

# Organizational care of workers during COVID-19: Systematic literature review

## Cuidado Organizacional de los trabajadores durante el COVID-19: revisión sistemática de literatura

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### SUMMARY

*This article presents the results of a systematic review aimed at investigating the importance of implementing the occupational health and safety system to improve working conditions and the health of employees, leading to the application of necessary measures for prevention of risks produced from the execution of the tasks and the impact of the pandemic on the SGSST in entities that make up the provision of the health service. The sample unit was composed of 36 investigations, identified in the Web of Science, Science Direct, EBSCOhost, and Scopus databases, the search was carried out in the period covered (2018 - 2022), with publications in Spanish, English, and Portuguese. Data analysis was performed through the PRISMA methodology. The results indicate that the occupational health and safety management system played a very important role in the pandemic and that the safety measures contributed to the mitigation of the spread of the virus; likewise, constant monitoring*

*of the workers' protection strategies should be carried out to adopt a culture of self-care.*

**Keywords:** Labor conditions, health, prevention, SGSST.

### RESUMEN

*Este artículo presenta resultados de una revisión sistemática encaminada a investigar la importancia de implementar el sistema de seguridad y salud en el trabajo con el objetivo de mejorar las condiciones laborales y la salud de los empleados, llevando estas a la aplicación de medidas necesarias para la prevención de riesgos producidos de la ejecución de las labores y el impacto de la pandemia en el SGSST en entidades que conforman la prestación del servicio de salud. La unidad muestral fue compuesta por 36 investigaciones, identificadas en las bases de datos Web of Science, Science Direct, EBSCOhost, Scopus, la búsqueda fue realizada en el periodo comprendido (2018 - 2022), publicaciones en español, inglés y portugués. El análisis de los datos fue realizada a través de la metodología PRISMA. Los resultados indican que el sistema de gestión de seguridad y salud en el trabajo cumplió un papel muy importante en la pandemia y las medidas de seguridad contribuyeron a la mitigación de la propagación del virus, así mismo, se debe realizar un seguimiento constante a las estrategias de protección de los trabajadores para apropiar la cultura de autocuidado.*

**Palabras clave:** Condiciones laborales, salud, prevención, SGSST.

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## INTRODUCTION

In Colombia the implementation of the occupational health program has been regulated since 1979, only in 2004 the implementation of the Andean instrument 584 of the occupational health and safety management system began, after that the Ministry of Labor defined the occupational health and safety management system using law 1562 of 2012 (1).

The above, to generate own actions for the prevention of occupational risks and accidents, which is part of a joint effort between company managers and workers, aimed at improving working conditions achieving an active promotion, and encouraging individual level safety and hygiene (2).

The safety and health of the worker are one of the most important factors to consider within organizations and much more in the entities that make up the provision of health services, the International Labour Organization (ILO) in its annual estimates reveals that each year about 317 million people in the world are victims of occupational accidents and 2.34 million people die in the year due to accidents and occupational diseases, in Latin America the challenge is huge and the figures alarming, so much so that the figures indicate that for every 100 000 workers 11.1 fatal accidents are recorded (3).

Due to these frightening figures and to reduce workplace accidents, preventive work has been implemented with the systems, organizations are carrying out all the instructions to improve the results of accidents which leads to an increase in productivity and will impact the sector and the finances of the industry (4).

The pandemic in Colombia increased the use of the Internet from 35 % to 64 % which allowed the generation of new forms of work environments giving continuity to the development of the sector, allowing the development of new forms of teleworking at a global level (5).

Occupational health is directed to the promotion and prevention of the health of the workers and the capacity that they have in developing a healthy environment understood to prevent injuries and diseases related to the exercise of its work (6).

Thus, the present study investigated the importance of the occupational health and safety system during the COVID-19 pandemic, through a systematic review of scientific literature published in the last five years.

## METHOD

The methodological design under which the present systematic review was developed corresponds to descriptive research based on the analysis of documents under the quantitative approach. The search was conducted through the databases Web of Science, Science Direct, EBSCOhost, and Scopus, carried out in the period (2018 - 2022).

For accuracy, the search was focused on the words: occupational health, safety, and health, safety and health at work, occupational safety and health, SGSST (Sistema de Gestión de Seguridad y Salud en el Trabajo), and COVID-19, after applying all filters the sample unit was composed of 36 articles of which, taken from the primary and secondary source, publications in Spanish, English, Portuguese.

### Inclusion criteria

The aspects taken into account for the inclusion criteria focused on the analysis of those articles that were published in the last five years, taking into account the words used for the precision of the search. Articles were included in Spanish, Portuguese, and English since these are the languages that predominate in the articles, as well as those that bring together information related to occupational safety and health aspects.

### Exclusion criteria

Articles that were not the product of research results, books, book chapters, essays, as well as any material that did not take into account the search words of this research study were not taken into account.

### Search strategy

At the beginning of the search for the exploration of documents (7), it was focused on exploring the mentioned databases according to the opportunity and publications associated

with the area of interest, taking into account the scientific publications that were published in the last five years, including articles in Spanish, Portuguese, and English. The search included variables related to the occupational health and safety management system.

Table 1. Information search terms

“Conditions” and “Labor” or = “workers” not = “unemployed” “health” and “occupational” or = safety not = “development” “prevention” and “work environments” not = “activity” “accident analysis” and “wellbeing” not= “Exposure” “occupational safety” and “personal protection” not= “dangerous driving” “safety management” and “occupational safety” not= “digital safety” “adult wellbeing” and “SG-SST” not = “well-being in children” “occupational incidents” and “risks” not= “patients” “Condições” and “Trabalho” or = “trabalhadores” not= “desempregados” “saúde” and “trabalho” or = segurança not= “desenvolvimento” “prevenção” and “ambientes de trabalho” or = “atividade” not= “análise de acidentes” and “bem-estar” not= “Exposição” “segurança ocupacional” “Condiciones” and “Laborales” or= “trabajadores” not= “desempleados” “salud” and “ocupacional” or = seguridad not = “desarrollo” “prevención” and “entornos laborales” not = “actividad” “análisis de accidentes” and “bienestar” not= “Exposición” “seguridad ocupacional” and “protección personal” “COVID-19” not= “manejo peligroso” “gestión de la seguridad” and “seguridad ocupacional” not= “seguridad digital” “bienestar adulto” and “SG-SST” “Pandemia” not = “bienestar en niños” “incidentes laborales” and “riesgos” not= “pacientes”

The selection of this information and the search of the articles reviewed and the advances reported in the databases Web of Science, Science Direct, EBSCOhost, and Scopus, through the use

of Boolean operators in the formulation of the equations (Table 2), which serves to analyze the exploration process that helps to determine the research work.

Table 2. Search equations

Databases	Database search equations
web of Science	"Health - Safety" and "COVID-19" or = "Occupational health" not= "digital safety" "Occupational accidents" and "Working conditions" not= "occupational therapy" "Occupational safety" and "SG-SST" or= "management system" not= "Quality system". "Salud - Seguridad" and “COVID-19” or = “Salud ocupacional” not= “seguridad digital” “Accidente laborales” and “Condiciones laborales” not= “terapia ocupacional” “Seguridad laboral” and “SG-SST” or= “sistema de gestión” not= “Sistema de calidad”
Science Direct	"Labor conditions" not= "occupational therapy" "Occupational safety" and "SG-SST" or= "management system" not= "Quality system" "Health - Safety" and "COVID-19" or = "Occupational health" not= "digital safety" "Occupational accidents" “Condiciones laborales” not= “terapia ocupacional” “Seguridad laboral” and “SG-SST” or= “sistema de gestión” not= “Sistema de calidad” “Salud - Seguridad” and “COVID-19” or = “Salud ocupacional” not= “seguridad digital” “Accidente laborales”
EBSCOhost	"safety" and "occupational" or= "organizational" not= "digital safety" "safety" and "occupational health" or = organizations not= "digital safety" "accidents" and "occupational" or= "organization" not= "occupational disease" "accidents" and "occupational" or= "organization" not= "occupational disease" “seguridad” and “laboral” or= “organizaciones” not= “seguridad digital” “seguridad” and “salud ocupacional” or = organizaciones not = “seguridad digital” “accidentes” and “laborales” or= “organización” not= “enfermedad laboral”
Scopus	“systems” or= “occupational” not= “quality system” “safety” and “occupational health” or= organizations not = “digital security” “health” and “occupational” or = organizations not= “Schools” “safety” and “health at work” or = “organization” not= “home” “SG-SST” and “sistemas” or = “ocupacional” not= “sistema de qualidade” “segurança” and “saúde ocupacional” or = organizações not= “segurança digital” “saúde” and “ocupacional” or = organizações not= “Escolas” “segurança” and “saúde no trabalho” o or = “organização” not= “casa” “SG-SST” and “sistemas” or= “ocupacional” not= “sistema de calidad” “seguridad” and “salud ocupacional” or= organizaciones not= “seguridad digital” “salud” and “ocupacional” or = organizaciones not= “Colegios” “seguridad” and “salud en el trabajo”

**Data collection process**

The data processing was carried out through the PRISMA methodology (8), established in the literature review of an equivalent topic to draw a succession of conclusions taking into account the details of the search, covering the areas of

interest, based on the scientific contributions made by expert researchers. Thus, from this systematic review, contributions are made in the area of occupational safety and labor development through occupational safety and health management systems (9).

Table 3. Cross-references of search terms in the databases

Crosses/ databases	Web of Science	Science Direct	EBSCOhost	Scopus	Total
"Health" and "Safety" or = "Occupational" not= "Digital Security".	356	4 580	1 034	384	6 354
"Health" and "Occupational" not= "Occupational therapy".	20	595	491	46	1 152
"accidents" and "occupational" or "conditions" not= "occupational disease".	4	187	125	18	334
"conditions" and "labor"	4	631	584	79	1 298
"seguridad" and "salud" or "en el trabajo" or= "Laboral" not "seguridad digital".	60	2 769	106	26	2 961
"SG-SST" or "occupational safety and health management system" not "quality system".	2	1 179	40	5	1 226
"System" and "management" not "quality system".	67	2 600	1 945	254	4 866
Total	513	12 541	4 325	812	18 191

**Selection of studies**

The selection of the articles was made taking into account the selection filter in the last five years taking into account the variables of the study, consecutively excluding studies that did not meet the criteria and those texts that were not complete or available.

monitoring and control, which is why the importance of the creation of COPASST (Comité Paritario de Seguridad y Salud en el Trabajo) is responsible for monitoring and promoting standards related to safety and health at work, developing the organization in a culture of prevention and care that will be essential for each area of the organization to meet the expected objectives (45).

**RESULTS**

**Categories of analysis**

**Effectiveness of the joint occupational safety and health committee**

The organizations responsible for ensuring health and safety at work must invest in their employees and intervene in the processes for

The application of the system, the approval, and compliance of the Committee has shown a decrease in individual risks derived from the preventive culture that has achieved the decrease of occupational accidents, discharging the companies, the society, and the members of the organization in the concern of occupational health and assuming this responsibility the committee (46).

Table 4. Item identification, elimination, and selection process

Equation	Databases	No filter	No access	Revisions/ incomplete/ duplicates	Do not meet Criteria	Selection
"Health" and "Safety" or = "Occupational" not = "Digital Security".	Web of Science Science Direct EBSCOhost Scopus	6 535	3 802	854	2 604	5
"Health" and "Occupational "not= "Occupational therapy".	S c i e n c e Science Direct EBSCOhost Scopus	1 152	446	92	712	5
"accidents" and "occupational" or "conditions" not= "occupational disease".	S c i e n c e Science Direct EBSCOhost Scopus	334	149	55	178	1
"conditions" and "labor"	S c i e n c e Science Direct EBSCOhost Scopus	1 298	525	48	565	0
"seguridad" and "salud" or "en el trabajo" or="Laboral" not "seguridad digital".	S c i e n c e Science Direct EBSCOhost Scopus	2 961	1 910	390	1 213	13
"SG-SST" or "occupational safety and health management system" not "quality system".	S c i e n c e Science Direct EBSCOhost Scopus	1 226	834	150	562	9
"System" and "management" not "quality system".	S c i e n c e Science Direct EBSCOhost Scopus	4 866	2 056	298	2 533	5
Total		18 191	9 722	1 887	8 367	38

### Culture of Prevention of occupational health and Safety at Work

The organizations must work not only in implementing the COPASST but in being able to internalize in each of the workers the clear objectives and practices of the committee and integrate them to generate a culture of prevention enriching the beliefs shared with each member of the entity to promote better health conditions at work to reduce occupational diseases and accidents (47).

The culture of prevention and care should be related to each of the professionals who are part of the system working in health promotion, risk prevention, medical care, and training, directly influencing these aspects to improve the quality of services in terms of customer satisfaction and achievements internally with each of the workers allowing this bidirectionality working in an environment where all the necessary tools are offered to provide the necessary care and where the customer feels that he is being part of the transforming system (48).

**Data extraction**

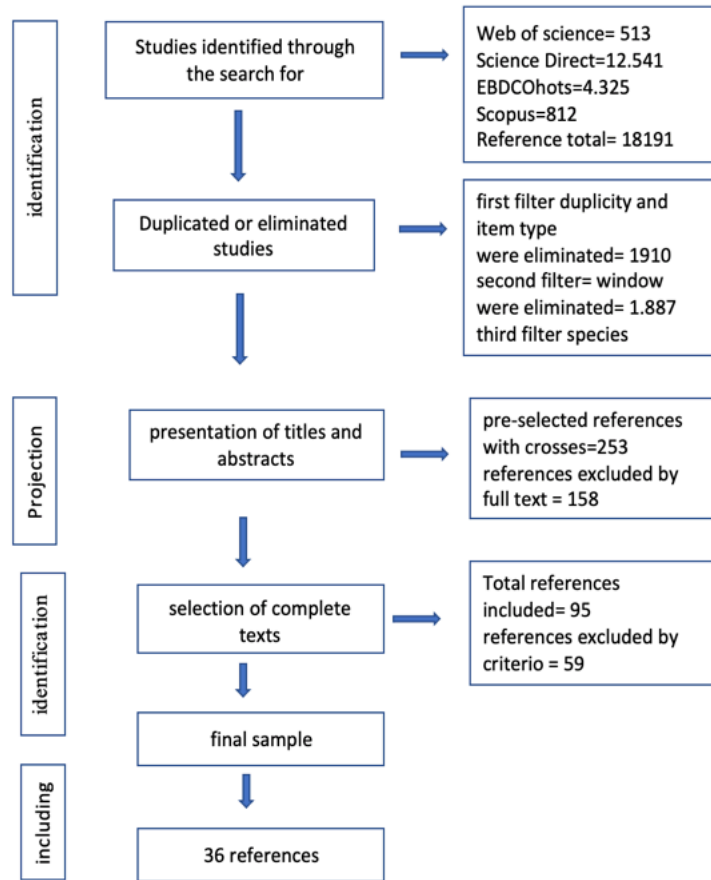


Figure 1. Flow chart of the study selection process.

Occupational health plays a fundamental role in the commitment to achieve an adequate implementation of prevention measures to create better health conditions and reduce accidents and occupational diseases, so it should be clear its important role in the crisis processes in organizations such as the COVID-19 pandemic were the protagonists of the timely detection to prevent the sequelae of the disease (49).

**Role of occupational health in the Pandemic**

Occupational health and safety are charged with establishing a safe workplace that can

eliminate accidents or fatalities, such accidents can not only cause those injuries, but material losses for both workers and employers and such events can disrupt the service delivery process. The pandemic has been one of the great challenges for the system due to the non-use of safety equipment, the non-acquisition of safety equipment and the high level of work stress, which led to an additional effort on the culture of understanding and use of personal protective equipment and the process of dissemination of health messages to provide information concerning care (27).

Table 5. Results obtained

Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
COVID-19; Professionals; Occupational health; Primary health care; Patient safety; Second victims	Professionals safety as prerequisite for patient safety	<a href="https://doi.org/10.1016/j.aprim.2021.102216">https://doi.org/10.1016/j.aprim.2021.102216</a>	An analysis was made of the main risks and damages suffered by professionals in primary care, and we provided keys to contribute to their protection in similar situations in the future	Science Direct	(10)
Social security Occupational Health and Safety Health System Health policies	Welfare State and public health: the role of occupational health	<a href="https://doi.org/10.1016/j.gaceta.2017.07.007">https://doi.org/10.1016/j.gaceta.2017.07.007</a>	This study emphasizes reports on how occupational health must meet the challenge of health promotion, prevention, and care of injuries, illnesses, and, above all, disabilities, based on better coordination of prevention services.	Science Direct	(11)
Strategic productivity management Small and medium-sized enterprises (SMEs)	Occupational safety and health management systems as a component of labor productivity	<a href="https://doi.org/10.1016/j.procs.2022.07.098">https://doi.org/10.1016/j.procs.2022.07.098</a>	The degree of commitment of the strategic management in promoting the effectiveness of occupational health and safety management programs (OHSMS) is necessary to consolidate the processes for the adoption and awareness of these programs by employees that promote labor productivity.	Science Direct	(12)
Management system, health, intensive care occupational safety, and health, occupational health, teleworkers, teleworkers	Health and safety management system to ensure the operability of self-protection plans in intensive care units.	<a href="https://doi.org/10.1016/j.medin.2018.02.010">https://doi.org/10.1016/j.medin.2018.02.010</a>	Healthcare organizations must go beyond compliance with current regulations and move towards a proactive system model to achieve comprehensive safety, through the development of management systems that address procedures and processes to ensure the safety and health protection of users and healthcare professionals.	Science Direct	(13)

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Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Telework, occupational safety, and health, occupational health, teleworkers, teleworkers	Occupational Health and Safety in Teleworking in Colombia	<a href="https://doi.org/10.1016/j.medin.2018.02.010">https://doi.org/10.1016/j.medin.2018.02.010</a> <a href="https://doi.org/10.1016/j.medin.2018.02.010">https://doi.org/10.1016/j.medin.2018.02.010</a>	The management of safety and health at work for autonomous teleworkers is a starting point to develop methodologies that facilitate companies that are implementing telework and OSH SG, generating simple and systematic processes that provide support to the leaders of the processes of the area.	EBSCOhost	(14)
Design Ergonomics Anthropometrics	Anthropometric characteristics of Chilean workers for ergonomic and design purposes	<a href="https://doi.org/10.1080/00140139.2018.1540725">https://doi.org/10.1080/00140139.2018.1540725</a>	The anthropometric characteristics of the workers were described taking into account measurements based on ISO 7250 and ISO 15535 to ensure the highest possible standards, and a total of 2946 workers, aged between 18 and 76 years	Web of Science	(15)
Occupational Safety and Health (SG-SST) Compliance with management systems Decree 1072	Development of decree 1072 of 2015, as a regulatory factor of practices in the field of construction for the prevention of occupational accidents with MHF Construark SAS, carried out during 2020 in Bogota.	<a href="https://doi.org/10.16925/2357-6014.2021.02.11">https://doi.org/10.16925/2357-6014.2021.02.11</a>	Establish the level of compliance in the implementation of the SGSST, to identify the determining factors that negatively affect this process.	Web of Science	(16)
Digital, workplace safety in smart cities, Organizational safety management, Safety governance Occupational health, and safety.	Intelligent occupational health and Safety for a digital age and Its Place in Smart and sustainable cities	<a href="https://doi.org/10.3934/mbe.2021436">https://doi.org/10.3934/mbe.2021436</a>	Occupational health and safety (OHS) is an essential aspect to consider in the design of a smart city and its digital ecosystems, yet it remains imprudent in the frameworks of most smart cities, despite the need for a specific space for smart OHS.	Web of Science	(17)
Occupational Health and Safety Legislation Legal	Occupational health and safety compliance management. A review of the literature	<a href="https://doi.org/10.1016/j.ssci.2019.08.033">https://doi.org/10.1016/j.ssci.2019.08.033</a>	Provides information on how compliance and non-compliance with legislation influence the day-to-day	Science Direct	(18)

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Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Compliance Safety Rules Safety Regulations Review	Regulatory advances in the Occupational Safety and Health Management System (OSH-SG SST).	<a href="https://doi.org/10.18041/0124-0102/a.32.5523">https://doi.org/10.18041/0124-0102/a.32.5523</a>	management of health and safety in companies	EBSCOhost	(19)
Laws; Labor rights; Equality; Equality; Protection.	Development of occupational safety and health management systems in Colombia since Decree 1072: a systematic review.	<a href="https://doi.org/10.1533219905">https://doi.org/10.1533219905</a> <a href="https://doi.org/10.1080/00140139.2018.1540725">https://doi.org/10.1080/00140139.2018.1540725</a>	Evaluate the state of the art in the development and implementation of the SG-SST in Colombia, aimed at the control of occupational hazards and risks focused on the prevention of occupational accidents and occupational diseases.	EBSCOhost	(20)
Development; management system; occupational health and safety; implementation; occupational health.	Safety and Health Conditions in the Workplace of Teleworkers: Systematic Review.		Advances in new information and communication technologies allow new work environments to be generated, thus favoring the business sector to find spaces for the employability of new workers, who, due to their competitive, economic, time, compliance, and social environmental conditions, among others, assume a competitive role from a place other than the traditional workplace.	EBSCOhost	(21)
Teleworking, Legislation, Occupational Health, Advantages					

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Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Public policy, occupational health, occupational health public policies, occupational risk prevention program, occupational hazards, Colombia.	Public policy on occupational safety and health: the Colombian case	<a href="https://doi.org/10.11144/Javeriana.rgsp17-35.pps">https://doi.org/10.11144/Javeriana.rgsp17-35.pps</a>	The objective of this review is to present the development of the Colombian public policy on occupational safety and health, showing the international guidelines postulated by the ILO and the WHO, their deployment in Ibero-American strategies, and the application of the public policy in the national occupational safety and health programs.	EBSCOhost	(22)
Organizational Culture Risk Management Workplace Occupational Health Telework	Teletrabajo: Gestión de la Seguridad y Salud en el Trabajo en Colombia/Teleworking: Occupational Health and Safety Management in Colombia.	<a href="https://doi.org/10.12961/apr.2020.23.01.03">https://doi.org/10.12961/apr.2020.23.01.03</a>	Companies with teleworkers for risk management must improve through the adjustment of some of the components of the management system. The main adjustments to be made involve information management and technology innovation applied to the organization and planning, implementation, and evaluation of the management system of safety and health at work.	EBSCOhost	(23)
Quality Decree 1072 of 2015 ISO 9001:2015 occupational health and safety integrated management system	Integration of the occupational health and safety management system into the quality management system in Colombian national public entities.	<a href="https://doi.org/10.15332/s2145-1389.2018.0001.02">https://doi.org/10.15332/s2145-1389.2018.0001.02</a>	For the implementation of an integrated management system, the lack of resources, the organization's resources, and the differences in the standards were identified. This methodology seeks to carry out activities with the minimum resources necessary for its management.	EBSCOhost	(24)
Occupational Health and safety management system (OSHMS) construction companies	Diagnosis of the implementation of the sg-sst in construction companies in Colombia.	<a href="https://doi.org/10.15332/24631140.5943">https://doi.org/10.15332/24631140.5943</a>	The construction companies confirm that it is important and necessary to have a methodology that allows them to implement the sg-sst in the projects they develop with greater ease, agility, and efficiency to obtain greater coverage and reception by all stakeholders, achieving	EBSCOhost	(25)

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Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Coronavirus; COVID-19; Health care personnel; Occupational exposure; Occupational health; Health care workers	Occupational safety and health in the context of the covid-19 pandemic: An exploratory review.	<a href="https://doi.org/10.15446/RSAP.V22N3.87238">https://doi.org/10.15446/RSAP.V22N3.87238</a>	Healthcare workers are the most exposed workforce. Accompaniment, coaching, and training in relation to patient care and the use of personal protective equipment are essential to reduce transmission among healthcare workers. In other work activities, social distancing is the standard measure for transmission mitigation, as well as for continuous disinfection of workplaces.	Scopus	(26)
Occupational health and safety management, COVID-19, occupational stress, COVID-19, work stress	Implementation of occupational health and safety (OHS) management system to work stress among healthcare workers during the COVID-19 pandemic at Daya Regional General Hospital, Makassar.	<a href="https://doi.org/10.473071/GMC.2022.130.4.3">https://doi.org/10.473071/GMC.2022.130.4.3</a>	The continuous work faced by healthcare workers during the COVID-19 pandemic is likely to cause stress. It was possible to analyze the application of the OSH management system to cope with stress in healthcare workers during the COVID-19 pandemic at Daya Regional General Hospital in Makassar City in 2022.	Scopus	(27)
Technology; wellness; flexible work arrangements; health and safety; right to disconnect; working time registration	How to ensure employee well-being in the digital age?	<a href="https://doi.org/10.7238/IDP.V0135.392944">https://doi.org/10.7238/IDP.V0135.392944</a>	Technology and flexible work arrangements have potentially positive effects on employee well-being by promoting autonomy, work-life balance, and reduced role conflict and stress.	Scopus	(28)
Occupational health; Organizational maturity; Problems; Safety management; Safety management	Occupational health and safety management: Maturity and minimum standards in district public entities in Colombia.	<a href="https://doi.org/10.37960/rvlg.v25i3.33359">https://doi.org/10.37960/rvlg.v25i3.33359</a> DOI	This article shows the relationship between maturity and the standards of public entities. Entities must strive to comply with the legal requirements associated with the system and at the same time establish strategies for continuous improvement in aspects such as the	Scopus	(29)

**Database**

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Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Strategic management strategies Small and medium-sized enterprises (SMEs)	Occupational safety and health management systems as a component of labor productivity	<a href="https://doi.org/10.1016/j.procs.2022.07.098">https://doi.org/10.1016/j.procs.2022.07.098</a>	strategic analysis of the system and the quality of work life.  The objective of this article was to analyze the occupational safety and health management system (OSHMS) as a component of labor productivity in small and medium-sized exporting companies (SMEs) in the metal- mechanic sector in Barranquilla- Colombia.	Scopus	(12)
Diagnostic Occupational Health and safety management System	Occupational Health and Safety Management System	<a href="https://doi.org/10.4067/S0718-7642019000400001">https://doi.org/10.4067/S0718-7642019000400001</a>	Explanation and orientation of occupational health and safety standards for a real transition from Occupational Health Program to Occupational Health and Safety Management System, at the highest level of implementation for companies in the various economic sectors that manage to build a feasible management system, adjusted to their needs, which effectively prevents accidents and illnesses of workers caused by working conditions.	Scopus	(30)
Applied research; applied research; formative research; methodology; occupational safety; safety at work	Safety and health at work, perspectives of methodological research.	<a href="https://doi.org/10.47307/MC.2022.1304.13">https://doi.org/10.47307/MC.2022.1304.13</a>	The purpose of this document was to identify the methodological perspectives applied in Occupational Safety and Health research, as a contribution to the social appropriation of knowledge, within the department of Tolima from 2010 to 2020.	Scopus	(31)
Management; Management system; Occupational risks; Occupational health;	Analysis of the job and the occupational health and safety professional	<a href="https://doi.org/10.37467/revhuman.v11.4111">https://doi.org/10.37467/revhuman.v11.4111</a>	The objective of this article was to carry out an analysis of the work of the occupational health and safety	Scopus	(32)

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...continuation Table 5. Results obtained from page S426

Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Occupational health; Occupational safety and health			professional and specialist of a group of graduates of this discipline, this process is based on the analysis of four dimensions, the first focused on the demographic part, the second on the socio-work, the third on the barriers that can arise in the Management of Safety and Health at Work.		
Diagnostics; Manufacturer; Regulations; Occupational health and safety; Standards; Diagnosis; Standards	Analysis of the implementation of occupational safety and health in the manufacturing sector in Valledupar.	<a href="https://doi.org/10.15332/246314435-2021-601">https://doi.org/10.15332/246314435-2021-601</a>	The study focused on the development of a diagnosis of occupational health and safety conditions in manufacturing companies, based on the application of two instruments that focused mainly on identifying the socioeconomic conditions of workers and determining the state of compliance with minimum occupational health and safety standards.	Scopus	(33)
Cost evaluation promotion and prevention occupational health and safety occupational health and safety management system	Methodology of costs of promotion and prevention in occupational safety and health for Colombia.	<a href="https://doi.org/10.15332/2463140.7791">https://doi.org/10.15332/2463140.7791</a>	The aim was to design a methodology to evaluate the costs of promotion and prevention (P&L) in occupational safety and health (OSH) for Colombian companies, as a contribution to the management in this area and the vision of P&L costs.	EBSCOhost	(34)
Employee wellness human resources managers workplace	Influence of suffering at work on health, occupational safety, and professional performance.	<a href="https://doi.org/10.3232/UBR.2022.V19.N4.02">https://doi.org/10.3232/UBR.2022.V19.N4.02</a>	The article offers an innovative look at the under-researched topic of suffering at work to discover what has been done, what needs to be changed, and what is yet to come in the field of suffering in companies.	EBSCOhost	(35)

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...continuation Table 5. Results obtained from page S427

Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Changes work management occupational health safety	Change management in the framework of occupational safety and health.	<a href="https://doi.org/10.15332/24631140.7798">https://doi.org/10.15332/24631140.7798</a>	This study was responsible for investigating the organizational culture, working and health conditions, and the socialization of those involved through a training program. Regarding external factors, the importance of reviewing current legislation and making the necessary adjustments to implement management systems was identified.	EBSCOhost	(36)
Occupational Risk Prevention	Preventive Effectiveness of occupational health and safety plans	<a href="https://doi.org/10.12961/apr.2022.25.03.08">https://doi.org/10.12961/apr.2022.25.03.08</a>	This is a novel investigation, which is unprecedented, largely due to the inaccessibility of the data, which had to be consulted on-site at the various offices of the labor authority, and to the number of PSTTs consulted.	EBSCOhost	(37)
Cost evaluation prevention occupational health and safety occupational health and safety management system	Criteria for the evaluation of occupational safety and health costs: a literature review	<a href="https://doi.org/10.15332/24631140.6671">https://doi.org/10.15332/24631140.6671</a>	This study made it possible to identify that studies on occupational safety and health that include cost evaluations are currently being carried out in the world. In addition, it was possible to determine the theoretical references that will contribute to the construction of a cost evaluation methodology for occupational safety and health: direct costs, indirect costs, and indicators (economic evaluations); and the analyses that have been made of the different criteria established by each one.	EBSCOhost	(38)
Management Occupational health and safety Psychosocial risks	Psychological health and safety at work: management of psychosocial	<a href="https://doi.org/10.15332/24631140">https://doi.org/10.15332/24631140</a>	This research is a tool for Colombian organizations to incorporate into their organizational management and	EBSCOhost	(39)

Continued in page S429...

...continuation Table 5. Results obtained from page S428

Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
	hazards and risks. Research and regulatory overview.		occupational health and safety management strategies, processes, and actions for psychological health and safety that promote occupational well-being and the promotion and protection of the physical and psychological health of workers and the promotion and protection of the physical and psychological health of workers.		(32)
Small business occupational safety social security	Perceptions of occupational safety and health systems in textile organizations in Medellín (Colombia): a qualitative analysis.		The conclusion is that there is a need to strengthen the role played by the labor risk management companies in managing the system's funds and in the processes of accompanying and advising the companies on the adoption of these initiatives, which are not only mandatory by law but also necessary to guarantee the quality of life of the working population.	EBSCOhost	(40)
Products chemistry risk	Analysis of occupational health and safety practices in the handling of carcinogenic chemicals and substances in the laboratories of the Instituto Tecnológico Metropolitano-ITM.		it was determined that the substances analyzed are indeed carcinogenic, where most of the substances determined as carcinogenic produce malignant neoplasia of the bronchus and lung or, in other words, bronchial cancer and lung cancer, respectively.	EBSCOhost	(41)
Control measures occupational health and safety management system	Selection of control measures in Occupational Health and Safety Management Systems using metaheuristics.		Achieve a maximum reduction of risk levels, a fact that is conditioned by budgetary planning and restrictions of nature inherent to the implementation of an Occupational Health and Safety Management System (OSHMS).	EBSCOhost	(42)

Continued in page S430...

...continuation Table 5. Results obtained from page S429

Variable/keyword crosses	Title	DOI	Apported	Database	Authors/ year
Quality of life; occupational disease; management; prevention; health; safety.	Occupational health and safety management system, MSMEs in Sincelejo, Colombia	<a href="https://doi.org/10.22267/rtend.222302.206">https://doi.org/10.22267/rtend.222302.206</a>	The results showed the relevance of unifying efforts for monitoring, resource management, and effective information for businessmen on the subject. The study allowed concluding the reality of a weak occupational health and safety system and the lack of knowledge of the regulations.	EBSCOhost	(43)
Environmental management system quality management system occupational health and safety management system	Integration of quality, environmental and occupational health and safety management systems in a national public entity of the finance sector.	<a href="https://doi.org/10.15332/s2145-1389.2018.0002.08">https://doi.org/10.15332/s2145-1389.2018.0002.08</a>	The aim of this article is to propose a methodology to integrate the quality management system (QMS), the environmental management system (EMS), and the occupational health and safety management system (OHSMS) in a national entity of the finance sector.	EBSCOhost	(44)



With the various existing factors that affect the health of workers, COVID-19 was one more where it was possible to work on the promotion and maintenance of the physical and mental well-being of each of the employees through the adoption of the identification of risks, understanding that the pandemic brought with it the presentation of numerous factors that affected the health of workers. For the pandemic to be carried out by the actors of health care, basic knowledge about occupational health was required, which allowed them to act within the process protocols in medical care helping to specify the factors associated with prevention and care measures (50).

The challenge of the pandemic, apart from the integral attention of the patients, the care at home, and others were based on the health institutions in the appropriation of programs and practices that contributed to generating a set of beliefs, knowledge, values, experiences, and skills that will lead the employee to adopt a series of habits aimed to reduce the accident rate and the occupational disease caused by the virus, taking with these new habits to the use of the safety measures provided (51).

### DISCUSSION

Every organization must guarantee adequate conditions so that its employees can perform their work without putting their physical or mental health at risk. The pandemic made it possible to understand the importance of implementing the health and safety system and its responsibility in achieving the adequate implementation of isolation measures for all persons who became ill with the virus (49).

Every challenge is different when talking about workers' safety and the health emergency was one of them, renewing the way of seeing safety and health at work, reinforcing the use of biosafety protocols, where the existence of direct exposure to infected and asymptomatic people was latent. Because of this, it was essential to generate surveillance protocols to generate a culture of self-care and achieve the maintenance of the strategy by determining actions aimed at mitigating the spread of the virus (52).

It is important to mention that Personal Protection Equipment (PPE) that was part of the health care of workers during the pandemic and proper hand hygiene was disclosed as the most effective strategy to prevent infections associated with the pandemic so it was essential that within organizations there was the availability of water, soap, alcohol-based gel or disinfection supplies that contributed to the use of the technique for the prevention of infection and that was difficult to access for many workers by factors such as shortage of raw materials, lack of resources or lack of knowledge of the measures (53).

### CONCLUSIONS

With the pandemic, occupational health and safety acquired greater relevance in organizations to save lives, likewise, international commitments were acquired towards personal protection elements thus reducing the contagion and helping to raise awareness of the use of personal protection elements associated with the performance of their activity, thus generating a culture of health care.

The above leads to the knowledge of the close relationship between the worker's health and the performance of their work, the organizations must direct the processes and institutional policies to comply with the objectives and be able to adopt safe workspaces that prevent the occurrence of risks inherent to the position.

The major challenge of occupational health and safety during the pandemic was to maintain at home the prevention, health care, and awareness of latent risk exposure, in which it was essential to adapt to change, maintenance of workspace, cleaning, active breaks, electrical hazards, among others, which contributed to self-care, health and safety of employees.

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