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Economic storms and economic reforms: utility and necessity for prevention of mortality

Abstract

Most experts agree that education is an integral component of social justice and people should consider that social justice in health may depend on the social determinants of health. In a meta-analysis. The beneficial effect of education on reduction of all-cause adult deaths, has been reported. It is not clear, how education can provide benefits in reducing morbidity and mortality. Apart from general education, health education and motivation of the population, and learning as well as practice of health behavior are crucial. Prudent diet, moderate physical activity, moderation in alcohol intake, non-smoking, low mental stress, adequate sleep, as a public health policy at affordable cost are basic in the prevention of mortality due to CVDs and other chronic diseases. In this context the emphasis on mental and spiritual health, as part of culture, may be highly rewarding in the health education and motivation of the people on prevention of diseases and promotion of health.

Keywords: mortality, health behavior, adherence, diet, lifestyle

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Ram B Singh,[1] Petri Tuomainen,[2] MA Manal Smail,[3] Ghizal Fatima,[4] Aminat Magomedova,[5] Jan Fedacko,[6] Sanjay Mahajan,[7] Shantanav Rao[1]

[1]Halberg Hospital and Research Institute, Moradabad, India
[2]Center for Medicine and Clinical Research, University of Eastern Finland, Kuopio, Finland
[3]School of Pharmacy and Biomedical Sciences, University of Central Lancashire, Preston, UK
[4]Department of Biotechnology, Era Medical College and Hospital, Lucknow, India
[5]Lomosonov Moscow State University, Moscow, Russia
[6]Centre of Clinical and Preclinical Research - MEDIPARK - PJ Safarik University, Kosice 040–11, Slovakia
[7]Kailash Hospital and Heart Institute, Noida, India

Correspondence: MA Manal Smail PhD, MD Scholar, School of Pharmacy and Biomedical Sciences, University of Central Lancashire, Preston, UK, Tel 0508055227

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Introduction

It seems that it is economic reforms rather than economic storms along with education that are important determinants of human development leading to national development. Recently, Henson et al, in a meta-analysis, found that education may be inversely associated with adult mortality.[1] Most experts agree that education is an important component of social justice and people should consider that social justice in health may depend on the social determinants of health.[2,3] Research on social inequalities in health should focus on the idea that psychosocial influences are important which may also depend on education and cultural factors.[3] Emotional aspects of health with focus on the mind is also an important gateway by which social circumstances can influence health.[3] The quality of living and its relationships with social determinants of health including housing, consumer durables, occupation, education and cultural factors are crucial for health.[4,5] It may be interesting to find out how much is the share of economic development on health,[6] and how it impacts education, lifestyle and behavioral factors.[7] Most of these attributes may be important to health.[5] A landmark systemic review provides compelling evidence on the role of education in improving life expectancy indicating that education could be an important social determinant of health.[1] There is scarcity of evidence that increased investment in education could be a crucial pathway for reducing global inequalities in mortality, because people may be educated and wealthy but less healthy.[6] There are gaps in the knowledge, how education without economic development can provide total health and prevent morbidity and mortality. People and countries may have economic storms,[8] with misuse of funds allocated to education causing adverse effects on coexisting social determinants of diseases.[4–6] This communication aims to highlight the role of economic reforms and education on behavioral determinants of health and in the prevention of morbidity and mortality.

Economic storm, education and health

World Bank has provided soft loans to a large majority of the Lower Middle Income countries (LMICs) for education and health of the people,[8] In 2022 alone, LMICs paid a record $443·5 billion to service their debts, as recorded by World Bank. For 2023-24, repayments of debts are projected to grow by 10%, and by nearly 40% for low-income countries. It seems that wide- spread cuts to spending in the public sector, such as health and education, could be disastrous on both moral and economic grounds. Investment in health means an investment in making a healthy population and workforce, which may result in human development further leading to economic development, prosperity and resilience as well as in security of the society and country. It is possible that targeting women education may be more effective: in the achievement of the above goals, which is being followed at J-Pal, South Asia.

A World Economic Forum report concluded that addressing the health gap among women may boost the worldwide economic development by 2040 by at least $1 trillion. It should be the duty of all the nations, not to sideline education and health. Education, particularly technology of weapons, can strengthen national security as well as economic status by export of weapons, which is apparent from the wisdom of high income countries (HIC) as well as upper middle-income countries (UMIC).

All the countries need to understand that dangers to health from a new era of austerity may go far beyond social and physical determinants of health. Economic development is a crucial pathway for decreasing inequalities in morbidity and mortality world-widely. It seems that decreasing public sector budgets to invest in industry, in particular weapon industry, could have been useful which is evident from countries such as Turkey, Iran and Israel, who are gradually becoming economic power along with improvement in health of these

countries. These efforts can alter economic storms,[8] into economic reformations at this moment of time, which may enhance investments in a broad range of social and cultural programs that are known to provide emotional and spiritual health as well as social and physical health.

US$ and Euro, as "international transaction money" is also an additional problem for lower and MICs, which may be responsible for poverty and decline in education in these countries because of lower value of their currency. There is an urgent need to create more alternatives by the UNO and World Bank to undertake economic reforms, and empower other currencies to neutralise the economic attacks (storms) due to these currencies.

Education, behavioral risk factors and mortality

It seems that health is intimately dependent on education, in particular health education and motivation of the people to avoid behavioral risk factors.[2–5] Recently, a landmark meta-analysis involving 10 355 observations reported that greater years of schooling can reduce adult mortality and the benefits extend into older age.[1] Interestingly, education status showed a dose-dependent graded association with all-cause mortality in adults with an average reduction in mortality risk of 1·9% per additional year of education. The effect was greater in younger than in older age groups the average reduction in mortality risk being 2·9% (2·8–3·0) per each additional year of education for adults aged 18–49 years compared with a 0·8% (0·6–1·0) decline for adults older than 70 years. Quantity of education may be helpful in avoiding behavioral risk factors, which may cause decline in all-cause mortality.[4] Therefore, all countries should increase their investment in education, especially in health education, which may be helpful for minimizing the risk factor burden enabling the behavioral protective factors to promote total health[5,7] (Table 1).

Table 1 Behavioral determinants of health, diseases and mortality

Behavioral risk factors	Biological risk factors	Protective factors
Western diet	Hypertension	Mediterranean style diet
Tobacco use	Diabetes mellitus	Moderate physical activity
Alcoholism	Coronary artery disease	Moderation in alcohol intake
Mental disorders	Metabolic syndrome	Avoiding mental stress
Sleep disorders	Aging	Optimal sleep
Sedentary behavior	Under nutrition	Meditation, yoga and prayer

It seems that education can increase life expectancy, which may be more certain in high income subgroups of populations, because there are many confounders known to influence health and mortality.[6,7] In lower and middle-income countries, such as India, China and Indonesia, health education and motivation rather than general education are the determinants of morbidity and mortality.[4,5] Higher social classes have been found to have greater risk of deaths due to cardiovascular diseases (CVDs) and type 2 diabetes mellitus (T2DM).[4] It is possible that health education and motivation, not general education as such, alter the behavioral determinants of health resulting into positive health behavior and decline in morbidity and mortality. Marmot has proposed that the benefits of education and economic development come in a wave. First they cause positive health effects among educated and health motivated people resulting in health promotion and prevention of diseases.[2,3] Among educated wealthy people there may be emergence of unhealthy determinants of health, which subside after health education and learning the methods of health promotion. However, increased education in developing countries and certain groups in high income countries,[6] is associated with economic development and unhealthy behavioral determinants of health with increased risk of CVDs, T2DM and dementia.[4,5,7] There are many confounders such as protective determinants of health, which may also cause health promotion without any general education. However, educated people may have several behavioral risk factors resulting in increased morbidity and mortality. A cross-sectional survey,[7] among 2002 subjects, aged 25-83 years, reported higher prevalence of behavioral risk factors and their association with dementia in the urban population of North India Table 2.

Table 2 Prevalence of risk factors and protective factors of dementia among men and women

Risk factors and protective factors of dementia	Men (n=1016)	Women (n=986)	Total (n=2002)
Behavioral risk factors	n (%)	n (%)	n (%)
Tobacco intake	202(19.8)**	18(1.8)	220(10.9)
Alcoholism (>10 drinks/ week)	31(2.9)**	-	31(1.5)
Western type diet	518(51.0)	492(50.0)	1018(50.8)
Sedentary behavior	768(75.6)	789(80.0)	1557(77.8)
Low cognitive activity	105(10.3)	118(12.0)	223(11.7)
Low education (<5 years)	85(8.4)	97(9.8)	182(9.1)
Sleep deprivation (<6 hours/ day)	143(14.07)	131(13.28)	274(13.68)
Mood and anxiety disorders	225(22.1)	215(21.8)	440(22.0)
Protective factors			
Meditation, yoga and prayer >30 min/day	251(24.70)	518(52.53)*	769(38.41)
Indo-Mediterranean foods (>400g/day)	98(9.64)	97(9.84)	195(9.74)
Energy restriction or fasting, once daily/week or more.	127(12.50)	113(11.46)	240(11.98)
Mastication of foods. (>20 mastication /bite)	231(22.73)	197(19.98)	428(21.38)
Moderate physical activity	248 (24.4)	147 (20.0)	449 (22.2)

*=P<0.05, **=P<0.01, by Chi square test, Values are number (%). Modified from reference 7.

Discussion

It seems that motivation about protective health behaviors such as moderate physical activity, prudent diet, no tobacco/ (non-smoking?), moderation in alcohol consumption, regular active prayer and regular sleep avoiding night shift work are crucial for CVDs, T2DM and dementia. Therefore, behavioral determinants of health and diseases are of tremendous importance in determining the pathway, by which education could be important in the pathogenesis of mortality. It is expected that education may increase the adherence to these protective determinants of health resulting in a decline in mortality in many high income countries (HIC).[1] However, the effect of education does not appear to be uniform, because, the North Americans who are more educated and wealthy have been found to have greater morbidity and mortality due to CVDs and T2DM compared to Mediterranean populations.[6,9,10] Similar situations exist in the lower middle income countries such as India and China, who are educated but have not yet learned the methods of prevention.

It seems that scarcity of knowledge on health education and lack of motivation to follow the advice, such as sedentary behavior, alcoholism, increased salt intake, western type of diet, sleep disorders and emotional disorders are significantly more common among people

having excess of CVDs, T2DM and dementia,[7] and among individuals with various causes of death.[4,5]

Scarcity of health education and poor health policies are associated with millions of deaths every year in all the countries of the world. In LMICs populations are living in poverty and under nutrition having scant resources without opportunity for health education due to poor public health services.[5–10] However, cultural and religious health behaviors like occupational physical activity, meditation and prayer (Hindu, Muslims, Sikhs, Christians and Buddhists),[11,12] traditional diet,[13] non-smoking (Sikh), no-alcohol (Muslims) may be helpful to these populations against morbidity and mortality. In a meta-analysis of 57 studies from 17 lower LMICs, more than two third of the studies found significant associations between social class and CVDs and cancer, indicating that lower social classes had the highest risk of these diseases.[14] However, 7 of 12 studies found significant association of higher social classes with T2DM. In contrast, Hristova et al., reported that circulatory diseases such as coronary artery disease, stroke and hypertension including T2DM causing deaths were significantly greater among social classes (1-3) compared with lower social classes (4 and 5) who were more prone to die from infections.[5]

The estimates of Global Burden of Disease study, among the poorest billion, as measured by disability-adjusted life years (DALYs), revealed that 29% were non-communicable diseases (NCDs), and 6% injuries.[15] In the poorest billion (23,583 DALYs per 100,000), age-standardized DALY rates from NCDs were 44% greater than high-income regions (16,344 DALYs per 100,000). Compared to high-income regions, age-standardized DALY rates were 2,147% higher for communicable, nutritional, maternal and neonatal conditions (32,334 DALYs per 100,000) and 86% higher for injuries (4,182 DALYs per 100,000) in the poorest billion. However, these are estimates and not the exact data. Moreover, in many population group's nutritional transition from poverty to affluence and emergence of NCDs may have completed.[15] It seems that in India and possibly in China, NCDs have become as common among lower social classes as in higher social classes, but they are still not reduced as in higher income countries. In a more recent large study involving 3,261,839 subjects, aged 87.0±8.0 years, the proportion of deaths showed a decline from 66.2% in 2007 to 55.3% in 2017.[16] The results indicated that among older adults, there was a reducing trend of deaths in the hospital, that depended on the place and cause of mortality.

There is a world-wide decline in the all-cause mortality, which is likely to continue because of positive changes in diet and lifestyle in high income countries and economic development and decline in under nutrition and infections in lower and middle-income countries.[17,18] Other determinants of health may be access to education, water and sanitation, high quality care, decline in poverty, technological advances and labor rights.[19,20] Despite these positive trends, all populations and countries do not have equal benefits due to these changes, which may reduce disparities in the rates of mortality among higher and lower social classes. It seems that some of the behavioral determinants of health such as night time adequate sleep, mental disorders and protective determinants of health, have not been duly considered and may be confounders (Table 1 & Table 2). WHO has advocated to target social determinants of health that predispose morbidity and mortality for reduction of disparities in mortality without due to consideration of protective health behaviors.[21] Most experts agree that the pathways for health improvement through education appear to be economic reforms, beneficial effects on social and psychosocial as well as cognitive factors.[22–24] It seems that human development and survival improve due to education (as a key determinant for achievement of economic and social development), empowerment of society and gender as well as social mobility.[25] However, there are several gaps in the knowledge about the cause of deaths due to sleep disorders and chrono-biological behaviors and spiritual determinants of health.[4,5,7,11,12] The cause of traumatic deaths due to accidents and war, which is going on among educated countries, (Russia and Ukraine, as well as Israel and Iran via Hamas, Houthi and Hezbollah vs western countries) mostly due to poor mental and spiritual determinants of health and human behavior.[12,26–30] It seems that education has miserably failed to educate these countries, that human life is more precious than ego and freedom of expression. Buddha said, "speak truth, but do not speak truth which is unpleasant to others", but none of the educated countries are following this truth.[31]

The UN Sustainable Development Goals (SDGs) in their entirety focus on social determinants of population health, in particular on prevention of NCDs, that have become a major cause of mortality.[32] There is a world-wide dramatic change in educational attainment, during the past fifty years,[32,33] and this has been shown to influence mortality.[34] In this connection the education of parents appears to have a much higher influence on death rates in children.[25] Thus, it is possible that the positive association between greater years in school and healthiness may be continuous and graded in all age groups and it may be further improved through access to behavioral factors and emotional and spiritual determinants of health. There is evidence that mental disorders such as depression, may be associated with flutter in amygdala and hippocampal neurons along with increased sympathetic nervous activity, which may have developed due to behavioral factors, as the cause of deaths.[35,36] The Italian component of the Seven Country Study, reported a J-shaped association between alcohol mostly wine intake and mortality, indicating that moderate drinkers (around 5 drinks per day) had the longest life expectancy, while abstainers and very heavy drinkers had higher mortality rates. There is an urgent need to change health and economic policy to invest in developing economic storms via weapon industry to ally the role of global funding agency.[37]

Conclusion

In brief, the beneficial effect of education on decreasing all-cause adult deaths, has been well reported. However, how education is helpful in reducing morbidity and mortality needs further clarification. Rather than wealth or general education, health education and motivation of the people, about learning and practice of health behavior including prudent diet, moderate physical activity, moderation in alcohol intake, non-smoking, low mental stress, adequate sleep, as a public health policy at affordable cost, appears to be important in the prevention of mortality due to CVDs and other chronic diseases. In this context the emphasis on mental and spiritual health, which are, at least partly cultural, may be highly rewarding in the health education and motivation of the people on prevention and health promotion.

Finally, "Curving the senses into the mind and the mind into pride and pride into knowledge and knowledge into the corporeal soul and, absorbed, the corporeal soul is finally lost in the all-pervading power that is the noosphere". Because the genome is under influence of episome as well as noosphere. (Fabien De Meester and Ram B Singh).

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Conflicts of interest

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References

1. Henson C, Gakidou E, Aravkin A, et al; IHME-CHAIN Collaborators. Effects of education on adult mortality: a global systematic review and meta-analysis. *Lancet Public Health*. 2024; 9(3):e155–e165.
2. McKenna C. Michael Marmot: the health of nations. *BJPsych Bull*. 2023;47(1):56–59.
3. Marmot M, Allen J, Boyce T, et al. *Health equity in England: The Marmot review 10 years on*. Institute of Health Equity; 2020.
4. Singh RB, Singh V, Kulshrestha SK, et al. Social class and all-cause mortality in an urban population of North India. *Acta Cardiol*. 2005;60(6):611–617.
5. Hristova K, Sharma JP, Singh RB, et al. Singh's verbal autopsy questionnaire for the study of prevalence of behavioral risk factors among decedents dying due to cardiovascular diseases and other causes of deaths. *World Heart J*. 2013;5:143–158.
6. Wealth but not health in USA. *Lancet*. 2013;381:177.
7. Singh RB, Wilczynska A, Fedacko J, et al. Prevalence of behavioral risk factors and their association with dementia in the urban population of North India. *MOJ Public Health*. 2023;12(1):46–50.
8. Editorial. Economic storms threaten to cast health adrift. *Lancet*. 2024;403(10424):325.
9. Singh RB, Hristova K, Muthusamy VV, et al. The adverse effects of wealth on cardiovascular health: a scientific statement of the international college of cardiology. *Cardiology and Angiology: An International Journal*. 2013;1(1):9–22.
10. Tikkanen R, Abrams MK. *U.S. health care from a global perspective, 2019: Higher Spending, Worse Outcomes?* Commonwealth Fund; January 2020.
11. Bendien E, Kruijthoff DJ, van der Kooi C, et al. A Dutch study of remarkable recoveries after prayer: how to deal with uncertainties of explanation. *J Relig Health*. 2023;62(3):1731–1755.
12. Li S, Stampfer MJ, Williams DR, et al. Association of religious service attendance with mortality among women. *JAMA Intern Med*. 2016;176(6):777–785.
13. Singh RB, Fedacko J, Fatima G, et al. Why and how the Indo-Mediterranean diet may be superior to other diets: the role of antioxidants in the diet. *Nutrients*. 2022;14(4):898.
14. Williams J, Allen L, Wickramasinghe K, et al. A systematic review of associations between non-communicable diseases and socioeconomic status within low- and lower-middle-income countries. *J Glob Health*. 2018;8(2):020409.
15. Coates MM, Ezzati M, Aguilar GR, et al. Burden of disease among the world's poorest billion people: an expert-informed secondary analysis of Global Burden of Disease estimates. *PLoS One*. 2021;16(8):e0253073.
16. Taniguchi Y, Iwagami M, Jin X, et al. National trends in the proportion of in-hospital deaths by cause of death among older adults with long-term care: a nationwide observational study in Japan from 2007 to 2017. *BMC Geriatr*. 2022;22(1):6.
17. Foreman KJ, Marquez N, Dolgert A, et al. Forecasting life expectancy, years of life lost, and all-cause and cause-specific mortality for 250 causes of death: reference and alternative scenarios for 2016–40 for 195 countries and territories. *Lancet*. 2018;392(10159):2052–2090.
18. Vollset SE, Goren E, Yuan CW, et al. Fertility, mortality, migration, and population scenarios for 195 countries and territories from 2017 to 2100: a forecasting analysis for the Global Burden of Disease Study. *Lancet*. 2020;396(10258):1285–1306.
19. Kruk ME, Gage AD, Joseph NT, et al. Mortality due to low-quality health systems in the universal health coverage era: a systematic analysis of amenable deaths in 137 countries. *Lancet*. 2018;392(10160):2203–2212.
20. Freeman T, Gesesew HA, Bambra C, et al. Why do some countries do better or worse in life expectancy relative to income? An analysis of Brazil, Ethiopia, and the United States of America. *Int J Equity Health*. 2020;19(1):202.
21. WHO Social Determinants of Health. *Closing the gap in a generation: health equity through action on the social determinants of health*. World Health Organization; 2008.
22. Ross CE, Mirowsky J. Why education is the key to socioeconomic differentials in health. In: Bird CE, Conrad P, Fremont AM, Timmermans S, eds. *Handbook of Medical Sociology*. 6th ed. Vanderbilt University Press; 2010:33-51.
23. Phelan JC, Link BG, Tehranifar P. Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *J Health Soc Behav*. 2010;51 Suppl:S28–S40.
24. Thoits PA. Stress and health: major findings and policy implications. *J Health Soc Behav*. 2010;51 Suppl:S41–S53.
25. Balaj M, York HW, Sripada K, et al. Parental education and inequalities in child mortality: a global systematic review and meta-analysis. *Lancet*. 2021;398(10300):608–620.
26. Singh RB, Bjorklund G, Shastun S, et al. Mental and spiritual health and the heart: a viewpoint. *World Heart J*. 2016;8(3):233–238.
27. Singh RB, Cornelissen G, Otsuka K, et al. Coronary risk factors and ambulatory blood pressure and heart rate in Asian Indians. *The Open Nutraceuticals Journal*. 2012;5(Suppl 1-M5):79–80.
28. American Academy of Family Physicians. *Spirituality and Health*. 2025.
29. Singh RB, Mahashwari A, Cornelissen G, et al. Can circadian restriction of feeding modulate autonomic nervous system dysfunction and cardiometabolic risk? *World Heart J*. 2015;7:31–42.
30. Singh RB, Singh S, Fedacko J, et al. Pranayam yoga breathing practices modulate the mind-body connection. *Int J Disability Human Dev*. 2009;8(2):141–153.
31. Singh RB, Mojto V, Fedacko J, et al. Practicing the Eight-Fold Paths of Buddha could modify unhealthy behaviors and reduce non-communicable diseases, to advance sustainable developmental goals of the United Nations: a mini review. *World Heart J*. 2019;11(1):79–91.
32. Friedman J, York H, Graetz N, et al. Measuring and forecasting progress towards the education-related SDG targets. *Nature*. 2020;580(7805):636–639.
33. Graetz N, Friedman J, Osgood-Zimmerman A, et al. Mapping local variation in educational attainment across Africa. *Nature*. 2018;555(7694):48–53.
34. Luy M, Zannella M, Wegner-Siegmundt C, et al. The impact of increasing education levels on rising life expectancy: a decomposition analysis for Italy, Denmark, and the USA. *Genus*. 2019;75:11.
35. Borovikova LV, Ivanova S, Zhang M, et al. Vagus nerve stimulation attenuates the systemic inflammatory response to endotoxin. *Nature*. 2000;405(6785):458–462.
36. Ramirez S, Liu X, MacDonald CJ, et al. Activating positive memory engrams suppresses depression-like behavior. *Nature*. 2015;522(7556):335–339.
37. Institute for Health Metrics and Evaluation (IHME). *Financing Global Health 2025: Cuts in Aid and Future Outlook*. Seattle, WA: IHME, 2025.

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