

THE IMPACT OF PSYCHOSOCIAL STRESS IN THE WORKPLACE ON RISK OF CARDIOVASCULAR DISEASE

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ABSTRACT:

Background

Cardiovascular disease (CVD) is the global leading cause of death. Intervention trials on risk factors such as psychosocial work stress can help address the issue. This necessitates a further holistic understanding of how psychosocial stress affects risk of CVD across genders, races, countries, and occupations.

Methods

This study was a scoping review that utilized PubMed. The terms searched were “workplace stress and cardiovascular health.” The main inclusion criteria included studies being done since 2010 on adults, and the main exclusion criteria was studies being from before 2010, studies being done on children, or literature reviews.

Results

Main results from the studies reviewed included a positive correlation between occupational stress in men and obesity/hypertension, a positive correlation between workplace bullying/violence and risk of CVD, and a positive correlation between workplace stress in women and risk of CVD. There was also data displaying a negative correlation between increased psychosocial resources and risk of CVD (especially myocardial infarction), and data displaying how a higher work support score protected against risk of CVD.

Discussion

The key findings indicate a clear positive correlation between psychosocial work stress and risk of CVD. Therefore, implications of work stress should be taken into account by those experiencing it and policymakers who could help prevent excessive occupational stress. While further research is needed to draw more accurate conclusions about this pattern across the entire globe, policymakers can take active steps towards mitigating job stress right now.

INTRODUCTION:

Cardiovascular disease (CVD) is the leading cause of death globally [1]. Though there have been advancements in treatments, it still takes a huge toll on the global population [1]. Sudden cardiac death from cardiac arrest accounts for an estimated 15%-20% of all international deaths [2]. One in 5 men and 1 in 17 women will have some form of coronary heart disease by the age of 60 [3]. Fortunately, intervention trials have shown that lowering risk factors reduces the subsequent rate of CVD [3]. One of such risk factors is psychosocial work stress, which has been associated with a moderately elevated risk of coronary heart disease and stroke [4]. Some governments have started taking steps towards fighting psychosocial stress [4].

However, studies still indicate a serious lack of psychosocial risk assessments, especially in smaller companies [5]. Psychosocial stress is still very much prevalent in different countries and professions [6]. This necessitates a more holistic and worldwide view of how psychosocial stress in the workplace can negatively impact cardiovascular health across countries, races, genders, and occupations.

Psychosocial factors in the workplace include the treatment of workers, organizational climate and culture, work roles, interpersonal relationships, and design and content of tasks [7].

The aim of this scoping review is to analyze and draw holistic connections between psychosocial stress in the workplace and risk of CVD encompassing different countries, races, genders, and occupations. This study will make an impact because it will provide governments of different countries with information about the negative consequences of psychosocial work stress and assist them in making policies to mitigate this type of stress and provide more psychosocial resources.

METHODS:

This study is a scoping review searching PubMed using the search terms “workplace stress and cardiovascular health.”

Inclusion criteria included the study being conducted only on working adults (aged 18 or older) and being published since 2010. Exclusion criteria eliminated the studies not in English, studies done on children, studies done before 2010, and literature reviews.

RESULTS:

The five studies utilized in this scoping review span many fields of work, both genders, and six countries.

Results from a study conducted in Egypt on male bus drivers stated that the mean age of the bus drivers was 37.4 ± 9.0 years [8]. About 61.5% were overweight or obese, and one third experienced high blood pressure [8]. Only 16.7% of bus drivers reported that they were handling the stress well [8]. Occupational stress was severely associated with age, and the percentage with a low education level (77.5%) encountered problems significantly more than those who were more highly educated [8]. A significant association was also found between professional driving duration and age ratio (PDAR) and occupational stress [8]. The prevalence of high blood pressure among bus drivers who encountered stress problems was 4 times higher than the corresponding figure among those who handled stress moderately well [8]. After adjustment for age, it was concluded that only bus drivers who had stress problems were more likely to be obese or overweight, and the prevalence of high blood pressure was strongly connected to occupational stress [8].

A study analyzing workplace violence and bullying through a multi-cohort study in Sweden and Denmark had the following results: the mean of participant age was 43 years old, and 53% were women [9]. There were 78955 total participants with self-reported data on workplace bullying and the prevalence of bullying ranged from 8% to 13% among those participants [9]. Data on workplace violence was received from 79044 participants and ranged from 7% to 17% among those participants [9]. Social workers, personal and protective service workers, healthcare professionals, and teaching professionals had the highest exposure to workplace violence [9]. After adjustment, workplace bullying was associated with a 59% higher risk of incident CVD [9]. There was no evidence that age, gender, or smoking status impacted the results [9]. Workplace violence was also associated with a higher risk of CVD [9].

A Polish study on women undergoing stress in intellectual work both utilized women who had CVD and didn't have CVD [10]. It concluded that women who were stressed by a health hazard or risk of accident at work had increased risk of CVD by 35.0%, women who were stressed about changes in the workplace had increased risk by 23.2%, women who were stressed by having to complete tasks without resources had increased risk by 27.3%, and women who were stressed because of competition had increased risk by 25.2% [10].

A multi-cohort study in Denmark, Sweden, and Finland on psychosocial resources had the following results: classes with high horizontal resources (social support and culture of collaboration) and either intermediate or high vertical resources (procedural justice and leadership quality) were at less risk for developing CVD, especially myocardial infarction, corresponding to 3.4 and 2.2 fewer incident CVD cases per person-year respectively [11]. There were not significant differences among age, gender, or educational levels [11].

Finally, an Italian study conducted research on job-induced stress and overall wellbeing of logistics and distribution personnel [12]. It was 57% men and the mean age was 43.27 years [12]. 59% were classified as overweight and 24.6% suffered from hypertension [12]. The study concluded that a higher work support score protected against CVD risk [12]. Additionally, a high score in work control and work support showed a positive effect on wellbeing [12].

DISCUSSION:

Based on the reviewed papers, there is a clear correlation between increased psychosocial stress in the workplace and increased risk of CVD. For example, male bus drivers with occupational stress problems were more likely to be obese and have hypertension, increasing their risk for CVD [8]. Data on people facing workplace violence and workplace bullying indicated a 59% higher risk of incident CVD [9]. Several different types of occupational stress on women increased their risk of CVD [10]. Similarly, data indicated that workplaces with high levels of psychosocial resources had less risk for CVD, especially myocardial infarction [11]. A higher work support score also protected against CVD risk [12]. All of these results indicate a clear positive correlation between the amount of psychosocial stress and risk for developing CVD.

The results of this study build on existing studies by adding a layer of universality to the findings (by utilizing data from six different countries). These results should therefore be taken into account by workplace officials or leadership, those seeking out new occupations and considering the implications of those occupations for their health, and those already in stressful occupations.

It is beyond the scope of this study to create a definitive confirmation of the results at a worldwide level, though it certainly contributes to a holistic view of the situation. Further research is needed to establish if these trends can be generalized to other populations. Policymakers in Egypt, Sweden, Denmark, Finland, Italy, and Poland should reconsider working hours, rules for employers, and the funding currently devoted to psychosocial resources for both male and female employees across many types of occupations. Avenues for further research include extending the research across more countries and continents, ethnicities, and occupations.

REFERENCES:

1. Kaminsky L. A., German C., Imboden M., Ozemek C., Peterman J. E., Brubaker P. H. The importance of healthy lifestyle behaviors in the prevention of cardiovascular disease. *Progress in Cardiovascular Diseases*. 2022; 70: 8-15.
2. Hayashi M., Shimizu W., & Albert C. M. (2015). The spectrum of epidemiology underlying sudden cardiac death. *Circulation Research*. 2015; 116: 1887-1906.
3. Castelli W. P. Epidemiology of coronary heart disease: the Framingham study. *The American Journal of Medicine*. 1984; 76: 4-12.
4. Kivimäki M., Kawachi I. Work Stress as a Risk Factor for Cardiovascular Disease. *Current Cardiology Reports*. 2015; 17: 630.

5. Beck D., Lenhardt U. Consideration of psychosocial factors in workplace risk assessments: findings from a company survey in Germany. *International Archives of Occupational and Environmental Health*. 2019; 92: 435–451.
6. Onigbogi C. B., Banerjee S. Prevalence of Psychosocial Stress and Its Risk Factors among Health-care Workers in Nigeria: A Systematic Review and Meta-Analysis. *Nigerian Medical Journal: Journal of the Nigeria Medical Association*. 2019; 60: 238–244.
7. Rugulies R. What is a psychosocial work environment? *Scandinavian Journal of Work, Environment & Health*. 2019; 45: 1–6.
8. Mohsen A. & Hakim S. Workplace stress and its relation to cardiovascular disease risk factors among bus drivers in Egypt. *Eastern Mediterranean Health Journal*. 2019; 25: 878–886.
9. Xu T., Magnusson Hanson L. L., Lange T., Starkopf L., Westerlund H., Madsen I. E. H., Rugulies R., Pentti J., Stenholm S., Vahtera J., Hansen Å. M., Virtanen M., Kivimäki M. & Rod N. H. Workplace bullying and workplace violence as risk factors for cardiovascular disease: a multi-cohort study. *European Heart Journal*. 2019; 40: 1124–1134.
10. Raczkiwicz D., Bojar I., Wdowiak A., Rzeźnicki A. & Krakowiak J. Stress at intellectual work and cardiovascular diseases in women at non-mobility working age. *Annals of Agricultural and Environmental Medicine*. 2019; 26: 456–461.
11. Xu T., Rugulies R., Vahtera J., Pentti J., Mathisen J., Lange T., Clark A. J., Magnusson Hanson L. L., Westerlund H., Ervasti J., Virtanen M., Kivimäki M. & Rod N. H. Workplace psychosocial resources and risk of cardiovascular disease among employees: a multi-cohort study of 135 669 participants. *Scandinavian Journal of Work, Environment & Health*. 2022; 48: 621–631.
12. Fruscione S., Malta G., Verso M. G., Calascibetta A., Martorana D. & Cannizzaro E. Correlation among job-induced stress, overall well-being, and cardiovascular risk in Italian workers of logistics and distribution. *Frontiers in Public Health*. 2024; 12: 1358212.