related to self-declared reading a text message/email or checking social media while riding)?*

- Female moped riders and motorcyclists are 14% less likely to report reading a message or check social media/news while riding.
- People aged over 35 years are less likely to report this driving behaviour when compared to people aged 18-34 years.
- Respondents who believe that this behaviour is acceptable are almost 18 times more likely to commit such behaviour.
- Moped riders and motorcyclists who have been personally involved in a road crash where at least one person was injured (light, severe or fatal crashes) are 74% more likely to read a message or check social media/news while riding.

*What factors are related to self-declared riding within 1 hour after taking drugs (other than prescribed or over the counter medication)?*

- Female moped riders and motorcyclists are 26% less likely to report riding within 1 hour after taking drugs (other than prescribed or over the counter medication).
- People aged over 55 years are less likely to report this driving behaviour when compared to people aged 18-34 years.
- Moped riders and motorcyclists living inside urban or semi-urban areas are 25% less likely to declare riding within 1 hour after taking drugs compared to people who live in rural areas.

*What factors are related to self-riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)?*

- Female moped riders and motorcyclists are 36% less likely to report riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users).
- People aged over 35 years are less likely to report this driving behaviour when compared to people aged 18-34 years.
- Individuals who support the legal obligation of limiting the speed limit to 30km/h in all built-up areas (except on main thoroughfares) are 43% less likely to adopt this driver behaviour.
- People who believe that this behaviour is acceptable are over six times more likely to commit such behaviour.

## Discussion

Moped and motorcycles are common means of transport in the three examined world regions. However, in all the examined countries road users do not consider them to be safe enough.

Despite recognising the more dangerous nature of driving a moped or motorcycle, a significant percentage of moped riders and motorcyclists admit to having adopted risky behaviours while riding in the past 30 days. This is the case for all the examined risky behaviours, namely drinking and riding, speeding outside built-up areas (but not on motorways/freeways), riding without a helmet, reading a text message/email or checking social media while riding, riding within 1 hour after taking drugs (other than prescribed or over the counter medication) and riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users) for all world regions. The selection of just a 30 days period of reference ensures increased accuracy of the responses as it is a relatively recent period to recall.

The above results may indicate that moped riders and motorcyclists attribute the increased risk not to their own behaviour but rather to their interaction with other road users, road infrastructure and the environment. Similar perceptions have been recorded in previous works (2BeSafe, 2012; Nordqvist and Gregersen, 2010).

Age and gender are well-known factors affecting the behaviour of road users with younger, male users being more prone to adopting risky behaviours. Concerning drink-riding, speeding, riding without a helmet, reading a text message/email or checking social media while riding, riding within 1 hour after taking drugs (other than prescribed or over the counter medication) and riding too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users) no common pattern was observed among the different age groups in the three world regions. This could be possibly explained due to regional special characteristics and actions, such as differences in alcohol consumption due to religious and social habits or the dispersion of technology in different areas and age groups, as well as of targeted enforcement and awareness raising measures related to the specific risky behaviours. A more uniform situation was recorded concerning the gender of moped riders and motorcyclists adopting risky behaviours with males prevailing in most cases and world regions. A few deviations where more female riders adopt a risky behaviour in certain world regions may be again explained based on local particularities related to social and safety culture.

Advanced analysis of the willingness to report adopting risky behaviours also confirmed that this is higher among male moped riders and motorcyclists. This may be related to the increased experience and higher confidence that usually male riders have. On the other hand, female riders may be more reluctant to admit to breaking the law.

The strong association of perceived behavioural control with most of the examined risky behaviours can also be an indication that enforcement measures may be markedly effective in eliminating such behaviours. In any case, motorcyclists and moped riders constitute one of the most vulnerable road user groups. Thus, targeted measures to improve their behaviour on the road are necessary, especially in the world regions where moped or motorcycle is a prevailing mean of transport used by people with different socio-demographic characteristics and serve several different purposes.

## Closing remarks

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

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

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## Appendix 1: ESRA3 Questionnaire

### Introduction

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

### Socio-demographic information

- Q1) In which country do you live?** \_\_\_\_\_
- Q2) Are you ...** male – female - other
- Q3) How old are you (in years)?** [Drop down menu]
- Q4\_1) Are you currently a student?** yes - no
- Q4\_2) What is the highest qualification or educational certificate which you want to achieve?** primary education - secondary education - bachelor's degree or similar - master's degree or higher
- Q4\_3) What is the highest qualification or educational certificate that you have obtained?** none - primary education - secondary education - bachelor's degree or similar - master's degree or higher
- Q5) Which of the descriptions comes closest to how you feel about your household's income nowadays?** living comfortably on present income - coping on present income - finding it difficult on present income - finding it very difficult on present income
- Q6a) Is the car you regularly drive equipped with seatbelts in the front seat?** yes – no  
Only asked to LMIC countries.
- Q6b) Is the car you regularly drive equipped with seatbelts in the back seat?** yes - no  
Only asked to LMIC countries.
- Q7) Are you using a carsharing organization (e.g., poppy or cambio<sup>1</sup>)?** yes – no  
Only asked to HIC/UMIC countries.
- Q8) Do you have to drive or ride a vehicle during your main professional activity?** yes, I transport mainly other person(s) (e.g., taxi, bus, rickshaw, ...) - yes, I transport mainly goods (e.g., truck, courier, food delivery,...) - yes, I transport mainly myself (e.g., visiting patients, salesperson,...) - no, I drive or ride a vehicle only for commuting or private reasons
- Q9) Which phrase best describes the area where you live?** a farm or home in the countryside - a country village - a town or a small city - the suburbs or outskirts of a big city - a big city
- Q10) In which region do you live?** [List of regions per country]
- Q11a) How far do you live from the nearest stop of public transport?** less than 500 metres - between 500 metres and 1 kilometre - more than 1 kilometre
- Q11b) What is the frequency of your nearest public transport?** at least 3 times per hour - 1 or 2 times per hour - less than 1 time per hour

### Mobility & exposure

<sup>1</sup> The examples in brackets were adapted to national context.

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

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

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

Items (random order): under 150cm - above 150cm<sup>2</sup>

#### Self-declared safe and unsafe behaviour in traffic

**Q14\_1a) Over the last 30 days, how often did you as a CAR DRIVER ...?** You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.

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

Items (random order):

- drive when you may have been over the legal limit for drinking and driving
- drive after drinking alcohol
- drive within 1 hour after taking drugs (other than prescribed or over the counter medication)
- drive within 2 hours after taking medication that may affect your driving ability
- drive faster than the speed limit inside built-up areas
- drive faster than the speed limit outside built-up areas (except motorways/freeways)
- drive too fast for the road/traffic conditions at the time (e.g., poor visibility, dense traffic, presence of vulnerable road users)
- drive faster than the speed limit on motorways/freeways
- drive without wearing your seatbelt
- transport children under 150cm<sup>3</sup> without using child restraint systems (e.g., child safety seat, cushion)
- transport children above 150cm<sup>4</sup> without wearing their seat belt
- talk on a hand-held mobile phone while driving
- talk on a hands-free mobile phone while driving
- read a message or check social media/news while driving
- drive when you were so sleepy that you had trouble keeping your eyes open

**Q14\_1b\_1) You said that you have driven a car when you may have been over the legal limit for drinking and driving. Was this ...? You can indicate multiple answers:** in the week during daytime - in the week during night-time - in the weekend during daytime - in the weekend during night-time - on motorways - on urban roads - on rural roads  
Only asked to HIC/UMIC countries.

**Q14\_1b\_2) You said that you have driven a car within 1 hour after taking drugs (other than prescribed or over the counter medication). Was this ...? You can indicate multiple answers:** cannabis - cocaine - amphetamines (e.g., speed, ecstasy) - illicit opiates (e.g., morphine, codeine; not prescribed as medication) - other

**Q14\_1b\_3) You said that you have driven a car within 2 hours after taking medication that may affect your driving ability. Was this ...? You can indicate multiple answers<sup>5</sup>:** antihistamines and/or cough medicines (such as Claritin, Allegra, Benadryl) - antidepressants (such as Prozac, Zoloft, Wellbutrin) - prescription pain medicines (such as Tylenol with codeine, OxyContin, Percocet, Vicodin/hydrocodone) - muscle relaxants (such as Soma, Flexeril) - sleep aids, Barbiturates, or Benzodiazapines

<sup>2</sup> This question was adapted to national legal regulation.

<sup>3</sup> This question was adapted to national legal regulation.

<sup>4</sup> This question was adapted to national legal regulation.

<sup>5</sup> The examples in brackets were adapted to national context.

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

**Q14\_2) Over the last 30 days, how often did you as a CAR PASSENGER ...? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.**

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

Items (random order):

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

**Q14\_3) Over the last 30 days, how often did you as a MOPED RIDER or MOTORCYCLIST ...? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.**

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

Items (random order):

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

**Q14\_4) Over the last 30 days, how often did you as a CYCLIST ...? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.**

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

Items (random order):

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

**Q14\_5) Over the last 30 days, how often did you as a PEDESTRIAN ...? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.**

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

Items (random order):

- listen to music through headphones while walking down the street
- walk down the street when you think you may have had too much to drink
- read a message or check social media/news while walking down the street
- text a message while walking down the street
- cross the road when a pedestrian light is red
- cross the road at places other than at a nearby (distance less than 30m<sup>6</sup>) pedestrian crossing

**Q14\_6) Over the last 30 days, how often did you as RIDER OF AN E-SCOOTER (electric-kick style scooter) ...? You can indicate your answer on a scale from 1 to 5, where 1 is "never" and 5 is "(almost) always". The numbers in between can be used to refine your response.**

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

Only asked to HIC/UMIC countries.

<sup>6</sup> This question was adapted to national legal regulation.

Items (random order):

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

#### Acceptability of safe and unsafe traffic behaviour

##### Q15) **Where you live, how acceptable would most other people say it is for a CAR DRIVER to ....?**

You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

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

Items (random order):

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

##### Q16\_1) **How acceptable do you, personally, feel it is for a CAR DRIVER to ...?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

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

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

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

##### Q16\_2) **How acceptable do you, personally, feel it is for a MOPED RIDER or MOTORCYCLIST to ...?**

You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

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

Items (random order):

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

##### Q16\_3) **How acceptable do you, personally, feel it is for a CYCLIST to ...?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

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

Items (random order):

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

**Q16\_4) How acceptable do you, personally, feel it is for a PEDESTRIAN to ...?** You can indicate your answer on a scale from 1 to 5, where 1 is "unacceptable" and 5 is "acceptable". The numbers in between can be used to refine your response.

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

Items (random order):

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

#### Attitudes towards safe and unsafe behaviour in traffic

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

Binary variable: agree (4-5) – disagree/neutral (1-3)

Items (random order):

Behaviour believes & attitudes

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

Perceived behaviour control = self-efficacy

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

Habits

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

Intention

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

#### Subjective safety & risk perception

**Q18) How safe or unsafe do you feel when using the following transport modes in [country]?**

You can indicate your answer on a scale from 0 to 10, where 0 is "very unsafe" and 10 is "very safe". The numbers in between can be used to refine your response.

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

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

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

Items (random order):

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

### Support for policy measures

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

Binary variable: support (4-5) – oppose/neutral (1-3)

Items for all countries (random order):

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

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

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

Items only for LMIC countries (random order):

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

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

Random selection of one of the first 4 items in Q20 per respondent. All first 4 items in Q20 are be asked equally often in each country.

Items (random order):

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

### Enforcement

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

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

Items (random order):

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

**Q23\_1)** **In the past 12 months, how many times have you been checked by the police for using alcohol while driving a car (i.e., being subjected to a Breathalyser test)?** never - 1 time - at least 2 times - Binary variable: at least once - never



**Q23\_2)** In the past 12 months, how many times have you been checked by the police for using drugs (other than prescribed or over the counter medication) while driving a car? never - 1 time - at least 2 times - Binary variable: at least once - never

### Involvement in road crashes

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

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

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

### Infrastructure

**Q25\_1\_a)** As a CAR DRIVER, what type of roads do you regularly use in [country]? You can indicate multiple answers: inter-city motorways - thoroughfares and high-speed roads within cities - rural roads and roads connecting towns and villages - other streets and roads in urban areas

**Q25\_1\_b)** As a CAR DRIVER, how would you rate the roads that you regularly use in terms of safety? You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

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

Items (random order):

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

**Q25\_2\_a)** As a MOPED RIDER or MOTORCYCLIST, what type of roads do you regularly use in [country]? You can indicate multiple answers: thoroughfares and high-speed roads within cities - rural roads and roads connecting towns and villages - other streets and roads in urban areas

**Q25\_2\_b)** As a MOPED RIDER or MOTORCYCLIST, how would you rate the roads that you regularly use in terms of safety? You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

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

Items (random order):

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

**Q25\_3\_a)** As a CYCLIST, what type of roads/cycle lanes do you regularly use in [country]? You can indicate multiple answers: rural roads and roads connecting towns and villages with cycle lanes - rural roads and roads connecting towns and villages without cycle lanes - streets and roads in urban areas with cycle lanes - streets and roads in urban areas without cycle lanes

**Q25\_3\_b)** As a CYCLIST, how would you rate the roads/cycle lanes that you regularly use in terms of safety? You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

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

Items (random order):

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



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

**Q25\_4\_a) As a PEDESTRIAN, what type of roads/sidewalks do you regularly use in [country]?** You can indicate multiple answers: rural roads and roads connecting towns and villages with sidewalks - rural roads and roads connecting towns and villages without sidewalks - streets and roads in urban areas with sidewalks - streets and roads in urban areas without sidewalks

**Q25\_4\_b) As a PEDESTRIAN, how would you rate the roads/sidewalks that you regularly use in terms of safety?** You can indicate your answer on a scale from 1 to 7, where 1 is "very unsafe" and 7 is "very safe". The numbers in between can be used to refine your response.

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

Items (random order):

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

### Social desirability scale

Introduction: The survey is almost finished. Some of the following questions<sup>7</sup> have nothing to do with road safety, but they are important background information. There are no good or bad answers.

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

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

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

Closing comment: Thank you for your contribution!

<sup>7</sup> Q26 is asked together with some last questions on sociodemographic information, which have already been listed in the beginning of the questionnaire.

## Appendix 2: ESRA3 weights

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

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

## Appendix 3: Sample sizes

Sample size (weighted sample)

Road users who use mopeds and motorcyclists at least a few days per month by country.

Country	All road users	motorcyclists/ moped riders, at least a few days a month
Armenia	467	8
Australia	953	280
Austria	1804	194
Belgium	1795	222
Bosnia and Herzegovina	914	96
Brazil	947	299
Canada	1904	221
Chile	923	105
Colombia	909	284
Czech Republic	965	75
Denmark	874	115
Finland	993	97
France	965	190
Germany	832	133
Greece	978	200
Ireland	901	62
Israel	965	33
Italy	1007	266
Japan	986	84
Kazakhstan	845	49
Kyrgyzstan	468	7
Latvia	911	43
Luxembourg	471	44
Mexico	932	196
Netherlands	905	145
Panama	855	84
Peru	843	216
Poland	927	94
Portugal	1032	91
Serbia	982	72
Slovenia	945	146
Spain	935	159
Sweden	922	88
Switzerland	979	200
Thailand	870	632
Türkiye	897	264
United Kingdom	921	179
United States	938	407

## Appendix 4: ESRA2 and ESRA3 comparison

Edition	Question	Answer scale	Reference population
ESRA3	Over the last 30 days, how often did you as a MOPED RIDER or MOTORCYCLIST ...?	% at least once (2-5) (scale from 1 to 5, where 1 is "never" and 5 is "(almost) always")	Motorcyclists/ moped riders, at least a few days a month (moped and motorcyclist month, no distinction made between electric and non-electric)
ESRA2	Over the last 30 days, how often did you as a MOPED DRIVER OR MOTORCYCLIST...?	% at least once (2-5) (scale from 1 to 5, where 1 is "never" and 5 is "(almost) always")	Motorcyclists/ moped riders, at least a few days a month (moped and motorcyclist month, non-electric and electric asked separately)

Notes: ESRA2 results recalculated for comparability; question not in ESRA1; Colombia and Thailand not included due to different formulation in ESRA2: "on a typical month" instead of "last 30 days" (due to Covid); Brazil, Chile, Mexico, Peru not included - no data in ESRA2; Belgium and Netherlands not included due to translation error in ESRA2.

Country	Edition	ESRA3 ESRA2	ride when you may have been over the legal limit for drinking drive when you may have been over the legal limit for drinking				
			Weighted sample	Estimate	95% CI lower	95% CI upper	Diff. ESRA2-3 based on CIs
Australia	ESRA3		280	10.5%	7.2%	14.5%	No
Australia	ESRA2		47	11.2%	4.2%	23.5%	
Austria	ESRA3		194	19.7%	14.4%	25.9%	No
Austria	ESRA2		227	19.1%	14.4%	24.6%	
Canada	ESRA3		221	26.8%	20.3%	34.1%	No
Canada	ESRA2		62	29.4%	18.6%	42.2%	
Czech Republic	ESRA3		75	21.7%	13.5%	32.0%	Yes
Czech Republic	ESRA2		100	6.0%	2.5%	12.0%	
Denmark	ESRA3		115	30.0%	21.9%	39.0%	No
Denmark	ESRA2		60	15.5%	8.0%	26.2%	
Finland	ESRA3		97	15.2%	9.0%	23.7%	No
Finland	ESRA2		65	3.1%	0.6%	9.6%	
France	ESRA3		190	17.1%	12.3%	22.9%	No
France	ESRA2		66	17.5%	9.7%	28.2%	
Germany	ESRA3		133	16.9%	10.9%	24.5%	No
Germany	ESRA2		177	12.3%	8.0%	17.8%	
Greece	ESRA3		200	12.6%	8.5%	17.8%	No
Greece	ESRA2		162	16.3%	10.0%	24.5%	
Ireland	ESRA3		62	36.0%	24.7%	48.6%	Yes
Ireland	ESRA2		64	9.3%	3.7%	19.1%	
Israel	ESRA3		33	18.0%	7.8%	33.5%	No
Israel	ESRA2		42	2.4%	0.3%	10.6%	
Italy	ESRA3		266	15.4%	11.5%	20.1%	No
Italy	ESRA2		203	11.3%	7.4%	16.3%	
Japan	ESRA3		84	6.1%	2.3%	12.9%	No
Japan	ESRA2		97	3.1%	0.6%	9.7%	
Poland	ESRA3		94	17.8%	11.1%	26.5%	No
Poland	ESRA2		94	10.1%	5.2%	17.4%	
Portugal	ESRA3		91	16.0%	9.6%	24.5%	No
Portugal	ESRA2		129	10.4%	6.1%	16.5%	
Serbia	ESRA3		72	13.8%	7.3%	23.2%	No
Serbia	ESRA2		145	9.7%	5.5%	15.7%	
Slovenia	ESRA3		146	13.9%	8.9%	20.3%	No
Slovenia	ESRA2		130	17.1%	11.5%	24.0%	
Spain	ESRA3		159	23.1%	16.9%	30.3%	No
Spain	ESRA2		156	12.9%	7.8%	19.7%	
Sweden	ESRA3		88	27.5%	18.6%	38.0%	No
Sweden	ESRA2		95	11.3%	6.1%	18.8%	
Switzerland	ESRA3		200	18.3%	13.4%	24.0%	No
Switzerland	ESRA2		110	11.2%	6.4%	18.1%	
United Kingdom	ESRA3		179	24.5%	18.5%	31.4%	No
United Kingdom	ESRA2		46	22.4%	12.0%	36.3%	
United States	ESRA3		407	17.1%	13.7%	21.0%	No
United States	ESRA2		98	21.1%	13.9%	30.1%	

ESRA3 ESRA2			not wear a helmet on a moped or motorcycle			
Country	Edition	Weighted sample	Estimate	95% CI lower	95% CI upper	Diff. ESRA2-3 based on CIs
Australia	ESRA3	280	13.7%	10.0%	18.2%	No
Australia	ESRA2	47	13.7%	5.7%	26.6%	
Austria	ESRA3	194	19.4%	14.1%	25.7%	No
Austria	ESRA2	227	16.8%	12.4%	22.1%	
Canada	ESRA3	221	29.9%	23.1%	37.4%	No
Canada	ESRA2	62	27.2%	16.9%	39.9%	
Czech Republic	ESRA3	75	32.0%	22.2%	43.1%	No
Czech Republic	ESRA2	100	20.1%	13.1%	28.8%	
Denmark	ESRA3	115	32.6%	24.3%	41.8%	No
Denmark	ESRA2	60	25.4%	15.7%	37.4%	
Finland	ESRA3	97	14.5%	8.4%	22.8%	No
Finland	ESRA2	65	20.7%	12.2%	31.9%	
France	ESRA3	190	20.7%	15.4%	26.9%	No
France	ESRA2	66	19.1%	10.9%	30.0%	
Germany	ESRA3	133	19.3%	12.9%	27.1%	No
Germany	ESRA2	177	17.9%	12.7%	24.1%	
Greece	ESRA3	200	27.7%	21.8%	34.3%	No
Greece	ESRA2	162	42.4%	33.0%	52.2%	
Ireland	ESRA3	62	42.5%	30.6%	55.2%	No
Ireland	ESRA2	64	24.9%	15.0%	37.4%	
Israel	ESRA3	33	24.0%	12.0%	40.4%	No
Israel	ESRA2	42	7.1%	2.0%	17.8%	
Italy	ESRA3	266	19.3%	14.9%	24.4%	No
Italy	ESRA2	203	11.9%	7.9%	17.0%	
Japan	ESRA3	84	3.7%	1.1%	9.6%	No
Japan	ESRA2	97	7.5%	2.8%	15.9%	
Poland	ESRA3	94	36.8%	27.5%	46.8%	No
Poland	ESRA2	94	33.3%	24.3%	43.3%	
Portugal	ESRA3	91	14.8%	8.7%	23.1%	No
Portugal	ESRA2	129	14.0%	8.9%	20.7%	
Serbia	ESRA3	72	45.6%	34.5%	57.1%	No
Serbia	ESRA2	145	42.2%	34.0%	50.9%	
Slovenia	ESRA3	146	29.3%	22.2%	37.2%	No
Slovenia	ESRA2	130	24.4%	17.8%	32.1%	
Spain	ESRA3	159	23.3%	17.1%	30.5%	No
Spain	ESRA2	156	14.0%	8.7%	21.0%	
Sweden	ESRA3	88	35.0%	25.2%	45.8%	No
Sweden	ESRA2	95	19.9%	12.9%	28.8%	
Switzerland	ESRA3	200	20.4%	15.3%	26.3%	No
Switzerland	ESRA2	110	13.2%	7.9%	20.4%	
United Kingdom	ESRA3	179	29.3%	22.9%	36.5%	No
United Kingdom	ESRA2	46	22.3%	12.0%	36.2%	
United States	ESRA3	407	22.4%	18.6%	26.7%	Yes
United States	ESRA2	98	37.9%	28.7%	47.9%	

ESRA3			ride faster than the speed limit outside built-up areas (except motorways/freeways)			
ESRA2			drive faster than the speed limit outside built-up areas (but not on motorways/freeways)			
Country	Edition	Weighted sample	Estimate	95% CI lower	95% CI upper	Diff. ESRA2-3 based on CIs
Australia	ESRA3	280	18.0%	13.8%	22.9%	No
Australia	ESRA2	47	30.6%	18.2%	45.7%	
Austria	ESRA3	194	58.8%	51.5%	65.8%	No
Austria	ESRA2	227	51.2%	44.6%	57.7%	
Canada	ESRA3	221	39.8%	32.4%	47.6%	No
Canada	ESRA2	62	44.9%	32.4%	58.0%	
Czech Republic	ESRA3	75	54.0%	42.8%	65.0%	No
Czech Republic	ESRA2	100	40.4%	31.1%	50.3%	
Denmark	ESRA3	115	40.0%	31.1%	49.4%	No
Denmark	ESRA2	60	51.7%	39.2%	64.1%	
Finland	ESRA3	97	53.2%	43.0%	63.3%	No
Finland	ESRA2	65	54.2%	41.9%	66.1%	
France	ESRA3	190	25.3%	19.6%	31.9%	Yes
France	ESRA2	66	52.7%	40.5%	64.6%	
Germany	ESRA3	133	33.5%	25.4%	42.4%	No
Germany	ESRA2	177	48.1%	40.7%	55.5%	
Greece	ESRA3	200	46.4%	39.5%	53.4%	No
Greece	ESRA2	162	45.9%	36.3%	55.7%	
Ireland	ESRA3	62	55.4%	42.8%	67.5%	No
Ireland	ESRA2	64	35.9%	24.2%	49.0%	
Israel	ESRA3	33	63.2%	46.2%	78.0%	No
Israel	ESRA2	42	40.5%	26.7%	55.6%	
Italy	ESRA3	266	34.5%	29.0%	40.4%	No
Italy	ESRA2	203	40.8%	34.2%	47.8%	
Japan	ESRA3	84	39.5%	29.3%	50.3%	No
Japan	ESRA2	97	54.9%	42.7%	66.8%	
Poland	ESRA3	94	42.2%	32.5%	52.4%	No
Poland	ESRA2	94	48.4%	38.4%	58.5%	
Portugal	ESRA3	91	52.3%	42.1%	62.3%	No
Portugal	ESRA2	129	40.3%	32.2%	48.8%	
Serbia	ESRA3	72	30.2%	20.5%	41.4%	No
Serbia	ESRA2	145	33.4%	25.7%	41.8%	
Slovenia	ESRA3	146	42.8%	34.8%	51.1%	No
Slovenia	ESRA2	130	48.0%	39.8%	56.4%	
Spain	ESRA3	159	43.5%	35.8%	51.5%	No
Spain	ESRA2	156	35.6%	27.5%	44.4%	
Sweden	ESRA3	88	50.8%	39.9%	61.6%	No
Sweden	ESRA2	95	50.7%	40.7%	60.6%	
Switzerland	ESRA3	200	30.7%	24.7%	37.3%	Yes
Switzerland	ESRA2	110	49.1%	39.9%	58.3%	
United Kingdom	ESRA3	179	26.4%	20.2%	33.3%	No
United Kingdom	ESRA2	46	28.2%	16.6%	42.7%	
United States	ESRA3	407	22.5%	18.6%	26.7%	Yes
United States	ESRA2	98	47.0%	37.2%	57.0%	



# ESRA

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## E-Survey of Road users' Attitudes

