Leading causes of death among women and men aged 50 and older

Key points

- One in five cancer deaths among women over age 50 are from breast and cervical cancer, with significant regional differences, particularly for cervical cancer. The death rate from cervical cancer is the highest in sub-Saharan Africa, and the lowest in Australia and New Zealand.

- Mortality rates from cancers among people aged 50 or older are generally higher in men than women. After age 50, mortality rates from cancer of the trachea, bronchia, lung, oesophagus, liver, stomach and bladder are at least twice as high in men as in women.

- Globally, men over age 50 are significantly more likely than women to die from ischaemic heart disease or cirrhosis of the liver: at ages 50—59 they are at least twice as likely to die from ischaemic heart disease, and at ages 50—69 they have the same gap in chances of dying from cirrhosis of the liver.

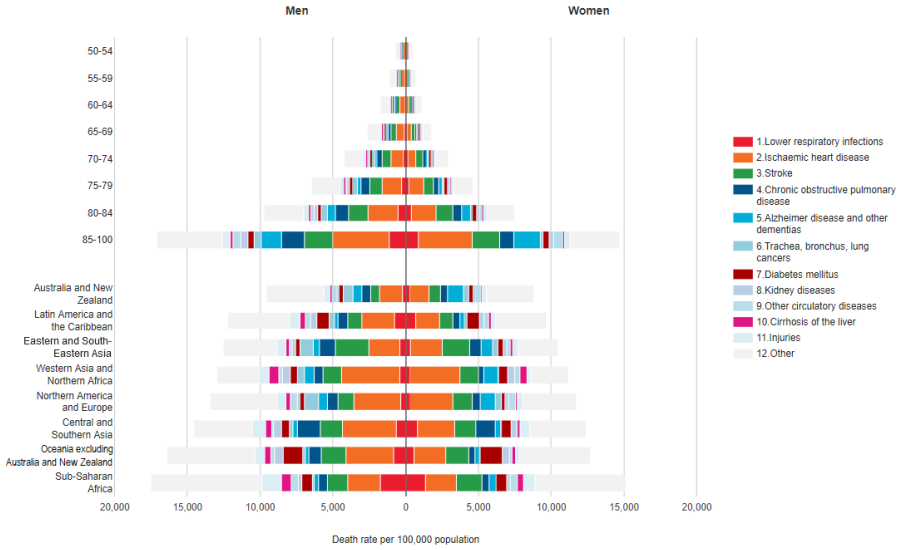
- After age 70, women are between 20% and 30% more likely than men to die fromAlzheimer's disease and other types of dementia: 1 in 12 deaths among women over the age of 70 are due to this cause, compared to 1 in 20 deaths among men of the same age. The principal risk factor for Alzheimer's disease is age, with death rates in both sexes more than doubling with each 5 years over age 70.In coping with Alzheimer's disease, women face a double burden: they are both at higher risk of dementia as they grow older as well as of being the main caregivers for members of their families.

90% of women and men aged 50 and older die from non-communicable diseases

In 2016, non-communicable diseases (group 2), including Alzheimer's disease, other types of dementia and cancer, accounted for 90% of deaths in the population aged 50 and older (see figureI).[1] Lower respiratory infections (group 1) were also common causes of death, while injuries (group 3) were not among the 10 leading causes of death for this age cohort. While the risk of death is higher for men at all ages, gender differences in death rates are less marked as men and women grow older.

Taken together, cardiovascular diseases[2] were the number one cause of death in 2016, representing 31% of all deaths worldwide.[3] Men aged 50 and older were at higher risk than women of dying from ischaemic heart disease, and at ages 50—54 more than twice as likely to die from the disease. While the gender gap decreases with age, men are still more likely to die from the disease well into their early 80s. After age 85, however, both sexes are at equal risk of dying from ischaemic heart disease, with virtually no gender gap at very old ages.

Figure I: Death rates from leading causes of death at ages 50 and over per 100,000 population by sex and region: 2016



Source: World Health Organization (WHO), Global Health Estimates 2016 (https://www.who.int/healthinfo/global_burden_disease/en/).
Note: Regions are listed in ascending order relative to the mortality rate at ages 50 and older.

At the regional level, men were 51% more likely to die of ischaemic heart disease in Oceania (excluding Australia and New Zealand) and 44% more likely in Central and Southern Asia, although no gender difference was noticeable in Eastern and South-Eastern Asia and sub-Saharan Africa.

In Australia and New Zealand, Northern America and Europe and sub-Saharan Africa, women aged 50 and older were more likely than men in the same age bracket to die of stroke (41%, 23% and 21%, respectively), while in Latin America and the Caribbean and Eastern and South-Eastern Asia men were at greater risk of stroke.

In 2016, the risk of dying from cirrhosis of the liver[4] was higher for men than women aged 50 and older at the global level and in all regions of the world. Men aged 50—54 were almost three times as likely as women to die from this cause, and at least twice as likely, until age 70. Although the gender gap decreases with age, globally men remain at higher risk of dying from liver disease over the life course.

While reported at lower rates in comparison to the death rate from ischaemic heart disease and cirrhosis of the liver, in 2016 men over age 50 were also more likely than women to die from chronic obstructive pulmonary disease.[5] The gender gap was consistent across all geographic regions and was the largest in Oceania (excluding Australia and New Zealand), where men were almost twice as likely to die of chronic obstructive pulmonary disease than women.

In 2016, in most regions, no significant differences in mortality rates due to diabetesmellitus[6] were reported between women and men aged 50 and older. The two regions with the lowest death rates due to diabetes mellitus were exceptions: in Australia and New Zealand, men were at higher risk (19% more likely than women), and in Eastern and South-Eastern Asia, women were at higher risk (30% more likely than men).

Lower respiratory infections are a prominent cause of death for women and men at age 70 and older worldwide; and in sub-Saharan Africa at age 50 and older

For decades, acute lower respiratory infections have been among the top three causes of death and disability worldwide, although substantial progress has been made to reduce their spread. In 2016, lower respiratory infections were the cause of approximately one million deaths in adults aged 70 and older and 2.38 million deaths among people of all ages worldwide,[7] with a particularly high death rate reported in developing regions.

Overall, streptococcus pneumoniae was the leading cause of illness and death from lower respiratory infections globally— the cause of more deaths than all other aetiologies combined.[8] The most prominent risk factors for such infections include: old age, crowded living conditions, malnutrition, HIV infection, lack of immunization, chronic health conditions and exposure to tobacco smoke or indoor air pollutants.[9]

Men aged 50 and older were at higher risk of dying from lower respiratory infections than women, and men aged 50—59 were about 58% more likely than women to die from lower respiratory infections. While the gender gap in the death rate from respiratory infections decreases slightly with age, men remain at a disadvantage over the life course (see figure I).

At the regional level, for both women and men, death rates due to lower respiratory infections were highest in sub-Saharan Africa; followed by Oceania (excluding Australia and New Zealand) for men; and Central and Southern Asia for women. The degree of the gender gap differed, depending on the region: in Australia and New Zealand and in Central and Southern Asia women aged 50 and older were more likelythan men in the same age bracketto die from lower respiratory infections (29% and 21%, respectively), while in all other regions men aged 50 and older were more likely to die from such infections.

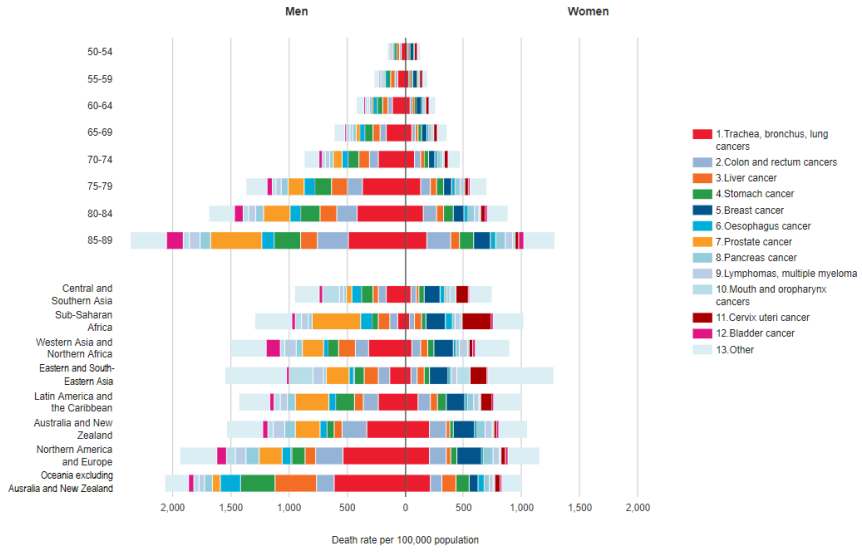
Mortality due to cancer at age 50 and older

At age 50 and older, men are at a higher risk of dying from cancer than women

In 2016, mortality rates from cancer[10] were generally higher in men than women aged 50 and older, in particular cancer of the trachea, bronchia, lung, oesophagus, liver, stomach, prostate and bladder, for which death rates were at least twice as high among men than women (see figure II). The reported exception was breast cancer, which was extremely rare among men. Behavioural and dietary risks, including tobacco use and alcohol consumption, responsible for most of these types for cancers, are more prevalent in men than in women.

Among the population aged 50 and older, the gender gap in mortality due to cancer, to the disadvantage of men, is found in all regions. The gender difference is largestin Eastern and South-Eastern Asia, the region with the highest standardized death rates, where men aged 50 and older are twice as likely as women to die from cancer. These trends coincide with the incidence of tobacco smoking: the highest rates of tobacco smoking among men are in Eastern and South Eastern Asia. The smallest gender difference in mortality is in Oceania (excluding Australia and New Zealand), where men are only about 20% more likely to die of cancer than women. It is notable that women in Oceania (excluding Australia and New Zealand) have the highest mortality rate due to cancer compared to women in other regions.

Figure II: Deaths due to cancer per 100,000 population aged 50 and older by sex and region: 2016



Source: World Health Organization (WHO), Global Health Estimates 2016 (https://www.who.int/healthinfo/global_burden_disease/en/).
Note: Regions are listed in order of ascending mortality rate in females.

Breast cancer remains among the most common cancer and cause of death among women aged 50 and older.

Globally, one in five cancer deaths among women aged 50 and older are from breast and cervical cancer, with some significant regional differences, particularly for cervical cancer. In low-income countries, where access to health services is poor, and which have lower standardized cancer rates for other cancers,death rates from cervical cancer are high.

The death rate from cervical cancer is the highest in sub-Saharan Africa (247 deaths per 100,000 women over age 50), followed by Oceania (excluding Australia and New Zealand) (148 deaths per 100,000). The death rate is the lowest in Australia and New Zealand (20 deaths per 100,000), followed by Western Asia and Northern Africa (29 deaths per 100,000). Regional variations in the death rate from breast cancer are smaller. Countries in Eastern and South-Eastern Asia have the lowest death rate from breast cancer for women aged 50 and older (80 deaths per 100,000), while the death rate from breast cancer in other regions of the world ranges from 135 deaths per 100,000 in Central and Southern Asia to 208 deaths per 100,000 in Northern America and Europe.

Death rates from cancer increase with age for both women and men. The death rate for cervical cancer among women aged 50—54 stands at 17 deaths per 100,000, increases to about 29 deaths per 100,000 at ages 70—74 and reaches 34 deaths per 100,000 among women aged 85—89. In the case of prostate cancer, the upward trend in death rates among men as they age is striking: at ages 50—54, there are 1.4 deaths per 100,000, by ages 70—74 the death rate increases to 74 per 100,000 and by ages 85—90 it is as high as 441 deaths per 100,000.

Coronavirus-19 (COVID-19), cancer and gender

Emerging data in the United Kingdom of Great Britain and Northern Ireland[11] indicate that cancer patients with COVID-19 are significantly more likely to be male. Patients with breast cancer or malignancies of the female genital tract appear to be at a much lower risk of contracting or dying from COVID-19. In multivariable analysis, this protection was attributed to the patients being women rather than to any inherently lower risk associated with these types of tumours.

Alzheimer's disease and dementia

Older age is usually characterized by an increasing and general impairment of physiological functioning, resulting in the growing risk of disease and death. More common among people later in life, Alzheimer's diseaseis a chronic neurodegenerative disease withan average life expectancy following diagnosis of between three to nine years.[12,13] Among other effects, degenerative changes in the brain lead to deterioration in memory, thinking, behaviour and the ability to perform everyday activities. The result is a loss of the skills that enable people to live independently. Worldwide, around 50 million people suffer from Alzheimer's or other types of dementia, with nearly 60% of that population living in low-income and middle-income countries. By 2030, the total number of people with dementia is projected to reach 82 million.

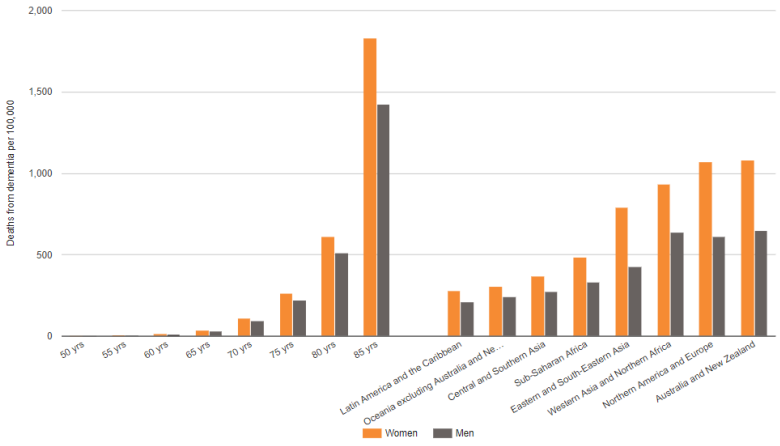
Women are more likely than men to be affected by dementia

Alzheimer's disease and other dementias account for 1 in 12 deaths among women aged 70 and older,[14] compared to 1 in 20 deaths among men of the same age. The principal risk factor for Alzheimer's disease is age: deathrates in both sexes double with each additional 5 years of life.The lifetime risk for Alzheimer's disease is greater among women than men, partly because more women survive to ages at which the onset of the disease is most common.[15] Little is yet known about risk factors for the disease except age itself, although evidence points to risk factors that are shared with cardiovascular disease. Smoking, obesity, diabetes, high cholesterol and hypertension may increase the risk of dementia, while physical activity, a healthy diet, social activities and education may have a protective effect. There is some evidence that certain genetic factors may increase an individual's risk of having dementia.[16]

Of the leading causes of death among people aged 50 and older (see figure I), the single cause of death that significantly affects women more than men is Alzheimer's disease and other types of dementia. Globally, at every age bracket, women are at least 20% more likely than men to die from these causes (see figure III), and gender disparities to women's disadvantage are more marked in some regions: in Eastern and South-Eastern Asia, women aged 50 and older are 85% more likely than men to die from Alzheimer's and other types of dementia, and in Northern America and Europe women are 76% more likely than men to die from this cause.

The smallest gender gap in mortality due to Alzheimer's and other dementias is found in Oceania (excluding Australia and New Zealand) (24% to the disadvantage of women). These trends match the gender differences in life expectancyat older ages: among those aged 80 and older this gap is high in Eastern and South-Eastern Asia, where women outlive men by about two years, while there is practically no gap in Oceania (excluding Australia and New Zealand).

Figure III: Deaths due to Alzheimer's disease and other types of dementia per 100,000 population aged 50 and older by sex and region: 2016



Source: World Health Organization (WHO), Global Health Estimates 2016 (https://www.who.int/healthinfo/global_burden_disease/en/).
Note: Regions are presented in ascending order of mortality rate in females.

The quality of life of those suffering from Alzheimer's disease and their carers, most commonly female family members, can be severely impaired. Women experience a double burden: they are at higher risk of dementia as they grow older and they are also likely to be the main caregivers as partners, daughters and daughters-in-law.

Informal care of individuals with dementia is common, not only in most low-income and middle-income countries, where professional or institutional care is often not available, but is also frequent in developed countries.For instance, in the United States of America, two-thirds of primary unpaid caregivers of those with Alzheimer's disease are women, and over one-third are daughters. Alzheimer's disease takes a devastating toll: compared with caregivers of people without dementia, twice as many caregivers of those with dementia report substantial emotional, financial and physical difficulties.[17]

Mortality in older age: causes show marked gender differences

Even in older ages, the death rate from injuries, in particular road accidents and self-harm injuries, continues to show a distinct gendered pattern, with men aged 65 and older representing about 70% of total deaths under this category (see figure IV). At ages 65—74, men are more likely than women to die as the result of falling (58% of deaths), however, as women and men grow older (ages 75—84 and ages 85—100) the death rate from falls is approximately equal between the sexes.

Among the older population, tuberculosis takes a greater toll among older men: 66% of deaths at ages 65—74 and 69% of deaths at ages 85—100 from tuberculosis occur among men. Women at older ages continue to die from breast and cervical cancer, and they die at higher rates than men from rheumatic heart disease (see figure IV). At ages 65—74, women account for 59% of global mortality from rheumatic heart disease, and represent 57% of global mortality at ages 75—84. After age 84, deaths due to Alzheimer's disease and other types of dementia are more common among women than men — 56% of female mortality at ages 85—100. Among the oldest age group (ages 85—100), mortality due to stroke, ischaemic heart disease, cardiomyopathy, myocarditis, endocarditis and falls are equally common among women and men.

Figure IV: Female death rates worldwide as a proportion of total death rates by age and cause of death: 2016 (Percentage)

	Age (years)		
	65-74	75-84	85-100
Communicable, maternal, perinatal and nutritional conditions			
1 Lower respiratory infections	45%	43%	44%
2 Neonatal deaths			
3 Diarrhoeal diseases	53%	50%	46%
4 Tuberculosis	34%	34%	31%
5 HIV/AIDS			
6 Malaria and other vector borne diseases			47%
7 Other infectious diseases		42%	47%
8 Protein-energy malnutrition		47%	47%
9 Maternal conditions			
Noncommunicable diseases			
1 Ischaemic heart disease	40%	45%	49%
2 Stroke	42%	45%	50%
3 Chronic obstructive pulmonary disease	39%	38%	38%
4 Alzheimer and other dementias	55%	55%	56%
5 Trachea, bronchus, lung cancers	26%	27%	28%
6 Diabetes	49%	50%	48%
7 Cirrhosis of the liver	35%	38%	37%
8 Kidney diseases	43%	41%	42%
9 Other circulatory diseases	43%	47%	52%
10 Hypertensive heart disease	50%	50%	52%
11 Liver cancer	27%	30%	34%
12 Colon and rectum cancers	38%	40%	44%
13 Stomach cancer	28%	30%	35%
14 Breast cancer	99%	99%	98%
15 Other malignant neoplasms	40%	41%	43%
16 Oesophagus cancer	24%	26%	29%
17 Asthma	45%	48%	49%
18 Other digestive diseases	42%	46%	50%
19 Cardiomyopathy, myocarditis, endocarditis	38%	45%	49%
20 Pancreas cancer	42%	44%	48%
21 Prostate cancer	0%	0%	0%
22 Lymphomas, multiple myeloma	39%	40%	40%
23 Other respiratory diseases	34%	36%	42%
24 Mouth and oropharynx cancers	25%	26%	31%
25 Rheumatic heart disease	59%	57%	55%
26 Leukaemia	38%	36%	38%
27 Cervix uteri cancer	100%	100%	100%
Injuries			
1 Road injury	31%	30%	27%
2 Self-harm	35%	32%	31%
3 Falls	42%	46%	48%
4 Other unintentional injuries	36%	40%	47%
5 Interpersonal violence			
6 Drowning			39%

Female mortality as proportion total 0-19% 20-44% 45-55%

Source: World Health Organization (WHO), Global Health Estimates 2016 (https://www.who.int/healthinfo/global_burden_disease/en/).

Note: Data are presented for the 42 leading causes of death in 2016 (where the global number of deaths exceeded 280,000). These causes accounted for 89% of all deaths in 2016. The female death rate in relation to the combined male and female death rate is shown for cells where the age-specific death rate from a cause, in either sex, exceeds 1,500 per 100,000.

About the data

Definitions

- **Deaths by leading causes of death in the population aged 50 and older**: Number of deaths due to a specific cause of death per 100,000 population aged 50 and older.
- **Deaths due to Alzheimer's disease and other types of dementia per 100,000 population aged 50 and older**: Measuring the risk of dying from dementia is important in assessment of the burden of these diseases in a population.Number of deaths due to Alzheimer's disease and other dementias per 100,000 population aged 50 and older.
- **Age-standardized death rates from the 12 leading causes of cancer in the population aged 50 and older**: Measuring the risk of dying from cancer is important in assessment of the disease burden from cancer in a population. Age-standardized rates are adjusted for differences in the age distribution of a population by applying observed age-specific rates for each population to a standard population.The age-standardized rate is a weighted average of the age-specific rates per 100,000 population, where the weights are the proportions of persons in the corresponding age groups of the standard population as defined by the World Health Organization (WHO).

Coverage

WHO calculates estimates for all WHO member States with a population of more than 90,000 (184 countries).

While age 65 is generally used for statistical purposes to identify older persons, most indicators in this story refer broadly to an older population aged 50 and over.

Availability

Data on individual countries are derived from WHO Global Health Estimates for United Nations Member States organized by regional groupings under the Sustainable Development Goals (SDGs) indicators framework.[18]

Footnotes

1. In 2016, non-communicable diseases accounted for 71% of global deaths among people of all ages (41 million deaths (21 million deaths among men and 20 million among women)).

2. Cardiovascular diseases are a group of disorders of the heart and blood vessels, including ischaemic heart disease, cerebrovascular disease, rheumatic heart disease and other related conditions.

3. WHO, Cardiovascular diseases (CVDs).

4. Cirrhosis of the liver refers to the replacement of normal liver tissue with non-living scar tissue, which can result in irrevocable liver failure. It is most commonly caused by Hepatitis C and prolonged excessive alcohol consumption.

5. Chronic obstructive pulmonary disease (COPD) is a progressive life-threatening lung disease that causes breathlessness. The disease develops slowly and usually becomes apparent after age 50.

6. Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar) or when the body cannot effectively use the insulin it produces.

7. The Global Burden of Diseases, Injuries, and Risk Factors Study 2016, Lower Respiratory Infections Collaborators, "Estimates of the global, regional, and national morbidity, mortality, and aetiologies of lower respiratory infections in 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016", The Lancet, vol. 18, Issue 11, November 2018.

8. Ibid.

9. Forum of International Respiratory Societies, The Global Impact of Respiratory Disease, second edition, Sheffield, European Respiratory Society, 2017.

10. Cancers are a group of diseases characterized by uncontrolled growth and spread of abnormal cells (metastasis): they comprise a complex group of diseases and have a variety of causes, usually modified by an individual's genetic make-up. WHO estimates that about 30%-50% of cancers may be prevented with lifestyle modifications, such as eliminating tobacco use, being physically active, and reducing access to carcinogens in the environment.

11. Lee, Lennard, Y.W., Cazier, Jean-Baptiste, Starkey, Thomas, Briggs, Sarah E.W., Arnold, Roland, Bisht, Vartika et al, "COVID-19 prevalence and mortality in patients with cancer and the effect of primary tumour subtype and patient demographics: a prospective cohort study", The Lancet Oncology, August 2020 (online).

12. Querfurth, H.W. and LaFerla, F.M., "Mechanisms of disease: Alzheimer's disease", The New England Journal of Medicine, vol. 362, No. 4, January 2010.

13. Todd, S., Barr, S., Roberts, M., Passmore, A.P., "Survival in dementia and predictors of mortality: a review", International Journal of Geriatric Psychiatry, vol. 28 (11).

14. Death rates from Alzheimer's disease before age 70 are practically negligible.

15. Mielke, M.M., Ferretti, M.T., Iulita, M.F., Hayden, K., Khachaturian, A.S., "Sex and gender in Alzheimer's disease – does it matter?", Alzheimer's & Dementia. 2018;14(9):1101.

16. Barnes, Deborah, E. and others, "Development and validation of a brief dementia screening indicator for primary care", Alzheimer's & Dementia, The Journal of the Alzheimer's Association, vol. 10 (6), February 2014.

17. Alzheimer's Association, 2020: Alzheimer's Disease: Facts and Figures.

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