

Avoidable risk factors take an increasing toll on health worldwide

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Credit: Vera Kratochvil/public domain

A wide range of avoidable risk factors to health - ranging from air pollution to poor diets to unsafe water - account for a growing number of deaths and a significant amount of disease burden, according to a new analysis of 79 risks in 188 countries.

High blood pressure was the number-one individual risk factor

associated with global deaths in 2013, contributing to 10.4 million deaths around the world that year. High blood pressure's impact on [mortality](#) grew by 49.1% between 1990 - when it was also the number-one global risk - and 2013. While this risk heavily impacts both sexes, its increasing impact has been more dramatic for men than women. High blood pressure grew 39.9% for women and 59% for men. It was associated with the deaths of 5.4 million American males in 2013.

The risk factors examined in the study contributed to a total of 30.8 million deaths in 2013, up by one-fifth from 25.1 million deaths in 1990. The top risks associated with the deaths of both men and women are [high blood pressure](#), smoking, high body mass index, and high fasting plasma glucose. But the greatest cumulative impact on health comes from poor diet. A combination of 14 dietary risk factors contributes to the highest number of deaths worldwide through ailments like ischemic heart disease, stroke, and diabetes. In 2013, 21% of total global deaths were attributed to these risks, which include diets low in fruit, whole grains, and vegetables, and diets high in red meat and sugar-sweetened beverages.

"There's great potential to improve health by avoiding certain risks like smoking and poor diet as well as tackling environmental risks like [air pollution](#)," said IHME Director Dr. Christopher Murray. "The challenge for policymakers will be to use what we know to guide prevention efforts and health policies."

The mix of leading risk factors contributing to deaths has changed significantly since 1990. Childhood undernutrition and unsafe water sources have dropped off the global top-10 list, while high cholesterol and alcohol use have replaced them as major contributors to poor health.

"Global, regional, and national comparative risk assessment of 79

behavioral, environmental and occupational, and metabolic risks or clusters of risks in 188 countries 1990-2013: a systematic analysis for the GBD 2013" examines the extent, pattern, and trends of risk factors' contributions to death and health loss across countries. Published in *The Lancet* on September 11, the study was conducted by an international consortium of researchers working on the Global Burden of Disease project and led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington.

Risks vary greatly for men and women. Smoking is a larger problem for males, ranking as the number-two risk and associated with 4.4 million deaths; for females it's number six and contributes to 1.4 million deaths. Alcohol use is a top 10-risk factor for male deaths, but it's not a leading cause for females.

Children also struggle with different risks than adults. For children under the age of 5, child undernutrition - encompassing children who are underweight, whose growth is stunted, and who suffer from wasting - was the number-one cause of death. Childhood undernutrition contributed to 1.3 million deaths in 2013, which accounts for 21.1% of total under-5 deaths. Countries with the highest proportion of under-5 deaths attributable to this risk were Chad, South Sudan, Democratic Republic of the Congo, Somalia, and Niger.

"While we have seen a tremendous growth in risk factors that contribute to non-communicable diseases like heart disease, pulmonary diseases, and diabetes, childhood undernutrition remains a huge challenge for some countries," said Dr. Mohammad Hossein Forouzanfar, Assistant Professor of Global Health at IHME and the paper's lead author.

The study examines which risk factors contribute to health loss as well as death. Researchers use DALYs, or disability-adjusted life years, to measure health loss. One DALY equals one lost year of healthy life and

is measured by the sum of years of life lost to early [death](#) and years lived with disability. The leading risk factors associated with global health loss in 2013 were high systolic blood pressure, smoking, and high body mass index. This has changed significantly since 1990, with a number of risks related to non-communicable diseases rising in prominence. High blood pressure, which accounted for 8.5% of global DALYS in 2013, has moved up in rank, as has smoking, even though its prevalence has fallen in most countries.

Global data mask tremendous regional variations. In much of the Middle East and Latin America, high body mass index is the number-one risk associated with health loss. In South and Southeast Asia, household air pollution is a leading risk, and India also grapples with high risks of unsafe water and childhood undernutrition. Alcohol is the number-two risk in Russia, and smoking is the number-one risk in many high-income countries, including the United Kingdom. The most marked differences are found in sub-Saharan Africa, which, unlike other regions, is dominated by a toxic combination of childhood undernutrition, unsafe water and sanitation, unsafe sex, and alcohol use.

The study includes several [risk factors](#) - wasting, stunting, unsafe sex, no hand-washing with soap - in its analysis for the first time. Another first is the factoring of HIV into the calculation of intimate partner violence. The addition of wasting, which was associated with about one out of every five deaths in children under 5 in 2013, and stunting, which contributed to 3.5% of under-5 deaths, highlights the importance of child undernutrition as a risk factor. Unsafe sex took a huge toll on global [health](#), contributing to 82.3% of HIV/AIDS deaths and 94% of HIV/AIDS deaths among 15- to 19-year-olds in 2013. This has a greater impact on South Africa than any other country; 37.9% of South African deaths were attributed to unsafe sex. The global burden of unsafe sex grew from 1990 and peaked in 2005.

Risks associated with the highest number of deaths globally for both sexes, 2013

- 1 High systolic blood pressure
- 2 Smoking
- 3 High body mass index
- 4 High fasting plasma glucose
- 5 Diet high in sodium
- 6 Diet low in fruits
- 7 Ambient particulate matter pollution
- 8 Household air pollution from solid fuels
- 9 High total cholesterol
- 10 Alcohol use

Risks associated with the highest number of deaths globally for men, 2013

- 1 High systolic blood pressure
- 2 Smoking
- 3 High body mass index

4 Diet high in sodium

5 High fasting plasma glucose

6 Alcohol use

7 Diet low in fruits

8 Ambient particulate matter pollution

9 Household air pollution from solid fuels

10 High total cholesterol

Risks associated with the highest number of deaths globally for women, 2013

1 High systolic blood pressure

2 High body mass index

3 High fasting plasma glucose

4 Diet high in sodium

5 Diet low in fruits

6 Smoking

7 High total cholesterol

8 Household air pollution from solid fuels

9 Ambient particulate matter pollution

10 Low glomerular filtration rate

More information: www.healthdata.org/research-art-188-countries-2013

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