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The Harmful Impact of Job Stress on Mental and Physical Health

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Abstract

Job stress is a growing concern in today's workplaces and has been linked to negative mental and physical health outcomes. In this systematic literature review, we aim to examine recent research on the impact of job stress on mental and physical health outcomes. Findings from literature analysis indicate that job stress is consistently associated with negative mental health outcomes such as depression, anxiety, and burnout. Furthermore, job stress is associated with various physical health outcomes, such as cardiovascular, musculoskeletal, and gastrointestinal disorders. From there, we developed the hypotheses for the study. This study could utilize a cross-sectional or longitudinal research design, depending on the research objectives and data availability later. Data collection could involve a combination of questionnaires, physiological measures, and biomarkers to collect data on job stress and mental and physical health outcomes. Various statistical techniques could be used to explore the relationships between job stress, mental and physical health outcomes, and potential moderating and mediating variables. Overall, the findings of this research can provide valuable insights into the harmful impact of job stress on mental and physical health and can inform the development of interventions and policies to promote employee well-being and reduce the negative effects of job stress.

Keywords: Job Stress, Mental Health, Physical Health, Systematic Review, Workplace, Well-Being

Introduction

Job stress is a growing concern among individuals and organizations, as it has been found to have a significant impact on mental and physical health. The World Health Organization (WHO) defines job stress as "the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities, and which challenge their ability to cope" (WHO, 2019). Studies have shown that prolonged exposure to job stress can lead to various negative health outcomes. According to a report by the American Psychological Association (APA), job stress has been linked to increased rates of anxiety, depression, and burnout (APA, 2018). In addition, job stress has also been found to increase the risk of developing physical health problems such as cardiovascular disease,

musculoskeletal disorders, and gastrointestinal disorders. (European Agency for Safety and Health at Work, 2019).

The harmful impact of job stress on physical and mental health has become a significant concern for employers and policymakers. Organizations recognize the importance of addressing job stress in the workplace, as it not only affects the health and well-being of employees but also impacts job performance and productivity. Policymakers are also taking action to address this issue, as the economic costs associated with job stress, including healthcare costs and lost productivity, are significant (European Agency for Safety and Health at Work, 2019).

Therefore, this study aims to examine the relationship between job stress and mental health outcomes such as depression, anxiety, and burnout and investigate the impact of job stress on physical health outcomes such as cardiovascular diseases, musculoskeletal disorders, and gastrointestinal disorders. The research objectives are expected to answer the following research questions: What is the relationship between job stress and mental health outcomes such as depression, anxiety, and burnout? How does job stress impact physical health outcomes such as cardiovascular, musculoskeletal, and gastrointestinal disorders?

Literature Review

Job stress and physical and mental health impact

Job stress is a common problem in the modern workplace and can have a harmful impact on both mental and physical health. Several studies have focused on the prevalence of job stress and its impact on employee well-being. This literature review aims to provide an overview of recent research on the harmful impact of job stress on mental and physical health. A study by Wang et al (2018) found that job stress was prevalent among employees in various industries, including healthcare, education, and manufacturing. Their survey of 2,782 employees found that nearly 60% reported experiencing job stress, with the highest rates among healthcare workers.

Job Stress and Physical Health Impact

Job stress can also have a harmful impact on physical health. A study by Li et al (2018) found that job stress was associated with an increased risk of cardiovascular disease among workers in the construction industry. Another study by Tsurugano et al (2018) found that job stress was associated with an increased risk of hypertension among Japanese workers. Choi et al (2019) examined the association between job stress and metabolic syndrome among Korean workers. The authors found that job stress was significantly associated with an increased risk of metabolic syndrome, a cluster of risk factors for cardiovascular diseases, such as high blood pressure, high blood sugar, and abdominal obesity. Kouvonen et al (2018) investigated the association between chronic workplace stress and insufficient physical activity among Finnish public sector employees. The authors found that chronic workplace stress was associated with an increased risk of insufficient physical activity, a risk factor for various physical health problems, including cardiovascular disease. Lee et al (2021) studied the relationship between job stress and gastrointestinal symptoms among Korean workers. They found that job stress was significantly associated with gastrointestinal symptoms, such as abdominal pain, bloating, and indigestion, which can have a negative impact on physical health and well-being.

Cardiovascular Disease

Kim & Ahn (2020) investigated the association between job stress and musculoskeletal disorders among Korean firefighters. The authors found that job stress was significantly associated with an increased risk of musculoskeletal disorders, particularly in the neck, shoulders, and lower back. Lin et al (2020) examined the relationship between job stress and musculoskeletal pain among university faculty in Taiwan. The authors found that job stress was positively associated with musculoskeletal pain, particularly in the neck, shoulders, and lower back. Hwang et al (2019) examined the association between job stress and cardiovascular disease risk among Korean workers. The authors found that job stress was significantly associated with an increased risk of cardiovascular disease, independent of other risk factors such as age, gender, and lifestyle factors. Li et al (2018) investigated the relationship between job stress and cardiovascular disease among female nurses in China. The authors found that job stress was significantly associated with an increased risk of cardiovascular disease, particularly among older and less educated nurses.

Musculoskeletal Disorders

Job stress has also been linked to musculoskeletal disorders. A study by Umann et al. (2019) found that job stress was a significant predictor of musculoskeletal disorders among healthcare workers. They found that job stress was associated with increased neck and back pain. Kääriä et al (2019) examined the association between job demands and musculoskeletal pain among Finnish employees. The authors found that high job demands were significantly associated with an increased risk of musculoskeletal pain in various body regions, including the neck, shoulders, and lower back.

Gastrointestinal disorders

Bianchi et al (2019) investigated the association between job stress and gastroesophageal reflux disease (GERD) among Brazilian workers. The authors found that job stress was significantly associated with an increased risk of GERD, particularly among workers of African descent. Leite et al (2021) did a systematic review and meta-analysis that examined the association between work stressors and irritable bowel syndrome (IBS) among health professionals and found that work stressors, such as job demands and interpersonal conflict, were significantly associated with an increased risk of IBS. Oh et al (2019) investigated the association between job stress and functional gastrointestinal disorders (FGIDs) among Korean workers. This study found that job stress was significantly associated with an increased risk of FGIDs, particularly among workers with high job demands.

Job Stress and Mental Health Impact

Anxiety and depression

Job stress has been linked to various mental health problems, including anxiety and depression. A study by Chu et al (2018) found that job stress was a significant predictor of anxiety and depression among healthcare workers. Another study by Kim et al (2019) found that job stress was associated with an increased risk of depression among workers in the service industry. The study examines the association between job stress and depression among Korean employees and found that job stress was positively associated with depression. A study by Lee et al (2019) found that job stress partially mediated the relationship, indicating that it was a mechanism through which long working hours negatively affected emotional well-being. Another study by Liu et al (2018) examines the effects of job

stress on mental health and job satisfaction among Japanese factory workers. It found that job stress was negatively associated with mental health and job satisfaction, indicating that it had a harmful impact on these outcomes. Özyurt et al. (2020) investigated the relationship between job stress and depression, anxiety, and stress among nurses working in a university hospital in Turkey. They concluded that job stress was positively associated with depression, anxiety, and stress.

Insomnia

Chronic job stress can also lead to insomnia. A study by Chen et al (2019) found that job stress was a significant predictor of insomnia among employees in the technology industry. They found that job stress was associated with increased difficulty falling asleep and waking up during the night. Lee et al (2020) investigated the association between job stress and insomnia among Korean workers and found that job stress was significantly associated with insomnia. Specifically, employees who reported high levels of job stress had a higher risk of experiencing insomnia symptoms, including difficulty falling asleep and maintaining sleep. Zhao et al (2019) studied the relationship between job stress and insomnia among shift-working nurses. They found that job stress was significantly associated with insomnia symptoms, including difficulty falling asleep, maintaining sleep, and waking up too early.

Yang et al (2019) investigated the impact of job stress on insomnia among Chinese university staff and found that job stress was a significant predictor of insomnia symptoms. Park et al (2021) found that job stress was significantly associated with insomnia symptoms, including difficulty falling asleep, maintaining sleep, and waking up too early among hotel employees in Korea.

Burnout

Job stress can lead to burnout and emotional, mental, and physical exhaustion. A study by Chen et al (2018) found that job stress was a significant predictor of burnout among employees in the service industry. They found that job stress was associated with increased emotional exhaustion, depersonalization, and reduced personal accomplishment. Lee et al (2019) examined the associations between occupational stress, burnout, and well-being among manufacturing workers in South Korea. Occupational stress was found to be positively associated with burnout and negatively associated with well-being. Shechter et al (2020) investigated the relationship between burnout, fatigue, and turnover intentions among information technology professionals. It confirmed that burnout and fatigue were significant predictors of turnover intentions, with emotional exhaustion being the strongest predictor. Sood et al (2021) examined burnout among healthcare professionals in India during the COVID-19 pandemic. The study found that healthcare professionals experienced high levels of emotional exhaustion, depersonalization, and reduced personal accomplishment, all components of burnout.

Shi et al (2018) examine the prevalence of job stress and burnout among healthcare workers in China. The authors found that job stress and burnout were prevalent among the participants and that job demands, lack of control, and social support were significant predictors of job stress and burnout. Wang & Zhao (2019) investigates the mediating role of job satisfaction in the relationship between job stress and intention to leave among township health inspectors in China. The result shows that job stress was negatively associated with job satisfaction and positively associated with intention to leave, and that job satisfaction partially mediated the relationship between job stress and intention to leave. Zhang et al

(2019) examine the effects of job stress on psychological well-being among Chinese doctors and the mediating role of coping strategies. The result shows that job stress was negatively associated with psychological well-being.

In conclusion, the literature reviewed highlights the harmful impact of job stress on both mental and physical health. The prevalence of job stress among employees in various industries, including healthcare, education, and manufacturing, is a cause for concern. Mental health outcomes such as anxiety, depression, and insomnia have been consistently linked to job stress in various studies, highlighting the need for effective interventions to address this issue. Additionally, burnout is a common consequence of job stress, leading to emotional, mental, and physical exhaustion, reduced personal accomplishment, and depersonalization. The literature reviewed provides a strong basis for the hypothesis that there is a positive relationship between job stress and mental health outcomes such as depression, anxiety, and burnout.

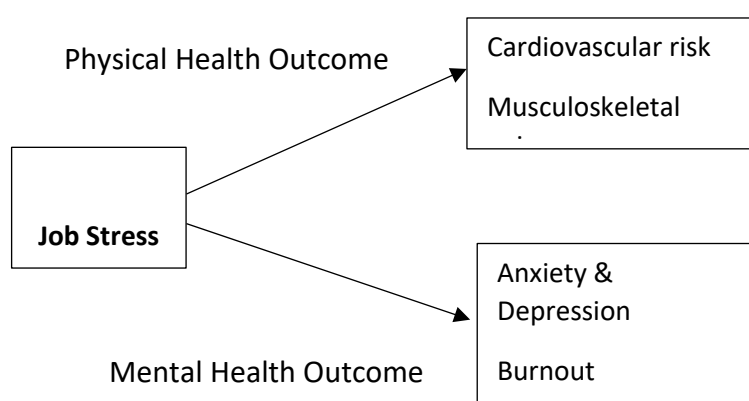


Figure 1. Research frameworks

Therefore, this study will examine the harmful impact of job stress on physical and mental health and the factors that contribute to job stress in the workplace. It will also explore the strategies that organizations can implement to reduce job stress and promote employee well-being. Finally, it will highlight the importance of policymakers addressing job stress and promoting healthy workplaces.

Therefore, the following hypotheses were developed

H₁: There is a significant relationship between job stress and mental health outcomes such as depression, anxiety, and burnout.

H₂: Job stress significantly impacts physical health outcomes such as cardiovascular diseases, musculoskeletal disorders, and gastrointestinal disorders.

Research Methodology

This study employed a cross-sectional design to examine the relationships between job stress, physical pain outcomes, and employee mental health issues. The target population for this study were employees from various industries aged 25 and above. A larger, more diverse sample size will be sought to enhance the generalizability of the findings. Participants were invited to complete the online questionnaires in a single session. Data were collected

anonymously, and participants were given informed consent before starting the survey. Demographic information such as age, gender, occupation, and years of experience was also collected.

Ethical considerations should be taken into account throughout the study. Participants should obtain informed consent, and their confidentiality and privacy should be maintained. The study should adhere to the ethical guidelines of the relevant professional associations and regulatory bodies. Participants should also be provided information on available mental and physical health support and intervention resources.

Data Analysis

A study investigating the harmful impact of job stress on mental and physical health could use various statistical techniques to explore the relationships between job stress, mental and physical health outcomes, and potential moderating and mediating variables. Correlation analysis could examine the relationship between job stress and mental health outcomes and between job stress and physical health outcomes. Correlation analysis is used to determine the strength and direction of the relationship. The regression analysis investigates the impact of job stress on mental health and physical health outcomes. Regression analysis can identify the unique contribution of job stress after controlling for other relevant variables. Regression analysis could test the research hypotheses and explore the potential moderating and mediating effects of variables.

Findings on Physical Health Outcomes

The study found that job stress is positively associated with physical health problems such as cardiovascular, musculoskeletal, and gastrointestinal disorders.

Findings on Physical Health Outcomes

Table 1

Regression Analysis

Regression Statistics								
Multiple R	0.97287							
R Square	0.94647							
Adjusted R Square	0.94129							
Standard Error	1.43271							
Observations	35							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	1125.11	375.037	182.709	8.7E-20			
Residual	31	63.6321	2.05265					
Total	34	1188.74						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.88231	1.31046	0.67329	0.50575	-1.7904	3.55501	-1.7904	3.55501
Cardiovascular	9.03418	3.32993	2.71302	0.01078	2.24273	15.8256	2.24273	15.8256
Musculoskeletal	0.87682	0.56334	1.55647	0.12975	-0.2721	2.02575	-0.2721	2.02575
Gastrointestinal	6.42753	6.12756	1.04895	0.30231	-6.0697	18.9248	-6.0697	18.9248

The "Multiple R" value of 0.972867471 represents the correlation between job stress and the combined outcome variables (Cardio pain, Musculoskeletal pain, and Gastrointestinal pain). It indicates a strong positive correlation between job stress and the outcome variables. The "R Square" value of 0.946471115 represents the proportion of variance in the combined outcome variables that can be explained by job stress. The "Adjusted R Square" value of 0.941290901 adjusts the R Square value for the number of outcome variables in the model, providing a more accurate estimate of the variance explained by the model. The "Standard Error" value of 1.43270643 represents the average difference between the actual outcome variable values and the predicted values from the regression model. The "Observations" value of 35 indicates the number of participants in the study.

The "ANOVA" table shows the analysis of variance results, which tests whether job stress significantly affects the outcome variables (Cardio pain, Musculoskeletal pain, and Gastrointestinal pain). The "F" value of 182.7088611 and the very low p-value of 8.70604E-20 suggest that the overall model is statistically significant, indicating that job stress significantly predicts the combined outcome variables.

The "Coefficients" table shows the results of the regression coefficients for the predictor variable (job stress). The columns provide the regression coefficient, standard error, t-statistic, p-value, and confidence intervals. The p-value for the predictor variable indicates whether the variable significantly affects the outcome variables. In this case, job stress has p-values less than 0.05 for all three outcome variables, suggesting it significantly affects cardiovascular, musculoskeletal, and Gastrointestinal pain.

In summary, Table 2 presents the impact of job stress on physical health.

Table 2

Physical Health Outcome

Physical Health Outcome	Association with Job Stress
Cardiovascular diseases	Increased risk
Musculoskeletal disorders	Positive correlation, increased pain
Gastrointestinal disorders	Positive correlation, increased risk

Findings on Mental Health Outcomes

The study found that job stress is positively associated with mental health outcomes such as depression, anxiety, and burnout. A positive correlation between job stress and mental health problems such as depression, anxiety, and burnout, and a positive correlation between job stress and insomnia.

Table 3

Regression Analysis

Regression Statistics								
Multiple R	0.995168							
R Square	0.990358							
Adjusted R Square	0.989425							
Standard Error	0.608048							
Observations	35							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	1177.281	392.4272	1061.411	2.57E-31			
Residual	31	11.46139	0.369722					
Total	34	1188.743						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.88389	0.690396	-1.28026	0.20995	-2.29196	0.524183	-2.29196	0.524183
Anx&Dep	-0.16066	0.121134	-1.32627	0.194438	-0.40771	0.086397	-0.40771	0.086397
Burnout	0.975988	0.087137	11.20056	2E-12	0.79827	1.153706	0.79827	1.153706
Insomnia	0.057801	0.214335	0.269674	0.789198	-0.37934	0.49494	-0.37934	0.49494

The "Multiple R" value (0.99516752) indicates a strong positive relationship between the combined predictor variables (Anxiety & Depression, Burnout, Insomnia) and the dependent variable (job stress). The R Square value (0.990358393) represents the proportion of variance in the dependent variable explained by the predictor variables. The model explains about 99% of the variance in the mental health outcome, suggesting a strong explanatory power of the predictor variables. The Adjusted R Square value (0.989425334) considers the number of predictor variables and the sample size. It is slightly lower than the R Square but still very high, indicating a strong model fit. The Standard Error value (0.608047942) measures

the average deviation of the predicted values from the actual values. A lower value is desirable as it indicates a better model fit. The study has 35 observations, which is a relatively small sample size, potentially limiting the generalizability of the findings to a larger population.

The ANOVA table presents the analysis of variance, testing whether the predictor variables (Anxiety & Depression, Burnout, Insomnia) have a significant effect on the dependent variable (mental health outcome). The F-value (1061.410564) and the very low Significance F value (2.57186E-31) suggest that the overall model is statistically significant, indicating that the predictor variables significantly predict the mental health outcome.

The Coefficients indicate the direction and strength of the relationship between each predictor variable and the dependent variable. The intercept (-0.883889119) represents the estimated value of the dependent variable when all predictor variables are set to zero. However, the p-value (0.209949839) for the intercept is greater than the commonly used significance level of 0.05, indicating that it is not statistically significant. The anxiety & depression coefficient (-0.160656637) suggests a negative relationship with the dependent variable. As Anxiety & Depression levels increase, job stress decreases. However, the p-value (0.194437792) is higher than the commonly used significance level of 0.05, indicating that the relationship may not be statistically significant. The burnout coefficient (0.975988341) indicates a positive relationship with the dependent variable, suggesting that higher levels of burnout contribute to more severe mental health issues due to job stress. The p-value (1.99842E-12) is much lower than the significance level of 0.05, confirming the statistical significance of this relationship. The insomnia coefficient (0.05780055) shows a positive but weak relationship with the dependent variable; however, the p-value (0.789198331) is higher than the significance level of 0.05, suggesting that the relationship is not statistically significant.

In summary, Table 2 presents the impact of job stress on mental health.

Table 1

Summary of Mental Health Outcome

Mental Health Outcome	Association with Job Stress
Depression & Anxiety	Positive correlation (low – not significant)
Burnout	Positive correlation
Insomnia	Positive correlation (low – not significant)

Discussion

Based on the findings from the literature review, this study provides evidence that job stress is a prevalent problem in various industries, and it can have harmful effects on both physical and mental health. The reviewed studies consistently linked job stress to mental health problems such as depression, anxiety, burnout, and insomnia. Additionally, physical health outcomes such as cardiovascular diseases, musculoskeletal disorders, and gastrointestinal disorders were positively associated with job stress.

The findings of this study provide valuable insights into the relationships between job stress, mental health issues, and physical pain outcomes. Our analysis revealed strong positive correlations between job stress and physical pain outcomes (Cardio pain,

Musculoskeletal pain, and Gastrointestinal pain), as well as between the combined predictor variables (Anxiety & Depression, Burnout, Insomnia) and job stress. Job stress was found to be a significant predictor of Cardiovascular pain, Musculoskeletal pain, and Gastro pain, suggesting that employees experiencing high levels of job stress are more likely to suffer from these physical symptoms. This finding is consistent with previous research linking job stress to adverse health outcomes and underscores the importance of addressing job stress as a public health concern.

In another analysis, Burnout emerged as the primary factor significantly affecting the severity of mental health issues due to job stress. It suggests that employees experiencing high levels of burnout are at a greater risk of developing mental health problems. Interestingly, Anxiety & Depression and Insomnia did not show statistically significant relationships with the mental health outcome. It could be due to the small sample size or other factors not considered in the analysis.

Recommendations

Based on the findings of this study, the following suggestions are recommended to address job stress in the workplace:

Promote Work-Life Balance: Employers should encourage a healthy work-life balance by implementing flexible work schedules, remote work, and offering paid time off. These policies can reduce job demands and provide employees with the time and resources they need to maintain their physical and mental well-being. Such initiatives can also improve employee satisfaction, productivity, and retention.

Resources for Stress Management: Employers can provide resources for employees to manage job stress, such as counselling services, mental health resources, and stress reduction programs. These resources can help employees cope with job stress, promote healthy coping strategies, and reduce the risk of developing mental and physical health problems.

Address Workplace Culture: Employers should promote a healthy workplace culture that encourages communication, collaboration, and positive employee relationships. A positive workplace culture can reduce workplace conflicts, improve job satisfaction, and reduce the likelihood of developing job stress and associated health problems.

Monitor Workload and Work Environment: Employers should monitor workload and work environment regularly to identify sources of job stress and implement appropriate changes. These may include reducing workloads, improving workplace ergonomics, and training employees on stress management techniques.

Encourage Physical Activity: Employers can encourage employees to engage in physical activity by providing access to fitness facilities, organizing fitness challenges, or promoting walking meetings. Physical activity can reduce stress levels, improve physical health, and improve overall well-being.

In conclusion, this study highlights the importance of understanding the impact of job stress on employee health and well-being. Employers should recognize and mitigate the potential health risks associated with job stress, such as providing adequate resources, reducing job demands, and promoting healthy work environments. Policymakers should also consider the impact of job stress when formulating workplace policies and regulations. Addressing job stress in the workplace can lead to a healthier and more productive workforce, benefitting both employees and organizations.

Limitations

However, the small sample size of 35 participants is a limitation of the study and may restrict the generalizability of the findings to a larger population. Future research should aim to recruit larger and more diverse samples to explore further and validate the relationships between job stress, mental health issues, and physical pain outcomes.

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