

ORIGINAL

## Work psychosocial factors and stress in medical staff in the epidemiology area of a public institution

### Factores psicosociales laborales y estrés en el personal médico del área de epidemiología de una institución pública

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#### ABSTRACT

Psychosocial risk factors are conditions present in the work environment that are related to the organization of work, its social environment, work content and the performance of the task that can affect the health of workers. This research aims to determine the psychosocial factors at work and stress in the medical staff of a public institution. Research under the positivist, quantitative, observational, descriptive and cross-sectional paradigm. The population and census sample consisted of 15 medical profession workers. In the collection of information, three questionnaires from the Battery of instruments for the evaluation of psychosocial risk factors of the Ministry of Social Protection, Colombia (2010) were applied. The results show that women predominated (80,0 %), where (46,7 %) was single, with an average age and seniority of 32 years and 10 years respectively. As for psychosocial work factors, high and very high risk levels were found in 53,3 %, with extra-work conditions being the most unfavorable, associated with the economic situation of the family group (80,0 %), characteristics of the home and the environment (73,3 %) and home-work-home displacement (73,3 %). On the other hand, 40,0 % of the personnel studied perceived high and very high risk levels of stress. Concluding that the population is exposed to occupational psychosocial factors, with the appearance of revealing symptoms of stress. Therefore, the use of corrective measures that help minimize possible damage to health is recommended.

**Keywords:** Health Personnel; Working Conditions; Occupational Stress; Occupational Health.

#### RESUMEN

Los factores de riesgo psicosociales son condiciones presentes en el ambiente laboral que están relacionadas con la organización del trabajo, su entorno social, contenido del trabajo y la realización de la tarea que pueden afectar la salud de los trabajadores. Esta investigación tiene como objetivo determinar los factores psicosociales laborales y el estrés en el personal médico de una institución pública. Investigación bajo el paradigma positivista, cuantitativa, observacional, descriptiva y de corte transversal. La población y muestra censal estuvo conformada por 15 trabajadores de profesión médico/a. En la recolección de la información se aplicó tres cuestionarios procedentes de la Batería de instrumentos para la evaluación de factores de riesgo psicosocial del Ministerio de la Protección Social, Colombia (2010). Los resultados muestran que las mujeres predominaron (80,0 %), donde el (46,7 %) se encontraba soltero/a, con un promedio de edad y antigüedad de

32 años y 10 años respectivamente. En cuanto, a los factores psicosociales laborales, se encontraron niveles de riesgo alto y muy alto en un 53,3 %, siendo las condiciones extralaborales las más desfavorables, asociados con la situación económica del grupo familiar (80,0 %), características de la vivienda y del entorno (73,3 %) y desplazamiento vivienda-trabajo-vivienda (73,3 %). Por otra parte, el 40,0 % del personal estudiado percibió niveles de riesgo alto y muy alto de estrés. Concluyendo que la población está expuesta a factores psicosociales laborales, con aparición de síntomas reveladores de estrés. Por lo tanto, se recomienda el uso de medidas correctivas que ayuden a minimizar posibles daños a la salud.

**Palabras claves:** Personal De Salud; Condiciones De Trabajo; Estrés Laboral; Salud Laboral.

## INTRODUCTION

Throughout human history, the interconnection of work and health has remained a steadfast correlation. Work, as a fundamental human activity, drives the production of goods and services essential for the fulfilling of societal needs, being they individual or collective. Consequently, individuals invest the majority of their lifetimes engaging in work, whether formal or informal, within environments and conditions that have the potential to significantly impact their health and safety, either positively or negatively.<sup>(1,2)</sup>

Moreover, the working population within an organization is frequently exposed to a range of psychosocial factors associated with their work-related activities. Identifying and addressing these factors in a timely manner is crucial, as they can exert profound effects on the health of workers. The International Labour Organization (ILO) and the World Health Organization (WHO), in their Joint Committee (ILO/WHO, 1984), define psychosocial factors at work as follows:

"On one hand, psychosocial factors encompass the interactions between the work environment, job satisfaction, and organizational conditions, and, on the other hand, the worker's capabilities, needs, culture, and personal circumstances outside of work. Through perceptions and experiences, these factors can significantly influence an individual's health, performance, and job satisfaction".<sup>(3)</sup>

Furthermore, the Ministry of Social Protection - Pontifical Javeriana University, Subcenter for Social Security and Occupational Risks (2010), characterizes psychosocial factors as "intra-labor, extra-labor, or external to the organization aspects and individual conditions, and the intrinsic characteristics of the worker. These, in dynamic interplay through perceptions and experiences, exert influence on the health and performance of individuals".<sup>(4)</sup>

To delve into the genesis of psychosocial work factors, it's essential to consider factors such as: a) Work environment and job position: these encompass factors like excessive workload, extended working hours, irregular work schedules, inadequately designed workspaces, ergonomic shortcomings, a lack of autonomy and control in task execution, a rapid work pace, and an ambiguous job role delineation. b) Organizational factors: an inadequate supervision, ineffective management styles, organizational structure deficits, teamwork issues, insufficient social support, and an inadequate compensation. c) Workplace relationships: factors like sexual harassment, workplace bullying, workplace violence. d) Job insecurity and dual presence.<sup>(4)</sup>

It's worth noting that psychosocial factors extend beyond the workplace and encompass extralaboral conditions. Extralaboral conditions include elements within the family, social, economic, and housing environments that can exert an influence on an individual's health and well-being. These labor and extralaboral conditions can yield either positive or negative outcomes. When positive, they lead to enhanced happiness, motivation, and improved health. Conversely, negative responses can result in demotivation, fatigue, insomnia, and job dissatisfaction.<sup>(5)</sup>

Additionally, Dávila et al.<sup>(6)</sup> (2018) highlight negative health effects arising from exposure to psychosocial risk factors. These manifest as physiological and psychosomatic alterations (e.g., headaches, musculoskeletal disorders, sleep disturbances) and psychological effects (e.g., diminished attention, mental overload), which can elevate the likelihood of absenteeism, attrition, workplace accidents, occupational diseases, and work-related stress.

In this same context of work-related stress caused by psychosocial factors, the Pan American Health Organization (PAHO, 2016) emphasizes its prevalence due to job organization, job design, employment conditions, and external factors that can impact health, performance, and job satisfaction. Work-related stress is defined as "the physical and emotional response to damage caused by an imbalance between perceived demands and perceived resources and abilities of an individual to cope with those demands" (ILO, 2016).<sup>(7)</sup> The World Health Organization (WHO, 2017) reports that over 300 million individuals worldwide suffer from conditions arising from psychosocial factors.<sup>(8)</sup> Additionally, the ILO (2021) notes that approximately 1,9 million people succumb to work-related activities, in addition approximately 360 million workplace accidents occurring annually.<sup>(9)</sup>

In Venezuela, Carpintero et al.<sup>(10)</sup> (2017) assert that according to the National Institute for Prevention,

Health, and Safety (INPSASEL) statistics for the year 2015, there were 1 500 cases of occupational diseases nationwide, with 131 attributed to psychosocial factors.

In order to predict the significance of psychosocial factors in the genesis of work-related stress, diagnostic models have emerged to predict their health effects. Prominent among them are the Job-Demand-Control-Support (JDACS) model developed by Karasek (1979), Jhonsson (1988), and Theorell (1990), and the Effort-Reward Imbalance (ERI) model by Siegrist (1996). These models offer insights into the interaction among psychological job demands, individual control over work, the support provided within the work environment, and the rewards garnered for one's labor.

When it comes to psychosocial factors and occupational stress, it's worth noting that these have emerged as one of the most extensively studied topics in recent decades due to their profound impact on the health and overall well-being of workers. Consequently, there exists a multitude of research studies conducted worldwide that delve into this subject.<sup>(11,12,13,14,15)</sup> Undoubtedly, working conditions and the work environment serve as the cornerstone of any labor organization. Therefore, it is of paramount importance to implement comprehensive legal regulations aimed at fostering occupational safety and health.

Hence, the main objective of this study is to assess the occupational psychosocial factors and stress levels within the medical personnel operating within this specific domain. This pursuit is prompted by several key factors, including the demotivation experienced by certain employees due to their low remuneration, the presence of individuals with extensive work histories approaching retirement. Additionally, the team responsible for this area is struggling to carry out their job efficiently, primarily due to poor communication regarding the monitoring of endemic diseases (signal and internet issues). Additionally, there are logistical impediments concerning the transportation of supervisory personnel at the national level, circumstance that could be contributing to discomfort experienced by these workers.

## METHODS

The research adheres to the positivist paradigm and adopts a quantitative approach with a focus on fieldwork and observational methods. It employs a descriptive level of analysis and employs a cross-sectional design. The study population comprises 15 individuals of both genders, all of whom are medical professionals with specialization in epidemiology. A census sampling method was employed to include the entire target population.

Socio-demographic and occupational variables were gathered through a documentary review of the medical records of the workers at the Occupational Health and Safety Service (SSST). These variables encompassed age, gender, marital status, and length of service. The data collected were recorded in a file card designed by the author.

To assess psychosocial risk factors, two questionnaires from the "Battery of Questionnaires to Assess Psychosocial Risk Factors at Work", validated by the Ministry of Social Protection - Pontifical Javeriana University, Subcenter for Social Security and Occupational Risks, Colombia (2010), were utilized. This battery is founded on the Job-Demand-Control-Support models by Karasek, Theorell, and Jonhson (1990), and the Effort-Reward-Imbalance model by Siegrist (1996 and 2008). These instruments facilitated the evaluation of psychosocial work factor risks faced by the medical personnel, separately measuring intra and extralaboral psychosocial factors.<sup>(4)</sup>

For the assessment of stress, a validated questionnaire from the Ministry of Social Protection, Pontifical Javeriana University, and the Sub-center for Social Security and Occupational Risks (2010) was employed. This instrument is designed to evaluate indicative symptoms of the presence of stress reactions, categorized into four main groups based on the type of stress symptoms: a) physiological, b) social behaviors, c) intellectual and occupational, and d) psychoemotional.

The data collected from the questionnaires were entered into a Microsoft Excel 2010 database for processing and descriptive statistical analysis. Subsequently, absolute and percentage frequencies, as well as measures of central tendency (arithmetic mean), were calculated and presented in tables and graphs for enhanced comprehension. With respect to bioethical considerations, the medical personnel in the epidemiology department were invited to participate in the research. They were provided with a comprehensive explanation of the study's nature and the potential benefits it could offer. Following the resolution of any questions and concerns, informed consent was obtained from each participant, guaranteeing the confidentiality of their provided data and upholding the bioethical principles of Autonomy, Justice, and Non-maleficence.

## RESULTS

**Table 1.** Sociodemographic and Occupational Characterization of Medical Personnel in the Epidemiology Department of a Public Institution. Aragua - Venezuela. 2022 - 2023. (n = 15)

Socio-Demographic and Labor Variables	f	%
<b>Gender</b>		
Female	11	80,0
Male	4	20,0

<b>Age group</b>		
27 - 35	9	60,0
36 - 44	1	6,7
45 - 53	2	13,3
54 - 62	1	6,7
63 - 71	2	13,3
Range: 27 - 70 years; mean: 39,4 years		
<b>Marital Status</b>		
Single	8	53,3
Married	6	40,0
Cohabitation	1	6,7
<b>Length of service</b>		
1 - 7	9	60,0
8 - 14	3	20,0
22 - 28	1	6,7
29 - 35	2	13,3
Range: 1 - 35 years; mean: 10 years		
<b>Source:</b> Data obtained from medical records of the Occupational Health and Safety Service (SSST)		

The socio-demographic and occupational characteristics of the study sample are as follows: a) Gender distribution: The sample consists of 15 workers, with 80 % being women (11 out of 15 workers) and 20 % men (4 out of 15 workers). b) Age: The average age of the participants is 39 years, with ages ranging from 27 to 70 years. Approximately 50 % of individuals are older than 32 years old. Notably, 60 % of the participants (9 out of 15 workers) fall within the age range of 27 to 35 years, representing a predominantly young adult population. c) Marital status: Among the participants, 53 % (8 out of 15 workers) are single, while 46,7 % (7 out of 15 workers) are in stable relationships. d) Work experience: The average work experience among the participants is 10 years. A significant portion, 60 % (9 out of 15 workers), possesses work experience ranging from 1 to 7 years, indicating a degree of job stability and a heightened exposure to psychosocial risk factors (table 1).

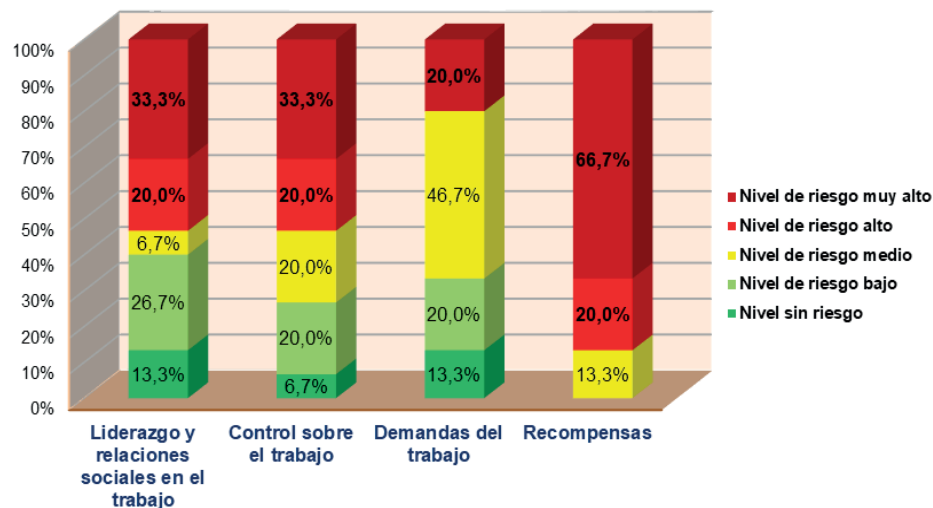
### Psychosocial risk factors (both occupational and extralaboral)

In the assessment of psychosocial risk factors (both occupational and extralaboral) and their risk levels, using the questionnaires administered to the study sample, a series of results were generated.

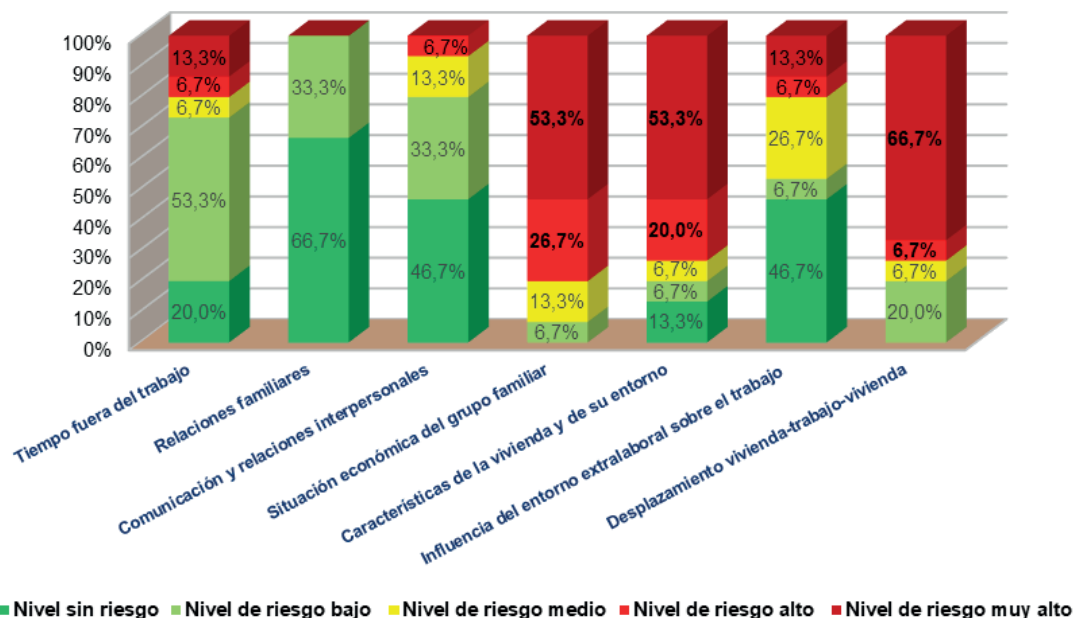
Figure 1 illustrates the risk levels of intralaboral psychosocial risk factors. High and very high-risk levels were identified in the following domains: "Rewards", with 86,7 % (13 out of 15 workers); "Leadership and social relations at work", registering at 53,3 %; and "Control over work", also at 53,3 %. The medium risk level exhibited its highest prevalence in the "Job demands" domain, reaching 46,7 %. Conversely, low or negligible risk was presented in the "Leadership and social relations at work" domain displaying 40,0 %, while the "Job demands" and "Control over work" domains exhibited 33,3 % and 26,7 %, respectively, in the same category.

Delving into the "Rewards" domain, the dimension that presents the most substantial health risk to the studied sample is "Recognition and Compensation". It was observed that 26,7 % of respondents consistently receive their salary on time, while 46,7 % reported "never" receiving the promised payment from the company. Notably, 100 % of respondents believe they are not adequately compensated for their work. Furthermore, 33,3 % stated that they "never" encounter opportunities for career advancement, with a similar percentage perceiving that, even when performing well, opportunities for progression are non-existent. Additionally, 46,7 % of respondents mentioned that the company "occasionally" shows concern for the well-being of its workers.

In the realm of extralaboral psychosocial risk factors, the results unveiled concerning risk levels for health. Particularly noteworthy are dimensions such as the "Economic situation of the family group", affecting 80,0 % of the participants (12 out of 15 workers); "Characteristics of housing and the environment", which impact 73,3 % (11 out of 15 workers); and "Commute from home to work and back", affecting 73,3 % as well. The most significant dimension with a medium-level risk is the "Influence of the extralaboral environment over work", affecting 26,7 % (4 out of 15 workers). Conversely, the dimensions with a prevailing low or negligible risk include "Family relationships", which affects all participants (100 %, 15 out of 15 workers), and "Communication and interpersonal relationships", impacting 80,0 % (12 out of 15 workers) (figure 2).



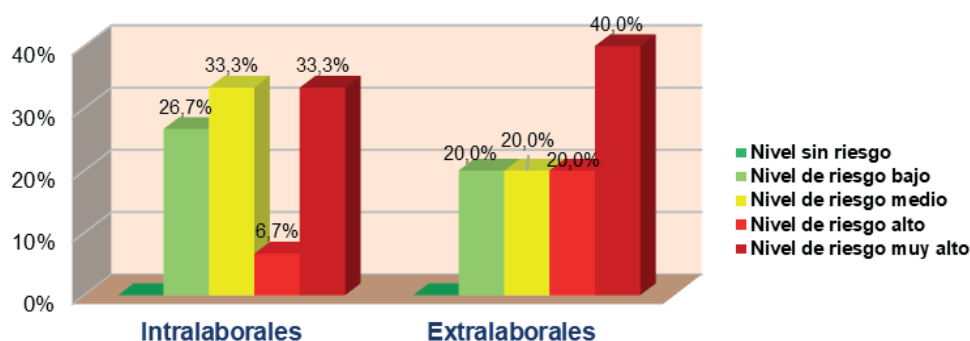
**Figure 1.** Risk Level for Intralaboral Psychosocial Risk Factors in Medical Personnel in the Epidemiology Department of a Public Institution. Aragua - Venezuela. 2022 - 2023. (n = 15)



**Figure 2.** Risk Level for Extralaboral Psychosocial Risk Factors in Medical Personnel in the Epidemiology Department of a Public Institution. Aragua - Venezuela. 2022 - 2023. (n = 15)

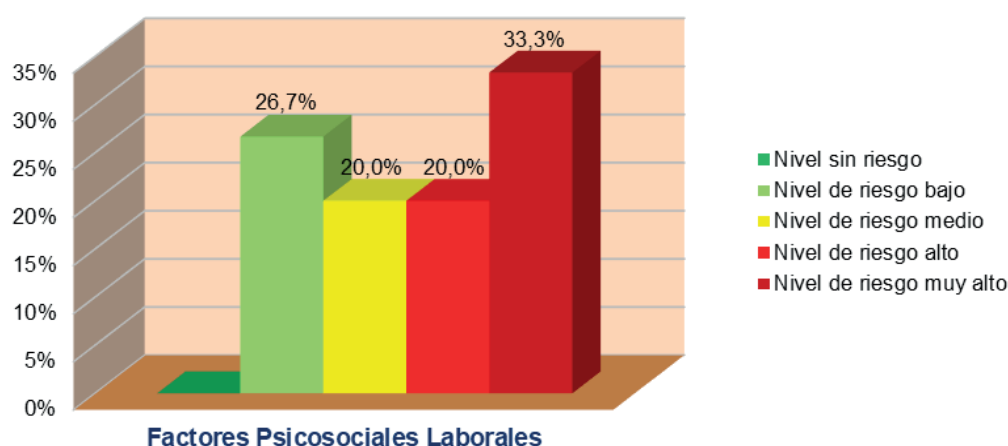
Upon closer examination of the unfavorable high and very high risk levels stemming from extralaboral psychosocial risk factors, the dimension of the "Economic situation of the family group" emerges as particularly significant. Within this dimension, 66,7 % of respondents reported that their financial resources "sometimes" or "never" suffice to cover basic expenses. Additionally, 46,7 % acknowledged having financial commitments that occasionally impact the family budget, while 26,7 % acknowledged a consistent struggle with debts that are difficult to settle.

In terms of risk levels associated with both occupational and extralaboral psychosocial factors, the results underscore a greater risk to the health of medical personnel in the extralaboral context, with 60,0 % experiencing high or very high-risk levels. Within the intralaboral context, 40,0 % also demonstrated high or very high-risk levels. Notably, the medium-risk category exhibited a higher prevalence in the intralaboral context at 33,3 %, in contrast to 20,0 % within the extralaboral context. Low risk or no risk levels were observed in 26,7 % of the intralaboral context and 20,0 % in the extralaboral context (figure 3).



**Figure 3.** Risk Level of Intralaboral and Extralaboral Psychosocial Factors in Medical Personnel in the Epidemiology Department of a Public Institution. Aragua - Venezuela. 2022 - 2023. (n = 15)

In the assessment of risk levels associated with intralaboral and extralaboral psychosocial factors, the risk level for occupational psychosocial factors among the medical personnel in the epidemiology department was obtained. The findings unveiled those 53,3 % of personnel exhibited high or very high-risk levels, while 20,0 % fell within the medium-risk category. These results signify that this specific group of personnel confronts a combination of work-related and extralaboral conditions that exert detrimental effects on their health and safety (figure 4).

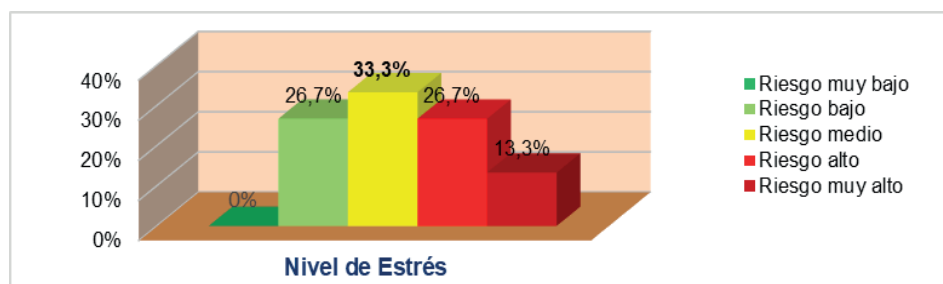


**Figure 4.** Risk Level for Occupational Psychosocial Factors in Medical Personnel in the Epidemiology Department of a Public Institution. Aragua - Venezuela. 2022 - 2023. (n = 15)

### Work-Related Stress

The stress questionnaire has revealed that medical personnel are displaying indicative symptoms of stress, particularly within the categories of "Physiological", "Intellectual and Occupational", and "Psychoemotional" symptoms. Within the "Physiological" symptoms category: 66,7 % reported experiencing "occasional" neck, back, or muscle tension, 40,0 % "occasionally" reported gastrointestinal problems, 73,3 % experienced "occasional" headaches, 33,3 % "occasionally" had sleep disorders, 40,0 % reported "occasional" changes in appetite. In terms of "Intellectual and Occupational" symptoms: 53,3 % "occasionally" faced difficulty concentrating, 46,7 % "occasionally" felt tired or bored, 46,7 % "occasionally" expressed a reluctance to attend work 53,3 % "occasionally" expressed a desire to change jobs.

Within the "Psychoemotional" symptoms category, it was observed that 40,0 % of the sampled individuals "occasionally" experience feelings of irritability and negative thoughts, and an equal percentage (40,0 %) "occasionally" engage in behaviors such as smoking, consuming alcoholic beverages, or drinking coffee. The presence of stress-indicative symptoms has resulted in high and very high-risk levels for 40,0 % (6 out of 15 workers) of the sample. These findings suggest a potential influence of psychosocial work factors on the manifestation of stress symptoms within this group, emphasizing the need for timely and decisive intervention (figure 5).



**Figure 5.** Stress Level in Medical Personnel in the Epidemiology Department of a Public Institution. Aragua - Venezuela. 2022 - 2023. (n = 15)

## DISCUSSION

The discussion surrounding psychosocial factors is of global significance, as these factors began to assume a central role in health and occupational theories during the 1970s. As articulated by SRT (2022), "psychosocial factors hold substantial importance; comprehending and identifying them contribute to their visibility, fostering positive factors, and facilitating preventive measures against negative factors". These proactive measures have the potential to avert long-term harm, encompassing conditions such as cardiovascular, psychosomatic, respiratory, gastrointestinal, musculoskeletal, and mental health disorders.<sup>(5)</sup>

Analyzing the results obtained in this research, particularly concerning the socio-demographic and occupational characterization of the study sample, a notable predominance of women at 80 % was observed, similar to the outcomes of studies conducted by Seijas<sup>(16)</sup> (2019) and Cali et al.<sup>(12)</sup> (2020), where women represented over 60 % of their respective samples. This preponderance of women can be attributed to their heightened presence in the fields of education and healthcare. In contrast, Salamanca et al.<sup>(11)</sup> (2019) reported a majority of men at 78 % in primarily roles related to security and surveillance, traditionally occupied by men.

In terms of the age range, this study encompassed participants ranging from 27 to 70 years old, which is similar to the study conducted by Cali et al.<sup>(12)</sup> (2020), where the age range spanned from 24 to 66 years. However, there is a distinction in the average age, as the latter study reported an average age of 49 years, which is 17 years older than the participants in this study. This variance in age can be attributed to the fact that professionals in the field of education sometimes face challenges in finding immediate replacements, leading to a more experienced and older workforce. Regarding marital status, the data from this study deviate from the findings of Contreras and Lago, where over 70 % of their sample was either married or in a domestic partnership.

Regarding the length of service, it's noteworthy that Contreras et al.<sup>(15)</sup> (2018) reported that 61,9 % of their participants had less than one year of work experience, which differs substantially from the findings in this study, where the average length of service is 10 years. This disparity can be explained by the fact that their sample comprised individuals engaged in telecommuting, a field often characterized by a lack of job stability. Conversely, healthcare professionals typically offer their services to either the public or private sectors for extended periods following their academic pursuits.

When delving into occupational psychosocial factors, the studied sample displayed a high or very high level of risk in 53,3 % of cases, with an additional 20,0 % falling into the medium-risk category. An in-depth examination of specific psychosocial work factors reveals that extralaboral conditions exerted a more pronounced influence in this study, with 60,0 % categorized as high or very high-risk. In contrast, intralaboral conditions exhibited high or very high risk in 40 % of cases.

An important observation is that within extralaboral psychosocial risk factors, the dimension primarily responsible for disturbances is the "Economic situation of the family group". This dimension significantly impacted 80,0 % (12 out of 15 workers), placing them at high or very high-risk levels. This dimension evaluates the availability of economic resources for the worker and their family to cover basic expenses. The healthcare professionals in the epidemiology department have indicated that their incomes are inadequate to meet fundamental needs, highlighting a critical concern within this group.

Regarding intralaboral psychosocial risk factors, this study revealed concerning health outcomes, notably within the "Rewards" domain, where 87,7 % of the sample faced high or very high levels of risk. Within this domain, the dimension "Recognition and compensation", which assesses the rewards provided by the organization in exchange for the employee's efforts, exhibited alarming results with 100 % of respondents falling into the high or very high-risk category. These findings resonate with a study conducted by Quiñones et al.<sup>(13)</sup> (2022), where administrative staff reported similarly elevated levels of risk stemming from dissatisfaction with their roles and compensation.

Regarding intralaboral factors stemming from the organization and division of labor, it is evident that medical personnel in this study faced low demand coupled with low control, minimal social support from

their immediate supervisors, and limited rewards. According to the job-demand-control-support model, the nature of the work performed by these employees falls into the category of "Passive Work". This contrasts with the findings of Rivera et al.<sup>(14)</sup> (2021), who investigated oncology workers and reported an "Active Work" type associated with favorable rewards. This divergence can be attributed to the distinct nature of service areas such as oncology, characterized by high demands, heavy workloads, and significant mental and emotional burdens. In contrast, the healthcare professionals in this study primarily engage in administrative functions, and as "Passive Work" employees, they may encounter monotony, potentially impacting their job satisfaction within their work environment.

Concerning work-related stress, the medical personnel in this study were categorized as having "Passive Work" based on the job-demand-control-support model. This categorization may contribute to physiological tension and physical health issues. The results have illuminated the presence of symptoms indicative of stress, indicating that both within and outside the work environment, the study sample is exposed to conditions that compromise their health. The emergence of these symptoms has resulted in high and very high stress risk levels for 40,0 % of the sample, aligning with the findings of Cali et al.<sup>(12)</sup> (2020), where high stress levels were reported among teaching staff, with neck pain being the most prevalent symptom. It can be inferred that both healthcare and teaching professionals often engage in interactions with individuals that demand concentration, discipline, and task delegation, and over time, these demands may contribute to the development of stress-indicative symptoms.<sup>(17)</sup>

In conclusion, this research has determined that the medical personnel in the epidemiology department of a public institution during the years 2022-2023 confront psychosocial work factors with adverse implications for their health. Within this sample, extralaboral conditions take precedence, and within the organizational context, limited social support from supervisors, inadequate rewards, and low control have given rise to stress symptoms, with physiological manifestations (neck and back pain, muscle tension, gastrointestinal problems, headaches) being particularly noteworthy. Consequently, it is imperative to promptly intervene on behalf of these workers, as the failure to address these conditions can imperil their health and safety, consequently impacting workplace performance and productivity. As a result, it is highly recommended that the workplace develops and implements a prevention program targeting psychosocial work factors and stress. The workforce should receive continuous education on these matters through regular and ongoing epidemiological surveillance.

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