Unemployment and Cardiovascular Health: A Conditional Relationship

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ABSTRACT:

Background

Cardiovascular disease is a leading cause of death worldwide, and while traditional prevention involves looking at clinical risk factors, unemployment is being increasingly recognized as a social determinant of health that can shape CVD risk. Prior research has linked unemployment to CVD, but the strength of this relationship is still debated. This review synthesizes evidence from literature to evaluate the relationship between unemployment or job loss and cardiovascular risk.

Methods

Original research articles were found through Pubmed and used search terms related to unemployment or job loss combined with cardiovascular disease. Studies were included if they examined adult human subjects with an exposure to unemployment and an outcome of CVD. Review articles and studies focused on job stress were excluded.

Results

Five studies were reviewed. Job loss during a recession, a history of prolonged unemployment, and unemployment in a community with a low unemployment rate were linked to increased CVD risk. Unemployment insurance benefits showed no association with CVD risk.

Discussion

These findings suggest that unemployment's effect on CVD risk is dependent upon the circumstances. Since financial support alone did not reduce CVD risk, interventions that address the psychological and social dimensions of job loss may be more effective.

INTRODUCTION:

Cardiovascular disease (CVD) is the primary cause of deaths worldwide, remaining a leading driver in mortality and morbidity despite years of medical progress [1]. Traditional prevention efforts include focusing on individual modifiable clinical risk factors, but medical professionals are now recognizing this approach does not encompass the full picture of cardiovascular risk [2]. Social determinants of health (SDOH) are now seen as factors that play a lead role in health outcomes by shaping an individual's lifestyle and exposure to risk [2].

Included in SDOH is employment status: an individual's occupation plays a role in their economic status, lifestyle, and stress that they experience [2]. As unemployment is common and happens in a wide range of places and populations, understanding its relationship to CVD has broad public relevance [3]. The health effects of unemployment hold up even when researchers control for social class, poverty, age, and existing health problems, suggesting that its risks reach broadly across the population rather than being confined to any one group [3].

A growing body of research has found that unemployment and job loss pose a distinct psychological stressor that exhibits physiological consequences [4]. This connects to earlier work finding that people with lower socioeconomic status have higher rates of CVD, similar rates to biological risk factors [5]. Chronic stress, which is seen in job insecurity and involuntary job loss, is thought to promote atherosclerosis due to the body's stress response mechanisms: inflammation and vascular damage [6]. Additionally, the behaviors that are affected by unemployment (smoking, alcohol use) may have an influence on CVD risk factors [7]. However, across medical literature the relationship between unemployment and CVD is debated and questioned as to whether strong enough evidence is there to back up this claim [8].

This central research question guiding this review is: how does unemployment or job loss affect cardiovascular disease risk? This paper synthesizes existing evidence from epidemiological research to evaluate whether there is a relationship between these two factors and through what means. This review aims to consolidate evidence among multiple studies to clarify the strength of this association, evaluating if unemployment support could be a potential tool in CVD prevention.

METHODS:

For this review, original papers from Pubmed were used. Key search terms were "unemployment," "job loss," "job insecurity," "involuntary job loss," "recession," and "economic downturn" AND "cardiovascular disease," "myocardial infarction," "stroke," "hypertension," and "heart disease." Studies were selected based on whether they evaluated joblessness and unemployment against cardiovascular disease (CVD). Inclusion criteria were studies with a population of adult human subjects, an exposure of unemployment/job loss/job insecurity, and an outcome of CVD or specific CVDs. Review articles, articles focusing on job stress, and articles focused on adolescents were excluded.

RESULTS:

Kawachi et al. analyzed weekly mortality data for CVD across England and Wales [9]. This ecological time series analysis tested the association between economic uncertainty and cardiovascular death using a regression model [9]. Over the study period, weekly cardiovascular

deaths averaged around 3,083, with cerebrovascular and ischemic heart disease deaths averaging 815 and 1,424 a week respectively [9]. A strong relationship was found between economic uncertainty and both CVD and cerebrovascular disease mortality by tracking fluctuations in economic uncertainty [9]. One standard deviation increase in economic uncertainty was associated with a 1.1% increase in cardiovascular deaths, that still remained significant when controlled for GDP, unemployment rate, population size, and inflation [9]. This relationship was short-term, meaning that these fluctuations in economic certainty closely corresponded with changes in mortality rates in the same small window of time [9]. When economic uncertainty was divided in terciles, only the highest tertile showed a significant association with cardiovascular deaths [9].

Noelke and Avendano narrowed in on the effect of job loss itself and examined data from 8,837 older Americans from the Health and Retirement Study, which included 1,480 job losses that occurred prior to a first stroke or myocardial infarction and 299 of these job losses were during recessionary labor market conditions [10]. From the individuals that experienced job loss, the people that experienced job loss during the most severe recessionary conditions had significantly higher CVD risk when compared to those who experienced job loss during an economic boom (hazard ratio = 2.54, 95% CI: 1.39–4.65) [10]. From the individuals who did not experience job loss, being in a recessionary period was associated with lower CVD risk (hazard ratio = 0.50, 95% CI: 0.31–0.78) [10]. This association remained significant when comparing job loss during a recession and not losing a job at all [10].

Sanchez Rico et al. analyzed data from 131,186 French adults and compared participants who had a history of unemployment to those who had never been unemployed [11]. After adjusting for sex, age, social positioning, work environment, and current unemployment, participants who had been unemployed at least once had greater odds of several CVD risk factors: smoking (OR = 1.24, 95% CI: 1.19–1.29) and obesity (OR = 1.20, 95% CI: 1.14–1.25) [11]. After further adjustment of CVD risk factors, a history of unemployment was also significantly associated with higher prevalence of non fatal myocardial infarction (OR = 1.36, 95% CI: 1.12–1.64) and peripheral arterial disease (OR = 1.33, 95% CI: 1.01–1.82) [11]. The highest tertile of unemployment duration (measured by quarters) was shown to be significantly associated with greatest odds of myocardial infarction (OR = 1.75, 95% CI: 1.12 – 2.74) [11]. Unemployment episodes occurred on average 12-20 years before the cardiovascular events [11].

Henriksson et al. followed a cohort of Swedish men at ages 37, 40, and 43 and tracked employment status and cardiovascular risk across three surveys [12]. At age 37, the baseline, only 2.4% of the sample was unemployed [12]. The men who were unemployed had a significantly higher BMI ($\Delta = 1.6$ kg/m², 95% CI: 0.22–2.91) and serum cholesterol ($\Delta = 0.6$ mmol/L, 95% CI: 0.13–1.00) than employed men [12]. At age 43, in the final survey, 7.5% of the sample was unemployed and none of the measured CVD risk factors were significantly associated with employment status [12]. Smoking was more prevalent among the unemployed men across all three surveys, reaching statistical significance at age 37 ($p=0.027$) and age 43

(p=0.007) [12]. There was no statistical significance in the difference of leisure time and physical activity between employed and unemployed men in this study [12].

Walter et al. looked at data from 16,108 Americans, aged 50-65, in the Health and Retirement Study, specifically the relationship between state maximum unemployment levels and CVD incidence [13]. A 1% increase in the two-year lagged value of maximum unemployment benefits was associated with reduced odds of CVD (OR = 0.82, 95% CI: 0.71–0.94), in models without state fixed effects [13]. But, when accounting for state fixed effects, this relationship was no longer significant(OR = 1.02, 95% CI: 0.79–1.31), even when controlling for GDP, high school graduation rates, and regional unemployment (OR = 1.04, 95% CI: 0.77–1.39) [13]. Unemployment itself was not significantly associated with CVD risk when accounting for employment status (OR = 1.19, 95% CI: 0.92–1.55) [13]. This study found no significant interaction (p=0.35) between unemployment benefit levels and employment status on CVD risk [13].

DISCUSSION:

The objective of this paper is to find the relationship between unemployment and CVD risk. The evidence, synthesized across these five studies, indicates that the weaker the economic climate, the longer duration of unemployment, and the lower the community unemployment rate the higher the CVD risk.

A clear finding is that job loss and unemployment are associated with higher CVD risk. Kawachi et al. found that economic uncertainty was linked to cardiovascular mortality in the short term and only during periods of high uncertainty [9]. Noelke and Avendano saw that job loss significantly raised CVD risk, but only when it occurred during a recession [10]. Instead of unemployment being harmful by itself, job loss during a recession looks to be riskier. Data from Henriksson et al.'s study further supports this conditional relationship: unemployed men had worse risk factors when unemployment was rare in a population (2.4%), but this gap disappeared when unemployment became more common (7.5%) [12]. Sanchez Rico et al. observed that a history of unemployment was linked to CVD risk with a dose-dependent relationship [11]. This suggests that the effect of unemployment on CVD risk may vary by circumstance: given Noelke and Avendano's recession specific finding, repeated or prolonged unemployment may function differently than a job loss tied to one recession [10].

Though Noelke and Avendano saw that economic context matters in this relationship, Walter et al. found that more generous unemployment benefits neither helped nor hurt this relationship, suggesting that the financial gaps these benefits are trying to fill may not be the main driver of this link [10,13]. Rather than the mechanism behind the unemployment-CVD link being financial stress, this suggests that it is likely more about the psychological stress of losing the job itself.

These findings largely support existing literature showing that unemployment is harmful, even after accounting for social class [3]. They are also consistent with proposed mechanisms involving stress-driven inflammation [6] and unemployment-related smoking and drinking [7]. Since unemployment insurance alone did not reduce CVD risk, unemployment support policies may need to look past financial support. Instead, policies should target the psychological side of joblessness: for example, screening for cardiovascular risk for those who lose jobs during recessions. Broadly, this reinforces the idea that social determinants of health cannot be addressed with a blanket solution, since the context surrounding an exposure can matter as much as the exposure itself.

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