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Workplace stress in a segment of the construction union

Abstract

Objective: This study aims to identify key aspects of psychosocial risks within the construction industry.

Methodology: A documentary review approach was utilized, analyzing reports and profiles from urban real estate projects in the construction sector. The primary evaluation tool was a comprehensive battery of instruments for assessing psychosocial risk factors. This suite evaluates work environment indicators such as job demands, social support, job control, role clarity, interpersonal relationships, and work-life balance through interviews, observation guides, questionnaires, and diagnostic tools aimed at improving working conditions.

Results: The study outlines the most suitable methodology for assessing psychosocial risks in construction firms, emphasizing the importance of using scientifically validated tools.

Keywords: risk, construction, stress, workers, mental health

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Introduction

Psychosocial risks originate from organizational shortcomings within the workplace. These risks have attracted considerable scholarly attention due to their association with a wide spectrum of health conditions, many of which are precipitated or exacerbated by stress. Such conditions include cardiovascular, gastrointestinal, respiratory, immunological, endocrinological, musculoskeletal, mental, and dermatological disorders. Psychosocial risks are frequently triggered by demanding production tasks, requiring high exposure, ongoing fluctuations, and continuous change. While such conditions may be inevitable for companies to function efficiently, they often have detrimental effects on workers.[1] One of the primary consequences of repeated exposure to these risks is the onset of work-related stress. Stress itself is a natural physiological response that supports adaptation and survival in changing environments and, when moderate, contributes positively to human performance. However, when stress becomes excessive or persists beyond an individual's coping capacity, it can lead to a variety of health problems.[2] This dynamic is particularly prevalent in the construction sector, which is characterized by repetitive tasks, strict deadlines, and a frequent lack of employee health prioritization. Therefore, investigating workplace stress as a psychosocial risk factor within a construction company is both relevant and necessary.

Work serves as more than a means of obtaining income; it also fulfills important social and personal functions, fostering emotional, intellectual, and physical development. Given this multifaceted influence, it is critical to protect workers from adverse conditions that may affect any of these domains. As highlighted by the World Health Organization, the importance of safeguarding workers persists as a key priority. In addition, work provides individuals with a sense of livelihood, purpose, confidence, achievement, as well as opportunities for positive relationships and social inclusion.[3]

A healthy workplace is characterized by a balance in which employees' abilities, resources, and support networks are not overwhelmed by their responsibilities and obligations. It is important to recognize that health encompasses physical, mental, and social well-being, rather than simply the absence of disease or infirmity; a healthy environment must actively promote workers' well-being. During the course of their professional activities, workers are exposed to a range of physical, electrical, chemical, mechanical, ergonomic, biological, and psychosocial conditions, which vary by job and setting. These exposures—known as occupational risk factors—can cause health problems depending on the duration, intensity, and frequency of exposure.[4] Among these, psychosocial risks are significant contributors to employee absenteeism. Such risks arise from occupational situations related to work organization, job types, task execution, and the overall work environment, and they have the potential to adversely affect both job performance and worker health. This risk is typically linked to the deterioration of factors such as task characteristics, organizational structure, terms of employment, and working time arrangements.[5]

The significance of psychosocial risks is underscored by their classification as one of the four principal categories of occupational hazards, alongside ergonomics, safety, and hygiene. These factors are subjectively experienced by workers and can have far-reaching effects on job performance, health status, and employee satisfaction.[3] Stress, in particular, constitutes a pervasive aspect of daily life. When it stems from occupational circumstances, it is referred to as work-related stress, a topic extensively examined due to its profound impact on individuals and associated organizational costs. Work-related stress manifests as fatigue, discouragement, anxiety, and other symptoms that undermine employee performance and pose a significant challenge to organizational functioning. Diverse definitions of work-related stress converge on its characterization as a collection of non-specific physiological responses induced by harmful chemical or physical environmental agents. It is also conceptualized as a force that pushes an individual beyond their threshold of equilibrium, resulting in psychological or physiological strain.[6]

The construction sector is considered particularly high-risk for work-related stress, owing to project deadline pressures, budget constraints, and compliance with established standards. This is compounded by prolonged working hours, sustained physical effort, and uncertainty regarding task completion. Moreover, construction workers have often been perceived as the most vulnerable segment within production processes due to the challenging conditions they face, accentuating the issue as a major social concern—especially

since the effectiveness and efficiency of these processes depend largely on the workforce.[7] As emphasized, work-related stress is a serious concern for construction workers and warrants careful observation and intervention, with the purpose of developing strategies and tools for effective mitigation. The present study seeks to examine how psychosocial risks impact construction workers in a specific company, with the ultimate objective of informing the development of control measures and solutions for future application.

Based on these considerations, the central research question is as follows: What is the impact of work-related stress as a psychosocial risk factor on workers in a construction company?

Construction risk overview

The construction sector in Colombia is among the most vital components of the national economy. Its efficient operation significantly influences other industries, as nearly all sectors are connected to it to varying extents. For instance, the industrial sector depends on construction for the development, maintenance, and enhancement of its infrastructure. From a social perspective, the construction sector is equally essential, particularly its residential branch, which is responsible for building homes, apartment complexes, and other living spaces for citizens.[8] Owing to its significance, the current boom in the construction sector has played a notable role in job creation across the country. In 2022 alone, this sector generated 136,500 new jobs, representing an 8.8% increase from the previous year, and employed a total of 1.6 million Colombians by December 2022. This substantial workforce highlights the need to pay special attention to the construction sector, not only in terms of productivity and improved methodologies, but also regarding human capital—an essential factor that ultimately drives productivity.[9]

Human capital holds paramount importance within the construction industry. While technological advances have facilitated tasks through the use of machinery, it is still the hands of workers that operate these machines and implement the associated activities. The conditions under which these activities take place—including the excessive effort frequently required to meet deadlines, insufficient compensation in many cases, and job instability—are all factors that may contribute to occupational stress and associated health disorders.[10]

Investigating work-related stress as a psychosocial risk factor in the construction sector is crucial, given the direct and indirect consequences of stress. The rapid growth of the sector has attracted a large influx of new workers, thereby amplifying the importance and potential impact of such studies. The relevance of this topic is underscored by research suggesting that work-related stress should be recognized as a cause of temporary work disability. For example, Díaz[11] proposes that not only physical but also psychological consequences—including work-related stress—be acknowledged as valid grounds for temporary incapacity in Peru. Another pertinent study by Ortiz[12]—which will be discussed in further detail later—found that risks associated with work-related stress were significantly linked to decreased job performance among construction workers in a 2021 project, a situation further exacerbated by the pressures of the COVID-19 pandemic.

Background on work-related stress in the construction sector

The topic of this study has been previously explored in various research initiatives. For instance, Martínez,[4] in the study entitled "Stress Level Associated with Psychosocial Risk Factors in Workers in the Administrative Area of the Magna Company," aimed to assess work-related stress among administrative employees at Magna Constructions Ltda. This was accomplished through the use of a stress assessment questionnaire and in-depth interviews, with the aim of proposing appropriate management and intervention strategies. The study employed a mixed-method, explanatory design, utilizing the Karasek and Johnson stress assessment questionnaire, which consists of 31 items measuring physiological, social-behavioral, intellectual, occupational, and psychoemotional symptoms. Furthermore, individual interviews were conducted with 20 workers from the construction company, and numerical data were processed using SPSS.

The results revealed that over half of the workers experienced high or very high levels of stress, leading to physical outcomes such as gastrointestinal disorders, back and neck pain, headaches, perceived work overload, respiratory ailments, difficulty concentrating, apathy, and general fatigue. Male employees exhibited higher stress levels than their female counterparts, particularly those aged between 20 and 30 years. Additionally, stress levels were higher among workers directly involved in project execution. The objective of the present study is to similarly identify prevalent stress patterns, rather than focusing on specific health consequences.

Another relevant study by Romani[7] entitled "Work Stress and Musculoskeletal Symptoms in Construction Sector Workers Evaluated in an Occupational Health Facility in the City of Lima, Peru in 2017," sought to determine the relationship between occupational stress and musculoskeletal symptoms in construction workers. This non-experimental, correlational, and cross-sectional study analyzed data from 561 construction workers who attended an occupational health center. Data collection relied on medical records—specifically musculoskeletal assessment forms—and the ILO-WHO Occupational Stress Scale adapted for use in Peru. The findings revealed a low prevalence of musculoskeletal complaints pertaining to the spine (4.5%), upper limbs (1.4%), and lower limbs (0.9%). Similarly, 74% of workers reported low levels of occupational stress.

Additionally, Gonzales[13] conducted a study entitled "Evaluation of Occupational Risks and Measurement of Stress in the Construction Sector," which aimed to thoroughly evaluate working conditions and activities at the Urban Planning Projections Real Estate project. Risk assessment was performed using the Simplified Method developed by the Spanish National Institute of Occupational Safety and Health (INSHT), while stress was measured using the ILO-WHO Work Stress Questionnaire. This instrument was administered to 34 workers and identified low stress levels in more than half of the respondents, with 38% reporting medium stress levels and none reporting very high stress. Nonetheless, the study recommended the implementation of an action plan to address organizational climate, leadership, and structural factors, which were identified as the primary contributors to workplace stress.

Bermúdez et al.,[14] investigated "Improvement Strategies for Stress Management Used by Companies in the Construction Sector," applying a qualitative, exploratory documentary review methodology to identify effective patterns and areas for improvement in stress management. The findings indicated that key sources of stress among construction workers include pressure to meet deadlines, poor communication, mental and physical workloads, job insecurity, exposure to traumatic events, and work-life imbalance. The strategies most frequently identified for mitigating stress included providing mental health training, emotional support, fostering effective communication, enabling work flexibility, offering remote work options, facilitating access to mental health resources, ensuring

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adequate breaks, implementing recognition programs, and providing counseling for both career and personal development.

Moreover, Ortiz,[12] in the study "Risks of Work Stress and the Performance of Workers at a Construction Site in Times of COVID-19 in 2021," examined the association between occupational stress risks and worker performance during the COVID-19 pandemic. This applied research employed a correlational design and collected data via surveys from a sample of 30 workers involved in a storm drain project on Leoncio Prado Avenue. The analysis, conducted using Spearman's Rho coefficient, demonstrated a direct relationship between workplace stress risks and job performance. The study also identified organizational climate and structure as major factors influencing construction workers' performance.

Another study, "Health-Related Quality of Life and Psychosocial Risk Factors in Workers of a Construction Company, Peru 2016," by Bernuy,[15] investigated the perceived quality of life and psychosocial risk factors among employees of a civil sector construction enterprise. The research utilized the Salazar and Bernabé Health Questionnaire and the CENSAOPAS COPSOQ Questionnaire, which were administered to a random sample of 433 workers from a population of 1,158. Results indicated that psychological demands yielded the highest risk scores, although aspects such as social capital were scored as very low risk according to the Salazar and Bernabé Health Questionnaire. The COPSOQ instrument identified medium risk levels for work-family conflict and job control. Despite generally positive perceptions of quality of life, the study concluded that workers were exposed to psychosocial risks with the potential to adversely impact their work, personal life, and both physical and mental health.

Related concepts

Working conditions: Defined by the Ministry of Social Protection[16] as "all intra-work, extra-work, and individual aspects present when carrying out work aimed at producing goods, services, or knowledge."

Extra-work conditions: These are aspects of a worker's life outside the workplace, including their social, family, and economic environment, as well as their home conditions, all of which directly influence their well-being.[17]

Individual conditions: These refer to the specific characteristics of each worker, such as age, sex, educational level, marital status, and other personal attributes.[18]

Intra-work conditions: These are characteristics of the job and organization that influence worker well-being and health, including leadership, social relationships, control over work, job demands, and rewards.[19]

These risks have been widely linked to various negative health effects associated with work-related stress, anxiety, burnout, and depression, in addition to multiple musculoskeletal and cardiovascular diseases.[20]

Psychosocial risks: These are presented with three types of conditions: intra-workplace risks, which relate to internal management and working conditions; extra-workplace risks, which refer to those associated with the worker's external environment and social context outside the organization; and individual risks, which stem from characteristics such as age, personality, marital status, and other specific traits of each worker.[21]

Occupational disease: "An occupational disease is one contracted as a result of exposure to risk factors inherent to the work activity or the environment in which the worker has been forced to work".[22]

Work stress: The Ministry of Social Protection defines it as "the response of a worker at physiological, psychological, and behavioral levels, in their attempt to adapt to the demands resulting from the interaction of their individual, intra-work, and extra-work conditions." Other authors, such as Sánchez et al.,[23] conceptualize it as the consequence of constant exposure to psychosocial risk factors at work, ranking as the second most common health problem in Europe in the 2000s.

Psychosocial protector: According to the Ministry of Social Protection,[16] these are "working conditions that promote the health and well-being of the worker." Examples at the intra-work level include leadership, positive social relationships at work, and performance feedback.[24]

Psychosocial risk: Psychosocial risk factors, as defined by the Ministry of Social Protection of the Republic of Colombia, are "intra-work, extra-work, or external aspects of the organization and the individual conditions or intrinsic characteristics of the worker, which, in a dynamic interrelation through perceptions and experiences, influence the health and performance of individuals".[16] This definition is quite specific, but the term has been challenging to define comprehensively, considering it encompasses individual worker characteristics, working conditions, the work environment, and even economic and social influences that impact the work being studied.[21]

Risk: "Probability of occurrence of a disease, injury or damage in a given group."[16]

Legal aspects related to psycho-occupational risks

Resolution 2764 of 2022: This resolution adopts the Battery of Instruments for the Evaluation of Psychosocial Risk Factors and issues the General Technical Guide for the promotion, prevention, and intervention of psychosocial factors and their effects on the working population, along with specific protocols and other provisions.[25]

Resolution 1477 of 2015: This defines the concept of occupational disease and mandates the periodic updating of the table of diseases considered occupational every three years, based on technical studies financed by the National Occupational Risk Fund.[22]

Law 1010 of 2006: This law adopts measures to prevent, correct, and punish workplace harassment and other forms of harassment within employment relationships. It defines workplace harassment and its manifestations, employer obligations to prevent it, procedures for investigating cases, methods for correction and prevention, guarantees of confidentiality and protection for whistleblowers, and sanctions for non-compliant employers.[26]

Law 1616 of 2013: This law enacts the mental health law and establishes other provisions, setting the regulatory framework for the prevention, promotion, treatment, diagnosis, rehabilitation, and guarantee of human rights in mental health in Colombia.[27]

Type of research of the proposed work

Population and sample

This study is being conducted at the facilities of Grupo NL, a construction company based in Cartagena de Indias, DT y C., which aims to foster social development and economic well-being in Cartagena de Indias through the promotion, development, and construction of cutting-edge urban real estate projects.[28] For the purposes of this study, 30 company employees will be included: 24 construction workers and 6 members of the administrative team.

Tools

The primary instrument to be used is the battery of instruments for the evaluation of psychosocial risk factors. This comprehensive set of tools is designed to analyze and measure various aspects related to the work environment that can affect the well-being and mental health of workers. It measures indicators such as the level of work demand, social support at work, work control, clarity in roles, interpersonal relationships, and work-life balance. The battery includes interview guides, observation guides, questionnaires, and other tools focused on diagnosis for the subsequent improvement of working conditions.[29]

The battery of instruments for assessing psychosocial risk factors comprises several instruments, each with a specific objective. These include a general data sheet, a questionnaire for psychosocial risk factors within the workplace (form A), a questionnaire for psychosocial risk factors within the workplace (form B), a questionnaire for psychosocial risk factors outside the workplace, a guide for psychosocial analysis of jobs, a guide for semi-structured interviews for assessing psychosocial risk factors within the workplace, a guide for focus groups for assessing psychosocial risk factors within the workplace, and the stress assessment questionnaire proposed by Villalobos in 1996, 2005, and 2010.[29] This battery was developed specifically for workers affiliated with the General System of Occupational Risks in Colombia to identify and evaluate psychosocial risk factors both inside and outside the workplace. Its scope includes the identification and determination of psychosocial risk levels within and outside of work, as well as the collection of sociodemographic data from workers.[29]

Partial results before applying the instruments

Psychosocial risks are a growing concern in the workplace, particularly in sectors like construction where demands and pressure are constant. These organizational flaws not only affect workers' physical health (e.g., cardiovascular, gastrointestinal, musculoskeletal issues) and mental health (e.g., stress, anxiety) but also undermine their performance and job satisfaction. While work serves as both a source of income and a pillar of personal and social development, the demands of repetitive tasks, tight deadlines, and insufficient prioritization of employee health, as observed in the construction sector, exacerbate these risks. Prolonged exposure to these conditions can lead to chronic work-related stress, exceeding an individual's adaptive capacity and significantly deteriorating their well-being. It is crucial to recognize that a healthy work environment extends beyond the absence of physical illness; it must actively promote mental and social well-being. Assessing workplace stress as a psychosocial risk factor is essential for identifying and mitigating these conditions, thereby protecting workers' overall health and ensuring optimal organizational functioning.

The Colombian construction sector, vital to the economy and social well-being, is characterized as a high-risk environment for work-related stress. Factors such as pressure to meet deadlines, budget adherence, demanding quality standards, long hours, and constant physical exertion, coupled with uncertainty and the perception of workers as the "weakest link," contribute to significant psychosocial problems. Despite the sector's increasing contribution to national employment, the mental health of human capital is often compromised, directly impacting productivity and efficiency. Previous research confirms the prevalence of high stress levels among construction workers, manifesting in various physical and psychological conditions. Although some studies have found low or moderate stress levels, the consistent identification of stressors such as poor communication, heavy workloads, and job insecurity underscores the urgent need for intervention. Companies' exploration of improvement strategies, including mental health training, emotional support, effective communication, and promoting work flexibility, demonstrates recognition of the problem. However, the persistence of work-related stress as a psychosocial risk factor in this sector necessitates the development of more robust methods and tools for its control and resolution. This will not only safeguard worker well-being but also ensure the sustainability and effectiveness of one of the country's economic pillars.

Conclusion

Research confirms a direct relationship between work-related stress and the performance of construction workers, with organizational climate and structure being key factors influencing this dynamic. A specific study in the Peruvian construction sector revealed that, despite workers perceiving a good quality of life, they were exposed to significant psychosocial risks, particularly concerning psychological demands. These findings underscore the importance of comprehensively addressing working conditions (internal, external, and individual) and associated psychosocial risks (such as stress, anxiety, and burnout), which can lead to occupational diseases. Colombian regulations, including resolutions and laws such as 2764 of 2022 and 1010 of 2006, provide an essential legal framework for the assessment, prevention, and intervention of these risks, as well as for the protection of mental health and the eradication of workplace harassment. Ultimately, proactive management of psychosocial factors in the workplace is crucial to optimize the performance and well-being of workers in the construction sector.[25,26]

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Conflict of interest

The authors declare that they have no conflicts of interest relevant to this manuscript.

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