# Health risk factors

## Key points

- Tobacco use kills more than 8 million people annually around the world: over 7 million people die from the first-hand use of tobacco and around 1.2 million non-smokers die from exposure to second-hand smoke.–

- Globally, men are 4.5 times more likely to smoke than women: the gender difference is largest in Eastern and South-Eastern Asia, where men are almost 13 times more likely than women to use tobacco; the gender gap is smallest in Australia and New Zealand where the ratio is 1.3, close to gender parity.

- Since 2000 there has been a decline in smoking rates among both sexes, although the decline has been less pronounced among men.

- In 2016, more than 3 million people died as a result of the harmful use of alcohol, representing 1 in 20 deaths worldwide: the vast majority, more than three quarters, of those deaths were among men.

- In 2018, men consumed more alcohol than women worldwide, an average of 9.8 litres per man versus 2.6 litres of alcohol per woman aged 15 and older.

- In 2016, 39% of adults aged 18 and older (39% of men and 40% of women) were overweight. About 13% of the world's adult population (11% of men and 15% of women) were obese. Women are more likely than men to be obese both as a result of biological and lifestyle factors, in particular lower rates of participation in physical activity and insufficient time for personal care and leisure.

- Emerging research shows that smoking may also be associated with a negative progression and adverse outcomes of the Coronavirus-19 (COVID-19) disease, which works to the disadvantage of men, who are more likely to smoke than women (4.5 times more likely, globally). Severe obesity has been also found to be associated with higher in-hospital mortality and, in general, worse in-hospital outcomes related to COVID-19.

## Background

A health risk factor is anything that increases the likelihood of an individual developing a disease or injury. Risk factors can be demographic, social, economic, environmental, biological or behavioural in nature, although in most cases they are a combination of all of these factors.

The set of risk factors contributing most to the burden of disease is changing. In 1990, the leading risk factors for early death and disability were child wasting, short gestation for birth weight and low birth weight for gestation. In 2017, the leading factors were high blood pressure, smoking and high blood sugar.[1]

There are significant differences in the prevailing risk factors affecting the health of people in developed and less developed regions. In developing regions, prominent risk factors include undernutrition, unimproved water and sanitation facilities, poor hygiene and indoor smoke from solid fuels. In developed regions, the harmful use of alcohol and tobacco, poor diet and lack of exercise contribute substantially to the burden of non-communicable diseases, although the effects of non-communicable diseases are on the rise in developing regions as well. Across regions, unsafe sex remains the main risk factor for sexually transmitted infections, and for HIV/AIDS in particular, while gender norms, ideals of masculinity and power relations fuel a relatively high level of unintentional injuries and interpersonal violence.

Morbidity and mortality rates for many diseases are aggravated by exposure to specific modifiable risk factors, including tobacco use, harmful use of alcohol, unhealthy diet, physical inactivity and polluted air.

## Current situation

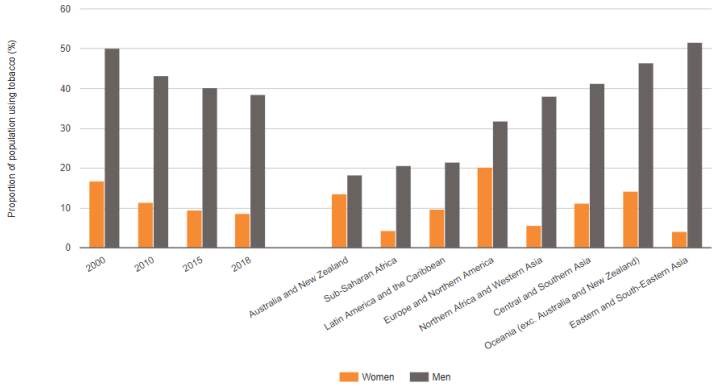
**Tobacco use is a major contributor to illness and death from non-communicable diseases**

Tobacco in any form kills and sickens millions of people every year: the use of tobacco is one of the biggest public health threats, killing more than 8 million people a year[2] around the world (up from more than 5 million deaths in 2010).[3] More than 7 million of those deaths are the result of first-person tobacco use while around 1.2 million are the result of non-smokers being exposed to second-hand smoke.[4]

Tobacco use is a major risk factor for chronic respiratory and cardiovascular diseases. Among women, smoking is also associated with breast cancer.[5] In 2018, men were 4.5 more likely to use tobacco than women. Globally, in 2018, the prevalence of smoking among men 15 years and older was 38.6%, compared to 8.5% among women of the same age. A decline in smoking rates has been observed since 2000 for both sexes, but the decline has been slower among men (23%) than among women (49%).

During the period 2000—2018, the number of male tobacco users in the world increased each year, peaking in 2018 at 1,093 million.[6] The number of users is projected to decrease, assuming countries maintain current efforts in tobacco control.[7] Since 2000, the number of female tobacco users has been declining in all regions (244 million in 2018, an estimated 100 million fewer than in 2000).[8]

**Figure I:** Prevalence of tobacco smoking among persons aged 15 or over, by sex and by region: 2000-2018 (Percentage)




**Source:** WHO, Secretariat of the WHO Framework Convention on Tobacco Control (https://www.who.int/fctc/en/).
**Note:** Regional values are for 2018: regions are ordered according to tobacco use among the male population.

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The difference in smoking prevalence between women and men is reduced in higher income countries (see figure I). For instance, in Australia and New Zealand the gender gap is lower than 5 percentage points, and in Europe and Northern America the gender gap was measured at about 11 percentage points in 2018.

The gap may be associated with women having a greater control over their own resources in high-income countries and with the marketing strategies of the tobacco industry, which target women, especially young women.[9]

The gender difference is most marked in Eastern and South-Eastern Asia, where more than 50% of men smoke, compared to only 4% of women. In all regions it is vital to reduce the use of smokeless tobacco products, especially in countries where they enjoy great popularity, for example in South-Eastern Asia, where smokeless tobacco use among women is far more prevalent than smoked tobacco use (11.5% and 1.6%, respectively).[10]

Smoking has also been reported as a potential risk factor for COVID-19 as it is harmful to the immune system and its ability to respond to infections, specifically, because of its effects in upregulating receptors in the airways.[11] In a recent review, it was reported that smoking may be associated with a negative progression and adverse outcomes–of COVID-19.[12] The higher prevalence of male smokers of all ages in Italy, especially among the elderly,[13] may explain their higher predisposition to COVID-19.[14]

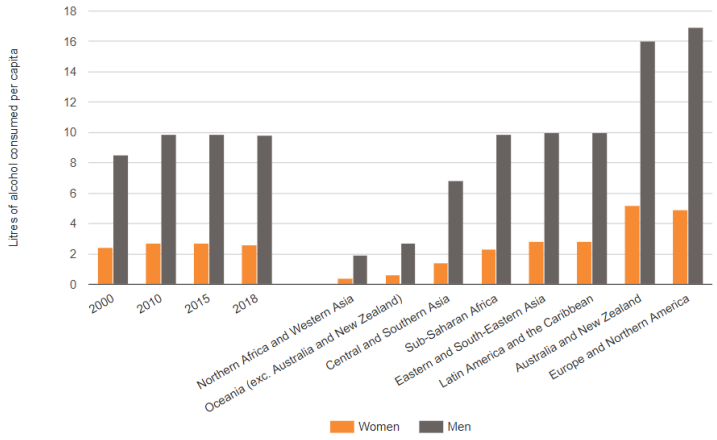
**1 in 20 deaths result from harmful use of alcohol**

Alcohol consumption can have an impact on the incidence of diseases, injuries and other health conditions, including their outcomes. The health and social harms from drinking alcohol occur through three main interrelated mechanisms: (a) toxic effects on organs and tissues (resulting, for instance, in liver disease, heart disease or cancer); (b) development of dependence, whereby the drinker's self-control over his or her drinking is impaired, often involving alcohol-induced mental disorders, such as depression or psychoses; and (c) through intoxication, that is, the psychoactive effects of alcohol in the hours after drinking.[15]

In 2016, more than 3 million people died as a result of harmful use of alcohol – 5% of global deaths for the year —and over 75% of those deaths were among men.[16] For women, cardiovascular diseases are the most common cause of death connected to alcohol use (41.6% of all alcohol-related deaths among women), while for men, injuries (28.7%) and digestive diseases (21.3%) are the most common alcohol-related deaths.[17] The differences between women and men are even greater when considering the burden of disease as expressed in disability-adjusted life years.[18] Estimates for 2016 show that the number of years of life lost due to premature death and disability related to alcohol consumption is four times higher for men than for women (106.5 million years for men versus 26.1 million for women).[19]

In addition, the association of alcohol consumption with engagement in unprotected sex[20] has been shown to increase the risk of experiencing unintended pregnancy.[21] Alcohol-attributable harms are underestimated, especially for women, as alcohol is a contributing factor to intimate partner violence perpetrated against women.[22] The relationship between alcohol and intimate partner violence is a complex one and should be looked at within the context of broader gender inequalities and harmful gender norms and behaviours.

**Figure II:** Annual alcohol consumption per capita among people aged 15 and above, by sex and by region (in litres of pure alcohol): 2000-2018




**Source:** WHO, Global Health Observatory data platform, Global Information System on Alcohol and Health (https://www.who.int/gho/alcohol/en/)
**Note:** Regional values are for 2018: regions are ordered according to the level of alcohol consumption in the male population.

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**Worldwide, men consume almost four times more alcohol than women**

In 2018, worldwide men consumed an average of 9.8 litres of pure alcohol per year compared to 2.6 litres among women, with no significant change–observed over the last 10 years (see figure II). It is less common for women to be current[23] drinkers than men, and when they drink, they drink less than men.

Globally, the highest overall rate of alcohol consumption for both sexes is in Australia and New Zealand and Europe and Northern America, where men consume at least three times more alcohol than women (on average, 16 litres for men versus 5 litres for women) (see figure II). The lowest alcohol consumption is recorded in Northern Africa and Western Asia, where the gender difference between women and men is even more pronounced (almost five-fold).

The harmful use of alcohol not only increases the risk of one of the major non-communicable diseases, as described above, but it also plays a role in suicide and road traffic accidents and is frequently associated with the higher mortality rates among men than women due–to these causes.[24]

In terms of global prevalence, in 2016, it was estimated that 53.6% of men and 32.3% of women were current drinkers.[25] Worldwide, in 2016, the prevalence of drinking decreased among women (from 37.3% in 2000), although estimates of the absolute number of women who are current drinkers has increased.[26]

Alcohol consumption among women has additional implications. For example, women who drink during pregnancy may increase the risk of preventable health conditions, both for themselves and their newborn children, including stillbirth, spontaneous abortion, premature birth, intrauterine growth retardation and low birth weight. Alcohol use also increases the risk of foetal exposure to alcohol due to drinking during pregnancy or delayed recognition of pregnancy.[27]

**Obesity, a significant risk factor in mortality and morbidity due to cardiovascular diseases, diabetes and cancer, is more prevalent among women**

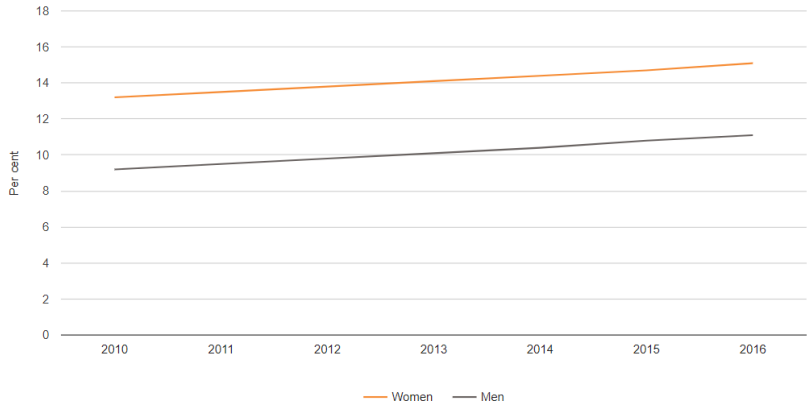
Globally, at least 2.8 million people die each year as a result of being overweight or obese.[28,29] Excess body weight is a significant risk factor in mortality and morbidity due to cardiovascular diseases, diabetes and cancer (including breast cancer). Overweight and obesity are causes of increased blood pressure, high cholesterol and triglycerides levels and insulin resistance, which are themselves direct risk factors for several chronic diseases.[30]

In 2016, 39% of adults aged 18 years and older (39% of men and 40% of women) were overweight, and about 13% of the world's adult population (11% of men and 15% of women) were obese.[31] The prevalence of obesity is about 36% higher among women, and although the gender gap has remained steady since 2010, the trend for both women and men is moving upwards (see figure III). Based on data for the period 2001—2016, women are less likely than men to participate in physical activities (32% of women versus 23% of men).[32]

In general, women have less access to economic resources and have an extra household workload, making it difficult for them to allocate adequate resources and time to exercise[33] and lead a healthy diet. In addition, in many societies, men, as opposed to women, are expected to be physically strong, which could contribute to women's lower level of physical activity.[34] Lack of physical activity combined with sex-related biological factors, such as women's predisposition to store fat subcutaneously and lower metabolic rates, may contribute to the prevalence of obesity in women.[35]

In a cohort of patients hospitalized with COVID-19 in a minority-predominant population (African-American), men with severe obesity[36]–in older ages–were independently associated with higher in-hospital mortality and in general worse in-hospital outcomes.[37] In a study conducted in the United Kingdom of Great Britain and Northern Ireland, an unhealthy body mass index was strongly associated with testing positive for and risk of death related to COVID-19. The gradient of risk in relation to body mass index was steeper in those under age 70 in comparison with those aged 70 and older–for COVID-19-related deaths. In addition, unhealthy body mass index was more strongly related to test positivity and death in non-whites (predominantly South Asians and Afro-Caribbeans) compared with whites.[38]

**Figure III:** Prevalence of obesity among adults: body mass index greater than 30 (BMI >= 30) (age-standardized estimate): 2010 to 2016 (Percentage)




**Source:** WHO, Global Health Observatory data platform, Prevalence of obesity among adults ((https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-obesity-among-adults-bmi-=-30-(age-standardized-estimate) (accessed on 20 July 2020).

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# About the data

## Definitions

- Age-standardized prevalence of tobacco use among persons aged 15 and older: **Percentage of the population aged 15 and older–who currently use tobacco products (smoked and/or smokeless tobacco), including: cigarettes, pipes, cigars, cigarillos, waterpipes (hookah/shisha), bidis, kretek, heated tobacco products and all forms of smokeless (oral and nasal) tobacco products. In this indicator, tobacco products exclude e-cigarettes (which do not contain tobacco), "e-cigars", "e-hookahs", JUUL and "e-pipes".**

- Total alcohol consumption per capita: **Total amount of alcohol consumed per adult (aged 15 and older) over a calendar year, in litres of pure alcohol (adjusted for tourist consumption).**

- Prevalence of obesity: **Percentage of the population whose calculated body mass index is greater than or equal to 30 kg/m2. Body mass index is a simple index of weight-to-height, commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his or her height in meters (kg/m2).**

## Availability

- Age-standardized prevalence of tobacco use among persons aged 15 and older: Data on the indicator are available from the World Health Organization (WHO) for all WHO member States for the period 2000—2020, according to the availability of empirical data for each country: countries are organized by regional groupings under the Sustainable Development Goals (SDGs) indicators framework.[39]

- Total alcohol consumption per capita: Data are available for 190 member States of the World Health Organization (WHO).

- Prevalence of obesity: Data are available for 200 countries, tracking worldwide trends in body-mass index, underweight, overweight and obesity for the period 1975—2016.[40]

## Footnotes

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3. WHO, 2010, 10 facts on gender and tobacco.

4. WHO, Fact sheet on tobacco, 2020.

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6. WHO, WHO global report on trends in prevalence of tobacco use 2000–2025, third edition, Geneva, 2019.

7. Ibid.

8. Ibid.

9. Hitchman, S.C., Fong, G.T., "Gender empowerment and female-to-male smoking prevalence ratios", Bulletin of the World Health Organization, vol. 89 (3), 2011.

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11. Cai, H., "Sex difference and smoking predisposition in patients with Covid-19", Lancet Respiratory Medicine, vol.8, Issue 4, April 2020.

12. Vardavas, C.I., Nikitara, K., "Covid-19 and smoking: A systematic review of the evidence", Tobacco Induced Diseases, vol. 18, March 2020.

13. National Health Institute, La sorveglianza Passi d'Argento, I dati per l'Italia: abitudine al fumo. [The Italian behavioural risk factor surveillance system in the elderly population, data for Italy: smoking habit] (accessed on 24 April 2020) (Italian original).

14. Michelozzi, P. et al., "Mortality impacts of the coronavirus disease (Covid-19) outbreak by sex and age: rapid mortality surveillance system, Italy, 1 February to 18 April 2020", Eurosurveillance, vol. 25 (19), May 2020.

15. WHO, 2018, Global status report on alcohol and health 2018, Geneva, 2018; and Babor, T. et al., Alcohol: No Ordinary Commodity: Research and Public Policy, first edition, Oxford Scholarship Online, 2010.

16. Ibid.

17. Ibid.

18. Disability-adjusted life years (DALYs) measure the burden of disease, injury and death in a population. Alcohol-attributable DALYs may be interpreted as the number of years lost due to ill-health, disability or early death from the use of alcohol. Alcohol attributable DALYs are DALYs that would not have occurred if alcohol were not consumed in the population. (See WHO, Global status report on alcohol and health 2018, Geneva, 2018).

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20. Scott-Sheldon, L. et al, "Alcohol use predicts sexual decision-making: a systematic review and meta-analysis of the experimental literature",AIDS and Behavior, vol. 20, 19—39(2016).

21. Oulman, E. et al, "Prevalence and predictors of unintended pregnancy among women: an analysis of the Canadian Maternity Experiences Survey", BMC Pregnancy and Childbirth, vol. 15, 260 (2015); and Lundsberg, L. et al, "Is preconception substance use associated with unplanned or poorly timed pregnancy?", Journal of Addiction Medicine, vol. 12, Issue 4, July/August 2018.

22. Cherpitel, C.J. et al, Prevention of alcohol-related injuries in the Americas: from evidence to policy action, Pan American Health Organization and WHO, Washington, D.C., 2013; and Graham, K. et al, "Alcohol may not cause partner violence but it seems to make it worse: a cross national comparison of the relationship between alcohol and severity of partner violence", Journal of Interpersonal Violence, vol. 26, Issue 8, 3 June 2010.

23. Current drinkers are defined as people who have consumed alcohol in the previous 12 months.

24. Pompili, M. et al. "Suicidal behavior and alcohol abuse", International Journal of Environmental Research and Public Health, vol. 7(4), 2010.

25. Current drinkers are defined as people who have consumed alcohol in the previous 12 months.

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27. Connery, H.S., Albright, B.B. and Rodolico, J.M., "Adolescent substance use and unplanned pregnancy: strategies for risk reduction" Obstetrics and Gynecology Clinics of North America, vol. 41, Issue 2, June 2014.

28. WHO, Health Topics, Fact sheets, 10 facts on obesity.

29. According to WHO, a person with a body mass index of 25 or more is considered overweight, and a person with a body mass index of 30 or more is considered obese.

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32. Guthold, R., Stevens, G.A., Riley, L.M. and Bull, F.C., "Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016, a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults", The Lancet, vol. 390, Issue 10113, 16 December 2017.

33. WHO, Health Topics, Fact sheets, Physical activity, Geneva, 2018.

34. University of Pittsburg, Gender, Sexuality, & Women's Studies Program, "Unexpected social pressures from males".

35. Guthold, R., Stevens, G.A., Riley, L.M. and Bull, F.C., "Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016, a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults", The Lancet, vol. 390, Issue 10113, 16 December 2017.

36. Severe obesity is classified as a body mass index of 35 or more.

37. Palaiodimos, L. et al, "Severe obesity, increasing age and male sex are independently associated with worse in-hospital outcomes, and higher in-hospital mortality, in a cohort of patients with Covid-19 in the Bronx, New York", Metabolism: Clinical and Experimental, vol., 108, July 2020.

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39. Regional groupings under the Sustainable Development Goals (SDGs) indicators framework.

40. Data based on Guthold, R., Stevens, G.A., Riley, L.M. and Bull, F.C., "Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016, a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults", The Lancet, vol. 390, Issue 10113, 16 December 2017.