Global status report on alcohol and health

World Health Organization

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FOREWORD

The harmful use of alcohol is a worldwide problem resulting in millions of deaths, including hundreds of thousands of young lives lost. It is not only a causal factor in many diseases, but also a precursor to injury and violence. Furthermore, its negative impacts can spread throughout a community or a country, and beyond, by influencing levels and patterns of alcohol consumption across borders.

The Global status report on alcohol and health (2011) presents a comprehensive perspective on the global, regional and country consumption of alcohol, patterns of drinking, health consequences and policy responses in Member States. It represents a continuing effort by the World Health Organization (WHO) to support Member States in collecting information in order to assist them in their efforts to reduce the harmful use of alcohol, and its health and social consequences.

In May 2010, the World Health Assembly (WHA), representing all 193 WHO Member States, approved a resolution to endorse the global strategy to reduce the harmful use of alcohol. The strategy includes an array of evidence-based policies and interventions that can protect health and save lives if adopted, implemented and enforced. The World Health Assembly resolution urged countries to strengthen national responses to public health problems caused by the harmful use of alcohol.

Many countries recognize the serious public health problems caused by the harmful use of alcohol and have taken steps to adopt preventive policies and programmes, particularly to reduce drink–driving and the carnage that it causes. However, it is clear that much more needs to be accomplished.

This report, which is written for all who are concerned about the dangers posed by the harmful use of alcohol, can serve as a comprehensive knowledge base on the status of alcohol consumption, alcohol-related harm and alcohol policies in the world. Health ministries and other concerned parties can use it to support the development and implementation of their policies and interventions.

Since 1974, WHO has been actively involved in documenting and reporting on alcohol-related health issues and problems. Indeed, this publication follows in the wake of the first *Global status report on alcohol* in 1999 and the second in 2004. These reports were based on global, regional and national data collection efforts supported and coordinated by WHO. Data collection initiatives began with the Global Alcohol Database in 1996, which was further developed and transformed into the Global Information System on Alcohol and Health (GISAH; http://www.who.int/globalatlas/alcohol) in 2008, and which now contains data on more than 200 alcohol-related indicators.

In recent years, a larger number of countries have been providing data, enabling WHO to create a more comprehensive picture of the global situation on alcohol use and its health consequences. However, many gaps in the data remain and a detailed picture cannot be clearly drawn for all countries and regions. This information is critical in assessing progress in reducing the harmful use of alcohol at all levels and in monitoring and evaluating progress made in the implementation of the global strategy. I therefore encourage WHO Member States and all stakeholders to make a joint effort to improve data collection and reporting.

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In WHO, Ala Alwan, Assistant Director-General, Department of Noncommunicable Diseases and Mental Health, Benedetto Saraceno, former Director, Department of Mental Health and Substance Abuse, and Shekhar Saxena, Director, Department of Mental Health and Substance Abuse, provided vision, guidance, support and valuable contributions to this project.

Preparation of this report and related maintenance and updating of the GISAH was a collaborative effort between the WHO Department of Mental Health and Substance Abuse, Management of Substance Abuse, and the Centre for Addiction and Mental Health (CAMH), Toronto, Canada. Contributions from Louis Gliksman, Jürgen Rehm and Marg Rylett of CAMH as well as from Gerhard Gmel of the Swiss Institute for the Prevention of Alcohol and Drug Problems, Lausanne, Switzerland, were essential to the development of this report.

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- Appendix IV: Louis Gliksman, Marg Rylett, Alexandra Fleischmann and Daniela Fuhr.

The report benefited from technical inputs from Nicolas Clark and Isy Vromans of WHO MSD/MSB. Linda Laatikainen assisted with the finalization of the report during her internship in MSB. Other interns who contributed include: Emily Baron, Romain Despalins, Tazeen Dhanani, Niko Fortelny, Sutapa Howlader, Tuuli Lahti, William Lewis, Luz Lopez, Eva-Maria Orel, Laura Pidgeon and Ben Solomon.

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- WHO African Region: Carina Ferreira-Borges, Therèse Agossou and Albertine Koundi;
- WHO Region of the Americas: Maristela Monteiro and Linda Castagnola;
- WHO Eastern Mediterranean Region: Khalid Saeed;
- WHO European Region: Lars Møller, Nina Blinkenberg and Anne-Majlis Jepsen;
- WHO South-East Asia Region: Vijay Chandra;
- WHO Western Pacific Region: Xiangdong Wang, Nina Rehn-Mendoza, and Thelma Sison.

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Jim Gogek (the United States) and Diana Hopkins (Switzerland) edited the report.

L'IV Com Sàrl (Switzerland) produced the graphic design and layout.

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ABBREVIATIONS

AFR	WHO African Region
AIDS	acquired immunodeficiency syndrome
AMR	WHO Region of the Americas
APC	adult per capita alcohol consumption
AUD	alcohol use disorders
BAC	blood alcohol concentration
DALY	disability-adjusted life year
EMR	WHO Eastern Mediterranean Region
EUR	WHO European Region
GDP	gross domestic product
GISAH	WHO Global Information System on Alcohol and Health
GSHS	Global School-based Student Health Survey (WHO)
HED	heavy episodic drinking
HIV	human immunodeficiency virus
ICD	International Classification of Diseases
MA	moving average
PAF	population-attributable fraction
PPP	purchasing power parity
SEAR	WHO South-East Asia Region
WHA	World Health Assembly
WHO	World Health Organization
WPR	WHO Western Pacific Region

INTRODUCTION

The public health objective on alcohol of the World Health Organization (WHO) is to reduce the health burden caused by the harmful use of alcohol and, thereby, to save lives, reduce disease and prevent injuries. The hazardous and harmful use of alcohol is a major global contributing factor to death, disease and injury: to the drinker through health impacts, such as alcohol dependence, liver cirrhosis, cancers and injuries; and to others through the dangerous actions of intoxicated people, such as drink–driving and violence or through the impact of drinking on fetus and child development. The harmful use of alcohol results in approximately 2.5 million deaths each year, with a net loss of life of 2.25 million, taking into account the estimated beneficial impact of low levels of alcohol use on some diseases in some population groups. Harmful drinking can also be very costly to communities and societies.

This report provides comparable global information on: the consumption of alcohol (Section 1); the consequences of the harmful use of alcohol (Section 2); and the policy responses (Section 3). The four appendices include: country profiles for all 193 WHO Member States (Appendix I); a set of additional indicators (Appendix II); a table of comparable alcohol consumption data (Appendix III); and a section explaining data sources and methods used in this report (Appendix IV).

Alcohol consumption and problems related to alcohol vary widely around the world, but the burden of disease and death remains significant in most countries. Alcohol consumption is the world's third largest risk factor for disease and disability; in middle-income countries, it is the greatest risk. Alcohol is a causal factor in 60 types of diseases and injuries and a component cause in 200 others. Almost 4% of all deaths worldwide are attributed to alcohol, greater than deaths caused by HIV/AIDS, violence or tuberculosis. Alcohol is also associated with many serious social issues, including violence, child neglect and abuse, and absenteeism in the workplace.

Yet, despite all these problems, the harmful use of alcohol remains a low priority in public policy, including in health policy. Many lesser health risks have higher priority.

The harmful use of alcohol is a particularly grave threat to men. It is the leading risk factor for death in males ages 15–59, mainly due to injuries, violence and cardiovascular diseases. Globally, 6.2% of all male deaths are attributable to alcohol, compared to 1.1% of female deaths. Men also have far greater rates of total burden attributed to alcohol than women – 7.4% for men compared to 1.4% for women. Men outnumber women four to one in weekly episodes of heavy drinking – most probably the reason for their higher death and disability rates. Men also have much lower rates of abstinence compared to women. Lower socioeconomic status and educational levels result in a greater risk of alcohol-related death, disease and injury – a social determinant that is greater for men than women.

The world's highest alcohol consumption levels are found in the developed world, including western and eastern Europe. High-income countries generally have the highest alcohol consumption. However, it does not follow that high income and high consumption always translate into high alcohol-related problems and high-risk drinking. Western European

countries have some of the highest consumption rates but their net alcohol-attributable mortality rates are relatively low, though their alcohol-related disease burden may be high. Many eastern European countries have the highest consumption, risky patterns of drinking and, accordingly, high levels of alcohol-related deaths and disabilities. Every fifth death is due to harmful drinking in the Commonwealth of Independent States (CIS). Outside of the Russian Federation and some neighbouring countries, rates of disease and disability attributable to alcohol are also quite high, for example, in Mexico and in most South American countries.

Worldwide consumption in 2005 was equal to 6.13 litres of pure alcohol consumed per person aged 15 years or older. A large portion of this consumption – 28.6% or 1.76 litres per person – was homemade, illegally produced or sold outside normal government controls. However, despite widespread consumption, a higher percentage of people currently do not drink at all. Almost half of all men and two thirds of women have not consumed alcohol in the past year. Abstention rates are low in high-income, high-consumption countries, and higher in North African and South Asian countries with large Muslim populations. Female abstention rates are very high in these countries. Abstention from alcohol is very important in the global picture on alcohol consumption; it is one of the strongest predictors of the magnitude of alcohol-attributable burden of disease and injuries in populations. Obviously, lifetime abstention from alcohol means exemption from personal alcohol-attributable disease, injury and death. Because abstention is so prevalent in the world, any diminution in abstention trends could have a big impact on the global burden of disease caused by the harmful use of alcohol.

Heavy episodic drinking is another important pattern of drinking because it leads to serious health problems, and is particularly associated with injury. About 11.5% of drinkers have heavy episodic drinking occasions. Heavy episodic drinking is not the only measure of harmful drinking, but data for this aspect of the drinking pattern were not available in many countries. The pattern of drinking score, reflecting the frequency and circumstances of alcohol consumption and the proportion of people drinking alcohol to intoxication, is among the lowest, i.e. less risky, in western European countries, while it is the highest in the Russian Federation, and in some neighbouring countries. Risky patterns of drinking are also highly prevalent in Mexico and southern African countries.

Harmful alcohol consumption is risky both for the drinker and for other people. An intoxicated person can put people in harm's way by involving them in traffic accidents or violent behaviour, or by negatively affecting co-workers, relatives, friends or strangers. A survey in Australia found that two thirds of respondents were adversely affected by someone else's drinking in the past year. Alcohol consumption also affects society at large. Death, disease and injury caused by alcohol consumption have socioeconomic impacts, including the medical costs borne by governments, and the financial and psychological burden to families. The hazardous and harmful use of alcohol also impacts on workers' productivity. Perhaps the biggest social impact is crime and violence related to alcohol consumption, which create significant costs for justice and law enforcement sectors.

Contrary to the belief of many people, the health, safety and socioeconomic problems attributable to alcohol can be effectively reduced. Many evidence-based alcohol policies and prevention programmes are shown to work. One of the most effective is raising alcohol prices by raising taxes. This has the added benefit of generating increased revenues. A recent analysis of 112 studies on the effects of alcohol tax increases affirmed that when taxes go up, drinking goes down, including among problem drinkers and youth. Implementing and enforcing legal drinking ages for the purchase and consumption of alcohol is another effective way to reduce alcohol-attributable problems, as is the setting of maximum blood alcohol concentrations (BACs) for drivers and enforcing them with sobriety checkpoints and random breath testing. These are effective and cost-effective ways to reduce alcohol-related traffic accidents.

Yet, not enough countries use these and other effective policy options to prevent death, disease and injury attributable to alcohol consumption. Since 1999, when WHO first began to report on alcohol policies, at least 34 countries have adopted some type of formal policies. Restrictions on alcohol marketing and on drink–driving have increased but, in general, there are no clear trends on most preventive measures. A large proportion of countries, representing a high percentage of the global population, has weak alcohol policies and prevention programmes that do not protect the health and safety of the populace.

This report is another milestone in WHO's efforts to monitor the situation with alcohol consumption, alcohol-related harm and policy responses worldwide.

global status report on alcohol and health

1. CONSUMPTION

1. CONSUMPTION

Alcoholic beverages are widely consumed throughout the world. While most of the adult population drinks at low-risk levels most of the time or abstains altogether, the broad range of alcohol consumption patterns, from daily heavy drinking to occasional hazardous drinking, creates significant public health and safety problems in nearly all countries. This section examines global and regional alcohol consumption, abstinence from alcohol use and patterns of drinking. It also looks at the use of homemade or illegally produced alcoholic beverages, alcoholic beverage preference and recent trends in alcohol use. The main data source for information presented in this section is the WHO Global Information System on Alcohol and Health (GISAH).

Box 1. The Global Information System on Alcohol and Health

The Global Information System on Alcohol and Health (http://www.who.int/globalatlas/alcohol) is a comprehensive information system that includes data on more than 200 alcohol-related indicators. Data are arranged under a broad set of seven categories that contain a number of indicators chosen to assess the alcohol situation in WHO Member States as they relate to public health. These seven categories are: alcohol production and availability; levels of consumption; patterns of consumption; harms and consequences; economic aspects; alcohol control policies; and resources for prevention and treatment. This information system is the source for most of the data presented in this report.

The Global Survey on Alcohol and Health is an important data collection tool for GISAH. The survey was conducted by WHO and the questionnaire developed for the survey was sent to all WHO Member States through its six regional offices at the beginning of 2008. The 69 questions in the questionnaire were divided into three sections: Section A addressed alcohol policy; Section B addressed alcohol consumption; and Section C addressed alcohol and health indicators. By early 2009, 162 WHO Member States had responded to the survey. This represents a response rate of 84% of WHO Member States and an overall global coverage of 97% of the world's population (see Appendix IV for details).

Box 2. Population data, WHO regions and World Bank income groups

Population data

Most of the population data are from the United Nation Population Division and refer to total population (unless otherwise specified), with data for males and females shown separately whenever available. World totals for males and females include populations living outside WHO Member States and World Bank income groups. Notably, most tables summarizing the world or regions, use the adult (people 15 years and older; 15+ years) population sizes. Hence, they weight data by the population size of the countries in these regions. Similarly, adult per

capita is used to measure alcohol consumption, instead of the also widely used per capita for the whole population. This is to balance the fact that population distributions in developing countries are quite different from developed countries (i.e. they have a much larger proportion of children and young people). Using per capita consumption would mean that consumption among adults would be underestimated in those with many young people if it were assumed that most young people below the age of 15 do not consume significant quantities of alcohol.

WHO regions
Most data in the present report are aggregated according to WHO regions and WHO subregions. For a full list of WHO Member States included in the report by WHO regions and WHO subregions, see Appendix IV.

World Bank income groups
Given that income levels are an important variable associated with overall alcohol consumption, some of the data presented in this report are investigated according to World Bank income groups. Income categories for 2004 are as defined by the World Bank's *World Development Report 2004: Making Services Work for Poor People*. Member States of the United Nations with populations of more than 30 000 are divided among income groups according to 2004 gross national income (GNI) per capita: high income (US$ 10 066 or more), upper middle income (US$ 3256–10 065), lower middle income (US$ 826–3255) and low income (US$ 825 or less). For a full list of countries and territories by income category, see Appendix IV.

1.1 HOW MUCH DO PEOPLE DRINK?

The true picture of alcohol consumption is often shrouded in myths and assumptions. A statistical presentation and mapping of the level and patterns of global, regional and country alcohol consumption by adults 15 years and older provides a sound basis for the analysis of problems related to alcohol. For this purpose, total adult consumption, unrecorded consumption, consumption in different World Bank income groups, and most consumed beverages in terms of litres of pure alcohol are examined and presented. The principal measure is adult per capita alcohol consumption (APC) in litres of pure alcohol (see Box 3). The country-level data on APC and consumption of different types of alcoholic beverages are presented in Appendix II.

Box 3. Adult per capita alcohol consumption (APC)

Total adult per capita alcohol consumption is the adult (the population of 15 years and over) per capita amount of alcohol consumed in litres of pure alcohol in a given population.

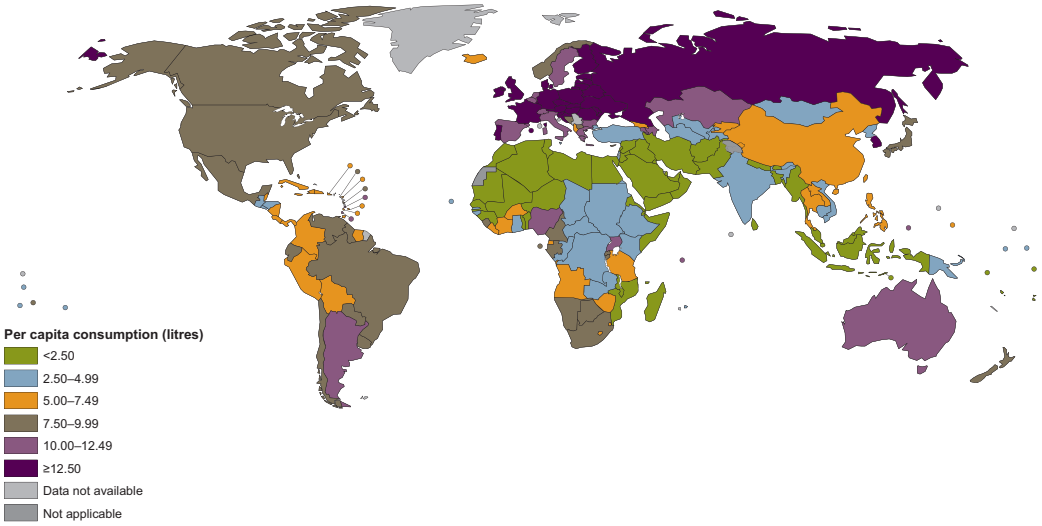
In the present report, total APC consists of the average APC of recorded alcohol in 2003–2005 and the APC of unrecorded alcohol (see Box 4) in 2005. Notably, the recorded APC data were adjusted for 22 countries where the number of tourists was at least the number of inhabitants (see Appendix IV for methodology). There are different data sources and approaches for calculating APC and assessing distribution of APC by alcoholic beverage, as discussed in Appendix IV.

1.1.1 TOTAL ADULT PER CAPITA CONSUMPTION

Worldwide per capita consumption of alcoholic beverages in 2005 equaled 6.13 litres of pure alcohol consumed by every person aged 15 years or older. A large portion of this consumption – 28.6% or 1.76 litres per person – was homemade and illegally produced alcohol or, in other words, unrecorded alcohol. The consumption of homemade or illegally produced alcohol may be associated with an increased risk of harm because of unknown and potentially dangerous impurities or contaminants in these beverages.

A large variation exists in adult per capita consumption (Figure 1). The highest consumption levels can be found in the developed world, mostly the Northern Hemisphere, but also in Argentina, Australia and New Zealand. Medium consumption levels can be found in southern Africa, with Namibia and South Africa having the highest levels, and in North and South America. Low consumption levels can be found in the countries of North Africa and sub-Saharan Africa, the Eastern Mediterranean region, and southern Asia and the Indian Ocean. These regions represent large populations of the Islamic faith, which have very high rates of abstention.

Figure 1. Total adult (15+) per capita consumption, in litres of pure alcohol, 2005[a]



[a] Best estimates of 2005 using average recorded alcohol consumption 2003–2005 (minus tourist consumption; see Appendix IV for details) and unrecorded alcohol consumption 2005.

1.1.2 UNRECORDED ALCOHOL CONSUMPTION

The consumption of unrecorded alcohol (see Box 4) is a significant issue in all WHO regions, and poses a difficult dimension for measuring the true nature of global alcohol consumption. Data must be culled from many sources to accurately estimate this sector of consumption, which accounts for nearly 30% of total worldwide adult consumption.

Box 4. Unrecorded alcohol

Unrecorded alcohol refers to alcohol that is not taxed and is outside the usual system of governmental control, because it is produced, distributed and sold outside formal channels. Unrecorded alcohol consumption in a country includes consumption of homemade or informally produced alcohol (legal or illegal), smuggled alcohol, alcohol intended for industrial or medical uses, alcohol obtained through cross-border shopping (which is recorded in a different jurisdiction), as well as consumption of alcohol by tourists. Homemade or informally produced alcoholic beverages are mostly fermented beverages made from sorghum, millet, maize, rice, wheat or fruits.

Estimating unrecorded alcohol consumption: in this report, unrecorded alcohol consumption in 2005 is calculated per adult (15+ years), and is based on litres of pure alcohol over a calendar year. There are different data sources and approaches for estimating unrecorded alcohol consumption, as discussed in Appendix IV.

As can be seen from Table 1, the consumption of unrecorded alcohol is associated with relatively high levels of total consumption of alcohol. Conversely, the percentage share of unrecorded alcohol consumption generally increases in regions with less total consumption. This means that the lower the alcohol consumption in countries, the higher the proportion of alcohol being homemade or illegally produced. Overall alcohol consumption is lowest in the Eastern Mediterranean (EMR) and South-East Asia (SEAR) regions, where consumption of homemade or illegally produced beverages is 56.2% and 69.0%, respectively, of APC.

Table 1. Total adult per capita consumption, unrecorded APC and proportion of unrecorded APC of total APC, in litres of pure alcohol, by WHO region, 2005[a]

WHO region	Total APC	Unrecorded APC	Proportion of unrecorded APC of total APC (%)
AFR	6.15	1.93	31.4
AMR	8.67	2.01	23.1
EMR	0.65	0.36	56.2
EUR	12.18	2.67	21.9
SEAR	2.20	1.52	69.0
WPR	6.23	1.63	26.2
World	6.13	1.76	28.7

[a] Best estimates of 2005 using average recorded alcohol consumption 2003–2005 (minus tourist consumption, see Appendix IV) and unrecorded alcohol consumption 2005.

Across the world, but also within regions, there is a strong negative association between total consumption and the proportion of unrecorded consumption in total consumption. This means that in countries, often poorer or developing countries, where alcohol use is rather low, much of this use is served by homemade or illegally produced and, therefore, cheaper alcohol, whereas in developed countries alcohol consumption is higher but most of it is with recorded legally produced alcohol.

1.1.3 ADULT PER CAPITA CONSUMPTION AND INCOME OF COUNTRIES

Income level of a country (see Box 2) is associated with overall levels of alcohol consumption and also with the levels of consumption of unrecorded alcohol.

Further analysis of adult per capita consumption results in two major findings for all regions of the world. Table 2 shows that APC is higher in countries with higher incomes. Secondly, in countries with higher incomes, there is proportionally less unrecorded alcohol consumed. Generally, with increasing income, alcohol use increases and the proportion of unrecorded alcohol consumption decreases. An exception is the Eastern Mediterranean Region, where alcohol use is generally very low.

Table 2. Total adult per capita consumption (APC), unrecorded APC and proportion of unrecorded APC of total APC, in litres of pure alcohol, by income group, 2005[a]

Income	Total APC	Unrecorded APC	Proportion of unrecorded APC of total APC (%)
Low	2.97	1.42	47.9
Lower middle	4.41	1.71	38.9
Upper middle	9.46	2.88	30.5
High	10.55	1.18	11.2
World	6.13	1.76	28.7

[a] Best estimates of 2005 using average recorded alcohol consumption 2003–2005 (minus tourist consumption, see Appendix IV) and unrecorded alcohol consumption 2005.

1.1.4 MOST CONSUMED ALCOHOLIC BEVERAGES

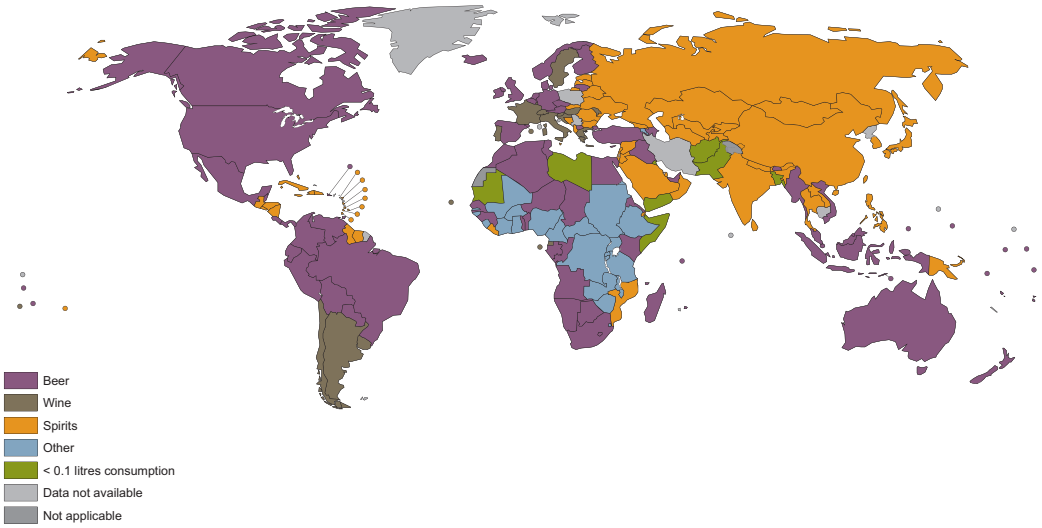
Geographical differences exist among the type of alcohol people consume – beer, wine, spirits or other alcoholic beverages. In this report, 'beer' includes malt beers, 'wine' includes wine made from grapes, and 'spirits' include all distilled beverages. Other includes one or several other alcoholic beverages, such as fermented beverages made from sorghum, maize, millet, rice, or cider, fruit wine, fortified wine, etc. Spirits are the most consumed beverages in terms of litres of pure alcohol in Asian and eastern European countries (Figure 2; Table 3).

Wine constitutes the largest proportion of alcohol consumed in some European countries and the South American wine growing countries of Argentina and Chile. The traditional European differences in beverage preference, where northern Europeans once preferred beer while southern Europeans drank more wine, are diminishing. Today, in Spain the most consumed alcoholic beverage in litres of pure alcohol is beer, while in Sweden, it is wine.

Other beverages than wine, beer and spirits are consumed mostly in sub-Saharan Africa, which has generally low alcohol use levels. In the rest of the world – including most of the Western Hemisphere, northern Europe, many African countries and Australia – the most consumed beverage in terms of litres of pure alcohol is beer.

Globally, more than 45% of total recorded alcohol is consumed in the form of spirits, predominantly in the South-East Asia and Western Pacific (WPR) regions (Table 3). Approximately 36% of total recorded alcohol is consumed in the form of beer. Beer

Figure 2. Distribution of most consumed alcoholic beverages, in litres of pure alcohol, 2005[a]



[a] Best estimates of 2005 using average recorded alcohol consumption 2003–2005 (minus tourist consumption; see Appendix IV for details). In countries marked in green, per capita alcohol consumption is less than 0.1 litre of pure alcohol and no data is available for countries marked in light grey.

Table 3. Distribution of recorded adult per capita consumption of alcoholic beverages (%), by WHO region and the world, 2005[a]

WHO region	Spirits (%)	Beer (%)	Wine (%)	Other (%)
AFR	12.0	34.1	5.6	48.2
AMR	32.9	54.7	12.0	0.6
EMR	25.2	37.8	5.7	31.3
EUR	34.6	37.1	26.4	2.5
SEAR	71.0	25.5	2.5	1.0
WPR	54.0	35.5	3.6	6.9
World	45.7	36.3	8.6	10.5

[a] Best estimates of 2005 using average recorded alcohol consumption 2003–2005 (minus tourist consumption, see Appendix IV).

consumption is highest in the Region of the Americas (AMR at 54.7% of total recorded adult per capita consumption). Commonly, high overall consumption levels (see Table 1) are found in countries such as the Russian Federation, which display both high beer and high spirits consumption (country data not shown here). As highlighted in Table 3, the consumption of wine as a percentage of total recorded alcohol is globally quite low (8.6%), with significant levels of alcohol consumed in the form of wine in the European Region (EUR at 26.4% of recorded APC) and the Region of the Americas (12.0% of recorded APC). Beverages other than beer, spirits and wine (e.g. fortified wines, rice wine or other fermented beverages made of sorghum, millet, maize) have the highest share in total recorded consumption in the African Region (AFR at 48.2%), and in the Eastern Mediterranean Region (31.3%).

However, it is important to note that Figure 2 and Table 3 only present most consumed alcoholic beverages in terms of litres of pure alcohol, which do not necessarily reflect that the overall level of consumption of this alcoholic beverage is high. For example in India, spirits are the most consumed alcoholic beverages, but this does not mean that

the consumption level of spirits is high, but that the proportion of total alcohol consumed in the form of spirits is high. Similarly, other beverages have high shares in total recorded consumption in the Eastern Mediterranean Region, but overall consumption of alcohol is very low in this WHO region (see Table 1).

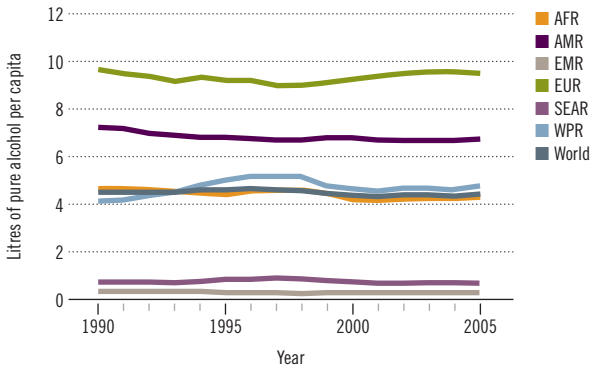
1.2 CHANGES IN ALCOHOL CONSUMPTION OVER TIME

Time series of alcohol consumption complete the picture of global alcohol use. Trends are measured in two ways: annual reported adult per capita alcohol consumption and estimates of five-year changes in consumption, which are not affected by small departures in a trend. For alcohol consumption, both the per capita consumption trend and estimate of five-year change in APC tell similar stories.

1.2.1 TRENDS IN ADULT PER CAPITA CONSUMPTION SINCE 1990

Worldwide recorded per capita consumption has remained stable at around 4.3–4.7 litres of pure alcohol since 1990, including relative stability in all WHO regions. After a slight decrease at the beginning of the 1990s, alcohol use in the European Region increased again to around the same level of 9.5 litres. The initial decline in the 1990s in the Region of the Americas stabilized in the new millennium at about 6.7 litres. There was an increase at the end of the last century in the Western Pacific Region, but recorded consumption then stabilized at around 4.7 litres (Figure 3).

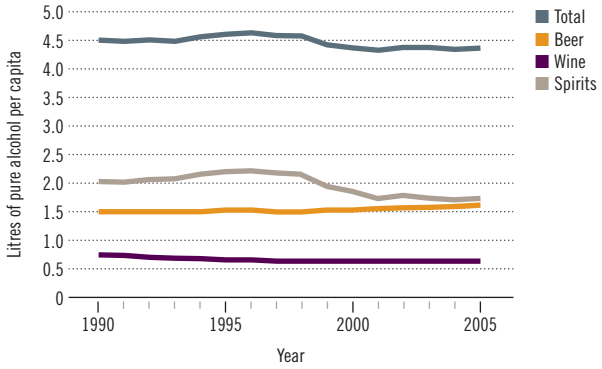
Figure 3. Recorded adult per capita consumption, in litres of pure alcohol, by WHO region and the world, 1990–2005[a]



[a] Data are three-year averages and the data source changed from year 2000 in some countries (see country profiles).

The trends presented in Figure 4 suggest that the recorded consumption of specific types of alcoholic beverages has been relatively stable since the 1990s, although an almost equal share of beer and spirits has eclipsed the former dominance of spirits in global alcohol use.

Figure 4. Recorded adult per capita consumption of specific alcoholic beverages, 1990–2005[a]



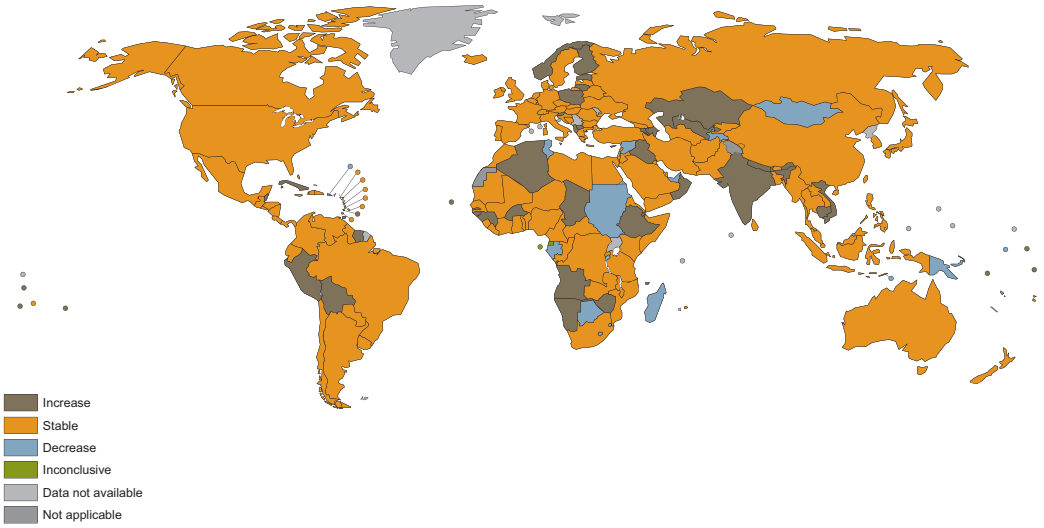
[a] Data are three-year averages and the data source changed from year 2000 in some countries (see country profiles).

Two significant trends can be found in countries' consumption of particular types of alcoholic beverages (data not shown): in those countries where beer and wine are the most consumed alcoholic beverages, the overall decrease in alcohol use is due to decreased consumption of these beverages, whereas the other beverages remained stable. In countries where spirits are the most consumed alcoholic beverages, the increase in total alcohol use in the early 1990s was due to an increase in spirits consumption.

1.2.2 FIVE-YEAR CHANGE 2001–2005 IN ALCOHOL USE

The trend seen in Figure 5 of relatively stable global alcohol consumption is also supported by estimates of five-year change in alcohol use for the years 2001–2005.

Figure 5. Five-year change in recorded adult per capita consumption, 2001–2005[a]



[a] Best estimate of changes in recorded adult (15+) per capita alcohol consumption between 2001 and 2005, calculated using a mathematical algorithm (see Appendix IV).

Table 4 shows that countries with about three quarters of the world's population display a stable five-year trend in recorded consumption. Regional estimates suggest a stable consumption trend in most of the regions, while an increase can be noted in the African Region and the South-East Asia Region.

Table 4. Estimates of five-year trends in recorded adult per capita alcohol consumption (%), by WHO region and the world, 2001–2005

	Proportion of population displaying five-year trends in recorded APC		
WHO region	Increase (%)	Stable (%)	Decrease (%)
AFR	25.3	70.2	4.5
AMR	5.3	94.7	0.0
EMR	5.4	81.5	13.1
EUR	12.1	87.3	0.6
SEAR	68.3	31.7	< 0.1
WPR	5.1	94.5	0.4
World	23.5	74.9	1.6

1.3 ALCOHOL CONSUMPTION AMONG YOUNG PEOPLE

The World Health Organization initiated The Global School-based Student Health Survey (GSHS, 2004), which is a collaborative surveillance project designed to help countries measure and assess the behavioural risk factors including alcohol use and protective factors in 10 key areas among young people (aged 13–15 years). The GSHS is a relatively low-cost school-based survey which uses a self-administered questionnaire to obtain data on young people's health behaviour and protective factors related to the leading causes of morbidity and mortality among children and adults worldwide. Table 5 gives an overview of the national data from GSHS concerning current drinking among young people aged 13–15 years.

In the WHO Global Survey on Alcohol and Health (2008), the five-year trend of under-age drinking was assessed: out of 73 responding countries, 71% indicated an increase, 4% a decrease, 8% were stable and 16% showed inconclusive trends. The five-year trend of drinking among 18–25 year olds indicated that, out of 82 responding countries, 80% showed an increase, 11% a decrease, 6% were stable and 12% showed inconclusive trends.

Overall, hazardous and harmful drinking patterns, such as drinking to intoxication and binge drinking, seem to be on the rise among adolescents and young adults (WHO, 2007; McAllister, 2003; Lancet, 2008). One reason could be the use of alcoholic carbonate drinks, better known as 'alcopops', that is equated with more problematic drinking patterns, such as more frequent drinking, earlier onset of alcohol consumption, drunkenness and more alcohol-related negative consequences (Kraus et al., 2010). Johnston et al. (2008) pointed out that in the Monitoring the Future study since 2003, the perceived risk has risen somewhat and disapproval of binge drinking has increased appreciably in all grades in recent years, especially in the upper grades. In the ESPAD project, on average, no more gender differences in the frequency of drunkenness were found, whereas heavy episodic drinking was more common among boys (Hibell et al., 2009).

Table 5. Percentage of students who drank at least one drink containing alcohol on one or more of the past 30 days, in countries of WHO regions (based on the data from GSHS)[a]

WHO region	WHO Member State	Men (%)	Women (%)
AFR	Benin	18.2	12.5
	Botswana	22.8	18.7
	Ghana	26.4	29.3
	Kenya	16.8	12.3
	Malawi	5.3	2.5
	Mauritius	19.3	16.8
	Namibia	35.0	30.9
	Senegal	4.0	2.0
	Seychelles	62.1	61.2
	Swaziland	19.6	14.3
	Uganda	14.1	11.6
	Zambia	38.7	45.1
AMR	Argentina	55.4	49.0
	Costa Rica	23.4	23.6
	Dominica	54.9	54
	Grenada	49.1	43
	Guatemala	18.1	14.2
	Guyana	46.9	25.9
	Saint Lucia	59.2	52.2
	Saint Vincent and the Grenadines	52.6	53.5
	Suriname	35.6	30.0
	Trinidad and Tobago	39.6	42.0
	Uruquay	62.0	57.7
EMR	Lebanon	28.5	12.3
	Morocco	5.5	1.6
EUR	The former Yugoslav Republic of Macedonia	40.8	30.6
	Tajikistan	1.1	0.4
SEAR	Maldives	7.3	2.6
	Myanmar	1.1	0.5
	Indonesia	4.3	0.8
	Thailand	22	10
WPR	Mongolia	6.6	4.5
	China (Beijing)	17.7	8.6
	Philippines	19.6	12.9

[a] Data from the different countries range from 2003 to 2010.

Box 5. Surveys among young people with coverage of alcohol use

Data on alcohol consumption among young people stem mainly from surveillance systems focusing on different health behaviours, including alcohol consumption. Surveys are often conducted in schools as they provide a means to sample a large youth population in a cost-effective manner. While many high-income countries participate in school surveys, data on alcohol consumption among young people from low-income countries are scarce. Apart from the GSHS, there are several large surveillance programmes among young people, which include questions on alcohol consumption.

In Europe, there have been two large-scale surveys carried out in an attempt to collect comparable data on alcohol use among young people: on the one hand, The European School Survey Project on Alcohol and other Drugs (ESPAD), and on the other hand, The Health Behaviour in School Children study (HBSC).

The ESPAD project was conducted for the first time in 1995 and provides a reliable overview of trends in licit and illicit drug use among European students (aged 15–16 years) between 1995 and 2007 as well as a comprehensive picture of young people's use of tobacco, alcohol, cannabis and other substances in Europe (Hibell et al., 2009).

The HBSC study was initiated by researchers at the beginning of the 1980s and was subsequently adopted by WHO. It focuses mainly on young people's health, well-being, health behaviour and social context in Europe. Since then, several surveys have been conducted involving young people (aged 11–15 years), the most recent of which was carried out in 2005–2006. The number of participating countries is rising (Currie et al., 2008).

In the United States, an ongoing study of behaviour, attitudes and values of American secondary school children, college students and young adults is called Monitoring the Future. Approximately 50 000 8th, 10th and 12th grade students are surveyed each year and, for a number of years after their initial participation, annual follow-up questionnaires are mailed to a sample of each graduation class (Johnston et al., 2008).

The Centers for Disease Control and Prevention (CDC, 2010) in the United States maintains the Youth Risk Behavior Surveillance System (YRBSS) that includes a national-based survey that is conducted every two years during the spring semester. This system monitors priority health-risk behaviour and the prevalence of obesity and asthma among youth and young adults in 9th to 12th grades (Eaton et al., 2010).

1.4 PATTERNS OF DRINKING

Patterns of alcohol use are as important as per capita consumption in creating an accurate picture of the impact of global alcohol consumption on health. The most influential indicators related to patterns of drinking, which have an inordinate impact on the global alcohol scenario, include abstention and heavy episodic drinking.

1.4.1 ABSTENTION

Prevalence of abstention is an indicator that is equally relevant to the description of levels and patterns of alcohol consumption. Within the context of alcohol epidemiology there are several different types of abstention (see Box 6), each of which has a different effect on global alcohol trends. Abstention from all forms of alcohol is very prevalent in many parts

of the world and, to a significant extent, determines overall levels of alcohol consumption in a population. The past-year abstention rate is an important characteristic of a pattern of drinking in a population and provides key information for the interpretation of adult per capita consumption figures.

Box 6. Prevalence of abstention

Lifetime abstainers: the percentage of those in the population aged 15 years and older, who have never consumed alcohol.

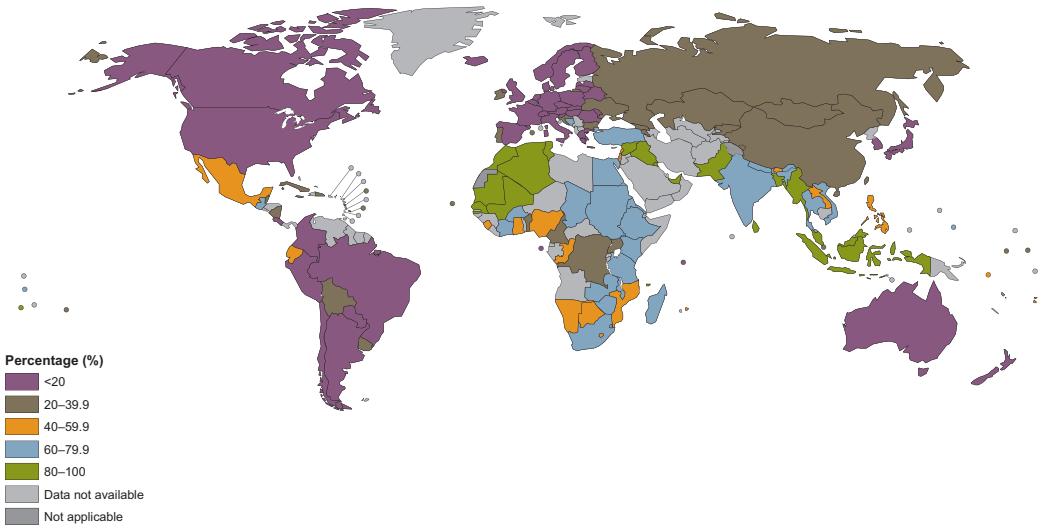
Former drinkers: the percentage of those in the population aged 15 years and older, who have previously consumed alcohol but who have not done so in the previous 12-month period.

Past year abstainers: the percentage of those in the population aged 15 years and older, who did not drink any alcohol in the past 12 months.

Estimating abstention rates: in this report, best estimates for abstention rates in 2004 are presented for 131 WHO Member States, based on surveys carried out within the time period 1993–2009.

As shown in Figure 6, lifetime abstention is the opposite of per capita consumption. In countries with high APC, there are fewer lifetime abstainers compared to countries with low APC. This suggests that WHO regions with the highest per capita consumption, commonly found in the European Region or other developed areas, do not necessarily have the highest consumption per drinker. Often, per drinker consumption is particularly high in countries with moderate or even low APC combined with high abstention rates (data on drinking among drinkers are not presented here). In such countries, the relatively smaller percentage of the population that drinks is consuming alcohol at high levels.

Figure 6. Lifetime prevalence of abstention (%), 2004[a]



[a] Best estimates for abstention rates in 2004 based on surveys carried out within the time period 1993–2009.

Globally, 45% of the world's population has never consumed alcohol (men: 35%; women: 55%). In addition, 13.1% (men: 13.8%; women: 12.5%) have not consumed alcohol during the past year. In conclusion, almost half of all men and two thirds of all women worldwide have abstained from drinking alcohol in the past 12 months.

Table 6 shows that more women than men in all regions abstained from drinking alcoholic beverages during the past year, which also has been shown in surveys from all over the world. The proportion of former drinkers among past-year abstainers is larger for women in all WHO regions.

Table 6. Prevalence of alcohol abstention by sex, WHO region and the world, 2004[a]

WHO region	Sex	Lifetime abstainers (%)	Former drinkers (%)	Past-year abstainers (%)	Former drinkers among past-year abstainers (%)
AFR	Women	65.2	12.9	78.1	16.5
	Men	49.1	14.1	63.1	22.3
	Total	57.3	13.5	70.8	19.1
AMR	Women	27.4	22.4	49.8	45.0
	Men	15.2	17.8	33.0	54.0
	Total	21.5	20.2	41.7	48.4
EMR	Women	93.4	4.8	98.2	4.9
	Men	82.4	12.3	94.7	13.0
	Total	87.8	8.7	96.5	9.0
EUR	Women	24.6	13.5	38.1	35.5
	Men	12.6	11.0	23.5	46.5
	Total	18.9	12.3	31.2	39.4
SEAR	Women	92.8	4.2	97.1	4.4
	Men	68.4	13.5	81.9	16.5
	Total	80.4	8.9	89.3	10.0
WPR	Women	44.5	15.1	59.5	25.3
	Men	14.3	13.9	28.2	49.2
	Total	29.2	14.5	43.7	33.1
World	Women	55.0	12.5	67.5	18.5
	Men	34.9	13.8	48.7	28.4
	Total	45.0	13.1	58.2	22.6

[a] Best estimates for abstention rates in 2004 based on surveys carried out within the time period 1993–2009.

1.4.2 PATTERNS OF DRINKING SCORE

Measuring drinking patterns to accurately account for the impact of alcohol consumption is more complex than simply ascertaining the amount of alcohol consumed. In the 2000 Comparative Risk Assessment in the Global Burden of Disease Study (Box 9), a composite measure of drinking patterns – the patterns of drinking score – was developed (see Box 7).

Box 7. Patterns of drinking score (PDS)

Patterns of drinking score reflects *how* people drink instead of *how much* they drink. Strongly associated with the alcohol-attributable burden of disease of a country, PDS is measured on a scale from 1 (least risky pattern of drinking) to 5 (most risky pattern of drinking). The higher the score, the greater the alcohol-attributable burden of disease. Notably, different drinking patterns give rise to very different health outcomes in population groups with the same level of consumption.

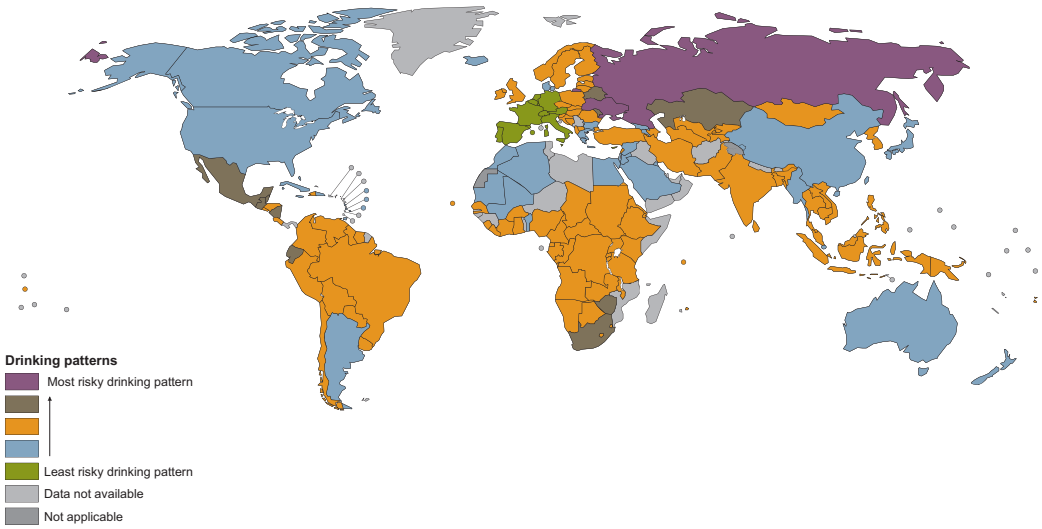
Estimating PDS: the PDS is based on an array of drinking attributes, which are weighted differentially in order to provide the PDS on a scale from 1 to 5:

- the usual quantity of alcohol consumed per occasion;
- festive drinking;
- proportion of drinking events, when drinkers get drunk;
- proportion of drinkers, who drink daily or nearly daily;
- drinking with meals;
- drinking in public places.

Data for 2005 on the above measures stem from survey information.

There are only a few countries in the world with the lowest patterns of drinking scores, or the least risky patterns of drinking (Figure 7). These countries in southern and western Europe have high adult per capita consumption (see Figure 1). High patterns of drinking scores, or the most risky patterns of drinking, prevail in Kazakhstan, Mexico, the Russian Federation, South Africa and Ukraine. South America (with the exception of wine producing Argentina), and many countries in Africa and South-East Asia, take an intermediate position.

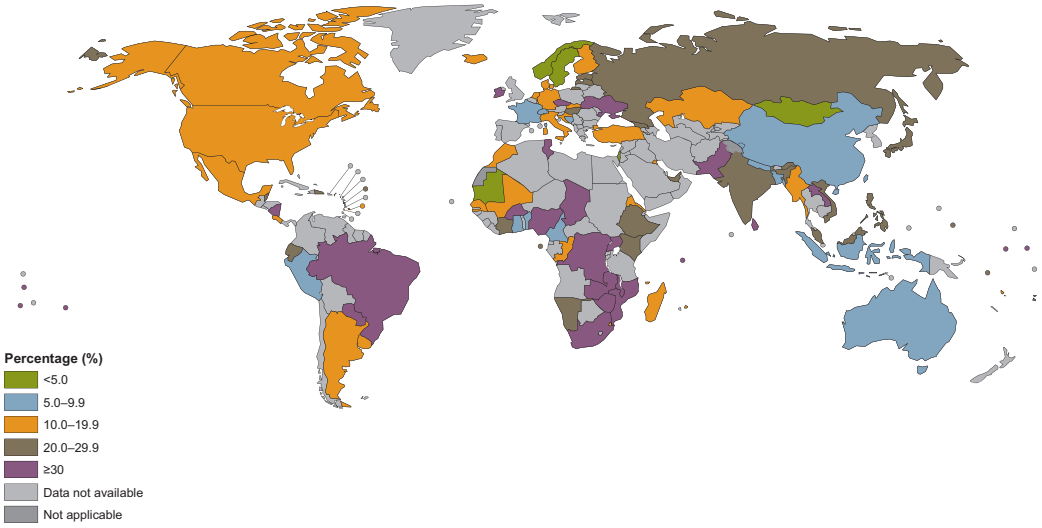
Figure 7. Patterns of drinking score, 2005



1.4.3 HEAVY EPISODIC DRINKING

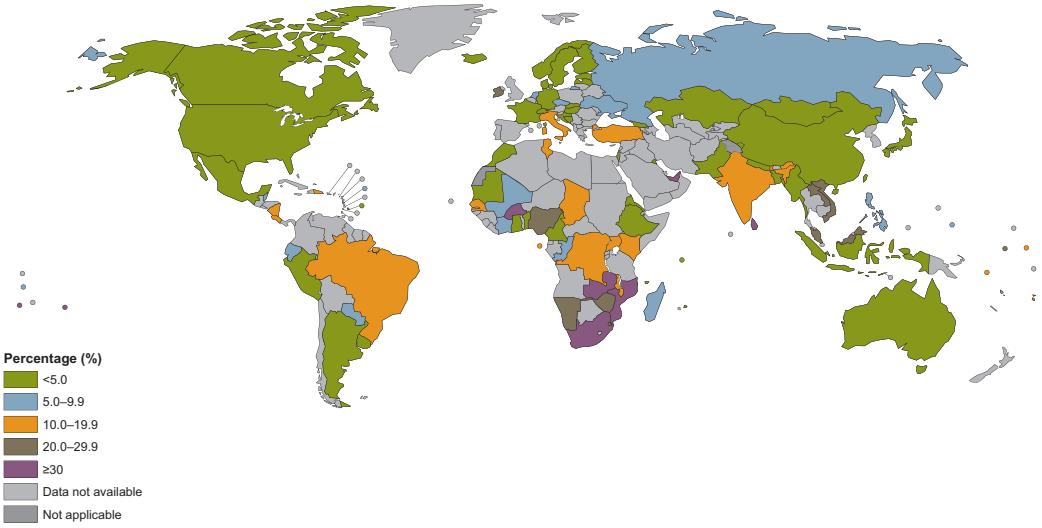
Heavy episodic drinking (HED) is another measurable pattern of alcohol consumption risk. In this report, it is defined as drinking at least 60 grams or more of pure alcohol on at least one occasion in the past seven days. Figures 8 and 9 map the percentages of heavy episodic drinkers among male and female past-year drinkers, respectively, for 62 WHO Member States.

Figure 8. Prevalence of heavy episodic drinking among past-year male drinkers, 2004[a]



[a] Best estimates for 2004 based on surveys carried out within the time period 1997–2009.

Figure 9. Prevalence of heavy episodic drinking among past-year female drinkers, 2004[a]



[a] Best estimates for 2004 based on surveys carried out within the time period 1997–2009.

Heavy episodic drinking is one of the most important indicators for acute consequences of alcohol use, such as injuries. Heavy episodic drinking is quite high in many countries with middle to high per capita consumption, such as in Brazil and South Africa. There are also differences among countries with similarly high adult per capita alcohol consumption. In some rather low consuming countries, such as India, Malawi, Pakistan and Zambia, a high proportion of drinkers drink heavily on single occasions, suggesting an "all-or-nothing" type of behaviour (Clausen et al., 2009). In some European countries, such as France with high APC, heavy episodic drinking is rather low, suggesting that APC can be driven by more regular but moderate drinking patterns.

Worldwide, about 11.5% of drinkers have weekly heavy episodic drinking occasions (Table 7), with men outnumbering women by four to one. Men consistently engage in hazardous drinking at much higher levels than women in all regions.

Table 7. Prevalence of weekly heavy episodic drinking among drinkers in the past 12 months by sex, WHO region and the world, 2005

WHO region	Women (%)	Men (%)	Total (%)
AFR	16.2	30.5	25.1
AMR	4.5	17.9	12.0
EMR	17.9	24.9	24.7
EUR	4.6	16.8	11.0
SEAR	12.9	23.0	21.7
WPR	1.3	11.6	8.0
World	4.2	16.1	11.5

There is no consistent picture regarding country income and heavy episodic drinking (data not shown). In the more developed regions like Europe or the Americas, heavy episodic drinking is more common in poorer countries. In developing or emerging regions such as Africa or South-East Asia, richer countries show a higher likelihood of heavy episodic drinking.