

CHAPTER 1. PSYCHOACTIVE SUBSTANCE USE: EPIDEMIOLOGY AND BURDEN OF DISEASE

1.1 Alcohol

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Alcohol is possibly the oldest psychoactive substance used by mankind (McGovern, 2009). Currently, it is also the most prevalent psychoactive substance, although the majority of the world adult population abstains. Globally, 46% of all men and 73% of all women abstain from alcohol, and most of these persons have not consumed any alcoholic beverage during their entire lives. There are huge variations in abstention around the world. The overwhelming majority of people in a belt stretching from Northern Africa, over the Eastern Mediterranean, South Central Asia and South-East Asia to the islands of Indonesia abstain for reasons often attributable to religion and culture. In other parts of the world such as Europe, less than 20% of the population abstains on average.

The level of abstention is relatively strongly associated with the level of overall adult per capita consumption. Total adult per capita consumption is highest in countries in Eastern Europe where total adult per capita consumption ranges from 15 to 21 litres per year, and is lowest in Northern Africa, the Eastern Mediterranean, South Central Asia, South-East Asia and the Indonesian islands where also the majority of the population abstains.

The burden of disease attributable to alcohol

The burden of disease attributable to alcohol was based on the Comparative Risk Assessment (CRA) methods (Rehm, Klotsche & Patra, 2007; Rehm et al., 2009b) which were also used in the WHO Report on Global Health Risks to compare with other risk factors (WHO, 2009a). In 2004, 7.6% of the global burden of disease and injury was attributable to alcohol consumption among men and 1.4% to consumption among women. Neuropsychiatric disorders, including alcohol use disorders, account for 36.4% of all disability-adjusted life years (DALYs)¹ caused by alcohol (Rehm et al., 2009b).

Alcohol-attributable harm is determined not only by the overall level of consumption but also by the drinking pattern (e.g. by heavy drinking occasions) (Rehm et al., 2010). Both level and pattern of alcohol consumption are related to many disease categories, but alcohol use disorders, cancers, cardiovascular diseases, liver cirrhosis and injuries constitute the most important disease categories which are causally related to alcohol consumption (Rehm et al., 2009b). Globally, the Russian Federation and the surrounding countries – a region with high overall volume and detrimental drinking patterns – have the highest level of alcohol-attributable harm. Almost one out of every five years of life lost due to premature mortality or disability is attributable to alcohol in this region; for the Russian Federation this toll is even higher. Latin America is another region with a relatively high

¹ The sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

impact from alcohol. The least alcohol-attributable harm can be found in Africa, the Eastern Mediterranean and in the southern part of Asia, especially in countries with predominantly Muslim populations. In evaluating these numbers it should be recognized, however, that these data are based on the CRA of the year 2000, in which the detrimental impact of alcohol on infectious diseases such as tuberculosis was not sufficiently established and the Global Burden of Disease study had fewer categories which resulted in exclusion of some of the impact of alcohol (e.g. on pancreatitis) (Rehm & Mathers, 2009). Inclusion of alcohol-attributable infectious disease categories would change the picture to a great extent (Rehm et al., 2009a; Rehm & Parry, 2009). Even without considering the effect of alcohol on infectious diseases, harmful use of alcohol is one of the most important contributors to the global burden of disease (WHO, 2009a) and most recently (2004) ranked third behind childhood underweight and unsafe sex.

Alcohol use disorders and global estimates

Alcohol use disorders comprise alcohol dependence and the harmful use of alcohol. Global estimates for alcohol use disorders are based on epidemiological studies which assess these disorders through diagnostic assessment instruments and define alcohol use disorders through international disease classification systems such as the International Classification of Diseases (ICD) and the Diagnostic and Statistical Manual of Mental Disorders (DSM) (Kehoe, Rehm & Chatterji, 2007; Rehm et al., 2009b).

The highest prevalence rates of alcohol use disorders in the population can be found in parts of Eastern and Central Europe (highest prevalence rates of alcohol use disorders in some countries reaching up to 16%), in the Americas (prevalence rates in some countries in this region reaching up to 10%), South-East Asia (prevalence rates reaching up to 10%) and in some countries in the Western Pacific (prevalence rates in some countries reaching up to 13%). In India, for example, in spite of high abstention rates with almost all women abstaining from alcohol, a pattern of frequent and heavy drinking is observed among those who drink, resulting in high rates of alcohol use disorders among drinkers (Prasad, 2009; Rehm et al., 2009b).

1.2 Illicit drugs

Louisa Degenhardt

Illicit drugs are used by only a minority of the global population. The United Nations Office on Drugs and Crime (UNODC) estimated that between 172 and 250 million people aged 15–64 years had used an illicit drug at least once in 2007 (UNODC, 2009). Cannabis was by far the most commonly used illicit drug (3.3–4.4% of the population aged 15–64 years), with the highest prevalence in North America, Western Europe and Oceania. Some 16–53 million people aged 15–64 years were estimated to have used amphetamines (0.4–1.2%), with the highest levels in South-East Asia. An estimated 16–21 million people used cocaine (0.4%–0.5%) with use concentrated in North America, followed by Western and Central Europe, and South America. The number of opiate users was estimated at 16–20 million, with the main drug trafficking routes out of Afghanistan having the highest levels of use (UNODC, 2009).

Those who use drugs once or twice have, at most, a very small increase in morbidity and mortality, with the concentration of harms occurring among those who use drugs regularly. The commonly used expression “problematic drug use” could be defined as corresponding to the WHO’s International Classification of Diseases (ICD) categories “harmful drug use” and “drug dependence” (WHO, 1993).

Risk factors for drug dependence

Studies examining the level of risk for dependent use among lifetime drug users are limited, but studies in the USA and Australia have suggested that perhaps one in five people who ever use an illicit drug might meet criteria for dependence at some point (Glantz et al., 2008; Hall et al., 1999). The extent of this risk varies across drug types, with greater risks for drugs with a rapid onset and shorter duration of effect. Using drugs by smoking or via injection carries greater dependence risk (Anthony, Warner & Kessler, 1994; Volkow et al., 2004; McKetin, Kelly & McLaren, 2006).

Risk factors for drug dependence may differ between countries, although few studies have directly examined this (Degenhardt et al., 2010). A study of initiation to use and progression to dependence in the WHO World Mental Health Surveys found a range of variables that were common to the development of illicit drug dependence among users (Degenhardt et al., 2010): earlier onset of drug use; using more types of illicit drugs; and onset before age 15 years of externalizing (e.g. conduct disorder) and internalizing mental disorders (e.g. depression) (Degenhardt et al., 2010). These findings are consistent with those from cohort studies in high-income countries, which have found that early onset drug use, and mental health problems, are risk factors for later dependent drug use (Toumbourou et al., 2007), and that mental health problems increase the risk of developing problem use if drug use begins. Less-studied risk factors include structural determinants such as high unemployment, poverty and social and cultural factors.

Global estimates of “problem drug use”

Global and regional estimates have been made of the number of “problematic drug users”. A systematic review of data on the prevalence of injecting drug use estimated

that, globally, 11–21 million people injected drugs¹ in 2007 (Mathers et al., 2008). In 2007, UNODC estimated that there were between 18 and 38 million “problem drug users” (i.e. injecting drug users or problem users of opioids, cocaine or amphetamine) (UNODC, 2009). “Illicit drug dependence” was assessed in the WHO’s World Mental Health Surveys, in 27 countries in five WHO regions (Kessler & Üstün, 2008), with significant geographic variation in rates of illicit drug use (Degenhardt et al, 2008) and drug dependence (Demyttenaere et al., 2004), and higher rates of drug dependence in developed countries (Kessler & Üstün, 2008). These differences may reflect a combination of actual differences, as well as cultural differences in the understanding of, and preparedness to report, illicit drug use and related problems in surveys.

To date, no estimates of the prevalence of specific forms of drug dependence have been made regionally and globally, and few countries have made estimates for specific drug types. This is a major gap in knowledge that severely limits our capacity to make evidence-based decisions about the extent of need for interventions to address drug dependence. Interventions shown to be effective differ in important ways across drug types, with opioid pharmacotherapy being the mainstay of treatment for heroin dependence, and psychosocial interventions being more appropriate for cannabis and psychostimulant dependence. There is a need to improve our understanding of these basic epidemiological questions about illicit drug use and dependence in order to improve our capacity to respond, nationally and globally.

¹ Injecting drug use: use of a drug by injection, which may be intravenous, intramuscular or subcutaneous.

1.3 Epidemiology of psychoactive substance use and burden of disease

(Figures 1.1–1.7)

Background

- Estimates of the numbers of deaths and the amounts of loss of healthy life for major diseases, including the use of alcohol and illicit drugs are provided by the Global Burden of Disease project which was initiated during the 1990s (WHO, 2004).
- Alcohol and drug-attributable DALYs represent a measure of overall disease burden, quantifying mortality and morbidity due to alcohol and illicit drug use in a single disease measure. The burden of disease expressed in DALYs quantifies the gap between the current health status of the population and an ideal situation where everyone lives to old age in full health (WHO, 2009a).

Salient findings

Prevalence of alcohol and drug use disorders in the population (point prevalence)

- Across countries, the point prevalence of alcohol use disorders (in the population aged 15 years and over) is generally higher than the point prevalence of drug use disorders in the same population and is generally higher among men than among women.
- Global prevalence rates of alcohol use disorders were estimated to range from 0% to 16%, with the highest prevalence rates to be found in Eastern Europe.
- Among males, the point prevalence of alcohol use disorders for males is estimated to be highest (i.e. $\geq 6.4\%$) in Eastern European countries, in parts of Asia and among countries in the Americas. Among females, the highest estimated prevalence rates of alcohol disorders (i.e. $\geq 1.6\%$) were found in Eastern European countries and in selected countries in the Americas and in the Western Pacific.
- Among men and women, the estimated prevalence of alcohol use disorders was found to be lowest in the African and Eastern Mediterranean regions.
- Global prevalence rates of drug use disorders were estimated to range from 0% to 3%, with the highest prevalence rates found in the Eastern Mediterranean Region.
- The highest estimated prevalence rates of drug use disorders among men ($\geq 1.6\%$) and women ($\geq 0.4\%$) were found in parts of the Americas. Selected countries in Africa, Eastern Mediterranean, Europe and the Western Pacific were found to have high rates of drug use disorders among men and women in addition.

Number of deaths and disability-adjusted life years lost

- Globally, approximately 39 deaths per 100 000 population are attributable to alcohol and illicit drug use, out of which 35 deaths are attributable to alcohol use, and four deaths to illicit drug use.
- The highest numbers of deaths due to alcohol and illicit drug use were found in Europe where 70 deaths per 100 000 population are attributable to alcohol use and approximately five deaths per 100 000 to illicit drug use.
- In almost all regions, numbers of deaths attributable to alcohol use are higher than those for illicit drug use. In the Eastern Mediterranean Region, however, nine deaths per 100 000 population are attributable to illicit drug use, and approximately four deaths per 100 000 population are attributable to alcohol use.
- Use of alcohol and illicit drugs accounts for almost 13 DALYs lost per 1000 population worldwide. Approximately 11 DALYs per 1000 population are lost due to alcohol use, and approximately two DALYs are lost due to illicit drug use.
- DALYs lost due to alcohol and illicit drug use were found to be highest in Europe (approximately 23 DALYs lost per 1000 population) and the Americas (approximately 18 DALYs lost per 1000 population).
- In the Eastern Mediterranean Region more DALYs are lost due to illicit drug use (four DALYs lost per 1000 population) than due to alcohol use (approximately 1.5 DALYs lost per 1000 population).
- The number of DALYs lost due to alcohol and illicit drug use varies by country income. Higher middle-income countries were found to have the greatest number of DALYs lost due to alcohol and illicit drug use (24 DALYs lost per 1000 population due to alcohol use and approximately three DALYs lost due to illicit drug use).

Notes and comments

- Prevalence estimates for alcohol and drug use disorders are standardized and comparable across countries and regions of the world. Prevalence data are taken from the Global Burden of Disease study (WHO, 2004).
- Alcohol use disorders included in the Global Burden of Disease analysis included alcohol dependence and harmful use of alcohol. Drug use disorders included in the Global Burden of Disease analysis included opioid dependence and harmful use of opioids, and cocaine dependence and harmful use of cocaine. The definitions of dependence and harmful use that were used were the ICD-10 definitions (WHO, 1993).
- As a single measure of disease burden, DALYs do not capture all dimensions of the health burden and do not take the suffering of patients and their relatives due to psychoactive substance use into account.

FIGURE 1.1
PREVALENCE OF ALCOHOL USE DISORDERS (%), ADULT MALES (15 YEARS AND ABOVE), 2004

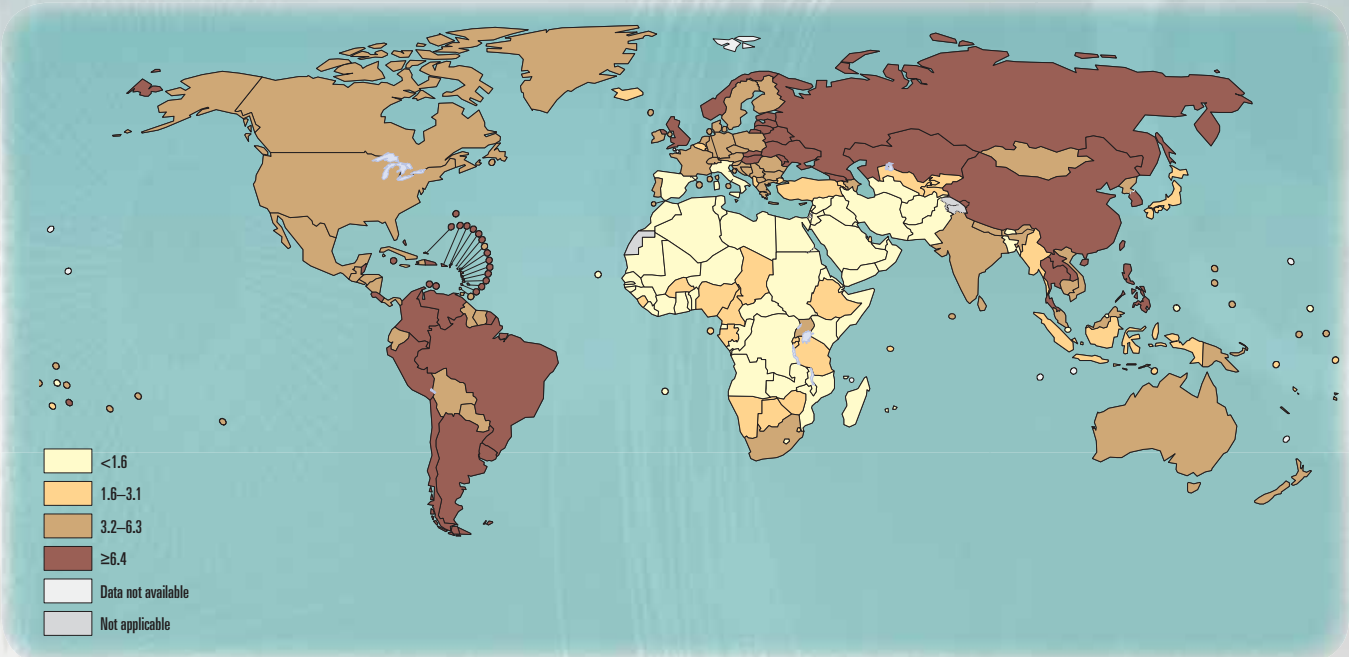
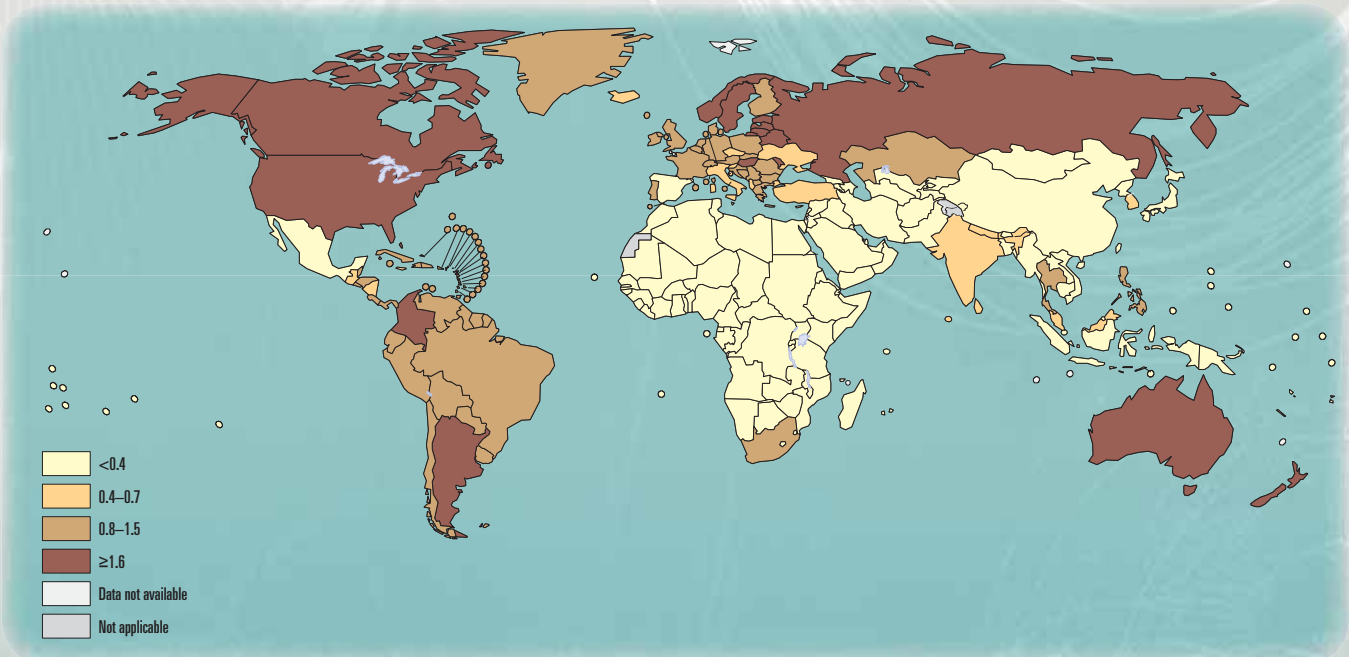


FIGURE 1.2
PREVALENCE OF ALCOHOL USE DISORDERS (%), ADULT FEMALES (15 YEARS AND ABOVE), 2004



The boundaries and names shown and the designations used on these maps do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

FIGURE 1.3
PREVALENCE OF DRUG USE DISORDERS (%), ADULT MALES (15 YEARS AND ABOVE), 2004

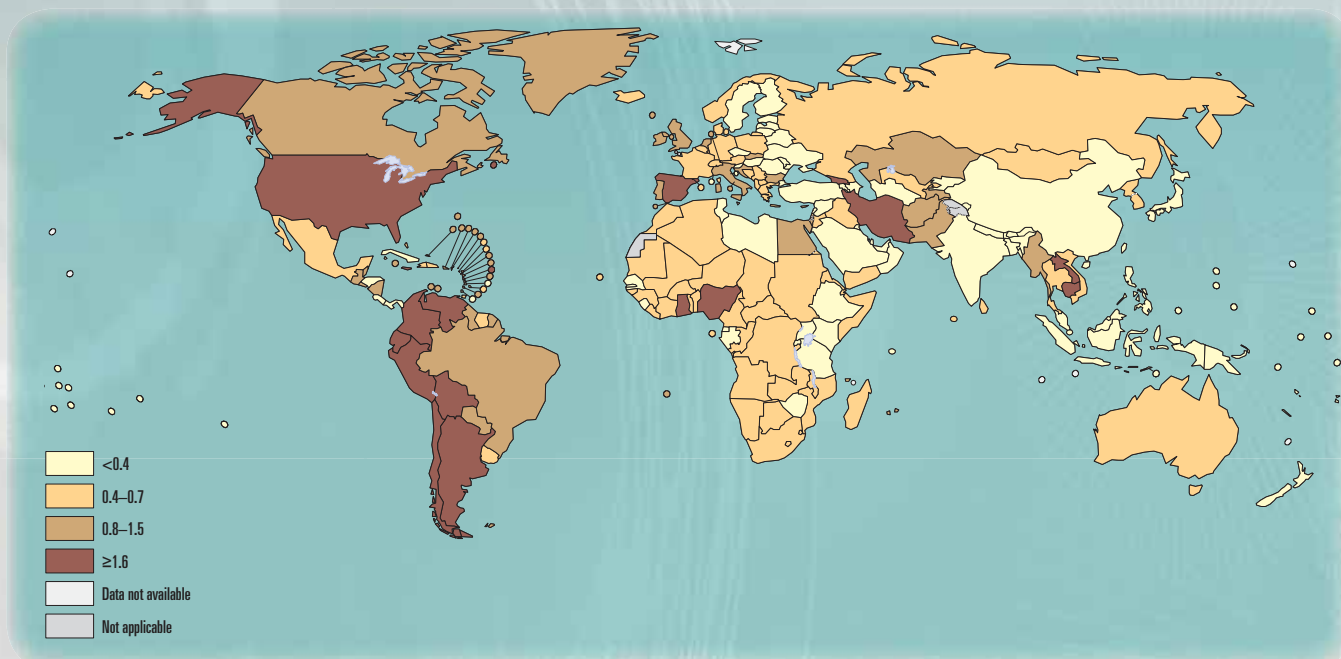
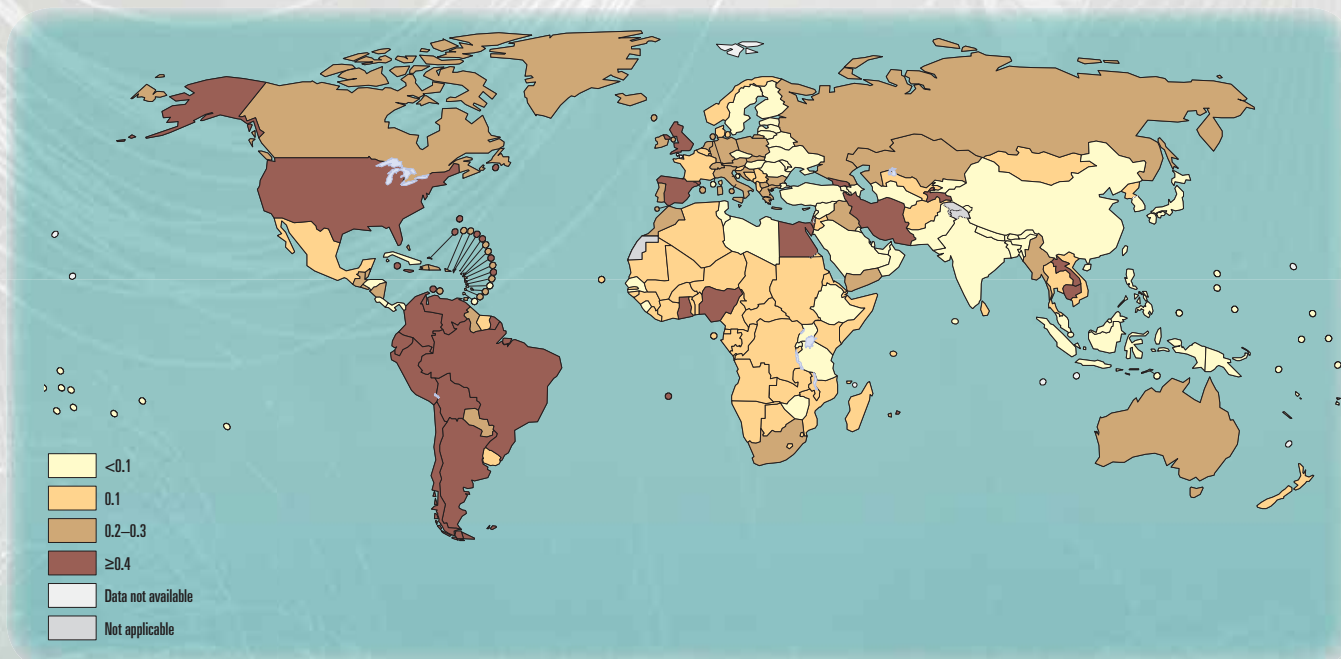


FIGURE 1.4
PREVALENCE OF DRUG USE DISORDERS (%), ADULT FEMALES (15 YEARS AND ABOVE), 2004



The boundaries and names shown and the designations used on these maps do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

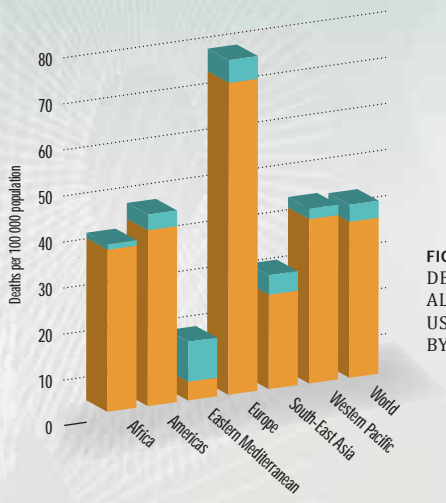
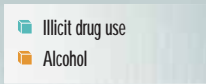


FIGURE 1.5
DEATHS ATTRIBUTABLE TO
ALCOHOL AND ILLICIT DRUG
USE, PER 100 000,
BY REGION, 2004

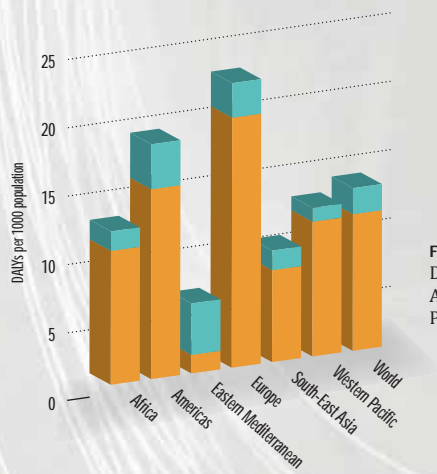


FIGURE 1.6
DALYs LOST BY ALCOHOL
AND ILLICIT DRUG USE,
PER 1000, BY REGION, 2004

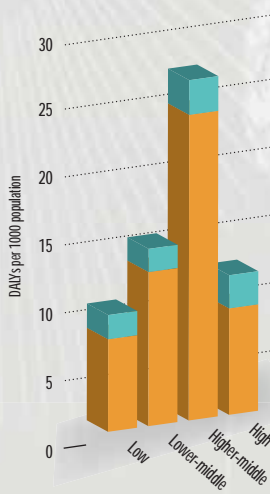


FIGURE 1.7
DALYs LOST BY ALCOHOL
AND ILLICIT DRUG USE, BY
INCOME GROUP, PER 1000,
2004

1.4 Main psychoactive substances used in the treatment population

(Figures 1.8–1.9)

Background

- Nominated focal points in countries were asked to report the main psychoactive substances accountable for entry into treatment.

Salient findings

- In the majority of countries (53.9%) alcohol was identified as the main psychoactive substance at entry into treatment. Alcohol was reported to be the main psychoactive substance responsible for treatment demand in the majority of countries in every region, with the exception of the Americas.
- The majority of countries in the Region of the Americas (50%) reported cocaine to be the main psychoactive substance at treatment entry.
- In the Eastern Mediterranean Region, alcohol and cannabis were identified by the majority of countries as being most frequently the main psychoactive substances at treatment entry. Opioids were reported as the main psychoactive substance at treatment entry in 20% of countries in the Eastern Mediterranean Region.
- In the African Region, cannabis appears to be the most frequent psychoactive substance at treatment entry in approximately 40% of countries.
- In the South-East Asia and European regions, opioids were identified as the most frequent psychoactive substance behind the demand for treatment in 42.9% and 26.5% of countries respectively.
- In the Western Pacific Region, cannabis and amphetamine-type stimulants (ATS) were reported to be the most frequent psychoactive substance accountable for treatment entry in 16.7% of countries.
- No country in the survey identified inhalants, sedatives or prescribed opioids as the main psychoactive substance at treatment entry among persons in treatment.
- In contrast to high-income and higher middle-income countries, cannabis appears to be the most frequent psychoactive substance accountable for treatment entry in around one third of low-income and lower middle-income countries in the survey. Besides this finding, there is no distinct effect of country income level on the main psychoactive substance at treatment entry across different income groups of countries.

Notes and comments

- Information on the main psychoactive substance at treatment entry was completed by 89 countries, just over half the number of countries that responded to the survey, probably reflecting the lack of data collection systems for treatment in many countries (see section 1.5).

- The question aimed to identify the single most common psychoactive substance behind substance use disorders that cause entry into treatment in countries. The combination of multiple psychoactive substances accountable for treatment entry by patients – such as the combined use of alcohol and other psychoactive drugs – was not specifically examined.
- Other main psychoactive substances in the treatment population include local or regional-specific psychoactive drugs. A number of African countries indicated that the main psychoactive substance at treatment entry was khat, which is included under this category.
- Treatment data may not necessarily correlate closely with data on the prevalence of the respective disorder and underlying substance use in populations. Treatment data may be influenced by what treatment is available, and may also reflect the patient group with substance use disorders who seek treatment, and the perceived value of treatment. An example is the Eastern Mediterranean Region where 40% of countries identified alcohol as being the most common substance at treatment entry despite the lower rates of alcohol use in these countries (see section 1.3).

FIGURE 1.8
MAIN PSYCHOACTIVE SUBSTANCE ACCOUNTABLE FOR TREATMENT ENTRY IN COUNTRIES, BY REGION, 2008

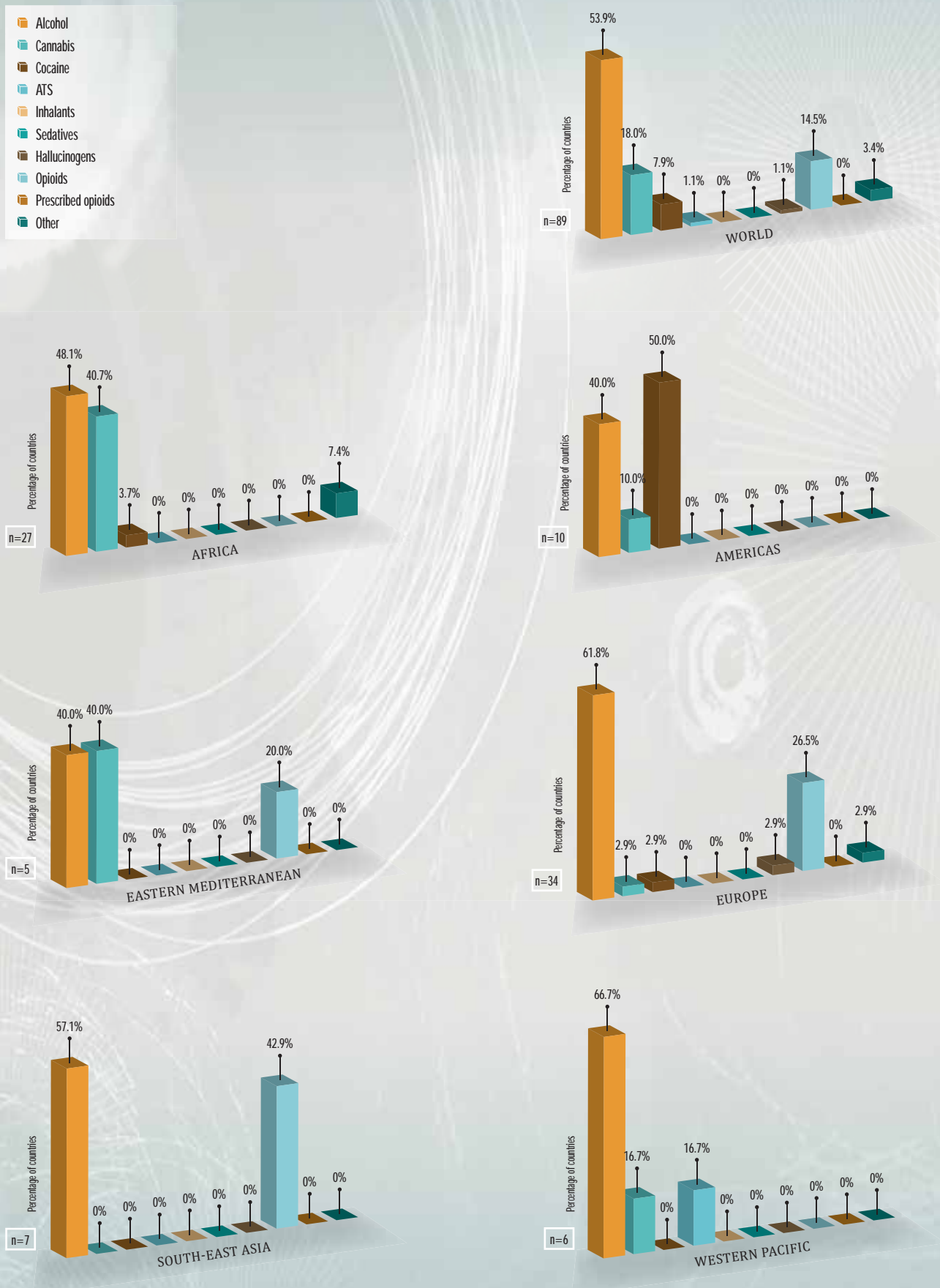
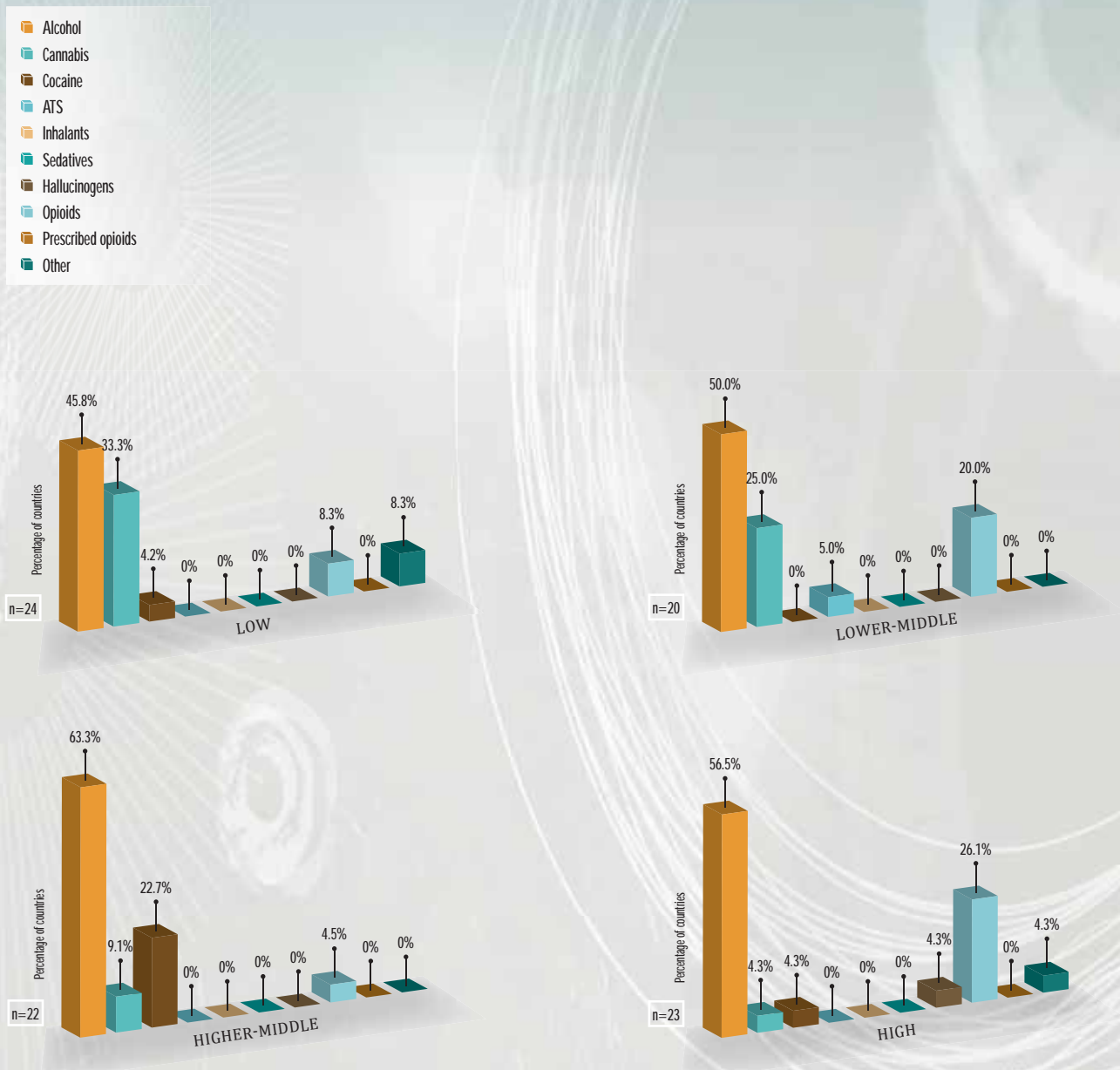


FIGURE 1.9
MAIN PSYCHOACTIVE SUBSTANCE ACCOUNTABLE FOR TREATMENT ENTRY IN COUNTRIES, BY INCOME GROUP, 2008



1.5 Substance use monitoring and surveillance

(Figures 1.10–1.15)

Background

- Nominated focal points in countries were asked about the presence of national data collection systems that collect epidemiological data on alcohol and drugs, as well as treatment data from health systems in their respective areas. No request was made regarding the existence of information at subnational level.
- Epidemiological data can be obtained through national surveillance systems. These can be composed of national surveys collecting information on alcohol and drug use among the adult or the adolescent population.
- Treatment data relating to alcohol and drug use can be obtained from national service delivery data collection systems that compile admission and discharge data, the number of outpatient contacts and similar service information from the health care system.

Salient findings

- Less than 50% of countries reported having national data collection systems collecting epidemiological data or treatment data.
- The regions with the highest proportion of countries (approximately 60%) reporting national epidemiological data collection systems for alcohol and drug use were the Americas and Europe.
- The lowest proportions of countries reporting national surveys on alcohol and drug use among adolescents were in Africa (5–7%), in Eastern Mediterranean (less than 20%) and in South-East Asia (less than 20%).
- Treatment data on both alcohol and drug use disorders appear to be most often collected in the Americas and in Europe, with around 65–77% of countries in these regions reporting the collection of treatment data. Collection of treatment data on alcohol and drug use disorders seems to be balanced across regions, except in the Eastern Mediterranean and South-East Asia regions where higher proportions of countries indicated collection of treatment data on drug use than on alcohol use.
- There is a strong effect of country income level on the presence of national data collection systems across different income groups. For example, national epidemiological data collection systems have been reported more frequently among countries in the higher middle-income and high-income groups (50–76%), than in the low-income and lower middle-income groups (11–31%).

Notes and comments

- National epidemiological data collection systems may focus on alcohol and drug use exclusively. However, epidemiological data collection systems which cover a range of health issues may not have been detected by this survey.
- Information on alcohol and drug use among youth can be collected among students going to school. A number of countries reported national school health surveys as a way of collecting information on alcohol and drug use among young people.
- National data collection systems on epidemiology and treatment of substance use and substance use disorders appear to be lacking. This is especially evident in low-income and lower middle-income countries, which may hamper efforts to plan effective responses.

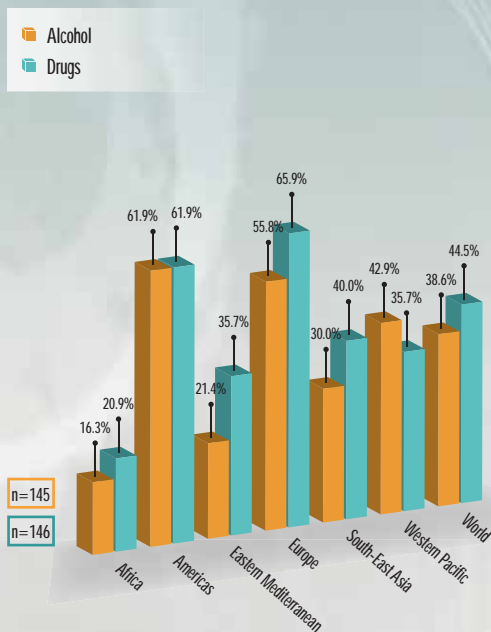


FIGURE 1.10
PROPORTION OF COUNTRIES WITH A NATIONAL EPIDEMIOLOGICAL DATA COLLECTION SYSTEM FOR SUBSTANCE USE, BY REGION, 2008

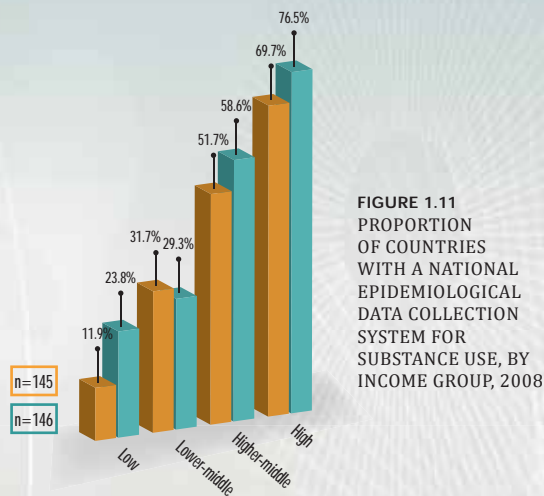


FIGURE 1.11
PROPORTION OF COUNTRIES WITH A NATIONAL EPIDEMIOLOGICAL DATA COLLECTION SYSTEM FOR SUBSTANCE USE, BY INCOME GROUP, 2008

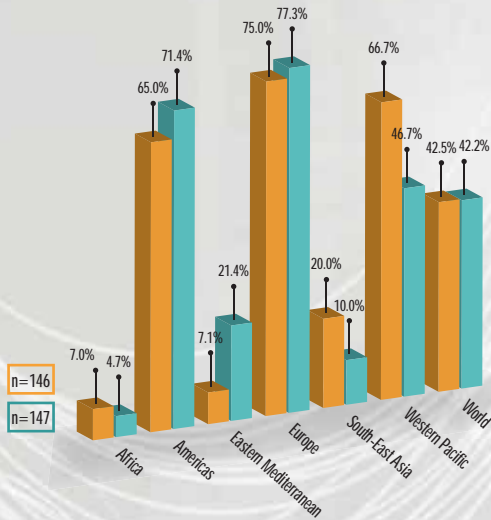


FIGURE 1.12
PROPORTION OF COUNTRIES WITH A NATIONAL SURVEY ON ALCOHOL AND DRUG USE AMONG ADOLESCENTS, BY REGION, 2008

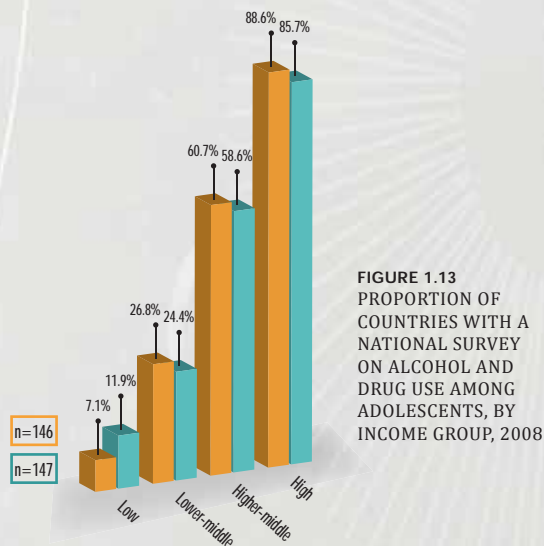


FIGURE 1.13
PROPORTION OF COUNTRIES WITH A NATIONAL SURVEY ON ALCOHOL AND DRUG USE AMONG ADOLESCENTS, BY INCOME GROUP, 2008

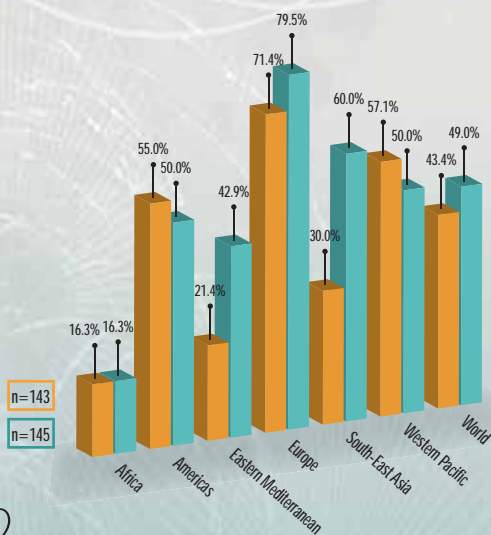


FIGURE 1.14
PROPORTION OF COUNTRIES WITH A NATIONAL SUBSTANCE ABUSE TREATMENT DATA COLLECTION SYSTEM, BY REGION, 2008

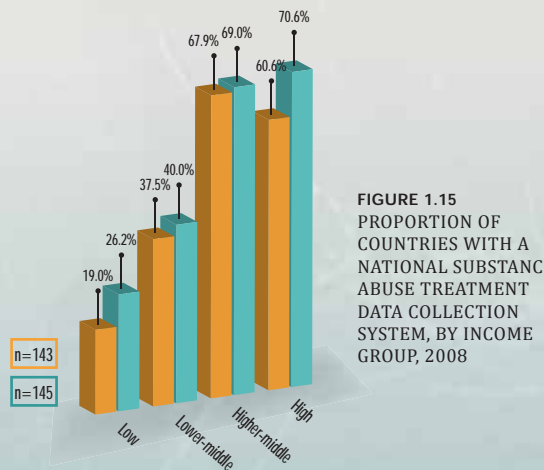


FIGURE 1.15
PROPORTION OF COUNTRIES WITH A NATIONAL SUBSTANCE ABUSE TREATMENT DATA COLLECTION SYSTEM, BY INCOME GROUP, 2008