

**How Economic Instability in Relation to Income Disparities Negatively Impacts
Cardiovascular Health
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ABSTRACT:

Background

Gaps in income equality directly contribute to socioeconomic status, and as a result, efforts intended to improve cardiovascular health and mitigate health risks are not equally distributed among Americans of lower income groups. Instead, positive changes in CVD risk and overall health are primarily concentrated within groups of high socioeconomic status.

Methods

Using the PubMed search engine, we gathered data from studies comparing high- and low-income groups to analyze the correlation between socioeconomic status and quality of cardiovascular health. We focused specifically on the U.S. and targeted adults over the age of 18 unafflicted by non-CVD-related comorbidities.

Results

The data in each study showed glaring trends, such as increased CVD prevalence and/or little improvement of risk variables within underserved populations. This is met with inequity in the distributed efforts to reduce CVD and its related risks, creating wider gaps between groups of high and low socioeconomic status.

Discussion

Economic instability plays a critical role in the lack of quality healthcare for low socioeconomic demographics, leading to poorer health outcomes. Future health policies and clinical reforms should look to diversify guidelines in order to better reach underserved populations and start closing the various gaps barring low socioeconomic individuals from high-quality, impactful healthcare.

INTRODUCTION:

Significance of the Problem

Low family income is a measure of socioeconomic status and may portend greater cardiovascular disease (CVD) risk [1]. Gaping financial disparities mean that many low-income individuals face greater CVD risk and receive less benefit from efforts focused on reducing CVD and its associated risks [1]. Economic stability is directly tied to an individual's ability to control the quality of their lifestyle, such as: the environment they live in, the food they can purchase,

and the social habits they adopt (like choosing to smoke frequently, rarely, or not at all)—all of which play large roles in preventing CVD. Lower income is not only associated with high incident CVD, but it is also related to increased mortality [2]. It can be reasonably inferred that economic instability is a driving force behind the prevalence of CVD in groups of low socioeconomic status (SES), but it often goes unaddressed in many health policies, which allows financial disparity to continue growing unchecked.

Efforts to address CVD and risk factors, like atherosclerosis and hypertension, have the greatest impact on high-income groups. However, disparities in cardiovascular risk factor (CRF) burden continue to increase across low SES groups [3]. This means that while efforts are being made, low-income groups are actually experiencing a widening in the health equity gap, rather than a decrease in their overall CVD risk. This pushes low-income individuals further away from opportunities to improve their cardiovascular health, which can lead to generational healthcare inequity.

Objectives

The objective of this review is to examine negative CVD outcomes and related health risks in groups of low socioeconomic status that are highly affected by income inequality, as well as highlight ways in which various growing disparities contribute to said outcomes. Economic instability, particularly in regards to income disparities, negatively impacts cardiovascular health; by comparing the results of this examination to groups of high income and socioeconomic status, this review aims to bring a greater degree of awareness to health equity gaps brought on by economic instability, show how income disparities restrict access to quality care for underserved populations, and potentially promote the implementation of policies focused specifically on groups of low socioeconomic status to decrease CVD risks and improve health outcomes.

METHODS:

Search Strategy

Using the PubMed database, the following keywords will be used to find relevant resources: “Cardiovascular Diseases”[MeSH] AND adult AND “Cross-Sectional Studies”[MeSH] AND “Rural Population”[MeSH] AND “Health Status Disparities”[MeSH] AND “Socioeconomic Factors”[MeSH].

Inclusion and Exclusion Criteria

Each referenced study must: be US-based, include one participant group with low socioeconomic status, and strictly use adult participants aged 18 and older. Any studies which: are conducted within the timespan of the COVID-19 pandemic (January 2020 to June 2023), are carried out in areas outside of the US, include participants with comorbidities unrelated to CVD, or use participants under the age of 18, will be excluded from the review.

RESULTS:

CVD Trends Related to Income Gaps

A cross-sectional analysis evaluating data from the 1999 to 2014 National Health and Nutrition Examination Survey (NHANES) used the pooled cohort equation to assess predicted cardiovascular risk in terms of systolic BP, smoking status, diabetes, and total cholesterol [4]. The study found that for adults earning incomes at or below the federal poverty level, there was little evidence of a change in any risk outcome throughout the time of the survey [4]. For example, from 1999 to 2004: cardiovascular risk was 14.9%, mean systolic BP was 127.6, and smoking was 36.5% [4]. No significant change occurred from 2011 to 2014; cardiovascular risk increased to 16.5%, mean systolic BP decreased to 126.8, and smoking decreased to 36.0% [4]. Conversely, for adults earning high incomes above the federal poverty level, the four risk variables ended up decreasing throughout the survey [4]. From 1999-2004, cardiovascular risk was 12.0%, systolic BP was 126.0, and smoking was 14.1% [4]. In the years of 2011 to 2014, cardiovascular risk dropped to 9.5%, systolic BP went down to 122.3, and smoking decreased to 8.8% [4]. Total cholesterol level was not found to have varied by income [4].

In a second study consisting of four cross-sectional national surveys spanning from 1971 to 2002, little improvement was found in income- and education-related disparities in CVD risk factors [5]. In regards to smoking, these disparities widened significantly, because while smoking prevalence among individuals with high income and education decreased from about 33% in 1971 through 1974 to about 14% to 17% in 1999 through 2002, there was only about a 6% percent reduction among those with low incomes and education [5].

Finally, in a serial cross-sectional analysis estimating trends in CVD prevalence for two US groups (one representing high resources and the other representing the remainder of the population) from 1999 to 2016, the age-standardized prevalence of CVD decreased in the highest-resources group throughout the study [6]. For example, angina went from 3.4% to 0.3%, heart attack from 3.2% to 1.4%, congestive heart failure (CHF) from 1.2% to 0.5%, and stroke from 1.1% to 1.0% [6]. However, in the group representing the remainder of the population, the prevalence of angina only decreased from 3.3% in 1999 to 2.6% in 2016, heart attack from 4.0% in 1999 to just 3.6% in 2016, and, conversely, an increase was observed in the prevalence of CHF from 2.6% in 1999 to 2.8% in 2016 as well as stroke from 2.9% in 1999 to 3.2% in 2016 [6].

DISCUSSION:

This review found correlations between socioeconomic status and quality of cardiovascular health, most notably in regards to low income and higher CVD risk. Adult individuals earning low incomes were commonly found to express variables of cardiovascular risk at a higher degree [1-6]. For example, throughout one study, adults earning incomes at or below the federal poverty level showed little evidence of change in the assessed risk outcomes for predicted cardiovascular

risk, while those earning incomes above the federal poverty level experienced a decrease in all four risk variables [4]. These findings not only show a stark contrast between the health outcomes of low income and high income individuals, but also indicate a lack of equity in regards to efforts aimed at improving cardiovascular outcomes. Because high-income individuals experience cardiovascular improvements at a much higher rate than low-income individuals do, the health outcome disparity may be attributed to selective access to “premium” or high-quality health resources.

In addition, adult individuals of low socioeconomic status were found to have experienced a widening in risk disparities that contributed to less improvement across years. One study found that while the prevalence of angina, heart attack, congestive heart failure (CHF), and stroke all decreased in a high-resource group, in a low resource group, CHF and stroke prevalence actually ended up increasing while angina and heart attack prevalence decreased by much less [6]. A regressive pattern in health outcomes, where the prevalence of risk factors increases rather than decreases, can be indicative of gaping disparity across multiple potential points in the pipeline to healthcare access. These can include income, environment, overall economic stability, and more. For example, one study discovered a large disparity in smoking prevalence between individuals with high versus low income and education; a decrease from 33% to around 14% to 17% was observed among individuals with high income and education, while only a 6% reduction was observed among individuals of lower income and education [5].

The results of this review were not unexpected and strongly support the hypothesis that economic instability has a negative impact on cardiovascular health. While a majority of the cited studies showed a reduction in some risk factors for individuals of low socioeconomic status, any improvement consistently proved to be much smaller when compared to high-income individuals. These findings emphasize the lack of effort targeted towards addressing the income disparities that so heavily impact the cardiovascular health and care access of individuals with low socioeconomic status. In order to begin closing the gaps that prevent healthcare access to low-income individuals, researchers and pharmaceutical companies can take actions such as: creating more opportunities for economically unstable demographics to participate in diverse clinical trials, conducting their research in rural environments, as well as tracking the effectiveness of medication distribution and overall access in disadvantaged areas.

The comprehensive information from this review can be used for creating improved health policies and clinical practice guidelines to address the disparities experienced by low socioeconomic demographics. This review highlights the role of economic stability in gaining access to quality healthcare, but primarily emphasizes the reforms needed in order to ensure that all individuals from diverse economic backgrounds can benefit from health efforts that reduce risk of disease and lead to healthier lifestyles.

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