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PSYCHOSOCIAL RISKS IN A MENTAL HEALTH UNIT

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Abstract
Background: Studying the relationship between work, conditions, and its impact on worker health is necessary and challenging to analyze. The COVID-19 pandemic has presented one of the greatest challenges that societies and companies have ever faced. The pandemic has greatly affected healthcare institutions, forcing them to reorganize to protect workers and patients. **Objective**: This study aimed to identify psychosocial factors among professionals, with and without healthcare-related roles, working in a mental health unit in Northern Portugal. Additionally, identify groups of workers most susceptible to psychosocial risk factors and describe them by their demographic and job characteristics. **Method**: The psychosocial factors were analyzed using Copenhagen Psychosocial Questionnaire II (COPSOQ). A sample of 67 individuals was assessed, 50.75% of which were females, with an average age of 41, 74.63% were health technicians or operational staff and 68.66% worked in the shift. **Results**: The tertiary evaluation showed psychosocial risk factors, particularly cognitive and emotional demands. Employees aged 31-40, health technicians, and those with 6-15 years of experience had the highest emotional demands and health risks. Managers, supervisors, and health technicians have the highest cognitive demands and pose the greatest health risk.

Keywords: Psychosocial Factors; Psychosocial Risks; Mental Health; Psychosocial Risk Management; Health Professionals

Introduction

Over the past decades, the topic of Occupational Safety and Health (OSH) has remained current, and several reasons justify its topicality. Whether due to the non-solution, or the ineffective solution, of long-identified problems or to the emergence of new themes due to more or less recent changes in the social and labor scope. Concerns in this area and the analysis of associated issues have been reflected in legislation, training, and research over the last few decades, and the problem of psychosocial risks has emerged in this domain.

Work-related psychosocial risks have been identified as one of the great contemporary challenges for OSH, resulting from significant changes that have occurred in the world of work in recent decades. These changes have resulted in emerging risks and new challenges in the field of OSH, among them, the so-called psychosocial risks.

According to Cox, Griffiths, and Rial-González (2000) psychosocial risks can be defined as those aspects of work design, organization, and management, as well as social and environmental contexts, that have the potential to cause psychological, social, or physical harm.

In times of change, effectively and successfully managing psychosocial risks in the workplace is essential to protect workers' health and well-being, while enhancing organizations' productivity. Recognizing that psychosocial risks and their consequences seriously threaten the health of organizations, individuals and national economies is a step in the right direction (OIT, 2016).

Although many countries recognize the importance of OSH, many workers still face hazardous and unhealthy working conditions (ILO, 2019; Schulte et al., 2022). A healthy and safe environment is not only desirable from the workers' point of view but also contributes considerably to labor productivity and promotes economic growth (ILO, 2019; Schulte et al., 2022).

Psychosocial risk management is a key factor in promoting quality of work and innovation, improving the economic performance and competitiveness of companies. Due to the increasing visibility of psychosocial risks, the European Commission has developed the European Psychosocial Risk Management Model (PRIMA-EF).

The psychosocial environment of the workplace is generally considered one of the most important work environment issues in contemporary and future societies. Psychosocial factors go hand in hand with the experience of work-related stress. Work-related stress is the response that people may have when faced with work demands and pressures that do not match their knowledge and abilities (WHO, 2017). Workers who are experiencing stress are also more likely to be unhealthy, less motivated, less productive, and feel less secure at work (WHO, 2017).

It is the highest degree of physical, which are the most prevalent psychosocial factors and which professional categories are more prone to develop such risks, to design protocols, and implement coherent and effective health promotion and disease prevention strategies to optimize the current and future health of workers (Di Tecco, 2020).

For these reasons, workers' health and well-being are important issues and numerous studies report more frequent pathologies, such as mental symptoms and burnout among healthcare professionals (Pejuškovi´c, 2017). Burnout has been defined in the literature as a state of physical, emotional, and mental stress, and exhaustion that results from long-term involvement in work situations that are emotionally demanding (WHO). Studies have illustrated that mental health professionals show increased vulnerability to depression, substance abuse, and suicide risk (Brooks et al., 2011; Garcia-Iglesias, 2021). Mental health work is characterized by work challenges, such as a high workload and demanding use cases. Increased work hours, shift work schedules and a high number of contact time with clients have been described as enhancers of emotional and psychosomatic exhaustion, health complaints, and a higher turnover rate. According to Mache et al. (2016) these negative stress outcomes can have an impact not only on the individual health and well-being of professionals but also on their ability to effectively care for others.

The health and well-being of workers and the general population have been put to the test with the arrival of a new virus, the coronavirus. According to the World Health Organization (WHO) Coronavirus Disease 19 (COVID-19) is an acute respiratory disease caused by a new human coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). On January 30, 2020, the WHO announced that COVID-19 was a public health emergency of international concern and on March 11, 2020, classified it as a pandemic. Initially, most cases were reported in Wuhan City, Hubei Province, China, and among individuals with a history of travel to China. It subsequently spread to other continents.

The European Commission is working together with the WHO and Member State public health authorities to contain the outbreak of COVID-19. In the European Union (EU), the European Centre for Disease Prevention and Control (ECDC) is closely monitoring this outbreak and providing risk assessments to guide EU Member States and the EU Commission in their response activities.

The pandemic by COVID-19 poses a huge challenge to society because it tests its ability to deal with a multifaceted threat under the constraints of the situation. Policy actions are taken in the realm of health, management, public safety, financial economy, asset protection, and asset production. Although important, psychological health is probably the neglected aspect of the pandemic by COVID-19 (Schimmenti et al., 2020; Blanco-Donoso et al. 2020).

The resilience of a society facing a catastrophic event also depends on how each member of society deals with his or her anxiety and fears. Fear of loneliness, contamination, and death affect our relationships and the way we behave, in addition to the restrictions imposed by governments. Dealing with these fears is therefore critical for the individual (Schimmenti et al., 2020). If, for society in general, the pandemic has added fear and insecurity to people, it is important to understand what real impact it has had on healthcare professionals (Barros et al., 2022).

According to WHO, healthcare workers are on the front line in responding to the outbreak of COVID-19 and, as such, are exposed to hazards that put them at risk of infection. The hazards include exposure to pathogens, long working hours, psychological distress, fatigue, stigma, and physical and psychological violence (Hruska et al., 2021; Sheraton et al., 2020; Moreno Martinez et al, 2022). Increased workload, physical fatigue, inadequate personal protective equipment, nosocomial transmission, and the need to make ethically hard

decisions about rationing care can have dramatic effects on their physical and mental well-being. Their resilience can be further compromised by isolation and loss of social support, risk or infection from friends and family, and by drastic and often unsettling changes in ways of working. Healthcare workers are therefore especially vulnerable to mental health problems, including fear, anxiety, depression, and insomnia (Liu et al. 2012). It should also be reinforced that healthcare workers who come into close contact with the virus and are exposed to traumatic events, such as death, while making hard decisions are particularly at risk of stress responses (Brooks et al. 2020).

The cumulative effects of insufficient sleep can be a serious risk for workers who have to care for others, such as emergency and healthcare workers, as this can also compromise their ability to care for the sick (OIT, 2020). Workers under high pressure may not exercise as much as they normally would because they are too busy and do not have the time or energy. In addition, the physical distance and measures taken in many countries during the pandemic by COVID-19 often limit the ability to exercise in the way that people were used to before the crisis. However, it is in these situations that exercise is most needed to cope with pressure, anxiety, and stress (OIT, 2020).

Thus, it is essential to develop a company contingency/preparedness plan as a participatory process, helping to identify the risks that may affect a specific business or organization in times of crisis and devise strategies to reduce their impact (Di Tecco et al. 2020; ILO, 2019; Schulte et al., 2022).

Also, according to the International Labor Organization (ILO) (ILO, 2019; Schulte et al., 2022), the lessons learned from several sudden-onset crises recommend that workers and employers consider ahead of time how best to organize their work in the face of possible disastrous scenarios to reduce their devastating impact and prepare for immediate business recovery. For this recovery, it will be essential to provide companies with diagnostic information for appropriate intervention in the identified risks.

The development of appropriate policies for psychosocial risk management presupposes that organizations consider the existence of a synergistic harmony between the different policies of the organization while respecting the legislation and standards in force. For example, organizations need to consider that health and safety, human resources, and psychosocial risk policies should fit together to achieve common goals and promote organizational learning and development.

Thus, it is imperative to translate existing knowledge and policies into effective practices that promote safety and well-being in companies, productivity, prosperity, and quality of life in companies and, consequently, in European society (Cox et al. 2020).

This study was developed in a mental health unit, during the Covid pandemic time, which is committed to preventive risk management, namely psychosocial risk, through the optimization of management models and the integration of OSH into the structure of the institution, the diagnosis and control of new sources of risk, and effective information and communication that favors the training and awareness of employees. The aim it was to continue the work already carried out by the institution in the area of psychosocial risks and optimize responses for their preventive management.

Completed Section 1 of the Introduction, the rest of the research article is organized into the following sections: Section 2 presents the Materials and Methods; Section 3 exposes the Results; Section 4 shows the Discussion; and Section 5 reveals and highlights the Conclusions of the study and presents the mains limitations and restrictions, as well as the recommendations for further research.

Methodology

Study Population

The target institution of this study is a Private Institution of Social Solidarity, specializing in providing care in the area of Mental Health. As a result of its intervention, guided by innovation, humanization, and technical and scientific quality, this institution currently plays a leading role in the provision of mental health care in the Northern region.

The institution is composed of about 150 employees, including Psychiatrists, General Practitioners, Neurologists, Specialist, and Generalist Nurses, Psychologists, Social Service Technicians, Pharmacists/Pharmacy Technicians, Administrative Staff, Occupational and Residential Activity Monitors, Auxiliary Staff, General Services Auxiliary Technicians, Maintenance Technicians, and Psychopedagogue.

Data collection instrument

The use of a questionnaire as a diagnostic method is important not only because it can reach a larger number of people but also because it is easily applied, easy to interpret, and inexpensive.

The questionnaire as a data collection instrument was divided into parts, these being:

- Introduction of the Research and the guarantee of anonymity and confidentiality of the answers;
- COPSOQ (psychosocial risk self-assessment questionnaire), the second version of the instrument medium version, by Silva et al. (2003);
- Sociodemographic and socio-professional questions.

To characterize the sample and according to the proposed objectives, in addition to the questions in the original questionnaire, some questions of sociodemographic and socio-professional nature were socio-professional questions were introduced to analyze their relationship with psychosocial risk factors: Gender; Age; Marital status; Number of children; Professional group to which they belong; Shift work; Length of service.

Taking into account ethical responsibilities, a paper consent was given to the institution's director and the institution's ethics group. Informed consent, to obtain informed participation, was also given to each of the employees before the delivery of the questionnaire. The questionnaires and consents were delivered in paper format in a sealed envelope by the principal investigator to each unit coordinator, totaling approximately 150 questionnaires, which were handed out to each employee who agreed to participate in the study. The questionnaires were delivered on October 1 and collected on November 30, 2020, obtaining 67 completed questionnaires, which translated into a participation rate of about 44.7.

Statistical Analysis

Descriptive statistics were calculated to describe the responses to the items. To analyze whether the perception of psychosocial risks varies according to the studied sociodemographic and socio-professional characteristics, methodologies based on hypothesis testing were applied. Taking into account the application assumptions, the Mann-Whitney U test and the Kruskal-Wallis test were used.

The Mann-Whitney U test was used to analyze gender differences, as well, as the KruskalWallis and Bonferroni multiple comparison test, to check differences between occupational groups, shift work, and length of service, with regard to the scores obtained in the COPSOQ II and in the subscales of this instrument.

The significance level was set at 0.05 throughout the analyses. Statistical procedures were done using SPSS 26.0 statistics (IBM, Porto, Portugal) and Microsoft Excel.

Results

Characterization of the sample

The psychosocial characterization of working conditions in this mental health unit is based on the workers' perception. It can be seen that the sample consists of 51% female employees. The average age is 43,13 years (SD=11.00), with a minimum of 23 years and a maximum of 61 years. Most employees, 70,1%, are married or cohabiting, 22,4% are single and 7,5% are divorced. Most of them have one or more children (73.13%). Results showed that 38.81% of the workers have been with the institution between 6 and 15 years, 31.34% have less than or equal to 5 years of seniority, 16.42% of the workers have between 16 and 24 years of seniority, and 13.43% have worked at the institution for more than 25 years. A large portion of the employees work shifts (68.66%): 37.31% do morning/afternoon shifts, 26.87% do morning/afternoon shifts, and only 4.48% do morning/afternoon shifts. The remaining 31.34% of employees have a fixed schedule.

It should be noted that the employees with fixed schedules are: Management, Administrative Services, Social Services, Psychologists, Human Resources, Physical Education Technicians, Doctors, Occupational Monitors, Maintenance Services, and Psychopedagogue.
With shifts are the Nurses, Medical Assistants, Residential Activity Monitors, and General Services Auxiliary Technicians.
Most of the institution's employees are assigned to the Health Technicians group (38.81%), which includes: Nurses, Psychologists, Social Workers, Psychopedagogues, and Doctors. Next comes the operational staff group with 35.82% of the employees, including Medical Assistants, General Services Auxiliary Technicians, and Occupational and Residential Activity Monitors. Next comes the support staff with 19.40% of employees, which includes Maintenance Service, Administrative, and Secretary employees. Finally, those representing a lower percentage are the Directors and Managers (5.97%), where the Direction and Coordinators of each unit are included.

Evaluation of psychosocial dimensions

The internal consistency of the subscales was tested in order to estimate if the several items that propose to characterize the same dimension produce similar answers, and thus determine if the proportion of variability in the answers of different individuals is acceptable. To calculate the internal consistency of the COPSOQ II, a measure of internal consistency - Cronbach's alpha coefficient - was used.
Cronbach's alpha reliability coefficient usually ranges between 0 and 1, there is actually no lower limit for the coefficient [23]. Table 1 shows the Cronbach's alpha coefficients found in this study for the different scales, as well as, for comparison, the Cronbach's alpha coefficients determined by the authors of the questionnaire for the Portuguese version.
For the subscales "work pace", "emotional demands", "job insecurity" and "general health" Cronbach's alpha was not presented, since Cronbach's alpha does not provide reliable estimates for individual items. It can be seen that Cronbach's alpha values for the present study range between 0.60 and 0.92, except for the scales of cognitive demands (0.48), vertical trust (0.3), and commitment to the workplace (0.53). Results showed that in most subscales, Cronbach's alpha is similar to the Portuguese validation study. The major differences are in cognitive demands and commitment to the workplace, where the alpha values are lower in the present study (0.48 vs 0.6; 0.53 vs 0.61); and in horizontal trust where the Cronbach alpha are higher in this study (0.71 vs 0.29).Taking into account Silva et al. [22] recommendations, the analysis of the COPSOQ results presupposes a factor-by-factor interpretation and the means of the questions of each factor should be calculated (Table 2). For a factor, for example, development possibilities, the value 4 (Rarely or somewhat) is a health risk situation, whereas the same value for job insecurity represents a favorable health situation. Furthermore, the results of Table 2 show that the mean values of the present study are different from the validation study.
According to what was proposed in the adaptation and validation of the COPSOQ II for the Portuguese population [22], the mean scores of the subscales of each survey were divided into tertiles, and then a graphical representation was drawn up that positioned these scores in intervals represented by a traffic light type color model (green, yellow and red). The final score for each scale is obtained through the average of the scores of the answers on that scale, and this is also done for the dimensions.

Table 1. *Cronbach's Alpha coefficients of the present study and the study for the Portuguese population*

	Cronbach's Alpha Present study	**Cronbach's Alpha Study by Silva et al (2011)**
Quantitative demands	0.62	0.63
Work pace	*	*
Cognitive demands	0.48	0.6
Emotional demands	*	*
Influence on work	0.8	0.7
Development possibilities	0.67	0.76
Predictability	0.78	0.72
Transparency of the work role performed	0.73	0.76
Rewards	0.73	0.82
Work conflicts	0.62	0.67
Social support from colleagues	0.74	0.71
Social support from superiors	0.92	0.87
Social community at work	0.79	0.85
Leadership quality	0.81	0.9
Horizontal trust	0.71	0.29**
Vertical trust	0.30	0.20**
Justice and respect	0.77	0.79
Self-efficacy	0.60	0.67
Meaning of work	0.82	0.82
Commitment to the workplace	0.53	0.61
Job satisfaction	0.77	0.82
Job insecurity	*	*
General Health	*	*
Work/family conflict	0.81	0.86
Sleep problems	0.86	0.84
Burnout	0.88	0.83
Stress	0.85	0.73
Depressive symptoms	0.86	0.8
Offensive behaviors	0.84	0.78

** Cronbach's α cannot be calculated since the scale consists of a single question.*
*** In the current study Cronbach's was calculated with questions 42 and 45 recorded.*

Table 2. *Descriptive Statistics: Mean, Standard Deviation of the subscales according to the studies: current and validation for the Portuguese population*

Sub-scales	Present study		Validation study Portuguese Population	
	Mean	**SD**	**Mean**	**SD**
Quantitative Demands	1.73	0.62	2.48	0.86
Work pace	2.20	0.75	3.18	1.00
Cognitive Demands	2.64	0.48	3.79	0.71
Emotional Demands	2.52	0.66	3.42	1.15
Work Influence	2.34	0.73	2.83	0.89
Development Possibility	1.36	0.48	3.85	0.81
Predictability	1.82	0.63	3.23	0.92
Transparency of the work role	1.22	0.45	4.19	0.72
Rewards	1.40	0.52	3.71	0.87
Labor conflicts	2.04	0.59	2.94	0.69
Social Support Colleagues	1.58	0.55	3.44	0.77
Social Support from Superiors	1.81	0.72	3.13	0.97
Social Community	1.19	0.4	3.97	0.81
Quality Leadership	1.64	0.57	3.49	0.93
Horizontal Trust	1.82	0.55	2.79	0.64
Vertical Trust	1.37	0.49	3.60	0.60
Justice and Respect	1.57	0.56	3.37	0.81
Self-efficacy	1.46	0.50	3.90	0.67
Meaning of Work	1.12	0.33	4.03	0.72
Commitment to work	1.85	0.61	3.40	0.90
Job Satisfaction	1.64	0.54	3.37	0.75
Job Insecurity	1.60	0.84	3.13	1.47
General Health	2.10	0.76	3.44	0.91
Work-Family Conflict	1.91	0.74	2.67	1.05
Sleep Problems	1.78	0.76	2.46	1.05
Burnout	1.92	0.77	2.70	0.97
Stress	1.84	0.71	2.70	0.90
Depressive symptoms	1.54	0.64	2.35	0.91
Offensive behaviors	1.12	0.33	1.23	0.48

SD - Standard Deviation

The first dimension to be analyzed is the psychosocial dimension of work demands, which comprises quantitative demands, work pace, cognitive demands, and emotional demands, whose results are presented in Figure 1.

Figure 1. *Tertiles of the Labor Demands dimension*

The graph shows that the dimension with the highest health risk is the work demands dimension, which is undoubtedly the one with the highest risk to the employees' health, since it presents two subscales with high risk to health, namely the cognitive demands (64.18%) and emotional demands (61.19%) subscales, and the work pace subscale presents a percentage of high and intermediate risk to health (40.30%). As for the quantitative demands, this assumes itself as an intermediate risk for the health of employees (55.22%).

Concerning the "cognitive demands", which come from the constant attention required in providing care to the user, the constant decision-making, sometimes difficult, in the need to propose new ideas for the continuous improvement of the services provided, it is verified that 64.18% of the employees are in a situation of risk for health.

As for the "emotional demands", which come from the relationship with the users/family, either in an acute situation (existence of an acute unit), where there is great vulnerability, instability, and sometimes situations of stress due to the unpredictability of the user's acute condition or in long-term situations (existence of a long-stay/chronic unit), where there is a great emotional involvement and closeness with the families and users. The pandemic situation experienced over the last year in which the quarantine, necessary to stop SARS-CoV-2, led to social isolation and severely limited spontaneous human behavior that aims at social integration to promote self-regulation and people's health. Despite its positive effects in reducing the number of new cases of infected people, social isolation and quarantine have shown a negative impact on psychological well-being (Giuseppe , 2020). In addition to this, there was a constant adaptation of schedules (sequences of shifts and 12-hour shifts), and the fear of contagion and being contagious may explain the existence of 61.19% of employees at risk.

The "pace of work" dimension, reflecting the arbitrary power over working time and breaks, presents a similar value between the number of employees at high and intermediate risk (40.30%), which can be explained by the increased workload and pace of work, This may be explained by the increased workload and pace since it was necessary to increase the number of hours worked per day and in sequences of up to 4/5 days to reduce staff turnover, both to reduce the risk of infection and to identify outbreaks more quickly and at the same time to respond to the momentary shortage of staff due to the various situations of staff quarantine experienced over the past year. The use of personal protective equipment, especially in COVID units, and, consequently, the reduction of breaks to reduce the risk of contagion when handling the suit may be another factor.

Analyzing the dimension "quantitative demands", the relationship between the workload and the time available to perform the tasks, where a disproportionate distribution characterizes a critical situation, 8.96% of the employees are in a situation of high risk; however, it should be noted that most participants are in an intermediate situation, i.e. a situation of potential health risk (55.22%). These values may be related to an increased workload, both regarding the provision of direct care to users with the need for daily control of COVID-19 symptoms and

division of users by clusters and the need for more frequent disinfection and cleaning of spaces. Translating into more work, thus less time to complete all tasks.
As for work organization and content, it is evaluated according to the commitment to the workplace, the meaning of work, development possibilities, and influence at work, the results of which are presented in Figure 2.

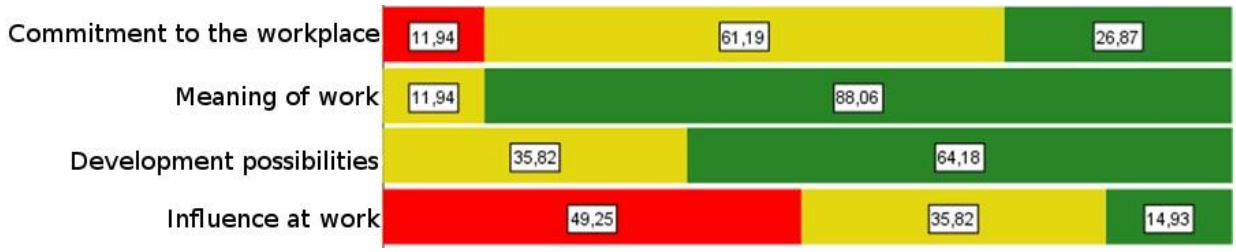

Figure 2. *Tertiles of the dimension Work Organization and Content*

The graph shows that "influence at work", which refers to decision-making power and autonomy regarding work content and conditions, is the most worrying subscale with the highest proportion of health risk (49.25%), with only 14.93% of employees in a favorable situation. This result may be related to the fact that the institution is essentially made up of chronic care units, where the dynamics, provision of care, and assistance to the user in the various areas are duly planned and defined. Work influence is one of the central dimensions of the psychosocial environment since it characterizes the individual's degree of control over his or her work activity. The "meaning of work" represents the subscale in which most employees are in a favorable health situation (88.06%), with only 11.94% of employees in a situation of intermediate risk. The fact that a high number of patients are chronically ill i.e. has been institutionalized for several months and/or years, increases in each employee a sense of responsibility, humanity, hospitality, and accountability towards patients and family. The strong hospitable spirit of the institution ends up being a common denominator for most of its employees.
"Development possibilities" represent the second subscale with the highest number of employees in a favorable situation for their health (64.18%) and 35.82% in an intermediate risk situation. This scale is evaluated by the opportunities for the development of skills and knowledge given to employees.
The "commitment to the workplace" is the second subscale where there is a high risk to employees' health (11.94%), but the highest values are found in the intermediate health risk (61.19%), which means that employees do not have a strong involvement with the institution where they work, do not feel that its problems are their own, and do not like to talk to others about it. On the other hand, it can be seen that 26.87% of the employees are in a favorable situation.
The study of the social relations and leadership dimension is done according to seven scales, social support from colleagues, social support from superiors, leadership quality, work conflicts, transparency of the work role played, rewards (recognition), and predictability, the results of which are presented in Figure 3.

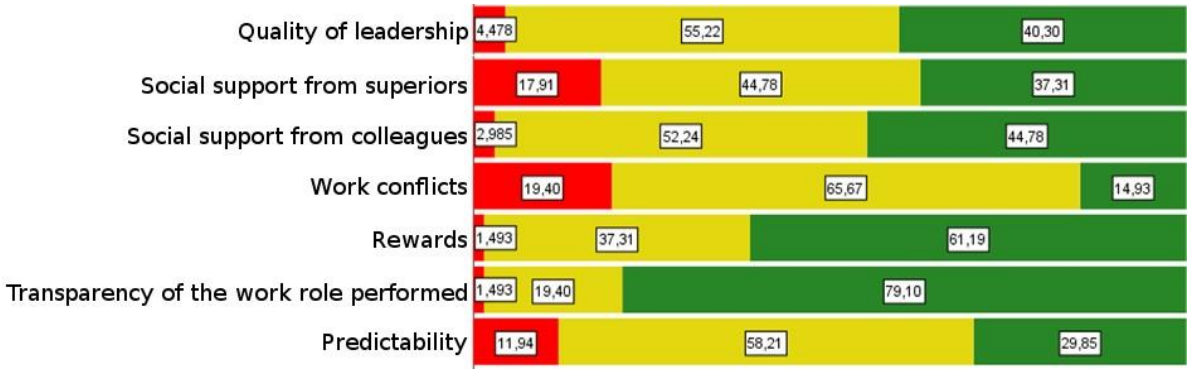

Figure 3. *Tertiles of the dimension Social Relations and Leadership*

In the graph, we can see that the subscale where we observe a higher percentage of employees with high risk for health is related to "work conflicts" (19.40%), with 65.67% of employees in an intermediate risk for health and the remaining 14.93% are in a favorable situation. This subscale reflects the contradictory demands at work and conflicts of a professional and ethical nature, as employees may consider that they have to do things that some agree with and others do not and that sometimes they do things that should be done differently or that they consider unnecessary.

The "social support from superiors", which allows us to evaluate teamwork and cooperation between supervisors and employees, shows 17.91% of employees at high risk for health, 44.78% at intermediate risk, and 37.31% in a favorable situation.

The "social support from colleagues" presents only 2.99% in high-risk situations but presents 52.24% in intermediate health-risk situations. Studies show that the support of colleagues is a protective factor against occupational stress, encouraging cooperation, mutual aid and teamwork can contribute to a better distribution of workloads, as well as to problem-solving.

"Predictability", which refers to whether or not employees have the information that allows them to adapt to the variability of work activity, and is also a source of guidance for the temporal organization of work, shows 11.94% of employees in a situation of health risk and 58.21% in an intermediate situation, leaving 29.85% in a favorable situation. This fact may be related to the unpredictable behavior of some users due to their psychiatric pathology.

The "quality of leadership", characterized by the participation of leadership to promote a healthy work environment, from planning, and conflict resolution, as well as to allow the development of employees and prioritize job satisfaction, presents 4.48% high risk for health, 55.22% at intermediate risk and 40.30% in a favorable situation. An optimization of workloads and distribution of tunes, promotion of participatory styles of supervision/management, can contribute to the prevention and reduction of occupational stress.

The "transparency of the work role performed", defining roles clearly and concisely, is the subscale with the best results, with 79.10% of the employees in a favorable situation and 1.49% in a high-risk situation. The existence of clear objectives for each activity, to guide the employee about what is expected of him/her, mirrored in job manuals, work plans, and activity maps, among others, will be at the origin of these results.

The "rewards" characterize the respect and justice with which the employee is treated, as well as the recognition of their role before their superiors, representing 61.19% of employees in a favorable situation and 1.49% in a high-risk situation. The institution presents a recognition policy, which allows for the recognition of its employees, which contributes positively to personal growth, learning, and skills development.

The values at the workplace dimension are characterized by the social work environment (social community at work); the trust between employees (horizontal trust) and between them and their superiors (vertical trust); and the perception of justice, equality, and respect (justice and respect), the results of which are presented in Figure 4.

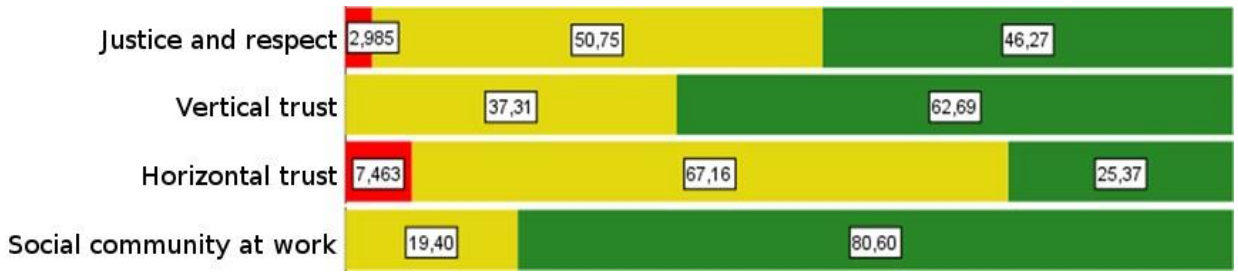

Figure 4. *Tertiles of the dimension Values in the workplace*

In the graph, we can see that the subscale "social community at work" has the highest proportion of employees in a favorable situation (80.60%), with 19.40% in an intermediate situation. This subscale evaluates the quality of relations between employees and the work environment they live in from the point of view of social

support and cooperation. This subscale corresponds to an important indicator of a healthy work environment, which allows employees to socialize and collaborate to develop work activities or even to promote moments of relaxation.

The "vertical trust", seeks to characterize the trust that employees perceive in superiors and/or subordinates, presenting 62.69% of employees in a favorable situation and 37.31% in intermediate risk. This subscale characterizes a strong indicator of communication and interaction in the workplace, considering that a large part of the employees trust their superiors and vice-versa.

The "horizontal trust", seeks to characterize the trust that employees perceive in their peers, presenting 67.16% of employees at intermediate risk and 7.46% at high risk, and 25.37% in a favorable situation. This subscale should be taken into account since distrust in others, and tensions between teams, are certainly a safety valve, but it is also the intensification of suffering in work relationships and may be a sign of disorganization of affective bonds caused by the organization of work.

"Justice and respect" represent more than half of the employees at risk, 50.75% at intermediate risk and 2.99% at high risk, and 46.27% in a favorable situation. In the perception of more than 50% of the employees, there are inequalities in the equitable distribution of workload (e.g. in the allocation of shifts), dissatisfaction with the conflict management methodology, and no appreciation or impossibility of putting into practice suggestions made by the employees.

The personality dimension is evaluated only by self-efficacy, the result of which is shown in Figure 5.

Figure 5. *Tertiles of the Personality dimension*

"Self-efficacy" reflects the perception that the employee has that, through his effort, he can successfully achieve his work goals, as well as solve problems that may arise. We can conclude by analyzing the graph that there are no employees at high risk, however, 46.27% are in an intermediate situation.

The individual-work interface dimension is characterized by three subscales that intend to measure job satisfaction, job insecurity, and work-family conflict, whose results are presented in Figure 6.

Figure 6. *Tertiles of the dimension Individual-Work Interface*

"Job insecurity", encompasses contract insecurity, which can characterize an overload in terms of excessive commitment to a task, due to the fear of losing one's position at work, whereby 62.69% of the employees have no fear of becoming unemployed, are in a favorable situation and 22.39% are in a high-risk situation.

"Job satisfaction", is a general measure of job quality, which relates to the employee's perception of the working conditions, their prospects, and the use of their skills in their performance, showing 58.21% in an intermediate health risk situation and 2.99% in a high-risk situation.

"Work/family conflict" is related to the interference that the work activity may cause in family life, regarding the distribution of time, participation in activities, and social interaction, presenting 22.39% of employees in a situation of high risk and 46.27% in a situation of intermediate risk.

The health and well-being dimension is evaluated by general health, sleeping problems, burnout, stress, and depressive symptoms, whose results are shown in Figure 7.

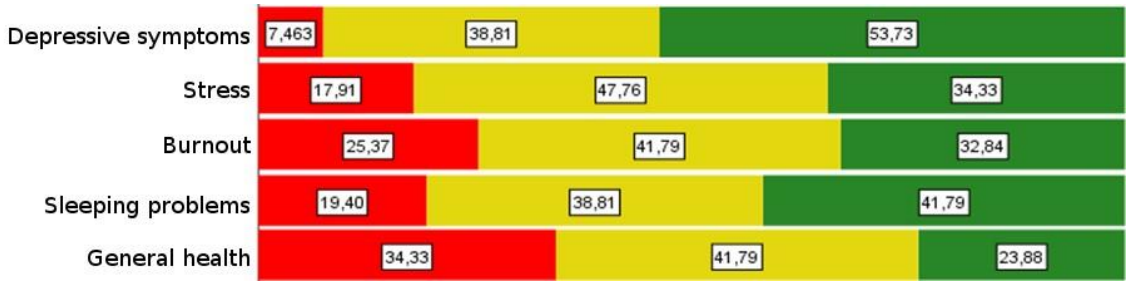

Figure 7. *Tertiles of the Health and Well-Being Dimension*

Regarding "depressive symptoms", which are a reflection of situations where the individual can no longer manage the emotional aspects that involve his or her personal and professional life and are an alert for a pathological condition and seek to characterize feelings of sadness and lack of interest in daily activities, it was found that most employees are in a favorable situation (53.73%), while the remaining professionals are at intermediate risk (38.81%) and high risk (7.46%).

Regarding stress, 47.76% of the employees are in an intermediate situation and 17.91% are at high risk.

Concerning burnout, which is assumed as a syndrome that results from chronic stress at work, with several consequences to the well-being and health of workers [25], it is found that 41.79% of employees are in a situation of intermediate risk and 25.37% in high risk. Therefore, it can be seen that in the variables "stress" and "burnout", more than 50% of the employees are at intermediate or high risk for health, which is a cause for concern, since we may find professionals reaching exhaustion, derived from the great demand and workload to which they are exposed daily. In recent years, burnout syndrome has been one of the most discussed mental health problems in modern societies. In a world facing major socio-economic challenges, people are under increasing pressure in their daily lives, particularly in the workplace. The individual and social impacts of burnout highlight the need for preventive interventions and early identification of this health condition in the workplace [25].

About the subscale "sleeping problems", which encompasses questions related to the employee's perception of the difficulty he/she feels in falling asleep, or if his/her sleep is frequently interrupted and consequently he/she is unable to fall asleep again, it was found that 38.81% of the employees are at intermediate risk and 19.40% are at high risk for health.

As for "general health," which refers to each employee's perception of his or her health status, 34.33% of employees are at high risk for health and 41.79% are at intermediate risk.

Relationship of socio-professional and sociodemographic variables with Psychosocial dimensions

The results found in this section allow us to analyze whether the perception of psychosocial risks varies according to the sociodemographic and socio-professional characteristics studied.

Table 3 shows that in work influence, the perception that women have is slightly unfavorable compared to men (2.24 vs 2.73, p=0.023), as well as in predictability (3.04 vs 3.55, p=0.022). Regarding social support from colleagues (3.31 vs 3.62, p=0.048) and social support from superiors (2.86 vs 3.38, p=0.015), women perceive they have less social support, and the difference is more pronounced in social support from superiors than men. Also with regard to justice and respect, there is greater dissatisfaction among women (3.22 vs 3.63, p=0.016). It is possible to infer that in the subscales in which there are statistically significant differences in the average values between genders, women present a greater risk for health than men. For the remaining subscales, there is no evidence that allows us to conclude that there are statistically significant differences in their mean values between genders.

Table 3. *Mean psychosocial variables and gender comparisons*

Subscales	Gender				
	Female		Male		
	Mean	SD	Mean	Desvio Padrão	p *
Quantitative demands	2.41	0.13	2.33	0.14	0.411
Work pace	3.24	0.18	3.27	0.17	0.900
Cognitive demands	3.78	0.10	3.67	0.11	0.674
Emotional demands	3.88	0.18	3.58	0.17	0.200
Influence on work	2.24	0.14	2.73	0.16	**0.023**
Development possibilities	3.72	0.12	3.72	0.13	0.975
Predictability	3.04	0.13	3.55	0.16	**0.022**
Transparency of the work role performed	4.02	0.13	4.11	0.14	0.488
Rewards	3.58	0.12	3.85	0.13	0.147
Work conflicts	3.01	0.11	2.71	0.11	0.058
Social support from colleagues	3.31	0.12	3.62	0.12	**0.048**
Social support from superiors	2.86	0.16	3.38	0.15	**0.015**
Social community at work	3.93	0.10	4.03	0.12	0.543
Leadership quality	3.33	0.10	3.61	0.13	0.110
Horizontal trust	2.66	0.10	2.66	0.12	0.858
Vertical trust	3.61	0.08	3.73	0.1	0.395
Justice and respect	3.22	0.11	3.63	0.11	**0.016**
Self-efficacy	3.84	0.10	3.71	0.11	0.300
Meaning of work	4.04	0.09	4.17	0.13	0.178
Commitment to the workplace	3.04	0.16	3.42	0.15	0.094
Job satisfaction	3.26	0.10	3.61	0.11	0.065
Job insecurity	2.09	0.23	2.52	0.26	0.229
General Health	3.18	0.17	2.97	0.15	0.345
Work/family conflict	2.82	0.18	2.79	0.16	0.771
Sleep problems	2.63	0.23	2.48	0.16	0.800
Burnout	3.06	0.18	2.8	0.16	0.250
Stress	2.79	0.20	2.68	0.14	0.614
Depressive symptoms	2.37	0.21	2.06	0.13	0.467
Offensive behaviors	1.24	0.09	1.38	0.12	0.598

*SD=Standard deviation; * Mann-Whitney Test*

Table 4 shows the results obtained for the variables under study by age group. In the perception of psychosocial risks according to age group, we found statistically significant differences between age groups in the general health subscale (p=0.009). Based on Tukey multiple comparison tests, employees aged equal to or over 51 years experience lower emotional demands compared to the group of employees aged [31,41[years (3.67 vs 2.82, p=0.02). This event may be related to the fact that this is an age group where there are male and female employees with underage children and employees with managerial positions.

Table 4. *Mean psychosocial variables and comparisons between age groups*

	Age								
	≤30 years		[31,41[years		[41,51[years		≥51 years		
Subscales	Mean	DP	Mean	DP	Mean	DP	Mean	DP	p *
Quantitative demands	2.57	0.25	2.47	0.16	2.33	0.22	2.19	0.16	0.550
Work pace	3.00	0.37	3.41	0.20	3.41	0.21	3.06	0.27	0.546
Cognitive demands	3.83	0.17	3.89	0.12	3.55	0.12	3.63	0.16	0.262
Emotional demands	3.90	0.31	4.18	0.17	3.47	0.26	3.33	0.27	0.051
Influence on work	2.45	0.18	2.51	0.18	2.25	0.18	2.68	0.27	0.777
Development possibilities	3.77	0.21	3.85	0.16	3.55	0.16	3.69	0.19	0.662
Predictability	3.35	0.20	3.36	0.18	3.00	0.26	3.44	0.18	0.405
Transparency of the work role performed	3.87	0.22	4.08	0.16	3.98	0.24	4.24	0.15	0.694
Rewards	3.57	0.26	3.53	0.15	3.84	0.16	3.89	0.19	0.363
Work conflicts	2.97	0.15	3.06	0.13	2.63	0.19	2.78	0.15	0.286
Social support from colleagues	3.53	0.17	3.32	0.16	3.67	0.16	3.41	0.18	0.454
Social support from superiors	3.07	0.26	3.06	0.21	3.00	0.25	3.33	0.20	0.778
Social community at work	3.90	0.21	3.91	0.12	4.10	0.16	4.00	0.18	0.899
Leadership quality	3.25	0.21	3.33	0.13	3.56	0.19	3.67	0.15	0.256
Horizontal trust	2.80	0.25	2.58	0.12	2.71	0.16	2.63	0.14	0.721
Vertical trust	3.70	0.18	3.77	0.11	3.59	0.09	3.59	0.13	0.716
Justice and respect	3.40	0.15	3.32	0.14	3.39	0.19	3.57	0.16	0.614
Self-efficacy	4.00	0.11	3.75	0.14	3.85	0.19	3.61	0.11	0.317
Meaning of work	4.17	0.19	4.08	0.14	4.20	0.15	4.02	0.16	0.899
Commitment to the workplace	3.40	0.21	3.55	0.18	3.29	0.23	2.69	0.22	0.069
Job satisfaction	3.57	0.19	3.40	0.12	3.56	0.19	3.28	0.14	0.788
Job insecurity	2.10	0.31	2.23	0.34	2.59	0.35	2.22	0.34	0.798
General Health	2.70	0.33	2.82	0.17	3.00	0.26	3.67	0.14	**0.009**
Work/family conflict	3.17	0.28	2.71	0.24	2.71	0.22	2.81	0.22	0.703
Sleep problems	2.40	0.41	2.52	0.25	2.53	0.27	2.72	0.28	0.899
Burnout	2.85	0.24	2.89	0.18	2.88	0.26	3.08	0.28	0.955
Stress	2.90	0.29	2.70	0.23	2.94	0.24	2.5	0.24	0.482
Depressive symptoms	2.15	0.33	2.20	0.22	2.09	0.25	2.39	0.26	0.856
Offensive behaviors	1.55	0.27	1.33	0.13	1.25	0.15	1.21	0.08	0.627

*SD=Standard deviation; * Kruskal-Wallis Test*

Table 5 presents the results obtained for the variables under study by number of children. To analyze the influence of the number of children, four groups were considered: no children, 1 child, 2 children, and ≥ 3 children. Thus, by analyzing the results, it is found the occurrence of statistically significant differences in only two psychosocial variables: self-efficacy (p =0.042) and general health (p =0.015). In the self-efficacy subscale,

after comparing the groups, we found that the significant differences were between employees with 1 child and those with 3 or more children (3.50 vs 4.17, p =0.029), where those who have a child have difficulties in feeling that with their personal effort, they can successfully achieve their work goals, as well as solve problems that may arise. In the comparison between workers who have one child and those who do not have one (3.97 vs 3.50; p =0.018), those with one child have a lower perception of self-efficacy than those without children.
In the general health subscale, we can conclude that workers without children consider that their health is weaker, as well as experiencing more stress, compared to those with 2 children (2.72 vs 3.52, p =0.003). We can also conclude that those without children have better general health than those with children.

Table 5. *Mean psychosocial variables and comparisons between the number of children*

	Number of children								
	0 children		1 child		2 children		≥3 children		
Subscales	Mean	DP	Mean	DP	Mean	DP	Mean	DP	p*
Quantitative demands	2.5	0.19	2.49	0.15	2.33	0.18	2.00	0.22	0.252
Work pace	3.00	0.26	3.35	0.26	3.26	0.18	3.56	0.41	0.539
Cognitive demands	3.74	0.13	3.78	0.15	3.72	0.13	3.59	0.20	0.658
Emotional demands	3.83	0.2	3.88	0.26	3.70	0.20	3.33	0.50	0.721
Influence on work	2.51	0.16	2.62	0.24	2.58	0.14	1.92	0.42	0.162
Development possibilities	3.70	0.18	3.73	0.17	3.78	0.15	3.56	0.27	0.894
Predictability	3.39	0.16	3.26	0.23	3.28	0.19	3.17	0.38	0.855
Transparency of the work role performed	4.13	0.18	3.96	0.21	4.10	0.14	4.04	0.32	0.943
Rewards	3.76	0.19	3.73	0.16	3.67	0.16	3.70	0.27	0.995
Work conflicts	3.11	0.1	2.86	0.15	2.75	0.14	2.63	0.34	0.382
Social support from colleagues	3.50	0.16	3.41	0.13	3.46	0.17	3.48	0.31	0.998
Social support from superiors	3.20	0.21	3.00	0.22	3.00	0.20	3.48	0.35	0.524
Social community at work	3.96	0.14	3.94	0.13	4.10	0.13	3.78	0.29	0.628
Leadership quality	3.43	0.13	3.32	0.19	3.48	0.14	3.78	0.23	0.425
Horizontal trust	2.70	0.18	2.76	0.16	2.45	0.11	2.89	0.15	0.126
Vertical trust	3.70	0.12	3.61	0.12	3.72	0.10	3.56	0.21	0.869
Justice and respect	3.37	0.13	3.20	0.17	3.58	0.14	3.52	0.26	0.499
Self-efficacy	3.97	0.11	3.50	0.16	3.67	0.09	4.17	0.29	**0.042**
Meaning of work	4.11	0.17	4.14	0.17	4.09	0.12	4.07	0.19	0.941
Commitment to the workplace	3.42	0.19	3.38	0.18	3.15	0.19	2.78	0.46	0.438
Job satisfaction	3.50	0.15	3.28	0.18	3.37	0.11	3.75	0.21	0.367
Job insecurity	2.11	0.29	2.00	0.35	2.48	0.31	2.78	0.49	0.400
General Health	2.72	0.25	3.00	0.15	3.52	0.18	2.78	0.32	**0.015**
Work/family conflict	2.83	0.21	2.88	0.22	2.78	0.24	2.67	0.33	0.957
Sleep problems	2.42	0.26	2.50	0.30	2.74	0.24	2.50	0.41	0.834
Burnout	3.00	0.21	2.97	0.26	2.93	0.21	2.72	0.35	0.795
Stress	2.78	0.25	2.74	0.24	2.74	0.20	2.67	0.41	0.965
Depressive symptoms	2.14	0.22	2.18	0.21	2.39	0.23	2.00	0.48	0.594
Offensive behaviors	1.40	0.17	1.31	0.15	1.26	0.10	1.25	0.22	0.920

*SD=Standard deviation; * Kruskal-Wallis Test*

Table 6 presents the results obtained in the identification of relationships between the groups regarding marital status. The marital status variable is divided into 4 categories: Single, married/cohabiting, divorced/separated, and widowed, and in the last one (widowers) there are no data.
There are significant differences only in the self-efficacy subscale (p=0.016), where married/cohabiting people have a better perception of self-efficacy than single people (4.10 vs 4.07, p =0.009), which translates into greater resilience, self-knowledge, better ability to identify their weaknesses and resources.

Table 6. *Mean psychosocial variables and comparisons between the marital status*

	Marital Status						
	Single		Married/Cohabiting		Divorced/separated		
Subscales	Mean	DP	Mean	DP	Mean	DP	p*
Quantitative demands	2.40	0.21	2.38	0.11	2.20	0.43	0.995
Work pace	2.87	0.27	3.36	0.15	3.40	0.40	0.241
Cognitive demands	3.76	0.14	3.72	0.09	3.67	0.28	0.895
Emotional demands	3.67	0.21	3.79	0.15	3.40	0.68	0.766
Influence on work	2.57	0.18	2.54	0.13	1.65	0.37	0.095
Development possibilities	3.71	0.21	3.72	0.10	3.73	0.39	0.996
Predictability	3.57	0.15	3.18	0.14	3.50	0.16	0.109
Transparency of the work role performed	4.13	0.20	3.99	0.12	4.60	0.19	0.169
Rewards	3.84	0.21	3.68	0.11	3.60	0.29	0.738
Work conflicts	3.07	0.12	2.77	0.10	3.07	0.45	0.217
Social support from colleagues	3.47	0.18	3.48	0.11	3.27	0.34	0.787
Social support from superiors	3.31	0.19	3.04	0.15	3.27	0.29	0.629
Social community at work	3.96	0.17	4.00	0.10	3.87	0.08	0.918
Leadership quality	3.52	0.12	3.41	0.11	3.80	0.12	0.263
Horizontal trust	2.78	0.19	2.60	0.09	2.80	0.23	0.528
Vertical trust	3.76	0.14	3.65	0.07	3.53	0.20	0.740
Justice and respect	3.49	0.12	3.39	0.11	3.47	0.36	0.801
Self-efficacy	4.07	0.11	3.65	0.09	4.10	0.24	**0.016**
Meaning of work	4.09	0.20	4.10	0.09	4.20	0.29	0.94
Commitment to the workplace	3.53	0.20	3.19	0.14	2.70	0.30	0.204
Job satisfaction	3.58	0.17	3.41	0.09	3.15	0.43	0.674
Job insecurity	2.00	0.34	2.51	0.21	1.20	0.20	0.072
General Health	2.73	0.30	3.19	0.12	3.00	0.55	0.285
Work/family conflict	2.91	0.24	2.76	0.15	2.93	0.40	0.798
Sleep problems	2.23	0.25	2.60	0.17	3.20	0.54	0.276
Burnout	2.93	0.25	2.88	0.14	3.40	0.48	0.528
Stress	2.73	0.3	2.77	0.15	2.50	0.32	0.824
Depressive symptoms	2.07	0.25	2.24	0.15	2.40	0.6	0.719
Offensive behaviors	1.47	0.20	1.29	0.08	1.00	0.00	0.302

*SD=Standard deviation; * Kruskal-Wallis Test*

In the professional group analysis four groups were considered, Managers and Supervisors, Health Technicians, Operational Staff, and Support Staff. Table 6 presents the results obtained in the identification of relationships among the four groups.

The results show that there are statistically significant differences for quantitative demands (p=0.001), cognitive demands (p<0.001), emotional demands (p=0.016), influence on work (p=0.033), Commitment to the workplace (p=0.041), job insecurity (p=0.033), and work/ family conflict (p=0.004).

In the quantitative demands, it is found that the support staff group is the one that best perceives the relationship between workload and time available to perform the tasks. There were statistically significant differences when compared to managers and supervisors (1.85 vs 3.42, p =0.003) and health technicians (1.85 vs 2.65, p=0.001).

Regarding cognitive demands, the best results were presented by the operational staff group, with a statistically significant difference compared to managers and supervisors (3.43 vs 4.50, p<0.001) and health technicians (3.43 vs 3.99, p<0.001).

As far as emotional demands are concerned, the support staff presents the lowest risk, while health technicians present the worst values (3.15 vs 4.15, p=0.005).

In influence on work, it was found that operational staff is the one that presents the greatest risk to health since there is a perception of less decision-making power and autonomy in relation to work content and conditions. They present statistically significant differences in relation to support staff (2.22 vs 2.69, p=0.044) and managers and supervisors (2.22 vs 3.25, p=0.012).

In the commitment to the workplace, operational staff are those who present the greatest risk to health since they feel less involved with the company where they work, do not feel that its problems are their own, and do not like to talk to others about it. On the other hand, health technicians are the ones who present a higher commitment (2.79 vs 3.52, p=0.007).

Health technicians feel more secure in terms of job/contractual security, but on the other hand, the support staff group is the one with the greatest fear of losing their job and, therefore, the greatest risk to health (2.25 vs 3.31, p=0.006).

It is in the support staff group that a lower work/family conflict is perceived, whereas it is in the operational staff group that the highest health risk is found (2.05 vs 3.00, p=0.005).

Table 6. *Mean psychosocial variables and comparisons between professional groups*

	Professional Groups								
	Managers and supervisors		Health Technicians		Operational Staff		Support Staff		
Subscales	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p *
Quantitative demands	3.42	0.6	2.65	0.12	2.18	0.15	1.85	0.15	**0.001**
Work pace	4.25	0.25	3.42	0.18	3.17	0.2	2.77	0.34	0.055
Cognitive demands	4.50	0.10	3.99	0.10	3.43	0.11	3.51	0.15	**<0.001**
Emotional demands	4.25	0.25	4.15	0.14	3.50	0.23	3.15	0.32	**0.016**
Influence on work	3.25	0.31	2.5	0.11	2.22	0.23	2.69	0.21	**0.033**
Development possibilities	4.33	0.47	3.83	0.12	3.58	0.14	3.54	0.24	0.206
Predictability	3.38	0.47	3.08	0.13	3.38	0.20	3.54	0.30	0.452
Transparency of the work role performed	4.08	0.28	3.91	0.11	4.32	0.16	3.90	0.28	0.095
Rewards	3.58	0.21	3.46	0.14	3.85	0.15	4.00	0.22	0.099
Work conflicts	3.25	0.32	3.06	0.1	2.81	0.14	2.44	0.21	0.065
Social support from colleagues	3.75	0.16	3.36	0.12	3.42	0.15	3.67	0.25	0.481

	Professional Groups								
	Managers and supervisors		Health Technicians		Operational Staff		Support Staff		
Subscales	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p *
Social support from superiors	3.17	0.42	2.95	0.21	3.17	0.16	3.36	0.27	0.838
Social community at work	3.92	0.08	3.99	0.12	3.82	0.16	4.28	0.14	0.148
Leadership quality	3.25	0.25	3.32	0.15	3.65	0.12	3.5	0.17	0.387
Horizontal trust	2.33	0.3	2.69	0.15	2.69	0.11	2.62	0.15	0.625
Vertical trust	3.67	0.14	3.63	0.12	3.64	0.1	3.79	0.13	0.787
Justice and respect	3.50	0.32	3.28	0.12	3.42	0.14	3.67	0.24	0.569
Self-efficacy	3.50	0.35	3.81	0.10	3.77	0.14	3.81	0.18	0.919
Meaning of work	3.92	0.08	4.23	0.11	3.96	0.13	4.18	0.22	0.378
Commitment to the workplace	3.25	0.43	3.52	0.17	2.79	0.19	3.46	0.23	**0.041**
Job satisfaction	3.25	0.27	3.45	0.11	3.35	0.13	3.6	0.23	0.833
Job insecurity	1.50	0.29	1.96	0.26	2.25	0.28	3.31	0.41	**0.033**
General Health	3.25	0.25	2.88	0.17	3.42	0.19	2.77	0.28	0.118
Work/family conflict	3.67	0.14	2.87	0.20	3.00	0.18	2.05	0.20	**0.004**
Sleep problems	2.88	0.72	2.65	0.22	2.75	0.25	1.92	0.23	0.171
Burnout	3.25	0.43	2.79	0.16	3.17	0.24	2.69	0.26	0.473
Stress	3.13	0.12	2.88	0.19	2.58	0.23	2.62	0.29	0.405
Depressive symptoms	2.63	0.55	2.31	0.21	2.27	0.23	1.81	0.20	0.423
Offensive behaviors	1.00	0.00	1.47	0.14	1.28	0.11	1.13	0.12	0.113

*SD=Standard deviation; * Kruskal-Wallis Test*

In the analysis of the perception of psychosocial risks according to shifts, 4 groups of workers were studied, those who do not work in shifts, those who work morning/afternoon, those who work morning/evening, and those who work morning/afternoon/evening.

The interpretation of Table 7 shows that there are statistically significant differences according to the work schedule for transparency of the work role (p=0.019), for social community (p=0.020), meaning of work (p=0.040), and offensive behaviors (p=0.041).

Regarding the transparency of the work role, we found that there were more differences between the morning/afternoon shift and the morning/evening shift (4.31 vs 2.89, p=0.007), with the morning/evening shift presenting a higher health risk due to the greater perception of gaps in defining roles clearly and concisely.

Regarding the social community, the group with the highest risk for health is the morning/evening group, with greater differences between this group and those who do not work shifts (2.89 vs 4.13, p=0.008) and those who work morning/afternoon (2.89 vs 4.13, p=0.012).

In the meaning of work, the morning/evening group is in a more unfavorable situation, with statistically significant differences with the morning/afternoon/evening group (3.11 vs 4.20, p=0.008). Thus, the morning/evening group perceives that they have less decision-making power and autonomy in relation to work content and conditions, and that work is less meaningful to them.

With regard to offensive behaviors, it was found that the group with the greatest feeling of safety is the group that does not have a shift schedule.

Table 7. *Average psychosocial variables and comparison between shifts*

	Shifts								
	No		Morning/afternoon		Morning/evening		Morning/afternoon/evening		
Subscales	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p*
Quantitative demands	2.38	0.22	2.35	0.13	2.56	0.29	2.37	0.16	0.885
Work pace	3.33	0.25	3.12	0.23	3.33	0.33	3.33	0.16	0.883
Cognitive demands	3.81	0.15	3.77	0.12	3.33	0.19	3.63	0.11	0.434
Emotional demands	3.57	0.26	3.88	0.19	4.33	0.33	3.61	0.23	0.504
Influence on work	2.76	0.18	2.37	0.19	1.92	0.46	2.4	0.19	0.163
Development possibilities	3.84	0.18	3.81	0.13	2.67	0.19	3.61	0.14	0.068
Predictability	3.5	0.23	3.18	0.15	2.33	0.44	3.36	0.18	0.195
Transparency of the work role performed	3.81	0.20	4.31	0.12	2.89	0.40	4.22	0.13	**0.019**
Rewards	3.94	0.15	3.57	0.16	2.89	0.11	3.78	0.17	0.076
Work conflicts	2.62	0.18	3.01	0.13	2.89	0.29	2.93	0.12	0.34
Social support from colleagues	3.49	0.17	3.60	0.15	2.67	0.33	3.37	0.12	0.196
Social support from superiors	3.03	0.23	3.37	0.16	2.67	0.19	2.94	0.22	0.332
Social community at work	4.13	0.10	4.13	0.14	2.89	0.4	3.78	0.13	**0.020**
Leadership quality	3.36	0.15	3.58	0.13	2.92	0.3	3.53	0.17	0.298
Horizontal trust	2.63	0.14	2.53	0.13	2.78	0.4	2.83	0.14	0.557
Vertical trust	3.73	0.09	3.64	0.11	3.11	0.11	3.72	0.14	0.194
Justice and respect	3.57	0.15	3.29	0.14	3.00	0.19	3.48	0.15	0.347
Self-efficacy	3.81	0.14	3.70	0.14	3.17	0.17	3.94	0.11	0.130
Meaning of work	4.22	0.13	4.05	0.12	3.11	0.40	4.20	0.13	**0.040**
Commitment to the workplace	3.33	0.21	3.14	0.21	2.33	0.44	3.39	0.16	0.282
Job satisfaction	3.61	0.15	3.27	0.12	3.00	0.14	3.53	0.14	0.261
Job insecurity	2.29	0.31	2.48	0.31	2.67	0.67	2.00	0.31	0.602
General Health	2.95	0.20	3.08	0.19	3.00	0.58	3.22	0.22	0.841
Work/family conflict	2.46	0.21	2.77	0.2	3.22	0.29	3.19	0.22	0.099
Sleep problems	2.29	0.23	2.78	0.26	3.33	0.17	2.44	0.26	0.267
Burnout	2.74	0.19	2.90	0.2	3.67	0.17	3.08	0.25	0.411
Stress	2.45	0.20	2.78	0.23	3.17	0.44	2.94	0.22	0.435
Depressive symptoms	1.88	0.19	2.40	0.23	3.17	0.33	2.19	0.22	0.103
Offensive behaviors	1.08	0.07	1.32	0.11	2.00	0.66	1.44	0.17	**0.041**

*SD=Standard deviation; * Kruskal-Wallis Test*

The variation of psychosocial risks as a function of seniority in the company, quantified by the number of years of employment, was tested in four groups of workers. The results are presented in Table 8.

The results show the existence of significant differences between the groups in the subscales work pace (p=0.046), cognitive demands (p=0.008), emotional demands (p=0.018) and general health (p=0.048).

After comparing the groups, it can be seen that the group of employees with 16 to 24 years of seniority are in an unfavorable situation compared to employees in the group ≥ 25 or more years in the psychosocial dimensions concerning: work pace (3.55 vs 2.56, p =0.011), which reflects a lower power to manage work time and breaks, and cognitive demands (4.00 vs 3.37, p=0.028), i.e. they perceive a constant need for attention in the provision of care to the user, constant decision making, sometimes difficult, and the need to propose new ideas for the continuous improvement of the services provided.

In emotional demands, the group of workers with 6 to 15 years of seniority show more negative feelings compared to workers with ≥ 25 or more years (4.04 vs 2.78, p=0.003).
With regard to general health, the group of workers with ≤ 5 or fewer years of seniority presents a more unfavorable situation compared to workers with ≥ 25 or more years (2.76 vs 3.78, p=0.008). This fact may be related to the company's demand for a great availability of more recent employees to face the challenges that arise, as well as to the fact that the employee wants to demonstrate good performance to reach a more stable position in the company, i.e., the achievement of a permanent contract.

Table 8. *Mean of psychosocial variables and comparisons between seniority*

	Seniority								
	≤5 years		[6-15] years		[16-24] years		≥25 years		
Subscales	Mean	SD	Mean	SD	Mean	SD	Mean	SD	p*
Quantitative demands	2.27	0.17	2.60	0.12	2.45	0.30	1.85	0.22	0.068
Work pace	3.10	0.19	3.50	0.19	3.55	0.37	2.56	0.29	**0.046**
Cognitive demands	3.49	0.12	3.92	0.10	4.00	0.20	3.37	0.19	**0.008**
Emotional demands	3.57	0.22	4.04	0.18	4.09	0.25	2.78	0.36	**0.018**
Influence on work	2.35	0.20	2.48	0.14	2.48	0.22	2.81	0.44	0.790
Development possibilities	3.59	0.15	3.86	0.12	3.64	0.27	3.70	0.3	0.645
Predictability	3.52	0.19	3.23	0.16	2.91	0.26	3.39	0.32	0.147
Transparency of the work role performed	4.08	0.21	3.96	0.13	4.06	0.18	4.33	0.28	0.436
Rewards	3.84	0.16	3.56	0.12	3.79	0.23	3.74	0.37	0.570
Work conflicts	2.70	0.15	3.06	0.12	2.88	0.23	2.63	0.2	0.183
Social support from colleagues	3.56	0.16	3.38	0.12	3.33	0.25	3.63	0.27	0.772
Social support from superiors	3.32	0.17	3.04	0.19	2.73	0.31	3.37	0.34	0.409
Social community at work	3.92	0.15	3.82	0.11	4.27	0.15	4.22	0.28	0.104
Leadership quality	3.60	0.11	3.36	0.14	3.32	0.25	3.67	0.24	0.352
Horizontal trust	2.71	0.17	2.69	0.10	2.61	0.23	2.48	0.14	0.630
Vertical trust	3.63	0.12	3.63	0.09	3.82	0.16	3.67	0.18	0.751
Justice and respect	3.54	0.12	3.23	0.14	3.52	0.25	3.56	0.19	0.442
Self-efficacy	3.98	0.14	3.58	0.12	3.77	0.17	3.89	0.16	0.103
Meaning of work	4.24	0.15	4.00	0.10	4.09	0.21	4.11	0.27	0.79
Commitment to the workplace	3.21	0.18	3.21	0.17	3.55	0.28	2.94	0.40	0.208
Job satisfaction	3.68	0.15	3.27	0.12	3.34	0.18	3.44	0.15	0.373
Job insecurity	2.43	0.32	1.92	0.23	2.73	0.51	2.56	0.53	0.447
General Health	2.76	0.23	3.19	0.15	2.82	0.3	3.78	0.22	**0.048**
Work/family conflict	2.9	0.2	2.85	0.19	2.7	0.33	2.59	0.39	0.785
Sleep problems	2.74	0.24	2.48	0.23	2.86	0.42	2.00	0.22	0.360
Burnout	3.02	0.17	2.79	0.20	3.18	0.33	2.83	0.43	0.686
Stress	2.88	0.21	2.67	0.19	3.14	0.31	2.11	0.32	0.086
Depressive symptoms	2.02	0.21	2.33	0.2	2.59	0.37	1.89	0.30	0.422
Offensive behaviors	1.50	0.17	1.20	0.09	1.27	0.20	1.22	0.13	0.622

*SD=Standard deviation; * Kruskal-Wallis Test*

Intervention Plan

It is crucial to develop preventive measures that prove to be effective for the elimination or control of the psychosocial risks detected, through an intervention plan. The word intervention indicates a process of change set in motion within and in relation to the organization of work. The reduction of hazardous working conditions and the existence of good preconditions are not isolated events but a process with different stages and require changes both in the work environment and in individuals.

The intervention plan defined for the prevention of psychosocial risks in the institution was based on several activities of planning, organization, execution and control of tasks involving psychosocial risk factors. Therefore, the intervention plan is based on prevention objectives and, in turn, recommends the implementation of different strategies, such as, for example:

- Creation of a psychological and social support office;
- Implementation of safety systems;
- Conflict resolution training;
- Self-defense training program;
- Muscle relaxation techniques;
- Social support;
- Improve communication;
- Increase clarity in defining objectives;
- "Zero" tolerance conduct – harassment and violence;
- Legal support after cases of violence;
- Return to work programs after sick leave;
- Psychological support;
- Group support meetings – self-help group;
- "Zero" tolerance conduct;
- Create a sense of safety;
- Promoting resilience and corporation in order to overcome contexts of adversity.

Discussion

Regarding influence at work, we conclude that women are in a less favorable situation compared to men, as well as predictability. It was also found that operational staff is the one who presents the greatest risk to health since there is a perception of less decision-making power and autonomy to work content and conditions.

For social support from colleagues, social support from superiors, and justice and respect, women perceive they have less social support, and the difference is more pronounced in social support from superiors than men.

Concerning emotional demands, it was found that employees over the age of 50 experience lower emotional demands than the group of employees between the ages of 31 and 40. This fact may be related to the fact that it is an age group where there are male and female employees with underage children, employees with management positions, and strongly involved with the hospitality cause and collaboration in the continuous improvement of services. It was also found that support staff are those who present the lowest risk, on the other hand, health technicians are those who present the worst values. The less favorable situation of health technicians may be related to the fact that they assume a central role in the articulation of care with other services and family, which can become very stressful, especially during a pandemic where it was clear the overload of health professionals in various areas of activity, both nationally and internationally. The group of employees with 6 to 15 years of seniority had more negative feelings compared to employees with 25 or more years.

With regard to the self-efficacy subscale, it can be seen that the significant differences are between employees with 1 child and those with 3 or more children, where those who have a child have difficulties in feeling that with their effort, they can successfully achieve their work goals, as well as solve problems that may arise. In the comparison between employees who have 1 child and those who are single, those with 1 child have lower perceived self-efficacy than those without children. In turn, married/cohabiting people have a better perception

of self-efficacy than single people, which translates into greater resilience, self-knowledge, and a better ability to identify their weaknesses and resources.

In the general health subscale, we can conclude that employees without children consider their health to be weaker, as well as experience more stress, compared to those who have 2 children. We can also conclude that those without children have better general health than those with children. The group of employees with 5 years or fewer of seniority has a more unfavorable situation compared to employees with 25 years or more. This fact may be related to the institution's demand for greater availability from more recent employees to meet the challenges that arise, as well as the fact that the employee wants to demonstrate good performance to reach a more stable position in the company, i.e. a permanent contract.

In the quantitative demands, it appears that the support staff group is the one that best perceives the relationship between the workload and the time available to perform the tasks. There are statistically significant differences when compared to managers and supervisors and health technicians. The less favorable situation of the group of health leaders and managers and technicians may be related to the demanding workload, also reflecting the reorganization of services and work plans during the pandemic and the organizational, personal, and human demands never experienced before.

In terms of cognitive demands, the best results were presented by the operational staff group, showing a statistically significant difference compared to managers and health technicians. Health leaders and managers and technicians are in a situation of greater health risk due to the need to respond to a crisis scenario imposed by the pandemic, the reorganization of services, and the need to constantly make decisions to face the constant updates of the guidelines of health organizations (DGS, WHO, task-force, etc.).

In commitment to the workplace, operational staff are those who present the greatest risk to health since they feel less involved with the institution where they work, do not feel that its problems are their own, and do not like to talk to others about it. On the other hand, the health technicians are the ones who show more commitment. Health technicians are the ones who feel most secure in terms of job/contractual security, on the other hand, the ones who are afraid of losing their jobs and therefore most at risk to their health are the support staff. It is in the support staff group that a lower work/family conflict is perceived, on the other hand, it is in the operational staff group that the highest health risk is found.

Regarding the transparency of the work role, the greatest differences were found between the morning/afternoon shift and the morning/evening shift, where the morning/evening shift presents a greater risk to health due to the greater perception of gaps in defining roles clearly and concisely.

About the social community, the group with the highest risk for health is the one that works morning/evening, and there are greater differences between this group and those who do not work shifts and those who work morning/afternoon. The group of employees who work morning/evening has a higher perception of risk. This fact may be related to the fact that about half the working hours are spent at night, which means less contact and interaction between team/unit and inter-unit colleagues.

In the meaning of work, the morning/evening group is in a more unfavorable situation, with statistically significant differences compared to the morning/afternoon/evening group. Thus, the morning/evening group perceives that they have less decision-making power and autonomy concerning work content and conditions, and that work means less to them.

In the case of offensive behaviors, the group with the greatest feeling of safety is the group that does not have a shift schedule.

Finally, we conclude that the group of employees with 16 to 24 years of seniority is in an unfavorable situation compared to the group of 25 years or more in the psychosocial dimensions related to the pace of work, which reflects a lower power of working time management and breaks, and cognitive demands, i.e., they perceive a constant need for attention in the provision of care to the patient, constant decision-making, sometimes difficult, and the need to propose new ideas for the continuous improvement of the services provided.

Conclusions

This study allowed identifying the psychosocial risk factors that most affect the employees working in a Mental Health Institution located in the North of Portugal.

The assessment of psychosocial risks is essential for the maintenance of health and safety conditions of the employees, and the investment in this area is extremely important since the analysis of the situations that may harm them is essential to identify what is likely to cause harm and, on the other hand, seek to reduce/eliminate the dangers or identify preventive or protective measures to control these risks. The proper management of psychosocial risks will certainly bring countless benefits, which will translate into greater well-being and satisfaction at work, thus obtaining a healthy, motivated, and productive workforce. The success of an organization is based on its employees and its organizational culture. Employees in a safe and supportive environment feel better and are healthier,

which in turn leads to reduced absenteeism, higher motivation, increased productivity, and a positive image for the organization. Preventing occupational accidents and diseases, promoting a healthy working life, and building a preventive culture is a shared responsibilities between governments, employers and employees, health professionals, and society as a whole. In this context, occupational health should aim at promoting and maintaining the highest degree of physical, mental, and social well-being of employees in all occupations (Hruska et al. 2021; OIT, 2016; Castro Mendez et al. 2022).

Based on these assumptions, this study is a significantly relevant contribution to the knowledge of psychosocial risks affecting the employees of the mental health institution and, thus, providing it with diagnostic information that will allow it to act with the same acuity as it already acts regarding the remaining occupational risks.

Through statistical analysis by tertiles, it was possible to verify that the psychosocial risk factors that most place employees in a situation of health risk are cognitive demands and emotional demands. But there are other factors such as the work pace, work influence,

work conflicts, predictability, horizontal trust, quality of leadership, social support from colleagues, social support from superiors, justice, and respect, commitment to the workplace, and job satisfaction, which, although presenting lower risk values than cognitive and emotional demands, are still worrying.

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