



## 1- Education Improves Public Health and Promotes Health Equity

By:

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[INTERNATIONAL JOURNAL OF HEALTH SERVICES](#)

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**Abstract**

This article describes a framework and empirical evidence to support the argument that educational programs and policies are crucial public health interventions. Concepts of education and health are developed and linked, and we review a wide range of empirical studies to clarify pathways of linkage and explore implications. Basic educational expertise and skills, including fundamental knowledge, reasoning ability, emotional self-regulation, and interactional abilities, are critical components of health. Moreover, education is a fundamental social determinant of health - an upstream cause of health. Programs that close gaps in educational outcomes between low-income or racial and ethnic minority populations and higher-income or majority populations are needed to promote health equity. Public health policy makers, health practitioners and educators, and departments of health and education can collaborate to implement educational programs and policies for which systematic evidence indicates clear public health benefits.

**Keywords**

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[equity](#)[disparities](#)[social determinant](#)[health in all policies](#)

**Keywords Plus**

[SELF-RATED HEALTH](#)[DECISION-MAKING](#)[ADULT HEALTH](#)[ASSOCIATION](#)[MORTALITY](#)[GRADES](#)[INCOME](#)



## 2- Virtual Reality for Health Professions Education: Systematic Review and Meta-Analysis by the Digital Health Education Collaboration

By: [Kyaw, BM](#) (Kyaw, Bhone Myint) [1]; [Saxena, N](#) (Saxena, Nakul) [2]; [Posadzki, P](#) (Posadzki, Pawel) [3]; [Vseteckova, J](#) (Vseteckova, Jitka) [4]; [Nikolaou, CK](#) (Nikolaou, Charoula Konstantia) [5]; [George, PP](#) (George, Pradeep Paul) [2]; [Divakar, U](#) (Divakar, Ushashree) [3]; [Masiello, I](#) (Masiello, Italo) [6], [7]; [Kononowicz, AA](#) (Kononowicz, Andrzej A.) [8]; [Zary, N](#) (Zary, Nabil) [9], [10], [11]; ...More

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### Abstract

Background: Virtual reality (VR) is a technology that allows the user to explore and manipulate computer-generated real or artificial three-dimensional multimedia sensory environments in real time to gain practical knowledge that can be used in clinical practice.

Objective: The aim of this systematic review was to evaluate the effectiveness of VR for educating health professionals and improving their knowledge, cognitive skills, attitudes, and satisfaction.

Methods: We performed a systematic review of the effectiveness of VR in pre- and postregistration health professions education following the gold standard Cochrane methodology. We searched 7 databases from the year 1990 to August 2017. No language restrictions were applied. We included randomized controlled trials and cluster-randomized trials. We independently selected studies, extracted data, and assessed risk of bias, and then, we compared the information in pairs. We contacted authors of the studies for additional information if necessary. All pooled analyses were based on random-effects models. We used



## Health Education Highly Cited Articles

the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) approach to rate the quality of the body of evidence.

Results: A total of 31 studies (2407 participants) were included. Meta-analysis of 8 studies found that VR slightly improves postintervention knowledge scores when compared with traditional learning (standardized mean difference [SMD]=0.44; 95% CI 0.18-0.69; I-2=49%; 603 participants; moderate certainty evidence) or other types of digital education such as online or offline digital education (SMD=0.43; 95% CI 0.07-0.79; I-2=78%; 608 participants [8 studies]; low certainty evidence). Another meta-analysis of 4 studies found that VR improves health professionals' cognitive skills when compared with traditional learning (SMD=1.12; 95% CI 0.81-1.43; I-2=0%; 235 participants; large effect size; moderate certainty evidence). Two studies compared the effect of VR with other forms of digital education on skills, favoring the VR group (SMD=0.5; 95% CI 0.32-0.69; I-2=0%; 467 participants; moderate effect size; low certainty evidence). The findings for attitudes and satisfaction were mixed and inconclusive. None of the studies reported any patient-related outcomes, behavior change, as well as unintended or adverse effects of VR. Overall, the certainty of evidence according to the GRADE criteria ranged from low to moderate. We downgraded our certainty of evidence primarily because of the risk of bias and/or inconsistency.

Conclusions: We found evidence suggesting that VR improves postintervention knowledge and skills outcomes of health professionals when compared with traditional education or other types of digital education such as online or offline digital education. The findings on other outcomes are limited. Future research should evaluate the effectiveness of immersive and interactive forms of VR and evaluate other outcomes such as attitude, satisfaction, cost-effectiveness, and clinical practice or behavior change.

### **Keywords**

### **Author Keywords**

[virtual realityhealth professions educationrandomized controlled trialssystematic reviewmeta-analysis](#)

### **Keywords Plus**

[INGUINAL-HERNIA REPAIRCOMPUTER-SIMULATIONMEDICAL-  
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### 3- The Causal Effect of Education on Health: What is the Role of Health Behaviors?

By:

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#### Abstract

We investigate the causal effect of education on health and the part of it that is attributable to health behaviors by distinguishing between short-run and long-run mediating effects: whereas, in the former, only behaviors in the immediate past are taken into account, in the latter, we consider the entire history of behaviors. We use two identification strategies: instrumental variables based on compulsory schooling reforms and a combined aggregation, differencing, and selection on an observables technique to address the endogeneity of both education and behaviors in the health production function. Using panel data for European countries, we find that education has a protective effect for European men and women aged 50+. We find that the mediating effects of health behaviors measured by smoking, drinking, exercising, and the body mass index account in the short run for around a quarter and in the long run for around a third of the entire effect of education on health. Copyright (c) 2015 John Wiley & Sons, Ltd.

#### Keywords

#### Author Keywords

[SHAREhealtheducationhealth behaviors](#)

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[LIFE-STYLEMORTALITYOVERWEIGHTRETURNSENGLANDEUROPEIMPACTRISK](#)



#### 4- Decolonizing Global Health Education: Rethinking Institutional Partnerships and Approaches

By:

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#### **Abstract**

Global health often entails partnerships between institutions in low- and middle-income countries (LMICs) that were previously colonized and high-income countries (HICs) that were colonizers. Little attention has been paid to the legacy of former colonial relationships and the influence they have on global health initiatives. There have been recent calls for the decolonization of global health education and the reexamination of assumptions and practices underpinning global health partnerships.

Medicine's role in colonialism cannot be ignored and requires critical review. There is a growing awareness of how knowledge generated in HICs defines practices and informs thinking to the detriment of knowledge systems in LMICs. Additionally, research partnerships often benefit the better-resourced partner.

In this article, the authors offer a brief analysis of the intersections between colonialism, medicine, and global health education and explore the lingering impact of colonialist legacies on current global health programs and partnerships. They describe how "decolonized" perspectives have not gained sufficient traction and how inequitable power dynamics and neocolonialist assumptions continue to dominate. They discuss 5 approaches, and highlight resources, that challenge colonial paradigms in the global health arena. Furthermore, they argue for the inclusion of more transformative learning approaches to promote change in attitudes and practice. They call for critical reflection and concomitant action to shift colonial paradigms toward more equitable partnerships in global education.



### 5- Serious Gaming and Gamification Education in Health Professions: Systematic Review

By: [Gentry, SV](#) (Gentry, Sarah Victoria) [1], [2]; [Gauthier, A](#) (Gauthier, Andrea) [3]; [Ehrstrom, BL](#) (Ehrstrom, Beatrice L'Estrade) [4]; [Wortley, D](#) (Wortley, David) [5]; [Lilienthal, A](#) (Lilienthal, Anneliese) [4]; [Car, LT](#) (Car, Lorainne Tudor) [6]; [Dauwels-Okutsu, S](#) (Dauwels-Okutsu, Shoko) [7]; [Nikolaou, CK](#) (Nikolaou, Charoula K.) [8]; [Zary, N](#) (Zary, Nabil) [4], [9], [10]; [Campbell, J](#) (Campbell, James) [11]; ...More

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#### Abstract

Background: There is a worldwide shortage of health workers, and this issue requires innovative education solutions. Serious gaming and gamification education have the potential to provide a quality, cost-effective, novel approach that is flexible, portable, and enjoyable and allow interaction with tutors and peers.

Objective: The aim of this systematic review was to evaluate the effectiveness of serious gaming/gamification for health professions education compared with traditional learning, other types of digital education, or other serious gaming/gamification interventions in terms of patient outcomes, knowledge, skills, professional attitudes, and satisfaction (primary outcomes) as well as economic outcomes of education and adverse events (secondary outcomes).

Methods: A comprehensive search of MEDLINE, EMBASE, Web of Knowledge, Educational Resources Information Centre, Cochrane Central Register of Controlled Trials, PsycINFO, and Cumulative Index to Nursing and Allied Health Literature was conducted from 1990 to August 2017. Randomized controlled trials (RCTs) and cluster RCTs were eligible for inclusion. Two reviewers independently searched, screened, and assessed the study quality and extracted data. A meta-analysis was not deemed appropriate due to



## Health Education Highly Cited Articles

the heterogeneity of populations, interventions, comparisons, and outcomes. Therefore, a narrative synthesis is presented.

**Results:** A total of 27 RCTs and 3 cluster RCTs with 3634 participants were included. Two studies evaluated gamification interventions, and the remaining evaluated serious gaming interventions. One study reported a small statistically significant difference between serious gaming and digital education of primary care physicians in the time to control blood pressure in a subgroup of their patients already taking antihypertensive medications. There was evidence of a moderate-to-large magnitude of effect from five studies evaluating individually delivered interventions for objectively measured knowledge compared with traditional learning. There was also evidence of a small-to-large magnitude of effect from 10 studies for improved skills compared with traditional learning. Two and four studies suggested equivalence between interventions and controls for knowledge and skills, respectively. Evidence suggested that serious gaming was at least as effective as other digital education modalities for these outcomes. There was insufficient evidence to conclude whether one type of serious gaming/gamification intervention is more effective than any other. There was limited evidence for the effects of serious gaming/gamification on professional attitudes. Serious gaming/gamification may improve satisfaction, but the evidence was limited. Evidence was of low or very low quality for all outcomes. Quality of evidence was downgraded due to the imprecision, inconsistency, and limitations of the study.

**Conclusions:** Serious gaming/gamification appears to be at least as effective as controls, and in many studies, more effective for improving knowledge, skills, and satisfaction. However, the available evidence is mostly of low quality and calls for further rigorous, theory-driven research.

### **Keywords**

### **Author Keywords**

[video gameseducationprofessionalreview](#)

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[NURSING-STUDENTSSIMULATION GAMEVIDEO GAMESKILLSPERFORMANCEOUTCOMESIMPACT](#)



## Health Education Highly Cited Articles

### 6- Social and Emotional Learning as a Public Health Approach to Education

By:

[Greenberg, MT](#) (Greenberg, Mark T.) [1], [2]; [Domitrovich, CE](#) (Domitrovich, Celene E.) [3]; [Weissberg, RP](#) (Weissberg, Roger P.) [4], [5]; [Durlak, JA](#) (Durlak, Joseph A.) [6]

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**Abstract**

Evidence-based social and emotional learning (SEL) programs, when implemented effectively, lead to measurable and potentially long-lasting improvements in many areas of children's lives. In the short term, SEL programs can enhance children's confidence in themselves; increase their engagement in school, along with their test scores and grades; and reduce conduct problems while promoting desirable behaviors. In the long term, children with greater socialemotional competence are more likely to be ready for college, succeed in their careers, have positive relationships and better mental health, and become engaged citizens.

Those benefits make SEL programs an ideal foundation for a public health approach to education-that is, an approach that seeks to improve the general population's wellbeing. In this article, Mark Greenberg, Celene Domitrovich, Roger Weissberg, and Joseph Durlak argue that SEL can support a public health approach to education for three reasons. First, schools are ideal sites for interventions with children. Second, school-based SEL programs can improve students' competence, enhance their academic achievement, and make them less likely to experience future behavioral and emotional problems. Third, evidence-based SEL interventions in all schools-that is, universal interventions-could substantially affect public health.

The authors begin by defining social and emotional learning and summarizing research that shows why SEL is important for positive outcomes, both while students are in school and as they grow into adults. Then they describe what a public health approach to education would involve. In doing so, they present the prevention paradox-" a large number of people exposed to a small risk may generate many more cases





## Health Education Highly Cited Articles

[of an undesirable outcome] than a small number exposed to a high risk"-to explain why universal approaches that target an entire population are essential. Finally, they outline an effective, school-based public health approach to SEL that would maximize positive outcomes for our nation's children.

### **Keywords**

### **Keywords Plus**

[PREVENTION PARADOX](#)[SUBSTANCE](#)

[USE](#)[SCHOOL](#)[RISK](#)[INTERVENTION](#)[METAANALYSIS](#)[COMPETENCE](#)[CHILDREN](#)[PROGRAMS](#)[OUTCOMES](#)



## 7- Social Ecological Approaches to Individuals and Their Contexts: Twenty Years of Health Education & Behavior Health Promotion Interventions

By:

[Golden, SD](#) (Golden, Shelley D.) [[1](#)]; [Earp, JAL](#) (Earp, Jo Anne L.)

[HEALTH EDUCATION & BEHAVIOR](#)

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**Abstract**

Social ecological models that describe the interactive characteristics of individuals and environments that underlie health outcomes have long been recommended to guide public health practice. The extent to which such recommendations have been applied in health promotion interventions, however, is unclear. The authors developed a coding system to identify the ecological levels that health promotion programs target and then applied this system to 157 intervention articles from the past 20 years of Health Education & Behavior. Overall, articles were more likely to describe interventions focused on individual and interpersonal characteristics, rather than institutional, community, or policy factors. Interventions that focused on certain topics (nutrition and physical activity) or occurred in particular settings (schools) more successfully adopted a social ecological approach. Health education theory, research, and training may need to be enhanced to better foster successful efforts to modify social and political environments to improve health.

**Keywords**

**Author Keywords**

[behavioral theories](#)[health policy](#)[health promotions](#)[social ecological model](#)[training health professionals](#)

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[COALITIONS](#)[FRAMEWORK](#)[POLICY](#)[DETERMINANTS](#)[PREVENTION](#)[IMPACT](#)[COMPETENCE](#)[STRATEGIES](#)[CAPACITY](#)[PROGRAMS](#)



**8- The Relationship Between Health, Education, and Health Literacy: Results From the Dutch Adult Literacy and Life Skills Survey**

By: [van der Heide, I](#) (van der Heide, Iris) [1], [2]; [Wang, J](#) (Wang, Jen) [3]; [Droomers, M](#) (Droomers, Mariel) [4]; [Spreeuwenberg, P](#) (Spreeuwenberg, Peter) [2]; [Rademakers, J](#) (Rademakers, Jany) [2]; [Uiters, E](#) (Uiters, Ellen) [1]

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**Abstract**

Health literacy has been put forward as a potential mechanism explaining the well-documented relationship between education and health. However, little empirical research has been undertaken to explore this hypothesis. The present study aims to study whether health literacy could be a pathway by which level of education affects health status. Health literacy was measured by the Health Activities and Literacy Scale, using data from a subsample of 5,136 adults between the ages of 25 and 65 years, gathered within the context of the 2007 Dutch Adult Literacy and Life Skills Survey. Linear regression analyses were used in separate models to estimate the extent to which health literacy mediates educational disparities in self-reported general health, physical health status, and mental health status as measured by the Short Form-12. Health literacy was found to partially mediate the association between low education and low self-reported health status. As such, improving health literacy may be a useful strategy for reducing disparities in health related to education, as health literacy appears to play a role in explaining the underlying mechanism driving the relationship between low level of education and poor health.



## Health Education Highly Cited Articles

### **Keywords**

### **Keywords Plus**

[SOCIOECONOMIC INEQUALITIESOUTCOMESDISPARITIESMEDIATION](#)



**9- Current trends in interprofessional education of health sciences students: A literature review**

By: [Abu-Rish, E](#) (Abu-Rish, Erin) [1]; [Kim, S](#) (Kim, Sara) [2]; [Choe, L](#) (Choe, Lapio) [3]; [Varpio, L](#) (Varpio, Lara) [4]; [Malik, E](#) (Malik, Elisabeth) [1]; [White, AA](#) (White, Andrew A.) [5]; [Craddick, K](#) (Craddick, Karen) [6]; [Blondon, K](#) (Blondon, Katherine) [7]; [Robins, L](#) (Robins, Lynne) [8]; [Nagasawa, P](#) (Nagasawa, Pamela) [1]; ...More

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**[JOURNAL OF INTERPROFESSIONAL CARE](#)**

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Review

**Abstract**

There is a pressing need to redesign health professions education and integrate an interprofessional and systems approach into training. At the core of interprofessional education (IPE) are creating training synergies across healthcare professions and equipping learners with the collaborative skills required for today's complex healthcare environment. Educators are increasingly experimenting with new IPE models, but best practices for translating IPE into interprofessional practice and team-based care are not well defined. Our study explores current IPE models to identify emerging trends in strategies reported in published studies. We report key characteristics of 83 studies that report IPE activities between 2005 and 2010, including those utilizing qualitative, quantitative and mixed method research approaches. We found a wide array of IPE models and educational components. Although most studies reported outcomes in student learning about professional roles, team communication and general satisfaction with IPE activities, our review identified inconsistencies and shortcomings in how IPE activities are conceptualized, implemented, assessed and reported. Clearer specifications of minimal reporting requirements are useful for developing and testing IPE models that can inform and facilitate successful translation of IPE best practices into academic and clinical practice arenas.



## Health Education Highly Cited Articles

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### **Author Keywords**

[Interprofessional education](#)[literature review](#)[health professional students](#)

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**10- The Relationship Between Education and Health: Reducing Disparities Through a Contextual Approach**

**By:**

[Zajacova, A](#) (Zajacova, Anna) [1]; [Lawrence, EM](#) (Lawrence, Elizabeth M.) [2]

**Edited by:**

[Fielding, JE](#) (Fielding, JE); [Brownson, RC](#) (Brownson, RC); [Green, LW](#) (Green, LW)

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**Abstract**

Adults with higher educational attainment live healthier and longer lives compared with their less educated peers. The disparities are large and widening. We posit that understanding the educational and macrolevel contexts in which this association occurs is key to reducing health disparities and improving population health. In this article, we briefly review and critically assess the current state of research on the relationship between education and health in the United States. We then outline three directions for further research: We extend the conceptualization of education beyond attainment and demonstrate the centrality of the schooling process to health; we highlight the dual role of education as a driver of opportunity but also as a reproducer of inequality; and we explain the central role of specific historical sociopolitical contexts in which the education-health association is embedded. Findings from this research agenda can inform policies and effective interventions to reduce health disparities and improve health for all Americans.

**Keywords**

**Author Keywords**

[educationhealthUS](#) [adultscausalitysocial](#) [contextpolicy](#)



## Health Education Highly Cited Articles

### **Keywords Plus**

[SELF-RATED HEALTH](#)[UNITED-STATES ADULT MORTALITY](#)[LIFE EXPECTANCY](#)[SOCIOECONOMIC-STATUS](#)[INCOME INEQUALITY](#)[POPULATION HEALTH](#)[ECONOMIC RETURNS](#)[SUS MORTALITY](#)[OLDER-ADULTS](#)





## 11- Flipped classroom improves student learning in health professions education: a meta-analysis

By:

[Hew, KF](#) (Hew, Khe Foon) [\[1\]](#); [Lo, CK](#) (Lo, Chung Kwan) [\[1\]](#)

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**Abstract**

**Background:** The use of flipped classroom approach has become increasingly popular in health professions education. However, no meta-analysis has been published that specifically examines the effect of flipped classroom versus traditional classroom on student learning. This study examined the findings of comparative articles through a meta-analysis in order to summarize the overall effects of teaching with the flipped classroom approach. We focused specifically on a set of flipped classroom studies in which pre-recorded videos were provided before face-to-face class meetings. These comparative articles focused on health care professionals including medical students, residents, doctors, nurses, or learners in other health care professions and disciplines (e.g., dental, pharmacy, environmental or occupational health).

**Method:** Using predefined study eligibility criteria, seven electronic databases were searched in mid-April 2017 for relevant articles. Methodological quality was graded using the Medical Education Research Study Quality Instrument (MERSQI). Effect sizes, heterogeneity estimates, analysis of possible moderators, and publication bias were computed using the COMPREHENSIVE META-ANALYSIS software.

**Results:** A meta-analysis of 28 eligible comparative studies (between-subject design) showed an overall significant effect in favor of flipped classrooms over traditional classrooms for health professions education (standardized mean difference, SMD = 0.33, 95% confidence interval, CI = 0.21-0.46,  $p < 0.001$ ), with no evidence of publication bias. In addition, the flipped classroom approach was more effective when instructors used quizzes at the start of each in-class session. More respondents reported they preferred flipped to traditional classrooms.



## Health Education Highly Cited Articles

Conclusions: Current evidence suggests that the flipped classroom approach in health professions education yields a significant improvement in student learning compared with traditional teaching methods.

### **Keywords**

#### **Author Keywords**

[Flipped classroom](#)[Flipped learning](#)[Health professions education](#)[Meta-analysis](#)

#### **Keywords Plus**

[MEDICAL-EDUCATION](#)[PERFORMANCE](#)[MODELS](#)[SATISFACTION](#)[PRINCIPLES](#)



## **12- Discrimination and Delayed Health Care Among Transgender Women and Men Implications for Improving Medical Education and Health Care Delivery**

**By:**

[Jaffee, KD](#) (Jaffee, Kim D.) [1]; [Shires, DA](#) (Shires, Deirdre A.) [1]; [Stroumsa, D](#) (Stroumsa, Daphna) [2]

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#### **Abstract**

**Background:** The transgender community experiences health care discrimination and approximately 1 in 4 transgender people were denied equal treatment in health care settings. Discrimination is one of the many factors significantly associated with health care utilization and delayed care.

**Objectives:** We assessed factors associated with delayed medical care due to discrimination among transgender patients, and evaluated the relationship between perceived provider knowledge and delayed care using Anderson's behavioral model of health services utilization.

**Research Design:** Multivariable logistic regression analysis was used to test whether predisposing, enabling, and health system factors were associated with delaying needed care for transgender women and transgender men.

**Subjects:** A sample of 3486 transgender participants who took part in the National Transgender Discrimination Survey in 2008 and 2009.

**Measures:** Predisposing, enabling, and health system environment factors, and delayed needed health care.

**Results:** Overall, 30.8% of transgender participants delayed or did not seek needed health care due to discrimination. Respondents who had to teach health care providers about transgender people were 4 times more likely to delay needed health care due to discrimination.



## Health Education Highly Cited Articles

**Conclusions:** Transgender patients who need to teach their providers about transgender people are significantly more likely to postpone or not seek needed care. Systemic changes in provider education and training, along with health care system adaptations to ensure appropriate, safe, and respectful care, are necessary to close the knowledge and treatment gaps and prevent delayed care with its ensuing long-term health implications.

### **Keywords**

### **Author Keywords**

[transgenderaccess to carediscrimination](#)

### **Keywords Plus**

[NEEDS-ASSESSMENTACCESSGAYEXPERIENCESBARRIERSPEOPLESAMPLE](#)



### 13- Supporting Public Health Priorities: Recommendations for Physical Education and Physical Activity Promotion in Schools

**By:**

[Hills, AP](#) (Hills, Andrew P.) [1]; [Dengel, DR](#) (Dengel, Donald R.) [2], [3]; [Lubans, DR](#) (Lubans, David R.) [4]

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#### [PROGRESS IN CARDIOVASCULAR DISEASES](#)

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Review

**Abstract**

Physical activity (PA) provides numerous physiological and psychosocial benefits. However, lifestyle changes, including reduced PA opportunities in multiple settings, have resulted in an escalation of overweight and obesity and related health problems. Poor physical and mental health, including metabolic and cardiovascular problems is seen in progressively younger ages, and the systematic decline in school PA has contributed to this trend. Of note, the crowded school curriculum with an intense focus on academic achievement, lack of school leadership support, funding and resources, plus poor quality teaching are barriers to PA promotion in schools. The school setting and physical educators in particular, must embrace their role in public health by adopting a comprehensive school PA program. We provide an overview of key issues and challenges in the area plus best bets and recommendations for physical education and PA promotion in the school system moving forward. (C) 2014 Published by Elsevier Inc.

**Keywords**

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[Physical activity](#)[Physical education](#)[Schools](#)

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**14- Does the Leader's Ethnicity Matter? Ethnic Favoritism, Education, and Health in Sub-Saharan Africa**

By: [Franck, R](#) (Franck, Raphael) [1]; [Rainer, I](#) (Rainer, Ilia) [2]

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[AMERICAN POLITICAL SCIENCE REVIEW](#)

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**Abstract**

In this article we reassess the role of ethnic favoritism in sub-Saharan Africa. Using data from 18 African countries, we study how the primary education and infant mortality of ethnic groups were affected by changes in the ethnicity of the countries' leaders during the last 50 years. Our results indicate that the effects of ethnic favoritism are large and widespread, thus providing support for ethnicity-based explanations of Africa's underdevelopment. We also conduct a cross-country analysis of ethnic favoritism in Africa. We find that ethnic favoritism is less prevalent in countries with one dominant religion. In addition, our evidence suggests that stronger fiscal capacity may have enabled African leaders to provide more ethnic favors in education but not in infant mortality. Finally, political factors, linguistic differences, and patterns of ethnic segregation are found to be poor predictors of ethnic favoritism.

**Keywords**

**Keywords Plus**

[PUBLIC-GOODS](#)[INFANT-MORTALITY](#)[DIVERSITY](#)[CLEAVAGE](#)[SUCCESS](#)[BIAS](#)



**15- Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study**

**By:** [Barnett, K](#) (Barnett, Karen) [1]; [Mercer, SW](#) (Mercer, Stewart W.) ; [Norbury, M](#) (Norbury, Michael) [1]; [Watt, G](#) (Watt, Graham) ; [Wyke, S](#) (Wyke, Sally) [2]; [Guthrie, B](#) (Guthrie, Bruce) [1]

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**Abstract**

**Background** Long-term disorders are the main challenge facing health-care systems worldwide, but health systems are largely configured for individual diseases rather than multimorbidity. We examined the distribution of multimorbidity, and of comorbidity of physical and mental health disorders, in relation to age and socioeconomic deprivation.

**Methods** In a cross-sectional study we extracted data on 40 morbidities from a database of 1 751 841 people registered with 314 medical practices in Scotland as of March, 2007. We analysed the data according to the number of morbidities, disorder type (physical or mental), sex, age, and socioeconomic status. We defined multimorbidity as the presence of two or more disorders.

**Findings** 42.2% (95% CI 42.1-42.3) of all patients had one or more morbidities, and 23.2% (23.08-23.21) were multimorbid. Although the prevalence of multimorbidity increased substantially with age and was present in most people aged 65 years and older, the absolute number of people with multimorbidity was higher in those younger than 65 years (210 500 vs 194 996). Onset of multimorbidity occurred 10-15 years earlier in people living in the most deprived areas compared with the most affluent, with socioeconomic deprivation particularly associated with multimorbidity that included mental health disorders (prevalence of both physical and mental health disorder 11.0%, 95% CI 10.9-11.2% in most deprived area vs 5.9%, 5.8%-6.0% in least deprived). The presence of a mental health disorder increased as the number of physical morbidities increased (adjusted odds ratio 6.74, 95% CI 6.59-6.90 for five or more disorders vs



## Health Education Highly Cited Articles

1.95, 1.93-1.98 for one disorder), and was much greater in more deprived than in less deprived people (2.28, 2.21-2.32 vs 1.08, 1.05-1.11).

Interpretation Our findings challenge the single-disease framework by which most health care, medical research, and medical education is configured. A complementary strategy is needed, supporting generalist clinicians to provide personalised, comprehensive continuity of care, especially in socioeconomically deprived areas.

### **Keywords**

### **Keywords Plus**

[QUALITY-OF-CARE](#)[CHRONIC DISEASES](#)[GENERAL-PRACTICE](#)[DETERMINANTS](#)[COMORBIDITY](#)[DEPRESSION](#)[PREVALENCE](#)[GUIDELINES](#)[LAW](#)





**16- A systematic review of the factors - enablers and barriers - affecting e-learning in health sciences education**

By: [Regmi, K](#) (Regmi, Krishna) [1], [2]; [Jones, L](#) (Jones, Linda) [2]

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[BMC MEDICAL EDUCATION](#)

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Review

**Abstract**

Background Recently, much attention has been given to e-learning in higher education as it provides better access to learning resources online, utilising technology - regardless of learners' geographical locations and timescale - to enhance learning. It has now become part of the mainstream in education in the health sciences, including medical, dental, public health, nursing, and other allied health professionals. Despite growing evidence claiming that e-learning is as effective as traditional means of learning, there is very limited evidence available about what works, and when and how e-learning enhances teaching and learning. This systematic review aimed to identify and synthesise the factors - enablers and barriers - affecting e-learning in health sciences education (el-HSE) that have been reported in the medical literature. Methods A systemic review of articles published on e-learning in health sciences education (el-HSE) was performed in MEDLINE, EMBASE, Allied & Complementary Medicine, DH-DATA, PsycINFO, CINAHL, and Global Health, from 1980 through 2019, using 'Textword' and 'Thesaurus' search terms. All original articles fulfilling the following criteria were included: (1) e-learning was implemented in health sciences education, and (2) the investigation of the factors - enablers and barriers - about el-HSE related to learning performance or outcomes. Following the PRISMA guidelines, both relevant published and unpublished papers were searched. Data were extracted and quality appraised using QualSyst tools, and synthesised performing thematic analysis. Results Out of 985 records identified, a total of 162 citations



## Health Education Highly Cited Articles

were screened, of which 57 were found to be of relevance to this study. The primary evidence base comprises 24 papers, with two broad categories identified, enablers and barriers, under eight separate themes: facilitate learning; learning in practice; systematic approach to learning; integration of e-learning into curricula; poor motivation and expectation; resource-intensive; not suitable for all disciplines or contents, and lack of IT skills. Conclusions This study has identified the factors which impact on e-learning: interaction and collaboration between learners and facilitators; considering learners' motivation and expectations; utilising user-friendly technology; and putting learners at the centre of pedagogy. There is significant scope for better understanding of the issues related to enablers and facilitators associated with e-learning, and developing appropriate policies and initiatives to establish when, how and where they fit best, creating a broader framework for making e-learning effective.

### **Keywords**

### **Author Keywords**

[Health sciences](#)[E-learning](#)[Barriers](#)[Enablers](#)[Widening participation](#)[Lifelong learning](#)

### **Keywords Plus**

[MEDICAL-EDUCATION](#)[STUDENTS](#)[IMPACT](#)[CARE](#)[PROFESSIONS](#)[KNOWLEDGE](#)[NURSES](#)[SKILLS](#)[HYPE](#)



**17- A scientific theory of gist communication and misinformation resistance, with implications for health, education, and policy**

**By:**

[Reyna, VF](#) (Reyna, Valerie F.) [1]

[PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA](#)

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**Abstract**

A framework is presented for understanding how misinformation shapes decision-making, which has cognitive representations of gist at its core. I discuss how the framework goes beyond prior work, and how it can be implemented so that valid scientific messages are more likely to be effective, remembered, and shared through social media, while misinformation is resisted. The distinction between mental representations of the rote facts of a message-its verbatim representation-and its gist explains several paradoxes, including the frequent disconnect between knowing facts and, yet, making decisions that seem contrary to those facts. Decision makers can falsely remember the gist as seen or heard even when they remember verbatim facts. Indeed, misinformation can be more compelling than information when it provides an interpretation of reality that makes better sense than the facts. Consequently, for many issues, scientific information and misinformation are in a battle for the gist. A fuzzy-processing preference for simple gist explains expectations for antibiotics, the spread of misinformation about vaccination, and responses to messages about global warming, nuclear proliferation, and natural disasters. The gist, which reflects knowledge and experience, induces emotions and brings to mind social values. However, changing mental representations is not sufficient by itself; gist representations must be connected to values. The policy choice is not simply between constraining behavior or persuasion-there is another option. Science communication needs to shift from an emphasis on disseminating rote facts to achieving insight, retaining its integrity but without shying away from emotions and values.



## Health Education Highly Cited Articles

### **Keywords**

### **Author Keywords**

[fuzzy-trace theory](#) [gismisinformation](#) [science communication](#) [emotion](#)

### **Keywords Plus**

[FUZZY-TRACE THEORY](#) [DECISIONS](#) [RISK](#) [BEHAVIORS](#) [MEMORY](#)



**18- COVID-19 and its impact on education, social life and mental health of students: A survey**

**By:**

[Chaturvedi, K](#) (Chaturvedi, Kunal) [1]; [Vishwakarma, DK](#) (Vishwakarma, Dinesh Kumar) [1]; [Singh, N](#) (Singh, Nidhi) [1]

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**Abstract**

The outbreak of COVID-19 affected the lives of all sections of society as people were asked to self-quarantine in their homes to prevent the spread of the virus. The lockdown had serious implications on mental health, resulting in psychological problems including frustration, stress, and depression. In order to explore the impacts of this pandemic on the lives of students, we conducted a survey of a total of 1182 individuals of different age groups from various educational institutes in Delhi - National Capital Region (NCR), India. The article identified the following as the impact of COVID-19 on the students of different age groups: time spent on online classes and self-study, medium used for learning, sleeping habits, daily fitness routine, and the subsequent effects on weight, social life, and mental health. Moreover, our research found that in order to deal with stress and anxiety, participants adopted different coping mechanisms and also sought help from their near ones. Further, the research examined the student's engagement on social media platforms among different age categories. This study suggests that public authorities should take all the necessary measures to enhance the learning experience by mitigating the negative impacts caused due to the COVID-19 outbreak.

**Keywords**

**Author Keywords:** [Children and YouthCovid-19ImpactOnline educationMental healthStudents](#)



## 19- Looking Beyond Income and Education Socioeconomic Status Gradients Among Future High-Cost Users of Health Care

By: [Fitzpatrick, T](#) (Fitzpatrick, Tiffany) [1]; [Rosella, LC](#) (Rosella, Laura C.) [1], [2], [3]; [Calzavara, A](#) (Calzavara, Andrew) [2]; [Petch, J](#) (Petch, Jeremy) [4], [5]; [Pinto, AD](#) (Pinto, Andrew D.) [5], [7]; [Manson, H](#) (Manson, Heather) [1], [3]; [Goel, V](#) (Goel, Vivek) [1], [2], [3], [6]; [Wodchis, WP](#) (Wodchis, Walter P.) [2], [6], [8]

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#### Abstract

Introduction: Healthcare spending occurs disproportionately among a very small portion of the population. Research on these high-cost users (HCUs) of health care has been overwhelmingly cross-sectional in nature and limited to the few sociodemographic and clinical characteristics available in health administrative databases. This study is the first to bridge this knowledge gap by applying a population health lens to HCUs. We investigate associations between a broad range of SES characteristics and future HCUs.

Methods: A cohort of adults from two cycles of large, nationally representative health surveys conducted in 2003 and 2005 was linked to population-based health administrative databases from a universal healthcare plan for Ontario, Canada. Comprehensive person-centered estimates of annual healthcare spending were calculated for the subsequent 5 years following interview. Baseline HCUs (top 5%) were excluded and healthcare spending for non-HCUs was analyzed. Adjusted for predisposition and need factors, the odds of future HCU status (over 5 years) were estimated according to various individual, household, and neighborhood SES factors. Analyses were conducted in 2014.



## Health Education Highly Cited Articles

Results: Low income (personal and household); less than post-secondary education; and living in high-dependency neighborhoods greatly increased the odds of future HCUs. After adjustment, future HCU status was most strongly associated with food insecurity, personal income, and non-homeownership. Living in highly deprived or low ethnic concentration neighborhoods also increased the odds of becoming an HCU.

Conclusions: Findings suggest that addressing social determinants of health, such as food and housing security, may be important components of interventions aiming to improve health outcomes and reduce costs. (C) 2015 American Journal of Preventive Medicine.

### **Keywords**

### **Keywords Plus**

[SOCIAL DETERMINANTS SERVICES DISPARITIES EXPENDITURES](#)



## 20- Effective Dementia Education and Training for the Health and Social Care Workforce: A Systematic Review of the Literature

By:

[Surr, CA](#) (Surr, Claire A.) [1]; [Gates, C](#) (Gates, Cara) [2]; [Irving, D](#) (Irving, Donna) [3]; [Oyebode, J](#) (Oyebode, Jan) [4]; [Smith, SJ](#) (Smith, Sarah Jane) [3]; [Parveen, S](#) (Parveen, Sahdia) [3]; [Drury, M](#) (Drury, Michelle) [3]; [Dennison, A](#) (Dennison, Alison) [3]

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Review

**Abstract**

Ensuring an informed and effective dementia workforce is of international concern; however, there remains limited understanding of how this can be achieved. This review aimed to identify features of effective dementia educational programs. Critical interpretive synthesis underpinned by Kirkpatrick's return on investment model was applied. One hundred and fifty-two papers of variable quality were included. Common features of more efficacious educational programs included the need for educational programs to be relevant to participants' role and experience, involve active face-to-face participation, underpin practice-based learning with theory, be delivered by an experienced facilitator, have a total duration of at least 8 hours with individual sessions of 90 minutes or more, support application of learning in practice, and provide a structured tool or guideline to guide care practice. Further robust research is required to develop the evidence base; however, the findings of this review have relevance for all working in workforce education.

**Keywords**

**Author Keywords**





## Health Education Highly Cited Articles

[Alzheimer'sstaff trainingworkforce developmentcritical interpretive synthesis](#)

### **Keywords Plus**

[THEORY-PRACTICE GAPLONG-TERM-CARENURSING-HOMENONTECHNICAL SKILLSSTAFF](#)

[ATTITUDESPEOPLEINTERVENTIONSPROGRAMIMPACTLIFE](#)



**21- Cross-cultural adaptation of the Health Education Impact Questionnaire: experimental study showed expert committee, not back-translation, added, value**

By: [Epstein, J](#) (Epstein, Jonathan) [1], [2], [3]; [Osborne, RH](#) (Osborne, Richard H.) [4]; [Elsworth, GR](#) (Elsworth, Gerald R.) [4]; [Beaton, DE](#) (Beaton, Dorcas E.) [5], [6], [7]; [Guillemin, F](#) (Guillemin, Francis) [1], [2], [3]

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**Abstract**

Objectives: To assess the contribution of back-translation and expert committee to the content and psychometric properties of a translated multidimensional questionnaire

Study Design and Setting: Recommendations for questionnaire translation include back-translation and expert committee, but their contribution to measurement properties is unknown. Four English to French translations of the Health Education Impact Questionnaire were generated with and without committee or back-translation. Face validity, acceptability, and structural properties were compared after random assignment to people with rheumatoid arthritis (N = 1,168), chronic renal failure (N = 2,368), and diabetes (N = 538). For face validity, 15 bilingual people compared translations quality with the original. Psychometric properties were examined using confirmatory factor analysis (metric and scalar invariance) and item response theory.

Results: Qualitatively, there were five types of translation errors: style, intensity, frequency/time frame, breadth, and meaning. Bilingual assessors ranked best the translations with committee (P = 0.0026). All translations had good structural properties (root mean square error of approximation <0.05; comparative fit index [CFI], >= 0.899; and Tucker Lewis index, >= 0.889). Full measurement invariance was observed between translations (Delta CFI <= 0.01) with metric invariance between translations and original (lowest



## Health Education Highly Cited Articles

Delta CFI = 0.022 between fully constrained models and models with free intercepts). Item characteristic curve analyses revealed no significant differences.

Conclusion: This is the first experimental evidence that back-translation has moderate impact, whereas expert committee helps to ensure accurate content. (C) 2015 Elsevier Inc. All rights reserved.

### **Keywords**

### **Author Keywords**

[Cross-cultural adaptation](#)[Complex measurement scale](#)[Back-Translation](#)[Expert committee](#)[Experimental study](#)[heiQ](#)

### **Keywords Plus**

[OF-FIT INDEXES](#)[QUALITY INSTRUMENTS](#)[OUTCOMES](#)[FRENCH](#)[COSMIN](#)



## **22- Effect of a 24-Month Physical Activity Intervention vs Health Education on Cognitive Outcomes in Sedentary Older Adults The LIFE Randomized Trial**

### **By:**

[Sink, KM](#) (Sink, Kaycee M.) [1]; [Espeland, MA](#) (Espeland, Mark A.) [2]; [Castro, CM](#) (Castro, Cynthia M.) [3]; [Church, T](#) (Church, Timothy) [4]; [Cohen, R](#) (Cohen, Ron) [5]; [Dodson, JA](#) (Dodson, John A.) [6]; [Guralnik, J](#) (Guralnik, Jack) [7]; [Hendrie, HC](#) (Hendrie, Hugh C.) [8], [9]; [Jennings, J](#) (Jennings, Janine) [10]; [Katula, J](#) (Katula, Jeffery) [11]; ...More

### **Group Author:**

[LIFE Study Investigators](#) (LIFE Study Investigators)

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Article

### **Abstract**

**IMPORTANCE** Epidemiological evidence suggests that physical activity benefits cognition, but results from randomized trials are limited and mixed.

**OBJECTIVE** To determine whether a 24-month physical activity program results in better cognitive function, lower risk of mild cognitive impairment (MCI) or dementia, or both, compared with a health education program.

**DESIGN, SETTING, AND PARTICIPANTS** A randomized clinical trial, the Lifestyle Interventions and Independence for Elders (LIFE) study, enrolled 1635 community-living participants at 8 US centers from February 2010 until December 2011. Participants were sedentary adults aged 70 to 89 years who were at risk for mobility disability but able to walk 400 m.

**INTERVENTIONS** A structured, moderate-intensity physical activity program (n = 818) that included walking, resistance training, and flexibility exercises or a health education program (n = 817) of educational workshops and upper-extremity stretching.



## Health Education Highly Cited Articles

**MAIN OUTCOMES AND MEASURES** Prespecified secondary outcomes of the LIFE study included cognitive function measured by the Digit Symbol Coding (DSC) task subtest of the Wechsler Adult Intelligence Scale (score range: 0-133; higher scores indicate better function) and the revised Hopkins Verbal Learning Test (HVLT-R; 12-item word list recall task) assessed in 1476 participants (90.3%). Tertiary outcomes included global and executive cognitive function and incident MCI or dementia at 24 months.

**RESULTS** At 24 months, DSC task and HVLT-R scores (adjusted for clinic site, sex, and baseline values) were not different between groups. The mean DSC task scores were 46.26 points for the physical activity group vs 46.28 for the health education group (mean difference, -0.01 points [95% CI, -0.80 to 0.77 points],  $P = .97$ ). The mean HVLT-R delayed recall scores were 7.22 for the physical activity group vs 7.25 for the health education group (mean difference, -0.03 words [95% CI, -0.29 to 0.24 words],  $P = .84$ ). No differences for any other cognitive or composite measures were observed. Participants in the physical activity group who were 80 years or older ( $n = 307$ ) and those with poorer baseline physical performance ( $n = 328$ ) had better changes in executive function composite scores compared with the health education group ( $P = .01$  for interaction for both comparisons). Incident MCI or dementia occurred in 98 participants (13.2%) in the physical activity group and 91 participants (12.1%) in the health education group (odds ratio, 1.08 [95% CI, 0.80 to 1.46]).

**CONCLUSIONS AND RELEVANCE** Among sedentary older adults, a 24-month moderate-intensity physical activity program compared with a health education program did not result in improvements in global or domain-specific cognitive function.

### **Keywords**

### **Keywords Plus**

[ALZHEIMERS ASSOCIATION WORKGROUPSSTYLE INTERVENTIONS](#)[DIAGNOSTIC GUIDELINES](#)[NATIONAL INSTITUTE](#)[AEROBIC EXERCISE](#)[DISEASE RECOMMENDATIONS](#)[INDEPENDENCE](#)[PERFORMANCE](#)[ELDERS](#)



**23- The effect of education based on health belief model on promoting preventive behaviors of hypertensive disease in staff of the Iran University of Medical Sciences**

**By:**

[Azadi, NA](#) (Azadi, Nemam Ali) [1]; [Ziapour, A](#) (Ziapour, Arash) [2]; [Lebni, JY](#) (Lebni, Javad Yoosefi) [3]; [Irandooost, SF](#) (Irandooost, Seyed Fahim) [4]; [Abbas, J](#) (Abbas, Jaffar) [5]; [Chaboksavar, F](#) (Chaboksavar, Fakhreddin) [6]

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**Abstract**

Background Hypertension is one of the major causes of many diseases, such as heart attack, strokes, kidney failure, and many internal disorders. This presentresearch study aimed to investigate the impact of educational programs based on the health belief model to promote hypertension prevention behavior of Iran University of Medical Sciences staff. Methods This study has incorporated pretest-posttest quasi-experimental based on 128 staff members and randomly assigned the recruited and involved participants to an intervention (n = 64) and a control group (n = 64). The data collection tool was based on a questionnaire related to health belief model constructs based on 42 questions. The study interpreted the results using ANCOVA and robust ANCOVA as suitable approaches. Results ANCOVA showed improvement in the cues to participants' action following educational interventional (p = 0.011). the robust ANCOVA specified that the intervention was successful for participants with low to moderate initial levels of knowledge, perceived susceptibility, perceived severity, perceived barriers, and self-efficacy scores. The levels of these components did not change in participants with very high baseline scores. Compared to a control group, regardless of baseline score, the perceived benefits and practice (behavior) of participants



## Health Education Highly Cited Articles

at the intervention group were improved significantly ( $P < 0.05$ ). Conclusion This current study specified that the education-based health belief model effectively promotes hypertension preventive behaviors among Iran University of Medical Sciences staff.

### **Keywords**

### **Author Keywords**

[Hypertension](#)[Health Belief Model](#)[Robust ANCOVA](#)

### **Keywords Plus**

[KNOWLEDGE](#)[LIFE](#)



**24- Variations in the relation between education and cause-specific mortality in 19 European populations: A test of the "fundamental causes" theory of social inequalities in health**

**By:**

[Mackenbach, JP](#) (Mackenbach, Johan P.) [1]; [Kulhanova, I](#) (Kulhanova, Ivana) [1]; [Bopp, M](#) (Bopp, Matthias) [2]; [Deboosere, P](#) (Deboosere, Patrick) [3]; [Eikemo, TA](#) (Eikemo, Terje A.) [1], [4]; [Hoffmann, R](#) (Hoffmann, Rasmus) [1]; [Kulik, MC](#) (Kulik, Margarete C.) [1]; [Leinsalu, M](#) (Leinsalu, Mall) [5], [6]; [Martikainen, P](#) (Martikainen, Pekka) [7]; [Menvielle, G](#) (Menvielle, Gwenn) [8], [9]; ...More

**Group Author:**

[EURO-GBD-SE Consortium](#) (EURO-GBD-SE Consortium)

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**Abstract**

Link and Phelan have proposed to explain the persistence of health inequalities from the fact that socioeconomic status is a "fundamental cause" which embodies an array of resources that can be used to avoid disease risks no matter what mechanisms are relevant at any given time. To test this theory we compared the magnitude of inequalities in mortality between more and less preventable causes of death in 19 European populations, and assessed whether inequalities in mortality from preventable causes are larger in countries with larger resource inequalities.

We collected and harmonized mortality data by educational level on 19 national and regional populations from 16 European countries in the first decade of the 21st century. We calculated age-adjusted Relative Risks of mortality among men and women aged 30-79 for 24 causes of death, which were classified into





## Health Education Highly Cited Articles

four groups: amenable to behavior change, amenable to medical intervention, amenable to injury prevention, and non-preventable.

Although an overwhelming majority of Relative Risks indicate higher mortality risks among the lower educated, the strength of the education mortality relation is highly variable between causes of death and populations. Inequalities in mortality are generally larger for causes amenable to behavior change, medical intervention and injury prevention than for non-preventable causes. The contrast between preventable and non-preventable causes is large for causes amenable to behavior change, but absent for causes amenable to injury prevention among women. The contrast between preventable and nonpreventable causes is larger in Central & Eastern Europe, where resource inequalities are substantial, than in the Nordic countries and continental Europe, where resource inequalities are relatively small, but they are absent or small in Southern Europe, where resource inequalities are also large.

In conclusion, our results provide some further support for the theory of "fundamental causes". However, the absence of larger inequalities for preventable causes in Southern Europe and for injury mortality among women indicate that further empirical and theoretical analysis is necessary to understand when and why the additional resources that a higher socioeconomic status provides, do and do not protect against prevailing health risks. (C) 2014 Elsevier Ltd. All rights reserved.

### **Keywords**

### **Author Keywords**

[Inequality](#)[Fundamental causes](#)[Mortality](#)[Education](#)[Causes of death](#)[Europe](#)

### **Keywords Plus**

[SUICIDE-PREVENTION STRATEGIES](#)[SOCIOECONOMIC INEQUALITIES](#)[TECHNOLOGICAL-INNOVATION](#)[ADULT MORTALITY](#)[SMOKING](#)[CANCER](#)[DISPARITIES](#)[COUNTRIES](#)[EPIDEMIOLOGY](#)[PERSPECTIVE](#)