

Education as protection against adult mortality

A global systematic review and meta-analysis

“Effects of education on adult mortality: A global systematic review and meta-analysis” (The Lancet Public Health, 2024) provides the most comprehensive evidence to date of the reduction in all-cause mortality risk, associated with each year of schooling. The study was conducted by the Centre for Global Health Inequalities Research (CHAIN), in collaboration with the Institute for Health Metrics and Evaluation (IHME).

While the positive impact of education on reducing adult mortality has long been known, this is the first global study to calculate exactly how much each year of schooling reduces all-cause adult mortality risk.

What is all-cause mortality?

All-cause mortality measures the total amount of deaths in a population from all causes in a given time, including disease and harmful exposure.

Recommendations

- Investments to reduce disparities in education can help improve health outcomes and reduce health inequalities.
- Schooling policies and resources can be structured as proactive investments for health.

Key findings

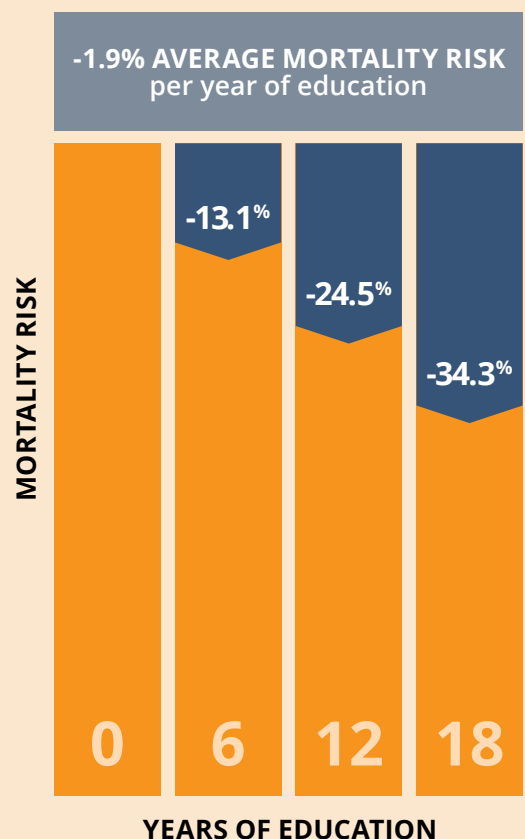
Higher educational attainment is linked with lower levels of adult mortality. This is true for people of all ages, genders, time periods, birth groups, and different social and demographic backgrounds.

The CHAIN-IHME study also shows that:

- With each additional year of education, a person’s risk of mortality goes down by 1.9%. Even at higher levels of education, the reduction in mortality risk with each additional year remains stable.
- The health risks linked to having fewer years of education can be compared to the risks associated with smoking and excessive alcohol consumption.

Each year of education reduces all-cause mortality risk

Compared to 0 years of education, completing 6 years of education (roughly primary school level in most areas) was associated with a 13.1% reduction in all-cause mortality risk when controlling for age, sex, and marital status. This value increased to 24.5% after 12 years and 34.3% after 18 years of education. This translates to an average 1.9% reduction per year of education across the 18 years.



First and most comprehensive global study to quantify the importance of years of schooling in reducing adult mortality - How does the CHAIN-IHME study go beyond what we already know?

Identifying under-examined benefits of education

No previous study has attempted to systematically identify the impact of years of schooling on adult mortality risk at a global level. CHAIN and IHME have improved our understanding of education as a determinant of health by quantifying the % reduction in risk of adult mortality per additional year of education.

Going beyond high-income countries and child mortality

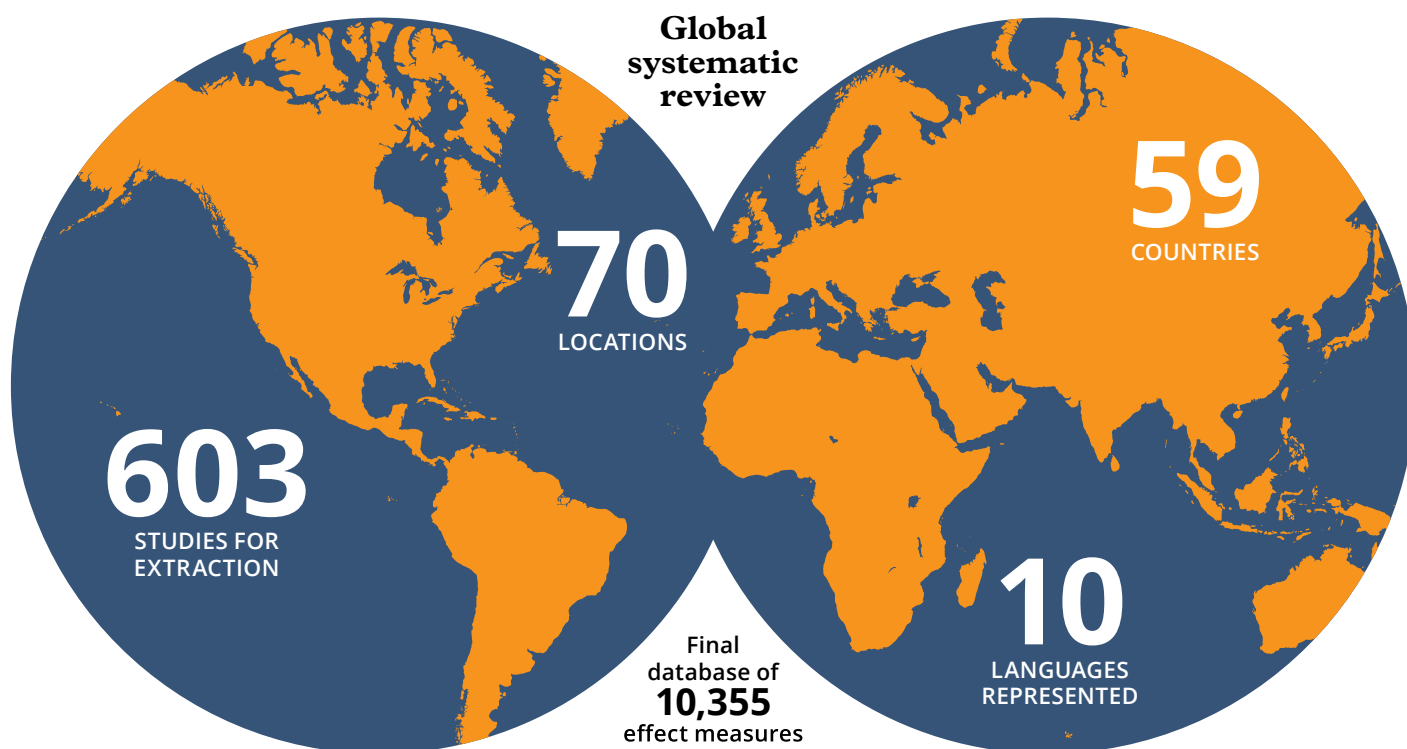
Previous reports on educational inequalities focus often on their effects on child mortality, while those on adult mortality are mostly available for high-income countries. This comprehensive global study includes data on varied economic contexts and focuses on adult mortality across age groups from 18 to 70+ years.

Creating comparability between level of education and other determinants of health outcomes

This study makes it possible to compare the effect of education on mortality risk with that of other high-impact social determinants of health and behavioural risk factors, such as level of physical activity, smoking and alcohol consumption.

Exceeding previous studies in scale, geographic and demographic scope

This CHAIN-IHME study exceeds previous studies on educational inequalities in scale, geographic and demographic scope. It offers a global systematic review and meta-analysis of all existing studies on educational inequalities in adult mortality, which is not restricted by time, location, or language.



The UN Sustainable Development Goals

Education offers a way to improve the health of current and future generations while also fostering sustainable development. It promotes opportunities, participation

in society, and provides knock-on effects for other factors that shape our health and lives.

The results of this study provide robust evidence to support the United Nations **Sustainable Development Goals (SDGs), which target inclusive and**

quality education for everyone (SDG 4), gender equality (SDG 5), and reduction of inequalities within and between countries (SDG 10). Investments to reduce inequalities in education can be important drivers for improved health outcomes.

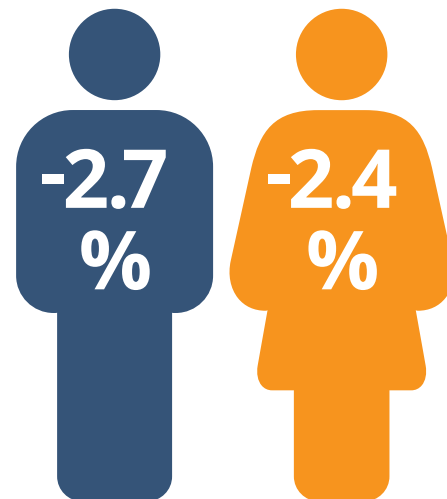
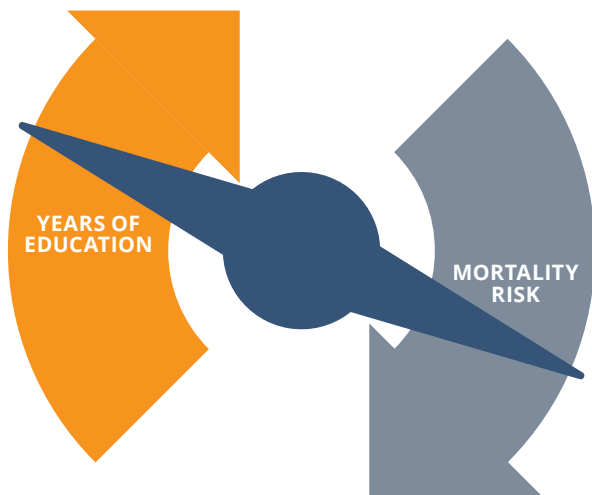
Effects of education on reducing adult mortality by age group, sex and Socio-demographic Index

AGE

- Each year of schooling led to a 2.9% reduction in mortality risk for people **aged 18 to 49**.
- Adults **older than 50** had an average reduction of 0.8% per year.
- Even **after 70**, higher education was significantly protective.

SEX¹

- There was no difference in the protective effect of each year of education between male and female populations **globally**.
- However, among **high-income countries** the reduction per year of education was greater in males (when controlling for age only)



SDI level: Socio-demographic Index (SDI) measures where countries sit on the spectrum of development. This is the first meta-analysis to examine links between SDI levels and educational inequalities in mortality. **There is no clear difference in the effect of education on adult mortality across SDI levels.**

Exploring factors underlying these findings

Education shapes socioeconomic development, social and gender empowerment, and our ability to improve our socioeconomic position.

The positive effect of education on all-cause mortality risk is known to be mediated by health behaviours:

- Higher education facilitates access to better employment and higher income, better healthcare, and helps us take better care of our own health.
- Highly educated people tend to develop a larger set of social and psychological resources that shape their health and the length of their lives.
- Having received fewer years of schooling is correlated with higher rates of cardiovascular disease and cancer mortality. The benefits of education extend into old age and are significant across sexes and economic contexts.
- Education can impact a person's habits, and ultimately how likely they are to live a long and healthy life.

Contextualising the results

Education as a protective factor
18 years of schooling reduces the risk of all-cause mortality by 34.3%, compared to no education.

This compares to:

- the reduction in risk of ischaemic heart disease that results from eating enough vegetables, compared to not eating any vegetables.
- the difference in risk of all-cause mortality between people that meet the recommended level of physical activity compared to those that do not.

Low education as a risk factor

Adults that have not received any education face higher risks for ill-health than those that have received 18 years. These increased risks compare to

- The risk of lung cancer for a current five pack-year smoker compared to a never smoker².
- A high-volume alcohol drinker compared to an occasional drinker.

¹These sex-stratified models controlled for age only, as there is some evidence to indicate that the effects of marriage differ between sexes.

²[...] pack-year calculations [...] multiply smoking use per day with years of smoking. Thus, a person who has smoked half a pack (10 cigarettes) daily for 10 years is a five pack-year smoker. *APOCT14-CE.pdf (ncpa.co)*

Considerations for future research

Education is an important determinant of health. Investing in education can contribute to improving health outcomes across the life course.

A call for future research to address research limitations

The majority of studies that were identified in this CHAIN-IHME review are from high-income settings. Additional investment in research in low- and middle-income countries is needed to identify the effects of this essential determinant of health.

The scarcity of studies from sub-Saharan and North Africa should be addressed in future research and should be a funding priority.

Increased investments in education are a pathway for reducing inequities in mortality

- The study improves our understanding of education as a social determinant that shapes our health.
- Younger generations are impacted more by educational inequalities. Better schooling policies and more resources can be used as proactive investments for health.
- More research is needed to unpack the protective effect of education on specific causes of mortality. This will provide more detailed information to further inform policy and decision makers.

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All references can be found in the article. The study contains detailed methodological descriptions and annexes.
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The Institute for Health Metrics and Evaluation (IHME) is an independent population health research center at UW Medicine, part of the University of Washington, that provides rigorous and comparable measurement of the world's most important health problems and evaluates the strategies used to address them. IHME makes this information freely available so that policymakers have the evidence they need to make informed decisions about how to allocate resources to best improve population health.

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