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Intra-Labor Psychosocial Mental Health Assessment Model (MIPASM) Applied to Health Sector Workers in Colombia

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Abstract

This research arises from the need to expand knowledge about mental health, particularly after the impact generated during and after the COVID-19 pandemic. Although the general population has been affected, evidence suggests that the impact has been more intense on health professionals, especially doctors and nurses. Troya Fernández, Periñan Sotelo, and Sánchez-Movellan Pérez (2022) emphasize that the true magnitude of this impact requires a comprehensive analysis of its consequences on mental health. The study adopted a mixed methodology and had 57 health workers in Colombia as the target population. The Intra-work Psychosocial Mental Health Assessment Model (MIPASM) was implemented, based on two analytical dimensions: individual and social. For the evaluation of work environments, two instruments were used: the General Health Questionnaire (GHQ-28 items) and the Intraworkplace Risk Battery-Form B. The research findings are structured into three fundamental axes: i) development and optimization of protocols for mental health care, ii) incorporation of evaluation strategies for workers exposed to psychosocial risk factors and iii) improvement of the environment work as a preventive measure. It is concluded that alterations in mental health persist in the population evaluated, which highlights the need for specialized interventions and the implementation of techniques that mitigate the impact of these symptoms.

Keywords

Work Environments, Evaluation Model, COVID-19 Pandemic, Mental Health, Health Workers

1. Introduction

Mental health is a state of individual, psychological and social well-being, which

allows people to develop fully. In this context, the COVID-19 pandemic, which affected the entire world, had a significant impact on the mental health of the general population, especially health workers. These professionals were directly exposed to the virus due to their care of infected patients, also facing high workloads and great psychological pressures. Added to this was the lack of adequate protection in many countries to face this emergency. According to the WHO report (2020), in the first year of the pandemic, the global prevalence of anxiety and depression increased by 25%. These disorders are of great relevance, since they can seriously affect the exposed population, in this case, health workers. The Research carried out by authors such Gaitán-Domínguez, González-Rodríguez, & Ordoñez-Argote (2023) is highlighted that the effects on mental health increased up to five times, which underlines the urgent need to reorganize health services and implement preventive measures in public mental health. These findings highlight the importance of conducting research in this field to address the problem, identify the prevalence of disorders and prioritize the actions and recommendations necessary to mitigate the symptoms of the disorders evidenced. At the international level, different studies, such as that of Toscano Sáenz, Arrieta Bernate, & Brango Tarrá (2023), point out that the pandemic was a key factor in the development of psychological disorders, with a significant increase in the prevalence of stress, exhaustion, insomnia, anxiety and depression. This situation has affected professionals from all medical specialties, representing a challenge for the development of the profession after the COVID-19 pandemic. The objective of this research is to develop a psychological intra-work mental health assessment model (MIPASM), to identify the impact of mental health in work and social environments from an individual perspective. To do this, specific instruments were applied to a group of health workers in Colombia. This model is based on the principles of environmental psychology, especially on the relationship between health workers and their work environment, in order to determine how external factors can affect their mental health and work performance, particularly the psychological impact of the COVID-19 pandemic. In addition, psychosocial risk factors are analyzed, such as the alterations and changes suffered by health workers in their professional field.

1.1. The Health Challenges in the Post-Pandemic Workplace

From an international perspective, the challenges related to mental health in the healthcare sector were exacerbated following the COVID-19 pandemic, highlighting the critical need to ensure adequate working conditions for healthcare professionals, particularly during public health emergencies. Various factors associated with the pandemic adversely affected the mental well-being of personnel, including the implementation of strict biosafety protocols and control measures such as social distancing, which had a significant impact on the psychological and emotional health of healthcare workers, as stated by authors such as Salinas-Rehbein and Ortiz (2020), for whom health protocols changed human relationships and

the way they behave in different areas, significantly affecting mental health. In addition, in many regions and countries, over-information has led to the population to fear due to the growth of infections that have claimed the lives of many people.

Likewise, the emotions or feelings generated by the pandemic increased anxiety and sadness in workers. A study carried out by González-Rodríguez and Labad (2020) shows what happened during the pandemic in the hospital setting, where certain restrictions were made to comply with biosafety protocols, especially with patients who were infected with the virus, among others. Among them is the isolation, the restrictions on visits from family and friends, all of this had a great impact on the psycho-social and emotional support that the sick people needed at that time, this loneliness made them more prone to suffer changes. In their emotions and many times, they suffered mental alterations. After two years of the pandemic, mental health disorders continued to be a global concern. Considering that mental health is an integral part of our health and general well-being and a fundamental right as stated by the WHO, when one has healthy mental health, people can be more productive and their actions within The communities are fruitful and in this way, they can face the different adverse situations that may arise in a rational manner, in such a way that this significantly influences their physical health. It is one of the most latent concerns that exist in all countries, addressing mental health as one of its priorities, taking into account that the COVID-19 pandemic impacted mental health, increasing disorders and altering patients who were in a vulnerable situation, within the PAHO recommendations, is to invite countries to create social and health policies to combat this scourge.

1.2. Current State of Mental Health from the International Framework Multidisciplinary Approach

The COVID-19 pandemic affected the general population, especially in the field of mental and physical health, taking into account the drastic changes that all countries had to assume, to prevent the spread of the virus and minimize the Contagions, when referring to the concept of pandemic, Leach, MacGregor, Scoones y Wilkinson (2020), states that it is a disease or virus that spreads quickly and has a general scope, that is, infections occur, establishing a universal or universal scope. "This crisis had far-reaching implications and brought about significant changes across various sectors. Economically, it had a global impact and triggered a severe crisis."

As for the economy, it was affected worldwide and triggered a crisis. According to Banga (2022), the COVID-19 pandemic had a profound impact on the global economy, triggering one of the most significant crises of the 21st century. This event intensified both internal and external inequalities among countries and exacerbated poverty levels, particularly in nations with fewer resources and limited opportunities. In this context, economic recovery is expected to be gradual, as a degree of normalcy returns and societies progressively adapt to the consequences of the health emergency. However, poorer countries, as well as the most disadvan-

taged social groups, are likely to face a longer and more complex recovery process. In turn, PAHO/WHO (2020) activated regional and national incident management teams to provide a direct emergency response to ministries of health and other national authorities in terms of surveillance, laboratory capacity, health services, healthcare support, infection prevention and control, clinical management and risk communication; all this in line with the priority lines of action. The Organization was in charge of editing and publishing documents that guide countries to seek solutions and strategies in the face of the crisis presented, in order to mitigate the impact generated by the pandemic, as an emerging crisis that must be addressed with priority to control its effects in all areas.

From medicine, the pandemic can be observed as a crisis where a large percentage of the population died from the disease at the beginning of the pandemic, in 2020, according to Nápoles-Zaldivar, Nodarse-Palacios, Riverón-Carralero, Lorenzo-González, & Góngora-Gómez (2023), the pandemic impacted around two hundred countries, leaving with them a worrying figure of more than 88,000 deaths on the planet, 2307 of these in the region of the Americas and approximately 69 for Colombia; This situation led countries to be strictly rigorous with the biosafety protocols that were guided by the WHO, so that the virus did not spread progressively and rapidly, in addition to taking into account the problems that the pandemic brought with it in the field of mental health. Now, according to the report published by the WHO (2020), in the CME 2020 (7) it was calculated that the COVID-19 pandemic had caused an increase of 27.6% (uncertainty interval (II) of 95%: 25.1 - 30.3) of cases of major depressive disorders (MDD) and an increase of 25.6% (95% II: 23.2 - 28.0) of anxiety disorders (AD) cases worldwide in 2020. Overall, the pandemic was estimated to have caused 137.1 (95% II: 92.5 - 190.6) additional disability-adjusted life years (DALYs) per 100,000 population due to MDD and 116.1 per 100,000 population (95% II: 79.3 - 163.80) by TA. Furthermore, it is necessary to take into account that where very rigid confinement measures were taken, the effects in the field of mental health were greater, especially those who suffered the most from this scourge were young women between 20 and 24 years old.

From psychology, it should be noted that this pandemic was characterized by presenting some symptoms in individuals, within which we find psychological and behavioral symptoms that somehow alter the emotions of those who suffer from it; in addition to being afraid of dying and infecting their loved ones or of finding themselves isolated from others because they are infected. Regarding this, the WHO (2020), the symptoms of a serious condition of COVID-19 include: Irritability, decreased consciousness (sometimes associated with seizures), anxiety, depression, sleep disorders, Other types of symptoms were neurological according to Freedman (2023) are (symptoms caused by a disorder that affects part or all of the nervous system) can vary greatly because the nervous system controls many different bodily functions: sleep, consciousness, and mental functionality (cognition). In the same way, the WHO (2020) states that it is necessary to mention the psychological symptoms that this virus brought with it; in addition, due to the

severe headaches, people were without strength and were affected in one way or another. their way of acting or living exposed to death. Other authors who refer to mental symptoms are Martín Hernández & Luque Jiménez (2018) (SPCD) who refer to the emotional, behavioral and thinking alterations, within the framework of the SPCD model, highlight the presence of emotional, behavioral, and cognitive disturbances associated with the symptoms exhibited by individuals infected with the virus. They also suggest that infection with SARS-CoV-2 may act as a triggering factor for neurodegenerative processes such as dementia in certain cases.

From sociology or the science that studies human social life, it should be noted that the changes that occurred due to the COVID-19 pandemic affected all means of interaction of human beings, including the work, mental, economic and social; As for the companies, in some, lawsuits were filed against the workers, due to the dismissal of personnel or the restructuring that they suffered. In order to continue, all this affected the livelihood of many families, producing uncertainty and fear and some had to reinvent the way to obtain economic income, to survive. All of these events, which occurred during the pandemic, have raised the levels of mental health problems, a phenomenon that has affected many people, including health workers.

1.3. COVID-19 Pandemic Impacts in Latin America. Incidence in Work Environments

There have been many pandemics in the world and Latin America has not been immune to this situation. In this region, the pandemics that have occurred have claimed the lives of millions of people, in addition to this, because it is a region that does not have a solidified economy reflects inequality and the scourge of hunger in many of its countries. In the case of the COVID-19 pandemic, the first confirmed case occurred in the United States on January 20, 2020, which was confirmed by the WHO (2022), then other cases were reported in Brazil and the Caribbean. On February 26, 2020 and thus its spread occurred at high speed, infecting the majority of Latin American countries, so much so that, on the same date in 2020, there were already 54 countries infected with the virus and with quite strong consequences in the region. Likewise, in a report published by Etienne (2021) as of May 21, in statements sent by the countries and territories of the Americas, 1,001,781 people had died due to the pandemic in Latin America and the Caribbean. Almost 89% of these deaths occurred in five countries: Brazil (44.3%), Mexico (22.1%), Colombia (8.3%), Argentina (7.3%) and Peru (6.7%). 3% of the total deaths took place in Central America and 1% in the Caribbean.

The COVID-19 pandemic generated not only a health crisis in the world and in Latin America, but also an economic and social crisis, because its effects had repercussions on the economy and society in general. Regarding the above, mention can be made of a report given by Filgueira, Galindo, Giambruno & Blofield, (2020), which states that health centers were overwhelmed due to the high demand for infections that had occurred quickly, This caused a health and economic crisis, because countries had to stock up on biosecurity implements and adapt

places to care for those infected; All of this required investments quickly and efficiently, in order to address the emergency and save lives; In addition to understanding that due to the transition of the moment and the numerous restrictions, the way of relating and working changed, affecting the economy of companies and institutions, which were forced to close and look for strategies to provide their services virtually or at home. Latin America along with the United States became the center of the pandemic. It is worth highlighting the impact of the COVID-19 pandemic, which occurred worldwide, significantly affected each country in Latin America, taking into account the public health conditions and the international policies that have been managed in the field of health. Despite the fact that in Latin America it arrived a few months after the first case was declared in China and a pandemic was declared, due to its rapid and deadly spread; With all this, many countries were affected in a devastating way, such as Brazil and Ecuador, where the spread was very rapid.

1.4. Impact of Pandemic on Health Infrastructure in Latin America

According to Pan American Health Organization PAHO (2020), many health workers were infected and some died from contagion of the virus, even though these personnel in many countries represented less than 3% of the population, in other countries less than 2%, in some between 14% and 35%. However, most countries reported positive cases and even deaths of health workers to the WHO. Although the specific data of how many lost their lives in this pandemic due to the virus is not certain, it can be said that it caused a lot of loss and damage to these workers. What has not yet been proven is whether all those who died. They were infected in the workplace or in the clinics and hospitals where they provided their services, which is true that thousands of them lost their lives around the world. Taking into account that biosafety standards are of great importance for the care of workers in an entity, their applications are subject to the regulations and policies of each country, however, during the humanitarian crisis caused by the COVID-19 pandemic, many hospitals in Latin America lacked adequate personal protective equipment for their healthcare personnel, resulting in a work environment perceived as unsafe and limiting the ability of workers to perform their duties optimally and efficiently.

This is stated by Luengo-Martínez and Montoya-Cáceres (2020), the work environments of health workers, especially (doctors and nurses), in some countries do not have the necessary conditions for their good performance and the workers are not provided with the guarantees they need. They need to fully carry out their work and if they are not satisfied, they will not be able to perform their work efficiently and this can negatively affect their health, both physical and mental. It should be emphasized that for the worker to achieve productive results and fulfill his or her job, the service conditions must be the best to carry out the activities optimally. For Marín-Ospina, Higuita-Higuita, Guerra-Mazo, Gómez-Ceballos and Soto-Velásquez (2020), many investigations have shown that health workers

are not provided with guarantees in their jobs, that salaries are not the best and the conditions of their environments in many countries are precarious. In addition, they have to be subjected to great demands by their superiors, and the demands and workloads are high, especially in hospitals or public health centers. All of this affects the health of the professional, their good work performance and, in many cases, massive resignations that have repercussions on the organization and increase costs. It is necessary to highlight that the pandemic greatly affected public health in many countries because many health workers were infected with the virus and millions lost their lives around the world. According to Malarin Rojas and Cajavilca Lagos (2022), in Latin America, in the countries of Bolivia, Chile, Mexico, Paraguay and Peru, an increase in deaths among health workers was evident, caused by the COVID-19 pandemic. Taking into account that the workers were caring for the infected and in many places, the working conditions were not the best and there was a lack of biosafety equipment necessary to deal with the emergency, putting human lives at risk.

1.5. Emotional Alterations of Health Workers

This research addresses the anxious attachment style, taking into account the emotional alterations experienced during the pandemic. Many of these alterations were caused by the loss of family, friends or co-workers, which generated a progressive increase in these emotions. Furthermore, changes in the way people relate to each other, in the context of social isolation, contributed to the intensification of these alterations.

According to some authors such as González Briceño, Rondán Varela and Cruz Soto (2021), anxious attachment is defined as the excess anxiety that an individual experiences when separated from their caregiver and difficulty calming down when returning to him. In this context, fear emerges as one of the strongest emotions, along with high levels of anxiety and insecurity, which, if not managed properly, can reduce tolerance to pain and frustration. These behaviors are linked to an internal conflict, in which emotions such as rage, stress, anger and depression, among others, can be detected. In relation to the above, Velayos and Sánchez (2020), in their theory developed during the 1940s, based on the studies of psychiatrist and psychoanalyst John Bowlby, presented their hypothesis about attachment as a basic need for connection with the caregivers. For González Santana, (2022), in the first approaches to this theory, the purpose was the diagnosis and treatment of families and patients with emotional disorders, and it was later recognized as a theory that also contributes to the understanding of the evolution and development of the personality. However, its main effect is the establishment of emotional bonds and its consequences on the social behavior of individuals within a species.

In conclusion, the links that individuals build will be strongly influenced by their experiences and social relationships. This theory describes how human beings, through interpersonal relationships, create emotional bonds, not only with

people, but also with the environment in which they operate. In this sense, it will be used as a basis for this research, in order to analyze the perception of health workers during the COVID-19 pandemic and the abrupt changes they faced. This includes how such alterations may have affected their mental health, considering the emotional relationships with colleagues, patients, friends and other people. One of the central bases of this theory is that mental health and healthy human functioning depend on a continuous process of construction of the self, in relation to others, and the security that allows establishing healthy relationships.

Furthermore, it is important to consider that work environments and the relationships that occur in them develop emotional bonds, both in the workspace and in interactions with friends, colleagues, patients, bosses, administrative staff and other close people. All of them require constant communication in the workplace. Ruíz, Escobar, Godoy and Cuellar, (2022) point out that these environments must adapt to human needs and dignity, establishing relationships with oneself, with others and with the environments that surround them, whether natural or social. This implies a more conscious and responsible attitude, taking into account the importance for all those involved and a proactive approach to Human Rights.

1.6. Intra-Work Environment

It is essential to identify the importance of workspaces and how they acquire meaning in the lives of individuals, whether positively or negatively, depending on the situations experienced in them. In this context, it is relevant to analyze the impact that these spaces have on human relationships. During the COVID-19 pandemic, from the perspective of health workers, no space for their work performance was considered safe, due to the critical situation that existed at that time. Adverse conditions, such as high workloads, sudden deaths of patients in the intensive care unit (ICU), loss of colleagues due to infections, joy over the recovery of patients who managed to survive COVID-19, and the shortage of stretchers to serve the staff, generated deep anxiety. It should be noted that tertiary hospitals, highly complex medical centers, were crucial during the pandemic, because in addition to caring for critical patients, they also received infected health personnel. These hospitals needed to have advanced technology and specialized equipment to face the health emergency. However, on many occasions, they lacked the necessary implements to perform their work optimally.

The situations experienced in these workspaces became a concern not only for health workers, but also for governments and international entities. In this sense, the Organización Mundial de la Salud, WHO (2020) expressed its concern about the millions of lives that the pandemic claimed around the world, as well as the brake on livelihoods and the economic and social crisis that was generated, affecting the sustainability of many countries. The COVID-19 pandemic also revealed how ill-prepared most health systems were, which had a negative impact on achieving the Sustainable Development Goals (SDGs). This situation made evident the urgent need to invest in health systems, medical services and the training

of health personnel.

In Latin America, many hospitals and clinics did not meet the minimum conditions necessary to care for infected patients, either due to the lack of adequate infrastructure or the necessary biosafety measures in work environments. It is crucial to ensure that workspaces are in optimal conditions to allow healthcare workers to cope with a health crisis of such magnitude.

Finally, it is worth noting that workspaces can become sources of stress, as Torres (2021) highlights when referring to the theory of environmental stress. According to this theory, adverse circumstances, such as those experienced during the COVID-19 pandemic, represent a threat to the health of individuals, since they can generate both emotional and behavioral reactions that negatively affect work performance.

1.7. Cognitive Overload and New Adaptations in Health Workers During the COVID-19 Pandemic

The COVID-19 pandemic presented significant challenges for healthcare workers, who were forced to quickly adapt to the use of new equipment and process a considerable amount of information in order to ensure proper use of these devices. This adaptation was crucial to provide adequate care for patients infected by the virus, which implied constant decision-making in a context of increasing contagion and mortality. These factors generated high levels of stress and cognitive load in healthcare personnel, affecting both their physical and mental health. Sandoval Medina (2022) presents the theory of cognitive load, which emphasizes how new information is initially processed in short-term memory, where it has a limited capacity. Subsequently, this information is transferred to long-term memory, which is practically unlimited, allowing it to be stored for future use. Once information is stored in long-term memory, the capacity and duration limits of working memory disappear, improving the individual's ability to function. On the other hand, this theory suggests that cognitive processing occurs through two subsystems: working memory, which has limited capacity and short duration, and long-term memory, which has unlimited capacity. From this perspective, it is essential to consider the traumatic and distressing experiences experienced by healthcare workers during the pandemic, who faced high risks due to infection with the virus, in addition to the tensions associated with caring for patients in intensive care units (ICU) and the need to quickly handle essential medical equipment. López González (2020) highlights that the context of the pandemic was particularly stressful for doctors and nurses, who in many cases were forced to make critical decisions, such as desaturating a patient or warning about the seriousness of their condition, which sometimes involved urgent intubation of the patient.

1.8. Impact of Workload on Mental Health Compared to Other Stressors in Health Professionals

The workload of health professionals represents a constant stress factor, given

that the functions inherent to their work require significant physical and emotional effort. According to the World Health (WHO, 2025), health workers, as well as those involved in humanitarian missions or emergency situations, face high levels of exposure to adverse events, which negatively impacts their mental health.

Although these professionals are exposed to various contaminating agents and concerns related to biosecurity and patient mortality rates, work overload has been identified as a determining factor in affecting their psychological well-being. The intensity and duration of the workload affect interpersonal relationships, particularly those of an affective nature, which in turn can generate emotional disturbances that compromise professional performance.

Alves, de L. M., & Aguiar (2022), in a systematic review, showed that, even after the pandemic, work overload remains the main factor affecting the mental health of healthcare workers. Among the causes identified are long working hours, responsibility for critical activities, and the administrative inefficiency of health service providers.

Likewise, a study carried out by Pérez Hernández & Flores-García (2024), using the Goldberg Scale for the evaluation of mental health status, confirmed that workload is the most stressful factor for these professionals. The results of this research showed a high incidence of symptoms associated with work stress, highlighting the direct relationship between work overload and the appearance of emotional disorders in healthcare personnel.

These findings underline the need to implement strategies that allow for optimizing the distribution of tasks, improving organizational management and ensuring adequate working conditions, in order to reduce the impact of workload on the mental health of healthcare professionals.

1.9. Evaluation Models in Mental Health

An evaluation model, according to Arias Lara, Labrador, & Gámez Valero (2019), constitutes a set of theoretical postulates and epistemological, ontological, axiological and methodological approaches that seek to explain the evaluation process. It can also be conceived as a representation of concepts or assumptions aimed at understanding a phenomenon under study, based on a specific theoretical framework. In the field of mental health and clinical psychology, evaluation models are made up of theoretical and methodological principles that guide the clinical evaluation process. These models allow the identification of anomalies or alterations in the psychological state of a patient, facilitating the detection of possible disorders. According to Cubas Segura (2022), the objective of mental health evaluation is to identify disorders based on the observation of symptoms and behavioral patterns manifested by the individual. This process allows for the early detection of psychopathological alterations and the formulation of a precise diagnosis, which enables a better understanding of the degree of affectation present in the patient and the implementation of appropriate interventions.

1.10. Model Construction (MIPASM)

The objective of this model is to evaluate the effects in the psychological, social and work spheres, taking environmental psychology, cognitive load theory and attachment theory as theoretical foundations. To do this, it is structured in different dimensions and uses multiple measurement instruments in order to collect detailed information on the factors that may represent a risk to the mental health of health professionals.

Table 1 shows the variable, dimensions, indicators with which the psychosocial intra-labor model is described, and the instruments that were used in the research to know the state of mental health of health workers in Colombia.

Table 1. Psychosocial intrawork model.

Variable	Dimensions	Indicadores	Instruments
Mental Health	Individual	Malestar Psicológico Trastornos afectivos Fobia, Estrés postraumático Pensamiento suicida	General Health Questionnaire (GHQ-28)
	Psycho-environmental dimension or importance of the environment	Few biosafety equipment Workloads, resignations, emotional, death of colleagues and patient Biological risks	Questionnaire of Factor Intra-work Psychosocial risk Form B
	Social	Isolation Social rejection Stigmatization	

Note: This table describes: The dimensions and items of the proposed evaluation model (MIPASM).

1.10.1. Proposed Structure for Model Sizing from Psychological Perspectives

From this perspective, it is essential to analyze the symptoms experienced by healthcare workers during and after the pandemic. Persistent disturbances that may have affected your psychological and physical well-being, as well as their impact on long-term mental health, should be identified. This analysis will allow us to understand the emotional and cognitive consequences derived from the health crisis, facilitating the development of intervention and support strategies to mitigate its effects.

1.10.2. Importance of the Environment in Safety at Work Environmental Psychology

From this perspective, it is essential to analyze the symptoms experienced by healthcare workers during and after the pandemic. Persistent disturbances that may have affected your psychological and physical well-being, as well as their impact on long-term mental health, should be identified. This analysis will allow us to understand the emotional and cognitive consequences derived from the health crisis, facilitating the development of intervention and support strategies to mitigate its effects.

1.10.3. Importance of the Environment in Occupational Safety: Perspective from Environmental Psychology

Safety in the work environment can be analyzed from the perspective of environmental psychology, considering the influence of the environment on the well-being of workers. In this context, the COVID-19 pandemic highlighted and aggravated various problems related to working conditions, especially among health personnel directly exposed to the virus due to caring for infected patients. In particular, tertiary hospitals frequently lacked adequate resources to confront the health emergency, including essential equipment and protective measures for workers. The absence or insufficiency of personal protective equipment (PPE) compromised the self-care of healthcare personnel, increasing the risk of infection and affecting their general well-being. According to Wauters et al. (2022), during the pandemic, multiple deficiencies were identified in work environments, especially in clinics and hospitals that cared for patients with COVID-19. Among the main problems are the lack of adequate training and the initial shortage of PPE. These conditions not only affected the physical and mental health of the workers, but also impacted their work performance, given the constant exposure to an environment with high risk of infection and transmissibility.

1.10.4. Psychosocial Aspects and Stigma towards Health Workers in Times of the COVID-19 Pandemic

From a psychosocial perspective, the effects suffered by health workers during the COVID-19 pandemic will be analyzed, considering that the human being is a social entity whose interaction with others is a fundamental aspect of their development. The pandemic drastically modified the relational dynamics, imposing confinement and abrupt social isolation that impacted both the daily life and the professional practice of healthcare personnel. In this context, key indicators such as social isolation, social rejection and stigmatization of health workers will be evaluated. According to Arias Sañay & Basantes Villacrés (2022), social psychology studies the interaction between social phenomena and psychological processes, encompassing thoughts, feelings and behaviors that can be influenced by sociocultural factors. In this sense, the COVID-19 pandemic generated significant transformations in interpersonal relationships due to the confinement and social distancing measures adopted to mitigate the spread of the virus.

1.10.5. Considerations for the Use of the Mental Health Evaluation Model (MIPASM)

The Mental Health Assessment Model (MIPASM) can be used to analyze various dimensions within research in this field, including factors such as interpersonal relationships, behavioral patterns, alterations in mental health, the promotion of healthy work environments and the influence of the environment on the health of workers. The application of the model must consider the study population and the research objectives, ensuring compliance with the biosafety regulations in force in each country. Likewise, the use of risk assessment batteries is recommended that allow the identification and quantification of factors that may com-

promise the integrity and well-being of workers.

1.10.6. Implementation of the Model for Identification and Prevention of Psychosocial Impacts in the Workplace (MIPASM) in Hospital Environments

Intra-labor psychosocial assessment in hospitals is essential to identify and manage psychosocial risks that may compromise the mental health and well-being of health personnel. To achieve an effective implementation of the Model for the Identification and Prevention of Psychosocial Impacts in the Workplace (MIPASM), it is recommended to follow the following methodological steps:

1. Planning and Preparation

➢Definition of Objectives: The psychosocial aspects to be assessed must be clearly established, such as workload, psychological discomfort, affective disorders, insufficient safety equipment, among others.

➢Selection of Instruments: It is essential to identify and analyze the psychosocial assessment instruments recommended by MIPASM or other methodologies recognized at national and international levels. The choice must be aligned with the guidelines of the Ministry of Health and current international regulations.

➢Formation of the Work Team: It is recommended to integrate human resources professionals, organizational psychologists and experts in occupational mental health, who will lead the evaluation and analysis of results.

➢Communicating with Staff: Workers must be informed about the evaluation methodology, ensuring the confidentiality and anonymity of the data collected to encourage voluntary and honest participation.

Application of Assessment Instruments

2. Application of Assessment Instruments

To collect information on psychosocial factors affecting health sector workers, the use of validated tools is recommended, such as:

➢General Health Questionnaire (GHQ-28): Evaluates the presence of symptoms of depression and anxiety in health personnel.

➢Intra-workplace Psychosocial Risk Factors Questionnaire—Form B: Instrument designed to identify and measure psychosocial risk factors in hospital environments.

3. Analysis and Interpretation of Results

➢Prioritization of psychosocial factors that have a higher incidence and high risk values.

➢Preparation of a detailed report with the findings obtained, including evidence-based recommendations to mitigate the identified risks.

4. Design and Implementation of Corrective Measures

Based on the results obtained, strategies aimed at preventing and mitigating psychosocial risks must be designed and implemented, such as:

➢Mental health and well-being training programs.

➢Implementation of initiatives to improve the distribution of the workload.

➢Creation of psychological support programs for staff.

5. Continuous Monitoring and Evaluation

➢Permanent Monitoring: Conducting periodic follow-ups to evaluate the impact of the implemented measures.

➢Adjustment of Strategies: Adaptation of strategies according to changes observed in the work dynamics and mental health of staff.

➢Promotion of a Culture of Well-being: Promote an organizational environment that prioritizes the mental health and well-being of workers.

The main purpose of implementing MIPASM in hospital settings is to identify and address psychosocial factors that affect healthcare personnel, contributing to the creation of healthier work environments. This not only impacts the well-being of staff, but also has a positive impact on the quality of care provided to patients.

1.10.7. Goals

Develop an Intra-work Psychosocial Mental Health Assessment Model (MIPASM) aimed at workers in the health sector in Colombia, with the purpose of identifying the impact of the COVID-19 pandemic on their mental health and work environments. This model will allow the creation of more efficient protocols for the management of occupational risks, promoting work environments that favor the psychological well-being and mental health of workers.

2. Methodology

This research adopts a mixed methodological approach, combining qualitative and quantitative techniques for the analysis of mental health in health sector professionals during the post-COVID-19 pandemic period. The qualitative dimension allowed a detailed description and understanding of the phenomenon in its context, while the quantitative dimension facilitated the measurement and analysis of the data obtained, providing a comprehensive view of the problem studied.

The study was carried out on a group of health professionals, composed of doctors and nurses, in second and third-level hospitals and clinics in Colombia. It was developed as observational research, in which the mental health of the participants was evaluated within their work environment without external intervention, thus allowing the analysis of the situation in natural conditions. Hospitals and clinics were selected that had intensive care units (ICUs), where patients with COVID-19 were treated, and where health professionals who were exposed to the conditions of the pandemic worked.

For sample selection, non-probabilistic sampling was used, in which participants were chosen based on specific criteria aligned with the objectives of the research. In particular, intentional sampling was used, since the selection of the subjects was determined by their exposure to mental health risk factors. Additionally, simple random sampling was considered, ensuring that all individuals had the same probability of being selected, which guaranteed the representativeness of the sample and the accessibility of the participants, based on the criteria established in the research.

The data collection process was carried out between February 2023 and January

2024. The data were obtained directly from the context in which the study population was located, through the observation and measurement of the mental health variable. Subsequently, the information collected was analyzed systematically. Since the research was carried out at a specific point in time without longitudinal follow-up, it is classified as a cross-sectional study.

2.1. Instrument

To develop this research, two questionnaires were used, which made it possible to obtain information on the conditions of the work environment in the field of health and disorders at an individual and social level, with special emphasis on those of greater prevalence, such as anxiety and depression. The selection of these instruments was made based on the objectives of the study, and they are described below:

- **General Health Questionnaire (GHQ-28)**

This instrument made it possible to evaluate the presence of symptoms of depression and anxiety. According to Heleno, Borges and Agulló-Tomás (2020), the GHQ-28 is composed of four scales, each made up of seven items, distributed as follows:

Items 1 - 7: evaluation of psychosomatic symptoms.

Items 8 - 14: anxiety measurement.

Items 15 - 21: assessment of social dysfunction in daily activity.

Items 22 - 28: detection of depressive symptoms.

In total, the questionnaire consists of 28 items. For this investigation, it was used in its entirety in order to preserve its original structure and guarantee the accurate measurement of symptoms in the study population.

- **Intra-work Psychosocial Risk Factors Questionnaire Form B**

This questionnaire evaluates psychosocial factors in the work context and allows us to know the workers' perception of different aspects of their work environment. According to the Javeriana University (2019), the original questionnaire consists of 88 items; However, for this research, 23 items considered relevant to the objectives of the study were selected. The questionnaire uses a Likert-type response scale, in which participants must select a single option that best reflects their perception. The scale measures the frequency with which certain situations occur in the work environment, with response options ranging from "always" to "never." To record their response, participants must mark the corresponding option with an "X."

2.2. Population

In order to carry out this study in the field of mental health, multiple factors that could influence the psychological well-being of health professionals were considered. Among these, the environmental conditions in the work environments, the level of stress associated with the work overload experienced during the pandemic, as well as the exposure to biological risks inherent to clinical practice were evalu-

ated. Likewise, the increase in the prevalence of mental disorders in this population was analyzed, both during and after the health crisis, in addition to the psychological impact derived from social pressure and direct contact with patients infected by the virus.

The study population consisted of 57 health professionals (see Figure 1) who worked in secondary and third-level care institutions in Colombia. The selection of participants was carried out based on the study variable, with the aim of identifying alterations in the mental health of health sector workers.

The participants were categorized into four groups: general physicians, specialist physicians, head nurses and nursing assistants. Only professionals with a contractual employment relationship, whose minimum workday was eight hours, were included. Additionally, criteria such as experience in the area, accessibility and willingness to participate in the study were considered, through the application of a questionnaire designed to collect their perception of the factors studied.

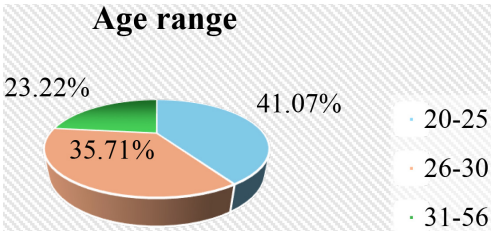
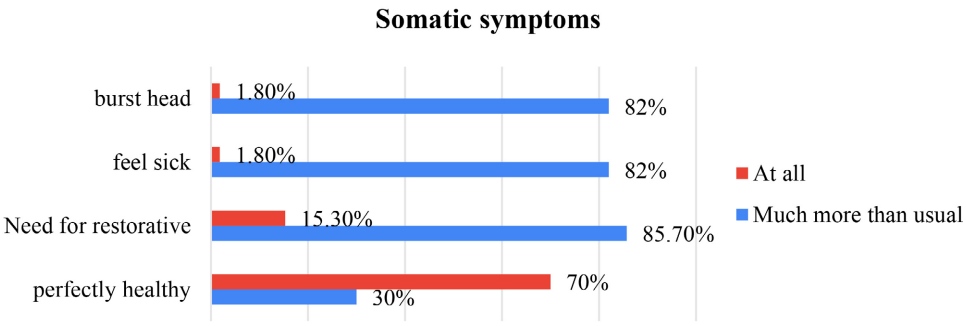


Figure 1. Age range of health professionals.

2.3. Data Processing

The evaluation model employs two main instruments: the General Health Questionnaire (GHQ-28) and the Intra-work Psychosocial Risk Factors Questionnaire, Form B. The GHQ-28 consists of 28 items distributed across four subscales: A) Somatic Symptoms, B) Anxiety and Insomnia, C) Social Dysfunction, and D) Severe Depression. Its purpose is to assess overall psychological well-being, as well as the presence of anxiety and depressive symptoms. Responses on the GHQ-28 are coded using a binary system (0-1), where 0 indicates the absence of a symptom and 1 indicates its presence. The established cut-off point is 5/6, classifying individuals into two categories: "non-case" (no significant psychological distress) and "case" (presence of significant psychological distress). On the other hand, the Psychosocial Risk Factors Questionnaire was used, designed to evaluate risks and the work environment. The questionnaire items must be scored with integer values ranging between 0 and 4. These values allow the calculation of the raw scores for each dimension and domain, as well as the total raw score of the questionnaire. The response options (always, almost always, sometimes, almost never and never) are assigned to specific values, according to the frequency of occurrence of the psychosocial risk. In this context, a higher score reflects a higher risk. Depending on the formulation of the item, for a set of items, the response "always" could have a value of 0 and "never" a value of 4.

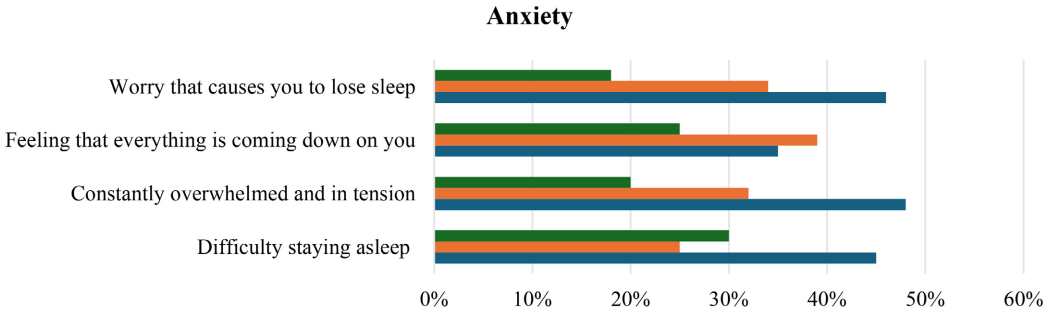


Graph 1. Subscale A (Somatic Symptoms) GHQ28 health questionnaire.

In the first phase of the process, an instrument in digital format (Google Forms) was used to collect data. The information collected was subsequently recoded and organized into a specific tabulation for analysis in the IBM SPSS statistical program.

Graph 1 describes the results of the somatic symptoms subscale.

Source: GHQ28 Health Questionnaire



	Difficulty staying asleep	Constantly overwhelmed and in tension	Feeling that everything is coming down on you	Worry that causes you to lose sleep
Not at all	30%	20%	25%	18%
A lot more	25%	32%	39%	34%
More than usual	45%	48%	35%	46%

Not at all A lot more More than usual

Note: The figure describes the questions and answers from 8 to 14 of the GHQ28 questionnaire, created by the author.

Graph 2. Subscale B (Insomnia Anxiety) of the health C.—GHQ28.

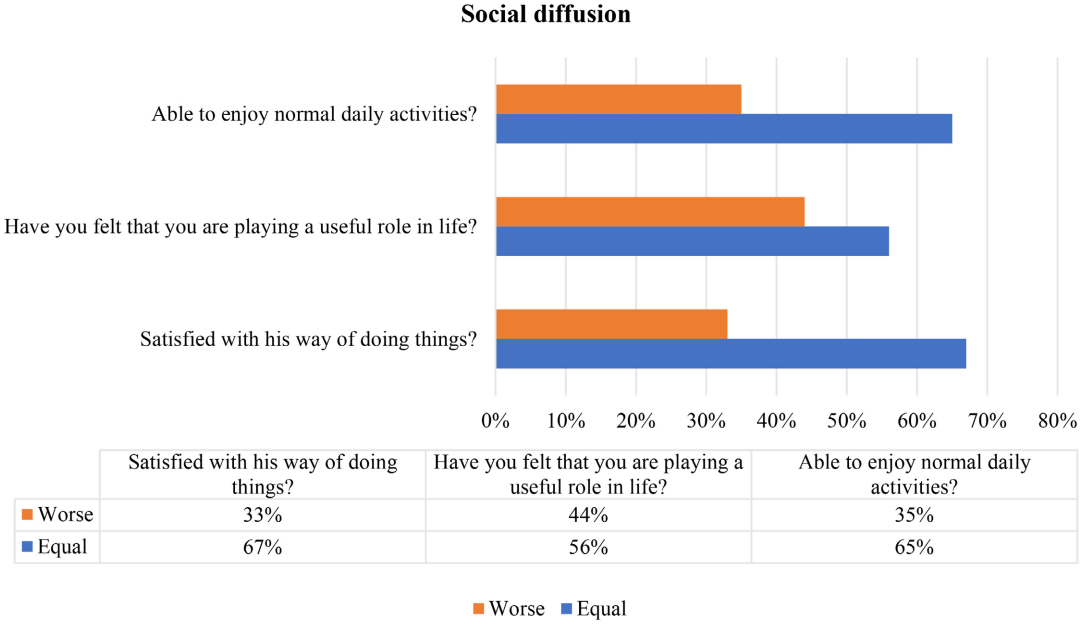
According to the results obtained, it is observed that there is a high prevalence of symptoms in the population studied, made up of workers in the health sector. The high percentages indicate that this group presents a significant risk in terms of their mental health. The items with the highest prevalence were: the need for a restorative, reported by 85.7% of the participants, at levels higher than usual or equal to usual; the feeling of needing to be sick (82%), the feeling that your head is going to explode (82%), as well as the presence of headaches, hot flashes and chills, which were reported with high frequency, both to a greater extent and at

levels similar to usual. This approach gives it a more technical tone, maintaining the focus on the results and their implication on the mental health of workers.

Graph 2 describes the results of the insomnia and anxiety subscale.

In this subscale (anxiety and insomnia) an increase in the intensity of various symptoms is observed, as well as in the values obtained in several questions. One of the most prevalent symptoms in this subscale is the persistent feeling of tension, which affects 80% of the participants, despite the fact that they are no longer exposed to the same pressures as during the COVID-19 pandemic. Likewise, 74% of individuals report experiencing the feeling that everything is coming down on them. The prevalence of these symptoms and the values obtained in the results indicate the presence of disorders related to anxiety and insomnia in the population studied.

Figure 2, shown below, describes the results of questions from subscale 15 to 21 (Social diffusion) of the Questionnaire-GHQ28, which measures the difficulties in social interactions or rejection that occurred with health workers in times of the COVID-19 Pandemic.



	Satisfied with his way of doing things?	Have you felt that you are playing a useful role in life?	Able to enjoy normal daily activities?
Worse	33%	44%	35%
Equal	67%	56%	65%

Note: The figure explains the questions and answers from 15 to 21 of the GH28 questionnaire by percentages (%).

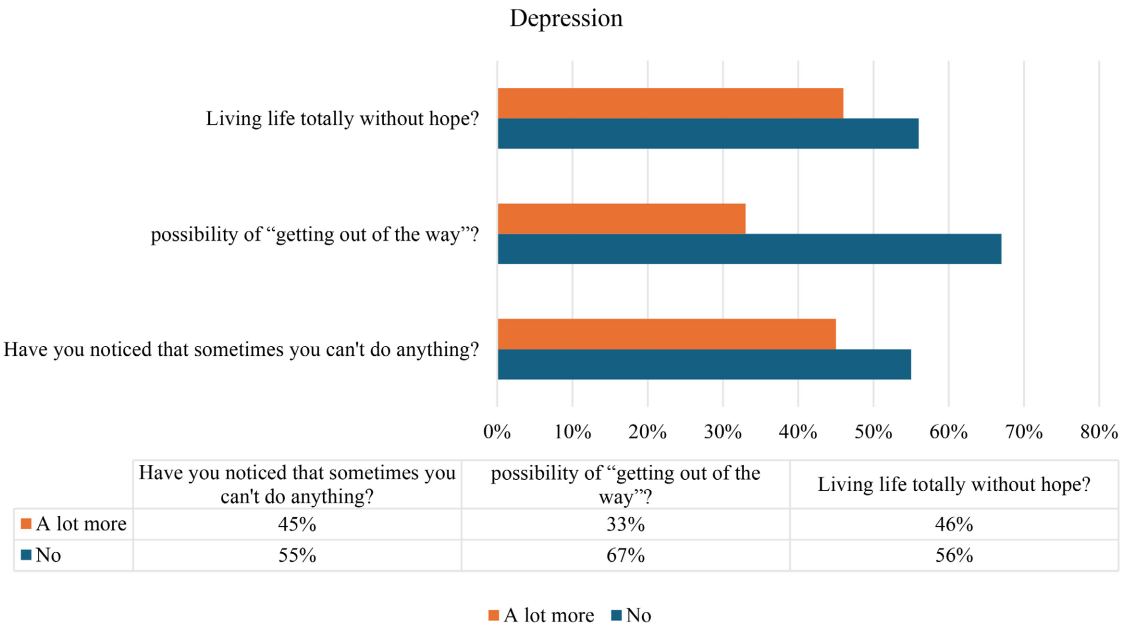
Figure 2. Subscale C (Social Diffusion) of the GHQ28 health score.

The results obtained through this measurement scale indicate that, for the most part, health professionals do not experience social rejection after the COVID-19 pandemic. This phenomenon suggests a significant recovery in relation to the emotional and social disorders generated during the health crisis. This improvement could be linked to the decrease in social pressure that health workers experienced during the pandemic, as well as the reduction in environmental and work pressures that characterized that context. However, certain cases persist within

the working population that have not yet completely overcome the effects of the pandemic, although the levels of these disorders are considerably lower today.

Next, Figure 3 shows the results with the percentages obtained in subscale D (depression) of the Goldberg-GHQ28 General Health Questionnaire, Questions 22 to 28, as seen below.

In the population studied, a high level of depression is observed among health workers, specifically doctors and nurses. This finding highlights the need to continue researching and addressing this type of psychological affectation in this group. In particular, the question "Have you noticed that the idea of taking your own life repeatedly comes to mind?" shows that 58.05% of respondents selected the options "more than usual" and "much more than usual", which suggests a significant prevalence of suicidal thoughts in this group.



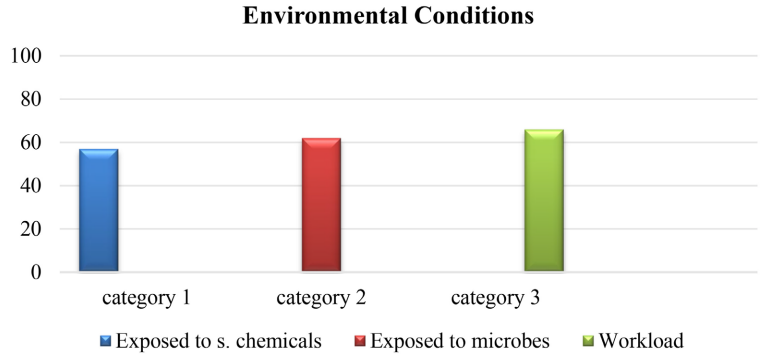
	Have you noticed that sometimes you can't do anything?	possibility of "getting out of the way"?	Living life totally without hope?
A lot more	45%	33%	46%
No	55%	67%	56%

Note: The figure details the questions and answers from 22 to 28 of the GHQ28 questionnaire, which indicates the states of depression of the study population.

Figure 3. Subscale D (Depression) goldberg general questionnaire—GHQ28.

2.4. From the Psycho-Environmental Dimension or Work Environments

From the psycho-environmental or work environment perspective, various factors were analyzed such as working conditions, cognitive effort, length of workdays and the care provided to patients or users. To this end, the intra-workplace psychosocial risk factors questionnaire, form B, was used, which is designed to evaluate various psychosocial aspects within the workplace. This instrument is made up of items that allow workers to obtain their perception of different aspects related to their work environment. Furthermore, the questionnaire for the evaluation of extra-work psychosocial risk factors consists of 22 questions, which were selected for their relevance in the context of the research.



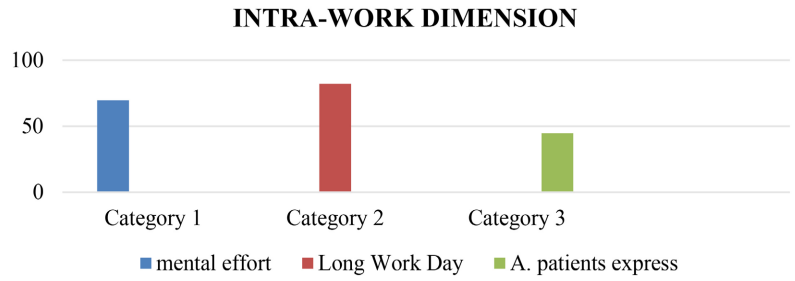
Note: The figure describes the questions, and the results obtained from the risk factors questionnaire for work, form B.

Figure 4. Environmental conditions.

In Figure 4, you can see the results of the environmental conditions dimension, to identify occupational and psychosocial risks, using the occupational risk factors questionnaire B.

The items, dimensions and domains are evaluated in such a way that they are interpreted as indicators of intra-work psychosocial risk, where a higher score reflects an increase in said risk. According to the results obtained, high percentages are evident, highlighting 57.20% of chemical exposure, 62.00% of exposure to microorganisms, and workload, which presents the highest percentage with 66%. These results reflect the constant high exposure to risk factors to which health workers are subject in their work environments.

Figure 5 describes the values obtained in the three dimensions measured by mental effort, work hours and patient care questionnaire with the percentages.



Note: The figure represents the items measured in the intra-work dimension with the respective responses in percentages of the Workplace Risk Factor questionnaire form B.

Figure 5. Intra-work dimension.

A clear indication of exhaustion has been observed in the study population, which could have negative repercussions on their work performance, manifesting through various symptoms of work stress and mental health disorders. In this dimension, related to working hours, a high demand on workers has been evident. When analyzing the responses to the question about the frequency of night work, it was identified that 82.1% of the participants indicated that they sometimes work

at night, either always, almost always or sometimes. Furthermore, in relation to the possibility of taking active breaks during the workday, 51.8% of respondents indicated that they only sometimes have the opportunity to do so. These results suggest the existence of a significant work overload within the population studied.

3. Results

It was observed that anxiety and depression symptoms persist in the study population, especially in health professionals such as doctors and nurses. The followings were identified among the reported symptoms: worry (28%), irritability and difficulty relaxing (50%), concern for health (55%), loss of interest (52%), loss of self-confidence (71%), hopelessness (70%), loss of appetite (81%), and weight loss (92%).

These findings are consistent with those reported by Noguera & Sarmiento (2023), who indicated that, two years after the start of the COVID-19 pandemic, the prevalence of depressive symptoms was 12.4%, suggesting that between one and two in ten health workers continued to show signs of depression. In addition, a greater impact was seen in doctors, women, and young people. This phenomenon could have negative repercussions on the future of healthcare personnel, potentially causing a decrease in job performance, lack of concentration, absenteeism and professional dissatisfaction.

On the other hand, differences were identified in the impact on mental health depending on the type of health professional. The study analyzed included a predominantly female population (72.5%), made up mainly of nurses, while men represented 27.5%, mostly doctors. This demographic distribution suggests that the results reflect with greater emphasis the alterations in the mental health of women. It is essential to consider the influence of sociocultural factors in the expression of symptoms related to mental health. It has been documented that women have a greater predisposition to manifest psychological symptoms, while men tend to repress them due to the stigmas associated with emotional vulnerability.

Additionally, nurses are exposed to higher levels of stress, exhaustion and anxiety due to the high emotional and physical demands inherent to their care work, which increases their susceptibility to developing mental health disorders. Consequently, it is imperative to design and implement intervention strategies focused on the mental health of healthcare personnel, in order to mitigate the adverse effects derived from their professional performance and improve their psychological well-being.

4. Discussion

Analysis of Mental Disorders in Health Personnel and their Relationship with Psychosocial Factors. The results obtained from the questionnaires applied show the presence of various mental disorders, such as anxiety and depression, in the population under study. The analysis of the different dimensions evaluated highlights the need to implement comprehensive evaluation models that allow a broader ap-

proach to the factors associated with these conditions. In this sense, the findings regarding the prevalence of disorders in health sector workers coincide with reports recently issued by the Colombian Ministry of Health.

According to data reported by the Directorate of Epidemiology and Demography of the Ministry of Health and Social Protection, Attorney General's Office (2023), between January and May 2023, 1,517,933 cases of mental illness were diagnosed in the Colombian population. In a complementary manner, the study carried out by Noguera Novoa, Sarmiento-Meléndez, Sierra-Hincapié, & González-Díaz (2023) found that healthcare personnel present symptoms of depression, with a greater risk in those professionals who perform functions in outpatient clinics.

In this context, it is essential to consider strategies that promote emotional regulation, since the adequate management of emotions contributes to the development of self-control and mastery skills. According to Fernández-Berrocal (2023), emotional regulation allows us to strengthen these competencies, and, in contrast, its repression can generate adverse effects on both mental health and physical health. Likewise, the results obtained from the Intra-work Psychosocial Risk Battery questionnaire revealed that workload constitutes a significant stress factor for health workers. The demands inherent to their functions can increase exposure to occupational risks, which is aligned with the conclusions of Robaina Aguirre y Ávila Roque (2023). These authors maintain that guaranteeing safe working conditions for health personnel is fundamental to improve the quality of service provided to patients and reduce the incidence of human errors, emphasizing the importance of the motto: "Take care of those who take care of us."

Given that the health sector was highly impacted during the COVID-19 pandemic, it is imperative to provide professionals with tools that strengthen their ability to cope with work demands, guaranteeing their safety and well-being in the work environment. In this sense, the findings of Medina Sucapuca & Santana, (2023) reflect that, in a group of nurses, the high workload and excessive demands have led to an increase in resignations. These factors, by generating hostile work environments, negatively affect the professional performance and health of workers.

5. Conclusion

The present study has been fundamental to identifying and analyzing areas of development in the field of mental health, a crucial aspect for human well-being. Mental health can be affected by multiple factors, and during the COVID-19 pandemic, a significant increase in mental disorders was evident. Even after two years since the start of the health crisis, this phenomenon continues to represent a global concern due to the sustained growth of these disorders in various countries. In this context, the Pan American Health Organization (PAHO) (2023) has recommended to States that mental health be considered a priority in their public policies, guaranteeing the allocation of adequate resources for investments in this

area. It is postulated that the implementation of Intra-work and Psychosocial Assessment models in mental health will allow an exhaustive analysis of the factors that affect work environments, which significantly affect the emotional, affective and physical health of workers. The development of an evaluation model facilitates the early detection of deficiencies within institutions, not only providing intervention strategies, but also promoting a sensitization and awareness process aimed at creating more effective protocols.

6. Recommendations

In future research, it is recommended to broaden the scope of the study by integrating a greater number of dimensions of analysis and incorporating multiple case studies that address physical, social, occupational and institutional aspects. This approach would allow for the assessment of mental health from a multidimensional perspective and the detection of disorders present in the general population. To do so, it is essential to use various measurement instruments that allow the assessment of the symptoms manifested, considering the heterogeneity of work environments in terms of resources, performance conditions and organizational climate. These factors can influence the adaptation of workers and increase exposure to stressors, especially in the case of health sector professionals.

It is also crucial to continue research in this field from different perspectives, incorporating new techniques that contribute to a deeper understanding of the phenomenon. It is essential to continuously monitor the affected population, given that individuals who suffer from psychological disorders may experience a progressive deterioration in their work performance, in addition to suffering repercussions on their physical health and on their family and social relationships. In this sense, the implementation of strategies and tools aimed at minimizing the impact of mental disorders is essential, considering the various coping and adaptation strategies available. These strategies facilitate adequate emotional management and promote a calmer and more positive attitude towards the challenges of the work environment. To analyze the evolution of mental health over time, especially in the context of the persistent effects of the pandemic, it is recommended to adopt a comprehensive approach that combines self-care, social support, and access to specialized professional resources. Since the present study is cross-sectional, it is essential to consider that the variables may experience fluctuations depending on environmental and work conditions. In the case of health sector workers, these conditions are inherent to their professional performance. Therefore, it is suggested to carry out periodic evaluations to monitor changes in the state of mental health, with special attention to the most prevalent symptoms in this population. In addition, it is essential to establish continuous monitoring of the development of intervention strategies, given their relevance in job performance. The influence of dynamic work environments, work overload, and other risk factors must also be considered, carrying out a multivariate analysis that allows a comprehensive understanding of the elements that affect the health of health sec-

tor workers. To do this, it is necessary to use standardized instruments, such as psychological well-being questionnaires, which allow monitoring of fluctuations in workers' mood. Likewise, it is recommended to promote healthy habits and apply stress regulation techniques that contribute to emotional balance. In cases where necessary, coping strategies should be adjusted in order to optimize psychological well-being and improve the quality of working life.

On the other hand, the implementation of the evaluation model could be enriched by the inclusion of additional tools that allow the identification of disorders not contemplated in the present research, but that could be present in the population studied. Likewise, it would be pertinent to incorporate new dimensions of analysis that consider the specificities of the different work environments and the objectives set out in the research, with the purpose of obtaining a more comprehensive and precise evaluation.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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