

How Quality of Education Impacts Cardiovascular Disease

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ABSTRACT

Cardiovascular diseases (CVD) remains at the top of the list for causing the most deaths among people. While medical procedures and pharmacological treatments exist to treat CVD, prevention of upstream influences could make a major impact on decreasing rates of CVD. This review highlights the potential impact of educational factors on lifestyle choices, health behaviors, and access to resources that contribute to cardiovascular health. By examining relevant literature and conducting empirical research, the study aims to provide insights into the correlation between education and cardiovascular outcomes, which in turn, can help initiate public health initiatives.

INTRODUCTION

According to the World Health Organization , an estimated 17.9 million people die from cardiovascular disease (CVD) each year, representing approximately 31% of all global deaths [1]. Individuals with lower levels of education often face a higher burden of CVD risk factors such as obesity, hypertension, and diabetes [1]. Additionally, populations with low education tend to have limited access to healthcare services, leading to undiagnosed or poorly managed cardiovascular conditions [1].

The pathology of CVD reveals the intricate relationship between education and its indirect impact on cardiovascular health. Poor education correlates with higher rates of smoking, unhealthy dietary habits, sedentary lifestyles, and stress—all contributing factors to the development and progression of CVD [3]. Moreover, the lack of health literacy stemming from inadequate education can result in delayed diagnosis, ineffective management of risk factors, and poorer adherence to treatment plans. These factors collectively underscore the urgency of addressing educational disparities to mitigate the burden of CVD.

The objective of this paper is to examine the relationship between level of education and cardiovascular outcomes by reviewing the existing scientific literature. Investing in education not only empowers individuals to make informed health decisions but also lays the foundation for healthier communities by breaking the cycle of poor health outcomes associated with limited educational opportunities.

METHODS

This scoping literature review aimed to explore the correlation between education quality and its indirect influence on cardiovascular disease (CVD). The search was conducted through PubMed and Google Scholar using the key search terms CVD, socioeconomic status, education, and CVD. Articles published before the year 2000 were omitted, ensuring a focus on the most recent information. Systematic reviews or other literature reviews were excluded.

RESULTS

In a study involving over 210,000 participants (average age 46.3), around 8% had atherosclerotic cardiovascular disease (ASCVD) [2]. Educational levels varied, with approximately 14.7% having less than a high school education, 27% with a high school diploma, 20.3% with some college education, and 38% having completed college or more [2]. Over a follow-up time period of 4.5 years, mortality rates were notably higher among those with lower education levels, both for all causes and specifically for cardiovascular disease, compared to those with higher education levels [2]. Individuals with less than a high school education had a 40-50% increased risk of mortality in the overall population and a 20-40% increased risk in the ASCVD population for both all-cause and cardiovascular-related mortality [2]. Accounting for traditional risk factors lessened these associations but still showed significant differences, particularly for the group with less than a high school education level in the overall population [2]. This trend was consistent across various socio-demographic subgroups, including age, sex, race/ethnicity, income, and insurance status [2].

Khan et al. reported that approximately 20% of males and 25% of females were categorized as having "low" education, while around 42% of males and 41% of females fell into the "medium" education group, and roughly 38% of males and 33% of females were classified as "highly" educated [2]. A comparison between individuals with "low" and "high" education levels showed that those with "high" education had lower systolic blood pressure (8% decrease), diastolic blood pressure (4% decrease), decreased blood glucose (6% lower), and lower total cholesterol (7% decrease) [1].

DISCUSSION

The education system plays a pivotal yet often overlooked role in shaping public health outcomes, including CVD. Access to education could be an indirect solution to making better health choices and behaviors. Individuals with higher levels of education tend to have greater awareness of health risks and are more likely to adopt healthier lifestyles. They're equipped with critical thinking skills that help them discern credible health information, leading to informed decisions regarding diet, exercise, and healthcare utilization. Moreover, education indirectly influences socioeconomic status, which in turn affects health outcomes [4]. Higher education

levels may correlate with better job opportunities, income, and access to resources, including healthcare, all of which impact the prevalence and management of CVD.

Conversely, disparities in educational opportunities contribute to health inequalities, including the prevalence of CVD. Communities with limited access to education often face higher rates of CVD due to several factors. Limited health literacy stemming from inadequate education can lead to misunderstanding or ignorance of preventive measures against CVD. Additionally, lower educational attainment may intersect with lower socioeconomic status, leading to reduced access to healthcare services and healthy lifestyle resources, further exacerbating CVD risk factors. Addressing these disparities by improving educational access and quality can indirectly mitigate CVD prevalence by empowering individuals and communities to make informed health decisions and break the cycle of poor health outcomes associated with limited education.

Education plays a vital role in prevention from CVD as well as CVD mortality. People who have received a 'lower education' seem to be associated with CVD mortality and this was shown as there was a 40-50 % increased risk of mortality with individuals with less education [2]. Once again these findings display that there is a strong need for an education among populations and with that, we could start to see major decreases in CVD.

Similarly, another study also goes in depth with his correlation but between males and females [3]. It was once again found that no matter the gender, individuals with "high" education demonstrated better health outcomes, including lower blood pressure, improved lipid profiles, and reduced inflammation markers, in comparison to those with "low" education. Specifically, "high" education was associated with lower systolic and diastolic blood pressure, improved blood glucose levels, favorable lipid profiles, and reduced inflammation markers, even after adjusting for potential confounders. These results highlight the potential link between higher education levels and cardiovascular health benefits. I believe that the area of focus should be on policy and help the underprivileged in the area of schooling and healthy food options and transportation.

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