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Impacto de la primera fase de la Pandemia por COVID-19 en el malestar psicológico de los trabajadores sanitarios del Ecuador y su asociación con el compromiso laboral, sentido de coherencia y ambiente laboral

Memoria para optar al grado de doctor
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Ante la devastadora irrupción del SARS-CoV-2 y la posterior pandemia, el mundo se vio sacudido no solo por la amenaza inmediata del virus, sino también por sus efectos secundarios, entre las cuales destaca el profundo malestar psicológico (PD) que afecta a diversas poblaciones. En Ecuador, un país severamente impactado, el personal sanitario, especialmente aquellos en la primera línea de combate contra la COVID-19, emergió como uno de los grupos más afectados por este PD. Factores como el sexo, pertenecer al equipo de enfermería, condiciones laborales precarias y la tensión emocional relacionada con el alto riesgo de contagio se combinan para forjar un ambiente especialmente tenso y potencialmente dañino para la salud mental.

El presente estudio busca arrojar conocimiento sobre la magnitud de este impacto en Ecuador. A medida que enfrentamos la realidad de un mundo post-pandémico, es esencial que comprendamos y abordemos las secuelas que se han desarrollado en los profesionales de la salud.

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Universidad de Huelva



IMPACTO DE LA PRIMERA FASE DE LA PANDEMIA POR COVID-19 EN EL MALESTAR PSICOLÓGICO DE LOS TRABAJADORES SANITARIOS DEL ECUADOR
Y SU ASOCIACIÓN CON EL COMPROMISO LABORAL, SENTIDO DE COHERENCIA Y AMBIENTE LABORAL

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Prof. Dr. Juan Gómez Salgado



**Universidad
de Huelva**

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DEDICATORIA

A Dios, quien todo lo da o todo lo quita.

*A la memoria de Carlos Arias y Marianita de Arias:
fueron los Mejores Padres que un hijo pueda tener.*

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Sólo un exceso es recomendable en el Mundo: El exceso de Gratitud.

Gracias infinitas al PhD. Carlos Ruiz Frutos.

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Gracias infinitas a mi Amada Familia: Mi Poder y Motivación.

RESUMEN

ANTECEDENTES: Las pandemias han azotado a la humanidad desde sus inicios, con consecuencias devastadoras muy similares a la de las guerras, siendo su impacto más visible a nivel económico, social y político; sin olvidar los efectos a nivel de salud mental que una pandemia provoca. El coronavirus del síndrome respiratorio agudo grave de tipo 2 causante del síndrome respiratorio agudo severo (SARS-CoV-2) que provoca la enfermedad COVID-19, ocasionó una crisis de salud a nivel mundial con consecuencias dramáticas, siendo declarada pandemia por la Organización Mundial de la Salud (OMS) el 11 de marzo de 2020. A partir de este momento investigadores de todo el mundo tomaron la iniciativa de estudiar el malestar psicológico (PD) que la COVID-19 estaba generando en las diferentes poblaciones y su relación con otros factores como el compromiso laboral (WE), el ambiente de trabajo, el sentido de coherencia (SOC), entre otros.

OBJETIVOS: El objetivo general de la tesis fue evaluar el PD generado por la pandemia por COVID-19 durante la primera fase en Ecuador y su relación con el WE, el burnout y el ambiente de trabajo. Se establecieron 3 objetivos específicos: 1) Identificar el conocimiento científico existente sobre el burnout o el WE y su relación con desarrollar PD durante la pandemia por COVID-19; 2) Analizar el nivel de PD en la población ecuatoriana, durante la primera ola de la pandemia por COVID-19, identificando la posible asociación con variables sociodemográficas, presencia de síntomas físicos, historial de contacto y las medidas preventivas adoptadas y; 3) Evaluar la relación entre el PD, WE y el ambiente de trabajo, con el fin de conocer en qué medida el PD se puede ver afectado de manera positiva o negativa por las otras dos variables durante el período de confinamiento por COVID-19 en Ecuador.

METODOLOGÍA: Para lograr el primer objetivo se realizó una revisión sistemática siguiendo las pautas de la declaración PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), la cual fue registrada en el International Prospective Register for Systematic Reviews (PROSPERO) de la Universidad de York, con código de identificación CRD42022350318. Para el segundo objetivo se llevó a cabo un estudio transversal con el fin de medir el malestar psicológico utilizando el cuestionario de salud general de Goldberg (GHQ-12), además, se complementó con cuestionarios validados que midieron variables sociodemográficas, síntomas, historial de contacto y las medidas preventivas utilizadas. Por último, para el tercer objetivo también se realizó un estudio transversal para el cual se utilizó el GHQ-12, se complementó con la UWES-9 para medir el WE y cuestionarios validados que recogían información sobre el ambiente laboral durante la primera fase del periodo de pandemia, tales como carga de trabajo, seguridad percibida, conflictividad laboral, medidas preventivas adoptadas, riesgo de contagio en el trabajo, grado de satisfacción o necesidad de apoyo psicológico.

RESULTADOS: En la revisión sistemática que se realizó para lograr el primer objetivo cuyo fin era evaluar la relación entre el PD, el burnout y el WE, se analizaron 24 estudios que fueron seleccionados de 704 referencias utilizando la metodología PRISMA, en todos los artículos se encontró una asociación entre los factores mencionados, pero también se identificaron otros que tienen una asociación, especialmente con el WE. Como resultado del estudio de campo realizado para evaluar el nivel de PD en la población del Ecuador durante la primera fase de la pandemia por COVID-19, que corresponde al segundo objetivo de esta tesis, se encontró que el 62.72% de la muestra tenía PD y que se predice por las variables: ser mujer con un 69.1% versus los hombres con 55%, nivel de estudios universitarios, no tener hijos, mala percepción de salud durante los últimos 14 días y mayor número de síntomas. Según el estudio realizado para conocer la asociación del PD con el WE y ambiente de trabajo se observó que, el valor medio global del WE medido con el cuestionario UWES-9 fue 4.5 (SD=1.2), lo que se considera un nivel medio de compromiso en la UWES-9, siendo menor entre aquellos con PD (M =4,2; SD=1.2). Con respecto a ambiente de trabajo los resultados de PD fueron mayores en los lugares de trabajo donde se produjo un aumento de los conflictos laborales, en aquellos lugares donde el riesgo de infectarse era elevado y en aquellos entornos donde se percibía mayor carga de trabajo y más estrés. Asimismo, el nivel de PD fue alto entre quienes pensaban que se necesitaba apoyo psicológico para las personas y familias afectadas por la enfermedad, así como entre quienes pensaban que se necesitaba apoyo psicológico para profesionales y voluntarios.

CONCLUSIONES: Producto del estudio realizado, se puede concluir que sí existe una asociación entre el PD, burnout y WE, encontrándose niveles de medio a bajo en el WE, cuando los niveles de PD y burnout son altos, pudiéndose atribuir estos resultados a la organización interna de cada institución y país, como por ejemplo la asignación de todos los recursos de protección en los lugares de trabajo, el seguimiento por parte de los directivos a sus empleados o la difusión de información precisa y confiable; pero también se encontraron otros factores que tienen una asociación con el WE como el presentismo, el trabajo significativo, la atención plena e incluso la inteligencia emocional. A nivel mundial la pandemia por COVID-19 tuvo un impacto en la salud mental y en Ecuador el 62.72% de la población ecuatoriana presentó PD, también se puede concluir, del estudio realizado en este país que existe una relación entre el WE, ambiente de trabajo y PD, factores que se deben tomar en consideración para minimizar el impacto de estos eventos en la productividad laboral.

PALABRAS CLAVE: Estrés; Agotamiento; Trastorno psicológico; Compromiso laboral; sentido de coherencia, Profesionales de la salud; COVID-19; Malestar psicológico; SARS-CoV-2; Ambiente de trabajo, Ecuador.

ABSTRACT

BACKGROUND: The pandemic caused by the new coronavirus has posed a real challenge to mankind, resulting in innumerable deaths, economic problems, and destabilisation of the human species. It has generated a series of negative effects on the mental health of the world's population. This phenomenon has developed most strongly among healthcare workers, particularly those who have fought in the front line of the SARS-CoV-2 pandemic, thus leading them to a state of psychological distress (PD). PD involves a series of negative effects on the worker and their performance, such as depression and anxiety, among others. The study of PD is an important section within the healthcare workers of Ecuador, as this country suffered many important negative effects due to the pandemic. By the end of 2020, Ecuador registered more than 200,000 positive cases of COVID-19 and around 14,000 deaths due to this disease.

OBJECTIVES: The general objective of the current study was to assess the psychological impact of COVID-19 during the first phase of the pandemic on the healthcare professionals of Ecuador. Within the specific objectives: 1) To identify the scientific knowledge on the risk factors associated with psychological distress among healthcare workers during the COVID-19 pandemic; 2) To analyse the sense of coherence (SOC) in healthcare workers during the first phase of the COVID-19 pandemic in Ecuador, and its possible association with the work engagement (WE), psychological distress (PD), and work environment factors; and 3) To analyse the risk factors associated with PD during the first phase of the COVID-19 pandemic among healthcare workers in Ecuador.

METHODOLOGY: To meet the proposed objectives, 3 stages were completed. In the first stage, a systematic review was carried out using the Pubmed, Scopus, Web of Science, Cumulative Index of Nursing and Allied Literature Complete (CINAHL), and PsycINFO electronic databases on the basis of the key words that the research question yielded, following the PICOT strategy to find different works that provided evidence of psychological distress in healthcare workers during the COVID-19 pandemic. In the second stage, a descriptive cross-sectional study was conducted to determine whether the level of SOC, the WE, and the work environment were factors associated with PD. A sample of 1235 healthcare professionals from all provinces of Ecuador was taken. The sense of coherence (SOC) construct was assessed using the SOC-13 scale, a questionnaire consisting of thirteen items. Each item was evaluated on a seven-point Likert scale, where a value of 1 represented a lower frequency and a value of 7 indicated a higher frequency. Psychological distress was measured through the Goldberg scale, using the General Health Questionnaire (GHQ-12). For the evaluation of work engagement (WE), the Utrecht Work Engagement Scale (UWES-9) was applied. Finally, in the third stage, a cross-sectional, descriptive, quantitative study design was carried out to analyse the level of PD among healthcare workers in Ecuador during the COVID-19 pandemic.

For the second and third stages, a questionnaire was used as an instrument to assess PD, which contained items related to socio-demographic characteristics such as sex, age, marital status, level of studies, type of work, children, pet, or whether the person had any disability.

RESULTS: In the first phase of the systematic review, a total of 59 articles were included, which showed that the prevalence of PD during the COVID-19 pandemic was high. Female sex, being a nurse, being young, living alone/being single, having a chronic psychiatric disorder, having many years of experience, the presence of COVID-19 symptoms and contact history, and not getting enough sleep, among others, were found to be factors influencing the development of PD during the pandemic. On the other hand, in the field study, it was found that healthcare professionals in Ecuador had a perception that the quality of healthcare, the working conditions, and occupational health had significantly worsened during the health crisis compared to the previous stage ($p < 0.001$). According to the second phase, there was a statistically significant difference ($p < .01$) between the SOC and the WE in a positive way, and a negative difference with PD. A positive correlation ($p < .01$) was also found between the SOC and the effectiveness of the company in providing effective and safe working conditions. There was also a positive correlation ($p < .01$) between the SOC and age, and between the SOC and the psychological support needs of patients, caregivers, and other members of the population. In the third phase, when analysing 1056 questionnaires, women developed PD at a rate of 71.7%, higher than the 55.4% of PD found in men ($p < 0.001$). However, public employees had higher levels of PD compared to private workers.

CONCLUSIONS: PD is a latent reality among healthcare professionals in Ecuador, causing a series of negative effects on them. The appearance of PD was mainly seen in hospital workers who participated in the frontline fight against the COVID-19 pandemic. Several factors influence the development of PD, ranging from the perception of little biological protection, to female sex, being part of the nursing staff, having little family support, fear of personal and even family contagion, among others. This is a reality that has been experienced and is still being suffered by our healthcare professionals, which is why it is recommended that the mental health of this group of workers be strengthened, thus leading to better occupational health.

KEY WORDS: Stress; Burnout; Psychological disorder; Work engagement; Sense of coherence; Healthcare professionals; COVID-19; Psychological distress; SARS-CoV-2; Work environment; Ecuador.

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1. INTRODUCCIÓN

1.1. EFECTOS DE UNA PANDEMIA

Desde el inicio de la humanidad, la especie humana ha sufrido una serie de enfermedades epidémicas que en varios casos se han ido desarrollando hasta provocar una pandemia mundial. Estas últimas han generado cambios radicales en el comportamiento del humano, replanteando diferentes formas de vida, de higiene e incluso generando de manera casi obligada, avances en la ciencia para mejorar la difícil situación que se cursa durante un proceso pandémico de este calado (Huremović, 2019).

Una pandemia siempre trae consigo retos a superar, tanto sociales como culturales y económicos dentro de los cuales la principal prioridad es la preservación de la mayor cantidad de vidas y la minimización de las consecuencias que la pandemia pudiera provocar (Morabia, 2020). Todos estos procesos van enfocados hacia la mejora constante del proceso sanitario, creando así una mejora en la salud de un determinado territorio (Huremović, 2019).

Existen diferencias entre los términos pandemia y epidemia. Por un lado, la pandemia hace referencia a una epidemia que se extiende a diferentes países e infecta a varios seres dentro de una misma región, y, por otro lado, la epidemia hace referencia a una patología que contagia a varios individuos dentro de un mismo lugar y periodo específico (Stuijzand et al., 2020). Desde una perspectiva sanitaria, las pandemias generan un colapso del sistema de salud de los estados a los que ataca el microorganismo implicado. De esta manera se genera en la mayor cantidad de países implicados una precariedad de recursos humanos y gran incertidumbre en la población ante la poca información que se presenta durante este proceso. Sin embargo, las enfermedades epidémicas se han ido controlando tras la aparición del descubrimiento de la microbiología y vacunas, lo cual han generado una medicina de mayor precisión en torno a las patologías que se presentan y las medidas de prevención que se pueden dar ante estas últimas (Carreras et al., 2010). A pesar de todos los avances que han ido surgiendo a lo largo de la historia, este tipo de enfermedades siguen siendo una causa muy importante de morbilidad y mortalidad a nivel mundial.

Como se puede ir notando, el surgimiento de las grandes pandemias a lo largo de la historia de la humanidad siempre ha sido razón para que se produzcan efectos negativos e importantes sobre el planeta. Representan, además, nuevos desafíos para la humanidad, y esto es precisamente como ha ocurrido con la pandemia del recientemente descubierto coronavirus, conocido como coronavirus del síndrome respiratorio agudo grave de tipo 2 o SARS-CoV-2 por sus siglas en

inglés, el cual puede provocar la enfermedad COVID-19, denominada así por la organización mundial de la salud (OMS) (Sun et al., 2020).

La pandemia COVID-19, es problema sanitario que ha presentado y está presentando verdaderos retos a nivel mundial, pues se siguen llevando a cabo protocolos y manejos para poder salir adelante con los diferentes signos y síntomas que genera esta enfermedad (Khan et al., 2020).

Las pandemias en general, tienen varios efectos negativos, que van desde la salud biológica y mental hasta el bienestar intrafamiliar, llegando a afectar la economía de los países (Stefański, 2022).

1.2. EPIDEMIOLOGÍA DE LA PANDEMIA DE COVID-19

En el mes de diciembre de 2019, en Wuhan, capital de la provincia de Hubei, China, se desarrolló un brote de neumonías con un origen etiológico desconocido, convirtiendo así a este territorio en el epicentro de esta patología (Chan et al., 2020). Un determinado grupo de ciudadanos enfermos presentaban signos y síntomas sugestivos de una neumonía provocada por un microorganismo indeterminado. La mayoría de estos ciudadanos procedían de un mercado en el que se comercializaban animales vivos, pescados y mariscos en general los cuales no traían consigo un registro o un proceso adecuado de manipulación (Bogoch et al., 2020). Fue precisamente entre los días 18 y 29 del mes de diciembre del 2019 cuando se reportaron 5 casos, convirtiéndose así en los primeros que se registraron de este microorganismo. De estos cinco pacientes, cuatro fueron internados en el hospital por presentar la aparición de un síndrome de distrés respiratorio agudo (Rothan & Byrareddy, 2020).

Prácticamente todos estos pacientes refirieron haber tenido un estrecho contacto con el mercado de alimentos de Wuhan y un menor grupo presentó un contacto indirecto. Con esta evidencia, el 1 de enero del 2020 el mercado de Hubei fue totalmente cerrado y aún no se mostraban evidencias de cómo era la transmisión de este microorganismo. De manera sorprendente, solo un día después de la clausura de este mercado, ya se reportaban 41 casos de contagio con esta misma sintomatología. Hasta este punto, las autoridades sanitarias de esta región habían reportado la aparición de un nuevo tipo de coronavirus catalogado como el novel coronavirus o 2019-nCov. A la par de este descubrimiento, se descartaron posibles patógenos que causan esta enfermedad como el coronavirus del Síndrome Respiratorio del Oriente Medio, el virus que ocasiona la influenza, el coronavirus del síndrome respiratorio agudo (también conocido por sus siglas en inglés como SARS-CoV), el virus adenovirus y el virus que ocasiona la gripe aviar (Huang et al., 2020). Fue precisamente en este momento de la historia de esta enfermedad, dentro del cual el planeta se enteró que estaba enfrentando una verdadera amenaza.

Hasta el día 12 del mes de enero de 2020, no se habían reportado más casos de esta nueva patología. De acuerdo a la evidencia mostrada hasta ese punto, el contagio se lo relacionó con el mercado que ya había sido cerrado y no se había encontrado evidencia de que existiera un contagio persona a persona. Se reconoció a esta nueva patología como la enfermedad COVID-19 ocasionada por el virus 2019-nCoV, y de manera errónea se creyó que el contagio que ocasionaba este microorganismo era mínimo. Pero solo se necesitaron 10 días para que el número de contagios se elevara hasta 571 casos, en más de 20 provincias del estado chino. Y fue a partir de este momento en cual el número de infectados comenzó a aumentar exponencialmente y propagarse en los países vecinos (Lu, 2020).

Ya para el 30 de enero del 2020 se reportaron más de nueve mil quinientos casos en China y aproximadamente 90 en otros países vecinos como lo son Taiwan, Tailandia Japón, República de Corea, india, entre otros (Rothan & Byrareddy, 2020b).

Por otro lado, ya se había reportado el primer caso en un continente diferente al del país de origen de este virus. El 19 de enero del 2020 se reportó el primer caso de infección por esta patología en los Estados Unidos, dentro de su estado de Washington. El contagiado refirió haber visitado la región de Wuhan con su familia por turismo (Holshue et al., 2020). De igual forma el 24 de ese mismo mes se reportó un caso en el continente europeo. Este caso perteneció a un paciente procedente de Francia, el cual de igual manera presentó un historial de viaje reciente a China. El virus atacó a América Latina el 26 de febrero del año 2020, el caso fue de un paciente de sexo masculino con 61 años edad con nacionalidad brasilera (Garcia et al., 2020). Y fue así que el día 11 de marzo del 2020, que la OMS declaró de manera pública que el brote de esta nueva enfermedad COVID-19 se considera una pandemia (WHO, 2020).

Hasta el momento que se redacta el presente trabajo (Julio del 2023), se han registrado 768, 560, 727 casos de infección por este virus con más de 6 millones de muertes a nivel global (World Health Organization, 2022a). Sin embargo, la OMS declaró por acabada la emergencia por pandemia, pero la COVID-19 sigue, como lo podemos observar en los datos anteriormente mencionados.

1.3. EL NUEVO CORONAVIRUS 2019 (2019-NCOV)

De manera inicial, este tipo de coronavirus tomó el nombre de 2019 Novel Coronavirus (2019-nCov). Se dice que el término *Novel* pudo haber hecho referencia a las nuevas características de los síntomas y signos de esta enfermedad, o también a las nuevas características de este coronavirus en relación a los previamente identificados (Huang et al., 2020).

Hasta el momento se han descubierto una cantidad de 36 tipos de coronavirus diferentes. Los coronavirus, son un tipo de virus que pertenecen a la familia Coronaviridae, los cuales son microorganismos que poseen un ácido ribonucleico o ARN positivo de cadena simple, estos a su vez, pueden llegar a infectar a una gran cantidad de animales llegando incluso a contagiar seres humanos. Fue en el año 1966 que por primera vez se describen a los coronavirus (Velavan & Meyer, 2020). El nombre coronavirus se dio gracias a la disposición de su morfología, la cual constaba de viriones esféricos con una coraza y proyecciones superficiales que le daban un aspecto de corona (C. Wang, Horby, et al., 2020). Por otro lado, los coronavirus se clasifican en 4 categorías, los alfa, beta, gamma y delta coronavirus. De estos últimos, se conoce que el alfa y beta proceden de los mamíferos, de manera puntual del murciélago, mientras que los gamma y los deltas proceden de aves y cerdos. Por último, los betacoronavirus generan enfermedades importantes, pudiendo evolucionar hasta la muerte (Velavan & Meyer, 2020).

Los virus pertenecientes a la familia *coronaviridae*, generan diferentes afecciones respiratorias e intestinales en animales y seres humanos, y no se consideraba que este tipo de virus tenían una patogenicidad elevada. Sin embargo, este último punto de vista cambió con la aparición de la epidemia de SARS (Síndrome respiratorio agudo severo), que tuvo su lugar entre los años 2002 y 2003 dentro de China en la provincia de Guandong. Hasta antes de esta epidemia, las infecciones generadas a causa de este tipo de virus en los humanos solo eran de presentación leve (Cui, 2019; Zhong et al., 2003). La epidemia del SARS llegó a ser controlada gracias a las diferentes medidas sanitarias tomadas por el país y la OMS. No se han reportado casos de SARS desde el año 2004 hasta la actualidad. Esta epidemia dejó un total de 8096 casos confirmados de contagios, con un número de 774 defunciones (Marty & Jones, 2020).

En el año 2012, tan solo 10 años después del SARS, se dio la aparición de un nuevo coronavirus altamente patógeno que se identificó por primera vez en el territorio de Arabia Saudita, mismo que tomó el nombre de Coronavirus causante del Síndrome respiratorio del Medio Este (MERS-CoV) (Marty & Jones, 2020). Se registra que este virus, el MERS-CoV, se transmitió al ser humano a través de un camello dromedario, sin embargo, se piensa que tuvo su origen en murciélagos (Alagaili et al., 2014; Guan et al., 2003; Marty & Jones, 2020).

Luego de haber reconocido al SARS en el año 2002, se han descubierto una gran cantidad de coronavirus en murciélagos, los cuales guardan una estrecha relación con el SARS, y es precisamente en este tipo de mamíferos en el que se aíslan a manera de reservorio natural (W. Li et al., 2005). Cuando un grupo de científicos localizó y caracterizó al nuevo coronavirus (2019-nCoV), determinó que la similitud del genoma con el virus del SARS fue de 79.6% (Zhou et al., 2020). Este virus tuvo su denominación de manera formal por un grupo de científicos del comité de taxonomía internacional de virus, y es así como en base a su taxonomía, filogenia y diferentes prácticas se designó con el nombre de SARS-CoV2 por su estrecha relación con el virus SARS-CoV (Gorbalenya et al., 2020).

A manera de poder disminuir los contagios de este virus, se requirió hallar el vector causante de esta infección el cual es podría ser intermediario entre el humano y el murciélago. De acuerdo a un estudio publicado por Tao Zhang en el año 2020 se identificó una estrecha relación entre un virus encontrado en dos pangolines y el virus del SARS-CoV2. De acuerdo a las muestras obtenidas, en este estudio se determinó que el pangolín era el portador de un virus bastante parecido al SARS-CoV2, es por esto que se relaciona al pangolín como un intermediario entre el ser humano y el murciélago, esto también añadido al hecho que en el mercado donde se aisló por primera vez este virus se comercializaban este tipo de animales (Zhang et al., 2020).

Hoy en día se conoce que la forma más rápida de contagio es a través del humano, es decir, persona a persona. El SARS-CoV2 se transmite de manera directa o indirecta al existir un tipo de contacto con una persona infectada. Una de las mejores maneras en la que se puede detener la propagación de este virus, es aislar a la persona que presenta una infección confirmada, ya sea un paciente sintomático o asintomático, siendo estos últimos los pacientes que más contagios pueden ocasionar, pues al no presentar un signo o síntoma sugestivo de la enfermedad, llevan su vida con cotidianidad esparciendo el virus de manera indeterminada (Salian et al., 2021).

1.4. ESTADO DE LA PANDEMIA POR COVID-19 EN LA POBLACIÓN GENERAL

Esta pandemia ha generado repercusiones económicas muy importantes sobre el planeta en general, produciendo incluso una crisis más grave de la que ocurrió a causa de la segunda guerra mundial (Galeana, 2020). Produjo, además, una sobrecarga en los sistemas de salud de todos los países, en especial de las Unidades de Cuidados Intensivos en Europa (Berger et al, 2022), y en países con un menor desarrollo económico, como Ecuador, con carencia de insumos, personal y capacidad instalada (Moreno et al., 2022), que no solo derivaron en patologías biológicas sino también aumentando el malestar psicológico de los profesionales de la salud (Chew et al., 2020).

La expansión de la pandemia se acelera gracias a la fluidez de la movilidad internacional de la población y a la facilidad de transmisión del virus (Passavanti et al., 2021a). La COVID-19 se transmite por contacto estrecho con una persona infectada, a través de las droplets o aerosoles que esta emite durante actividades respiratorias tales como hablar, toser, reír, estornudar. El receptor puede contaminarse por inspiración directa de un aerosol infectado en cercanía de una persona enferma o al tocar una superficie contaminada (Yesudhas et al., 2021). Muchos de los pacientes permanecen asintomáticos y desconocen su potencial de contagio, que es el mismo de un paciente con síntomas, lo que agrava y favorece aún más la trasmisión de este virus (Buonanno et al., 2020).

Hasta la disponibilidad de la vacuna y en ausencia de tratamiento específico, la forma más efectiva de abordar la pandemia fueron las medidas de contención preventivas, higiene de manos, mascarilla facial, distancia social y aislamiento (Adhikari et al., 2020). A pesar de estas medidas, el virus se extendió rápidamente, colapsando los sistemas sanitarios. El virus Sars-CoV-2 desencadena una crisis inflamatoria respiratoria que unido a ciertos factores de riesgos previos como la edad avanzada (≥ 65 años), el sexo masculino, la hipertensión, las enfermedades cardiovasculares, la diabetes, la EPOC y las neoplasias malignas, hace que la persona requiera hospitalización, apoyo respiratorio complejo, ingreso en la unidad de cuidados intensivos (UCI) y, en muchas ocasiones, conduce a la muerte (Parohan et al., 2020). Los pacientes con COVID-19 permanecen hospitalizados ente 5 y 29 días y aquellos que ingresan en la UCI tienen una estancia media ente 1 y 3 semanas (C.-Y. Liu et al., 2020a). Todas estas generan en gran medida estrés dentro de la población que vive la actual pandemia.

1.5. EL ESTRÉS LABORAL

El estrés al día de hoy es una condición que se vive con bastante frecuencia dentro de los individuos de nuestros tiempos, pues en la actualidad existen cambios constantes que pueden generar esta afección. Los avances tecnológicos y científicos cada vez son más veloces, existe un constante cambio y necesaria adaptabilidad que podrían fácilmente permitirnos caer en una condición de inestabilidad como lo es el estrés. Este último es un elemento empobrecedor de la salud que logra afectar a nuestro estado físico, mental, social y en gran medida esto llega a materializarse dentro de nuestros trabajos ocasionando una serie de efectos negativos dentro de la seguridad y salud laboral (Colligan & Higgins, 2006).

Los problemas provocados por el estrés han aumentado en las últimas décadas y se ha visto relacionado al trabajo. Diferentes actividades que en tiempos anteriores requerían de esfuerzo físico, hoy en día requieren más de un esfuerzo mental, lo cual en cierta medida es por el procesamiento de mayor información que se necesita en los diferentes procesos laborales. Asimismo, se requiere hacer aún más actividades de parte de los trabajadores. Finalmente, el estrés es el resultado del proceso de adaptabilidad a los nuevos cambios y procesos del día a día, generando así un desgaste físico, emocional y psicológico (Wilkins & Beaudet, 1998)

Los cambios veloces que se están produciendo actualmente desde el punto de vista económico y laboral, generan al trabajador verdaderos retos a superar, dentro de los cuales muchos de ellos no logran superar con rapidez.

El estrés no siempre genera una respuesta negativa al ser humano, si bien es cierto se lo relaciona con problemas de desestabilidad emocional y psicológica, este también es útil para hacer frente a diferentes situaciones de supervivencia. Al existir un aumento de estrés dentro de nuestra rutina, se puede elevar también nuestro nivel de alerta y rendimiento, siempre y cuando este aumento de estrés no sea de manera exagerada. Es por esto, que en la literatura se habla de un “estrés bueno” o eustrés y otro “estrés malo” o distrés (Selye, 1975).

El eustrés es un tipo de estrés beneficioso para nuestra salud, pues genera un aumento de nuestras capacidades vitales para hacer frente a diferentes retos, lo que finalmente se traduce en una mayor vitalidad. Por otro lado, el distrés se define como un exceso de estrés a nuestro cuerpo, que genera una condición de incomodidad por un mayor tiempo, lo cual se traduce como un estado de angustia y sufrimiento físico y mental.

Es precisamente el distrés el que ha ocasionado muchos problemas en los seres humanos y se ha visto presente dentro del ambiente laboral, generando muchos efectos negativos en la salud del trabajador. Existen muchas enfermedades que se pueden producir por un estrés agudo o crónico,

habitualmente estas suelen ser de carácter neurológico, sin embargo pueden afectar a todos los órganos y sistemas humanos (Ridner, 2004).

Este estrés laboral como tal, se ve mucho más reflejado en lugares de trabajo donde la demanda y adaptabilidad laboral se exigen bastante. Uno de los profesionales que mayormente se ven cursando estas condiciones son los profesionales de la salud (Ruotsalainen et al., 2014).

El personal médico, de enfermería, auxiliares, de laboratorio, entre otros, son un grupo que generalmente se ven expuestos a una alta carga laboral e incluso responsabilidades cada vez más grandes. La relación profesional-paciente no siempre suele ser fácil, y por el contrario se requiere de una serie de herramientas y esfuerzos necesarios para satisfacer las necesidades del enfermo (Ruotsalainen et al., 2014).

De manera general, el estrés laboral puede ocasionar una serie de signos y síntomas asociados, como los podrían ser la irritabilidad, la ansiedad, depresión, trastornos estomacales, vértigo, taquicardias, hipertensión, descompensación de una enfermedad base, entre otros. Todas estas patologías dañan la homeostasis humana y desencadenan aún más enfermedades las cuales en su gran mayoría se encuentran explicadas bajo un proceso neurobiológico (Salian et al., 2021).

Aunque la crisis sanitaria ocasionada por el coronavirus ha supuesto un reto para todos los sistemas sanitarios del mundo, para los países de bajos o medianos ingresos, que parten de una situación previa de recursos inadecuados, el desafío de la COVID-19 ha supuesto un empeoramiento de la brecha sanitaria, especialmente en lo referente a la salud mental (Adiukwu et al., 2020).

1.6. MALESTAR PSICOLÓGICO EN LOS PROFESIONALES SANITARIOS DURANTE LA PANDEMIA COVID-19 Y SU SINTOMATOLOGÍA ASOCIADA

En los últimos meses la demanda laboral que se le ha exigido a los profesionales sanitarios ha sido bastante alta y precisamente se lo atribuye a la pandemia por COVID-19. Es así que en un estudio multicéntrico se ha podido observar que esta pandemia se ha asociado con un mayor número de síntomas de salud mental que en situaciones estresantes previas, como estrés postraumático, ansiedad, depresión, insomnio y disociación. Este tipo de estrés ocasionado por la pandemia se han visto mayormente en Latinoamérica y menor en América del Norte (Consortium, 2021).

El colectivo de trabajadores sanitarios es el más estudiado a nivel internacional en relación con la pandemia por COVID-19, aunque se ha podido constatar un vacío de la literatura sobre los apoyos organizacionales para la salud mental de estos trabajadores-(Palmer et al., 2022), especialmente esto se observa en los profesionales encargados de tratar a los enfermos infectados (C.-Y. Liu et al., 2020b). Se ha relacionado el malestar psicológico con la seguridad y atención del paciente, el entorno familiar y laboral, la percepción de los medios de comunicación y de la población y las respuestas gubernamentales a la pandemia, encontrándose que exacerbaciones de la incertidumbre, la hipervigilancia y el daño moral aumentan el nivel de PD (Berkhout et al., 2022).

Con respecto a datos internacionales, en hospitales de Japón se observó que las mujeres, los no médicos, los que vivían solos y los más jóvenes presentaban mayor malestar psicológico (Sengoku, 2021), mientras que en Italia el personal sanitario infectado tenía mayor ansiedad que los no infectados, pero menores niveles de depresión (la Torre et al., 2022); y en Egipto se constató una alta prevalencia del estrés percibido, la ansiedad y la depresión entre los trabajadores de la salud durante la pandemia de COVID-19 que afectó a todos los trabajadores, independientemente de las diferentes características sociodemográficas (Talman et al., 2016). En Singapur el estrés percibido y el agotamiento laboral mostraron un leve aumento durante seis meses, incluso después de salir del confinamiento (Teo et al., 2021).

Son pocos, en comparación con los estudios realizados en Asia, EEUU o Europa, los artículos que valoran los efectos en la salud mental de los trabajadores sanitarios de países de Latinoamérica (Gómez-Salgado et al., 2022; Martin-Delgado et al., 2022a; Ruiz-Frutos, Palomino-Baldeón, et al., 2021). En un estudio realizado en cuatro países: Argentina, Chile, Colombia y Ecuador, como cabía esperar, los peores resultados en la salud mental de los sanitarios coincidieron con los picos de mayor incidencia de casos, los del Servicio de Cuidados Intensivos, y los que se contagiaron o tenían dudas sobre estar infectados (Martin-Delgado et al., 2022b). En otro estudio sobre 150 sanitarios de Colombia entre 18 y 68 años, 42.7% manifestaron malestar psicológico durante la primera fase de

la pandemia, con niveles más altos en mujeres y enfermeras. Este PD se tradujo principalmente en depresión (Campo-Arias et al., 2021).

Además de la sobrecarga de trabajo con extensas jornadas laborales, los profesionales sanitarios han tenido que desempeñar su trabajo en condiciones físicas y psicológicas muy difíciles (Assari & Habibzadeh, 2020). La complicada situación de la pandemia les obliga a trabajar bajo la sensación de amenaza constante por la exposición directa al propio patógeno, con escasez, en ocasiones, de material de protección; el miedo a transmitir el virus a familiares o amigos que puede conducirles a un aislamiento social, o la frustración profesional ante la soledad y muerte de los pacientes de coronavirus a los que atienden (Assari & Habibzadeh, 2020; Dichter et al., 2020; Ferrán & Barrientos-Trigo, 2020).

El malestar psicológico o “psychological distress” en inglés (PD) genera circunstancias excepcionales que tienen un inevitable impacto en la salud mental de los trabajadores de la salud. Se han descrito altos niveles de ansiedad, depresión, estrés postraumático, insomnio, síntomas obsesivo-compulsivos, trastornos emocionales y somatización entre el personal sanitario durante la pandemia de COVID-19 (da Silva & Neto, 2021b; Hegney et al., 2019; Kang et al., 2020; Lai et al., 2020a). Estas consecuencias se acentúan especialmente en las enfermeras, mujeres, involucradas en el diagnóstico, tratamiento o cuidado de pacientes con coronavirus (Lai et al., 2020a). Durante la pandemia se han descrito altos niveles de “compassion fatigue” y burnout entre los profesionales sanitarios y un descenso significativo de “compassion satisfaction” (Ruiz-Fernández et al., 2020; Trumello et al., 2020a). Este burnout no solo está condicionado por la sobrecarga de trabajo y las demandas psicológicas de la situación pandémica, sino también por la sensación de amenaza de los trabajadores y la falta de apoyo social (Manzano García & Ayala Calvo, 2021). La afectación psicológica y emocional de los trabajadores sanitarios tiene repercusiones en el desempeño de sus funciones, al condicionar su capacidad de atención, comprensión y toma de decisiones (Kang et al., 2020). Por lo tanto, es imprescindible atender a las necesidades psicológicas del personal sanitario para hacer frente a la pandemia de forma efectiva.

1.7. SITUACIÓN DE LA COVID-19 EN ECUADOR

La COVID-19 se vio principalmente extendida en países en vías de desarrollo, ocasionando en la mayoría de estos un colapso del sistema sanitario y varias defunciones a causa de este virus. En toda América Latina y el Caribe, la pandemia por el virus SARS-CoV-2 ha generado una gran recesión económica y un nivel de endeudamiento grave. En general, los países de bajos y medianos recursos pertenecientes a este tipo de región presentan mayor dificultad al hacer frente a esta problemática, ya que son de manera particular más vulnerables (Sánchez-Duque et al., 2020).

Ecuador ha sido uno de los países más castigados por la pandemia con una tasa de mortalidad entre las más altas de América Latina (Paz et al., 2020), que alcanzó el 8,5%, aunque probablemente fue mucho mayor ya que muchas personas murieron a causa del virus sin ser diagnosticados (Alava & Guevara, 2021). De las cuatro regiones geográficas de Ecuador, la costa y la ciudad de Guayaquil son las zonas más graves dado que reúnen el 82,57 % de los casos confirmados de COVID-19 y coincide con una zona seriamente afectada de dengue con anterioridad (Navarro et al., 2020).

Para hacer frente al avance de la pandemia, el gobierno ecuatoriano estableció medidas de contención tales como el confinamiento, el bloqueo del tráfico y circulación y el toque de queda (Pacheco et al., 2020). Sin embargo, estas medidas se implantaron de forma desigual en todo el país, por no contar con una cobertura sanitaria universal, por las dificultades en las comunicaciones y por factores geográficos y étnicos como las poblaciones indígenas y refugiados (Torres & Sacoto, 2020). La respuesta del sistema público de salud ecuatoriano ha sido lenta e insuficiente. El elevado número de casos (figura 1) y defunciones colapsó el sistema y evidenció sus carencias operativas y la ausencia de un plan estratégico para contener la propagación de la infección (Alava & Guevara, 2021).

Ante este escenario y con los escasos recursos sanitarios del país, la amenaza es particularmente grave para los trabajadores de la salud ecuatorianos que tienen que luchar contra la pandemia en uno de los países con mayor número de casos y muerte per cápita del mundo (Navarro et al., 2020). Se hace necesario conocer el impacto psicológico de la pandemia en el personal sanitario por las consecuencias negativas que puede desencadenar para el propio colectivo, para las personas afectadas y para la sociedad en general por su rol protagonista en el abordaje y contención de la pandemia.

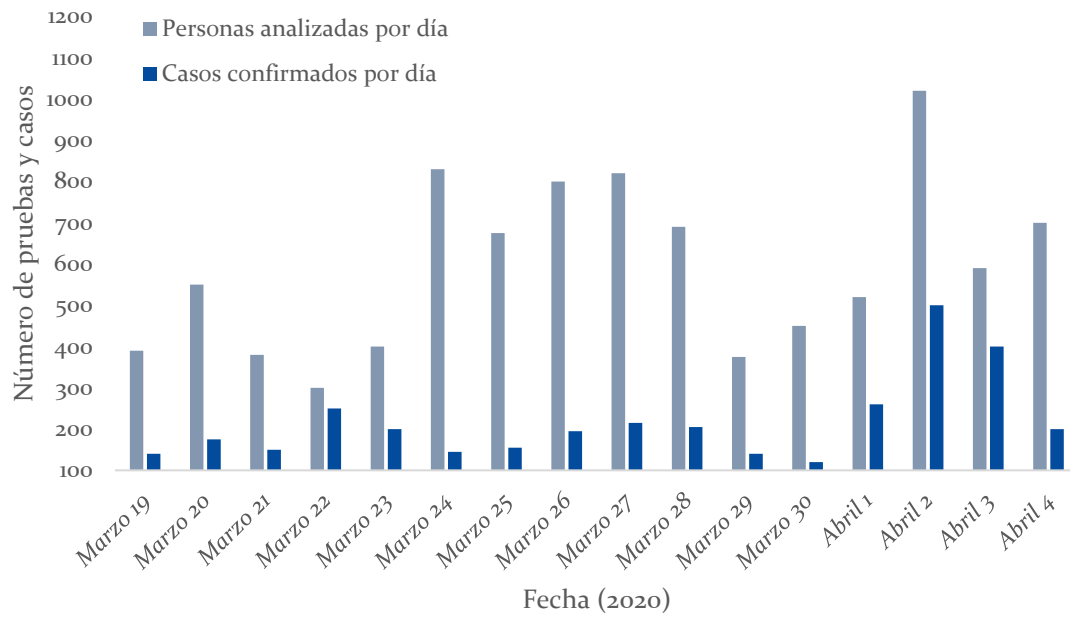


Figura 1. Cantidad diaria de pruebas y casos confirmados por COVID-19 en Ecuador, del 19 de marzo al 4 de abril del 2020. Fuente: Torres (2020).

1.8. COMPROMISO LABORAL *WORK ENGAGEMENT* (WE)

El compromiso laboral o *work engagement* (WE) es una actitud positiva y satisfactoria relacionada con el trabajo. Se caracteriza por las dimensiones de vigor, dedicación y absorción (Schaufeli et al., 2002). Este concepto multiaxial agrupa múltiples factores que influyen en el compromiso laboral, como el clima organizacional, los recursos laborales, profesionales y personales, las demandas laborales y variables demográficas (Keyko et al., 2016).

Es interesante destacar que el WE ha demostrado ser un factor primordial para los trabajadores. Los estudios previos han constatado que los trabajadores de la salud (*healthcare workers* o HCWs) en Europa con niveles más altos de WE relacionados con su trabajo pueden estar protegidos frente a variaciones en la sintomatología psicológica durante unos tres meses, aunque este nivel puede disminuir a lo largo de la pandemia, lo que puede dar lugar a una pérdida de salud mental (Berger et al., 2022). Por otro lado, los HCWs con un WE más bajo podrían estar protegidos en etapas posteriores de la pandemia (Berger et al., 2022).

Es importante destacar que los trabajadores de la salud engloban a todas las personas que laboran en entornos de atención médica o incluso social, entre los que se incluyen médicos, personal de enfermería, personal de laboratorio, camilleros, entre otros (Joseph & Joseph, 2016).

Recapitulando, el WE se define como una actitud positiva y satisfactoria relacionada con el trabajo, manifestada a través de dimensiones como el vigor, la dedicación y la absorción (Schaufeli et al., 2002). Su influencia en el bienestar y la salud mental de los trabajadores de la salud ha sido ampliamente estudiada. Mientras que un mayor WE puede brindar cierta protección en los primeros meses de la pandemia, es importante considerar la posible disminución de este compromiso a medida que la crisis sanitaria se prolonga. Los resultados obtenidos en estos estudios contribuyen a comprender la importancia del WE como factor clave en la salud laboral de los trabajadores de la salud, ofreciendo pautas relevantes para el diseño de estrategias de intervención y apoyo psicosocial (Bakker et al., 2008).

1.9. SENTIDO DE COHERENCIA O *SENSE OF COHERENCE* (SOC)

El sentido de coherencia (SOC) se define como la capacidad de comprender una situación, percibirla como manejable y movilizar recursos para desarrollar respuestas eficaces. Este constructo se compone de tres dimensiones: comprensibilidad, manejabilidad y significado. La dimensión de comprensibilidad se refiere a la claridad y estructura que se atribuye a los eventos de la vida. La dimensión de manejabilidad implica la confianza en la propia capacidad para enfrentar desafíos. Por último, la dimensión de significado se relaciona con la percepción de un propósito y sentido en la vida. Un SOC fuerte se asocia con un mejor bienestar y capacidad de afrontamiento (Kretowicz & Bieniaszewski, 2015).

El SOC implica que el individuo posee una capacidad para comprender y darle sentido a los eventos de la vida. Esta capacidad se basa en la percepción de que existen patrones y orden en la realidad, lo que facilita la orientación y el entendimiento del entorno (Antonovsky, 1987; Mitonga-Monga & Mayer, 2020). Asimismo, un sentido de coherencia fortalecido se relaciona con la habilidad de identificar y utilizar eficazmente los recursos disponibles para hacer frente a las dificultades y desafíos que se presentan en la vida cotidiana.

Al poseer un sentido de coherencia desarrollado, el individuo adquiere una mayor confianza y seguridad en sí mismo al enfrentar las adversidades, lo cual se refleja en su capacidad para afrontar situaciones estresantes de manera saludable. Esta actitud resiliente se encuentra respaldada por una sólida creencia en la propia capacidad para afrontar y superar las dificultades, lo que a su vez fomenta un estado de bienestar emocional y psicológico (Garrosa et al., 2014).

Es importante destacar que el sentido de coherencia no solo se refiere a la forma en que una persona interpreta y da sentido a su propia vida, sino que también influye en su capacidad para hacer frente a los desafíos externos. Al contar con un sentido de coherencia sólido, se facilita la identificación y utilización de los recursos disponibles, ya sean internos (como habilidades y fortalezas personales) o externos (como apoyo social o recursos institucionales), para afrontar retos en el entorno (Antonovsky, 1987; Mitonga-Monga & Mayer, 2020).

Se conoce por estudios previos que el SOC es un predictor y modulador importante de la salud mental y los síntomas psicopatológicos durante la pandemia, según el modelo salutogénico (Antonovsky, 1996). Además, se ha observado que los cambios en el SOC se mantienen durante un largo periodo de tiempo (Schäfer et al., 2022). Es importante considerar que la resiliencia también desempeña un papel en este contexto, ya que es difícil de predecir después de procesos traumáticos debido a su naturaleza continua que requiere una autorregulación flexible (Bonanno, 2021).

En enfermeras, se ha evidenciado previamente que un alto SOC se asocia con una mejor salud y compromiso laboral (Malagon-Aguilera et al., 2019), en trabajadores no sanitarios que

desempeñaron actividades esenciales durante el período de confinamiento durante la primera fase de la pandemia, se observó que niveles bajos de SOC se asociaban con mayores niveles de malestar psicológico (Ruiz-Frutos, Ortega-Moreno, et al., 2021).

En resumen, el sentido de coherencia (SOC) es un concepto fundamental para comprender la salud mental y los síntomas psicopatológicos durante la pandemia. Este constructo tiene un impacto significativo en la forma en que los individuos enfrentan los desafíos y movilizan recursos para adaptarse a situaciones estresantes. Además, el SOC puede desempeñar un papel importante en la promoción de la salud y el bienestar en diversos grupos de trabajadores, incluidos los profesionales de la salud.

2. OBJETIVOS

2.1. OBJETIVO GENERAL

Evaluar el impacto de la primera fase de la Pandemia por COVID-19 en el malestar psicológico de los trabajadores sanitarios del Ecuador y su asociación con el compromiso laboral, sentido de coherencia y ambiente laboral.

2.2. OBJETIVOS ESPECÍFICOS

- Identificar el conocimiento científico sobre los factores de riesgo asociados con el malestar psicológico entre los trabajadores de la salud durante la pandemia de COVID-19, desde enero de 2020 hasta diciembre de 2022.
- Analizar los factores de riesgo asociados al malestar psicológico durante la primera fase de la pandemia de COVID-19 en los trabajadores de la salud en Ecuador.
- Analizar el sentido de coherencia en los trabajadores de la salud durante la primera fase de la pandemia de COVID-19 en Ecuador y su posible asociación con los factores de compromiso laboral, malestar psicológico y ambiente laboral.

3. METODOLOGÍA

La presente sección describe en detalle la metodología empleada en el actual trabajo, siendo estructurada en tres fases fundamentales. Estas fases han sido diseñadas y ejecutadas con el objetivo de abordar de manera exhaustiva la problemática planteada, permitiendo obtener resultados confiables y relevantes.

3.1. FASE 1: REVISIÓN SISTEMÁTICA

Al abordar la fase 1 del actual estudio de investigación, se pudo cumplir con el primer objetivo para lo cual se emplea la siguiente metodología expuesta.

Diseño

Se realizó una revisión sistemática (anexo 9.1) siguiendo las directrices de la declaración PRISMA (*Preferred Reporting Items for Systematic reviews and Meta-Analyses*) (Moher et al., 2009b). Para ello, se decidió basarse en un protocolo para realizar esta revisión sistemática siendo registrado en el *International Prospective Register for Systematic Reviews* o también conocido como PROSPERO (anexo o) con el código de identificación CRD42022344270.

Estrategia de búsqueda y criterios de selección

De acuerdo a las bases de datos y estrategia de búsqueda, tenemos que el estudio se realizó en las bases de datos electrónicas Pubmed, Scopus, Web of Science, CINAHL y PsycINFO a partir de las palabras claves que arrojó la pregunta de investigación siguiendo la estrategia PICOT (tabla 1).

Población	Profesionales sanitarios
Intervención	Medir el malestar psicológico o psychological distress
Comparador	Identificar los factores de riesgo
Outcomes /Resultados	Nivel de burnout, estrés y ansiedad, número de casos de personas con depresión, comparación de niveles de antes vs durante la pandemia de COVID-19 y comparación según tipo de profesión/servicio, diferencias entre profesionales de primera y segunda línea.
TIEMPO	Durante la COVID-19
Pregunta de investigación	<i>¿Qué factores influyen en el malestar psicológico en trabajadores sanitarios durante la pandemia por COVID-19?</i>

Tabla 1. Formato PICOT: palabras clave

A raíz de estas palabras clave se consultó al tesoro *Medical Subject Headings* (MeSH) arrojando los descriptores *Health Personnel*, *Psychological Distress*, *Risk Factors* y *COVID-19*. Con el objetivo de mejorar la captación de estudios publicados acordes a la temática de estudio, se recurrió al uso de términos sinónimos capaces de completar la estrategia de búsqueda completar la misma en base a los descriptores MeSH (tabla 2), siendo unidos mediante los operadores booleanos *and* y *or*.

MeSH	Términos
Health personnel	Healthcare professionals <i>or</i> Healthcare workers <i>or</i> Healthcare providers <i>or</i> Physician <i>or</i> Nurse* <i>or</i> Doctor*
Psychological Distress	Psychological impact <i>or</i> Psychological Distress
Risk Factors	Risk Factors <i>or</i> Factors Associated
COVID-19	COVID-19

Tabla 2. Términos empleados en la búsqueda

La tabla 3 recoge la estrategia de búsqueda empleada, realizada hasta el día 4 de diciembre del 2022 para cada una de las bases de datos anteriormente citadas durante el proceso de búsqueda.

Base datos	Estrategia de búsqueda	Resultados
Pubmed	((Healthcare professionals [Title/Abstract] OR Healthcare workers [Title/Abstract] OR Healthcare providers [Title/Abstract] OR Physician [Title/Abstract] OR Nurse*[Title/Abstract] OR Doctor*[Title/Abstract]) AND (Psychological impact[Title/Abstract] OR Psychological Distress[Title/Abstract])) AND (Risk Factors[Title/Abstract] OR Factors Associated[Title/Abstract] AND (COVID-19[Title/Abstract]))	155
Scopus	(TITLE-ABS-KEY ("healthcare professionals" OR "healthcare workers" OR "healthcare providers" OR physician OR nurse* OR doctor*) AND TITLE-ABS-KEY ("psychological impact" OR "psychological distress") AND TITLE-ABS-KEY ("risk factors" OR "factors associated") AND TITLE-ABS-KEY (COVID-19))	235
Web Of Science	TOPIC: "healthcare professionals" OR "healthcare workers" OR "healthcare providers" OR physician OR nurse* OR doctor* AND "psychological impact" OR "psychological distress" AND "risk factors" OR "factors associated" AND "COVID-19"	390
CINAHL	AB (healthcare professionals <i>or</i> healthcare workers <i>or</i> healthcare providers <i>or</i> physician <i>or</i> nurse <i>or</i> doctor) AND AB (psychological impact <i>or</i> psychological distress) AND AB (risk factors <i>or</i> factors associated) AND AB (COVID-19)	55
PsycInfo	tiab(healthcare professionals OR healthcare workers OR healthcare providers OR physician OR nurse OR doctor) AND tiab(psychological impact OR psychological distress) AND tiab(risk factors OR factors associated) AND tiab(COVID-19)	122
Fecha de búsqueda: 04/12/2022		Total 957

Tabla 3. Estrategia de búsqueda empleada en cada base de datos

Para la selección de los artículos se utilizaron los siguientes criterios:

Criterios de inclusión:

- + Artículos originales publicados en inglés, español, francés y portugués.
- + Tipología: artículos originales y metaanálisis.
- + La recogida de datos se debe haber realizado durante la COVID-19.
- + Artículos que midan alguno de los siguientes valores y/o efectos: nivel de burnout, nivel de depresión, nivel de estrés y nivel de ansiedad, número de casos de profesionales con depresión, estrés y/o ansiedad, comparación de niveles de antes vs durante la pandemia de COVID-19 y comparación según país/tipo de profesión/servicio.

Criterios de exclusión:

- Estudios con un idioma diferente a inglés, español, francés y portugués.
- Estudios de baja calidad científico-técnica tras aplicar la herramienta de evaluación de la calidad.
- Artículos que no den respuesta a la pregunta de investigación y no estén relacionados con el objetivo de la revisión.
- Datos no recogidos durante la pandemia por COVID-19 o donde la fecha de recogida no quede clara o no esté explicitada.
- Tipología: artículos de opinión, editoriales y cartas al director/editor, revisiones sistemáticas, comunicación breve/corta y reporte de casos.

Procedimiento

En primera instancia, dos investigadores llevaron a cabo de forma independiente las búsquedas bibliográficas, utilizando criterios específicos de inclusión previamente definidos. Durante esta etapa, se eliminaron los estudios duplicados y se seleccionaron aquellos que cumplieran con los requisitos establecidos. Posteriormente, los mismos dos investigadores procedieron a revisar minuciosamente el texto completo de los estudios preseleccionados, y la decisión de incluir o excluir cada estudio se tomó de manera consensuada entre ellos. En caso de discrepancias, un tercer investigador se encargó de resolverlas mediante un proceso de discusión y análisis.

3.2. FASE 2

De acuerdo a la fase 2 del presente estudio se pudo cumplir con el objetivo específico 2 de acuerdo a la siguiente metodología.

Diseño

Se realizó un estudio de corte transversal (anexo 9.2) descriptivo entre el 2 de abril y el 17 de mayo del 2020.

Población y muestra

Según datos de 2019, el número global de profesionales de la salud en Ecuador era de unos 90.000, con 39.593 médicos, 25.483 enfermeras, 17.221 auxiliares de enfermería, 5.508 odontólogos, 1.615 psicólogos clínicos y 2.278 parteras (Instituto Nacional de Estadísticas y Censos de Ecuador, 2022). Participaron un total de 1.235 profesionales de la salud de todas las provincias (regiones) del Ecuador, pero con mayor porcentaje de las provincias (regiones) con mayor población: Pichincha (31,2%) y Guayas (24,5%). Tras eliminar los cuestionarios que no estaban cumplimentados en un 99%, finalmente se incorporaron 803 (65%). Los criterios de inclusión en la investigación fueron: 1) ser profesional de la salud en activo; 2) mayores de 18 años; y 3) vivir en Ecuador durante la pandemia de COVID-19.

Instrumentos de medición

Para la recolección de información se utilizó un cuestionario autoelaborado, basado en estudios similares de otras pandemias (C. Wang, Pan, et al., 2020). Para ello se emplearon diferentes fuentes: datos sociodemográficos (sexo, edad, estado civil, nivel educativo, hijos, mascota, tipo de trabajo) y ambiente laboral o work environment. (tabla 4) (Gómez-Salgado, Andrés-Villas, et al., 2020), sentido de coherencia (SOC) (Antonovsky, 1996), compromiso laboral o work engagement (WE) (Schaufeli et al., 2006) y el de salud general de Goldberg (Goldberg et al., 1997a), para medir el malestar psicológico o *psychological distress*.

El sentido de coherencia (SOC) fue medido con la escala SOC-13, cuestionario de 13 items, con un rango de respuesta tipo Likert de 1 a 7, en la que 1 es menos frecuente y 7 es el más frecuente. El rango de puntuación de la escala puede variar de 13 a 91, indicando una menor puntuación un bajo nivel de SOC y cuenta con 3 dimensiones: significado, comprensibilidad y manejabilidad; se calculó un Índice alfa de Cronbach de .808, considerando el instrumento completo. Los índices de consistencia interna presentados por los diferentes las dimensiones fueron $\alpha = .652$ para la

comprensibilidad, $\alpha = .575$ para la manejabilidad y $\alpha = .570$ para la significación (Antonovsky, 1996; Lindström & Eriksson, 2005).

El malestar psicológico fue medido con la escala de Goldberg mediante el General Health Questionnaire (GHQ-12), esta escala está diseñada para evaluar la salud mental en 12 preguntas o ítems, mediante una escala de Likert de 1 a 4, tomando como 0 las respuestas de 1 o 2 y como 1 las respuestas de 3 o 4, tomando como puntuación general de 0 a 12 puntos. Se trabajó con un distrés psicológico para todas las personas que tengan un puntaje mayor o igual a 3 en el GHQ (Cronbach's $\alpha = 0.874$)(Goldberg et al., 199a).

Para evaluar el compromiso laboral (WE), se usó la Utrecht Work Engagement Scale (UWES-9), este cuestionario consiste en 9 preguntas, siendo la mayor puntuación 54 y siendo la mayor puntuación indicador de un alto WE, con respuestas tipo escala de Likert de 0 (nunca) a 6 (siempre), distribuido en 3 dimensiones que son Vigor, Dedicación y Absorción. La consistencia interna para el cuestionario completo es de $\alpha = 0.928$, siendo para sus dimensiones de $\alpha = 0.855$ para el vigor, $\alpha = 0.852$ para la dedicación y $\alpha = 0.757$ para la absorción (Schaufeli et al., 2006).

Variable	Pregunta
Efectividad	¿Cree que su departamento, servicio, unidad o empresa le ha proporcionado el material y los medios necesarios para realizar su trabajo de forma EFECTIVA?
Seguridad	¿Cree que su departamento, servicio, unidad o empresa le ha proporcionado el material y los medios necesarios para realizar su trabajo de forma SEGURA?
Distancia	¿Cree que la distancia de separación mantenida con sus compañeros/as es la adecuada?
Contacto	¿Está usted en contacto con clientes/usuarios/pacientes que podrían ser fuente de riesgo?
Conflicto	¿Ha observado usted un aumento de la conflictividad laboral en su trabajo?
Riesgo	¿Cree que su profesión o su lugar de trabajo le pone en riesgo de ser infectado/a?
Aceptación	¿Acepta el riesgo a infectarse como parte de su trabajo?
Psico1	¿Cree que sería importante que ofrecieran un servicio de apoyo psicológico a los profesionales y voluntarios/as que están interviniendo directamente sobre la crisis sanitaria del COVID-19?
Psico2	¿Cree que sería importante que ofrecieran un servicio de apoyo psicológico a las personas y familias directamente afectadas por el COVID-19 para afrontar las dificultades generadas por la crisis sanitaria?
Psico3	¿Cree que sería importante que ofrecieran un servicio de apoyo psicológico a la población general para afrontar las dificultades generadas por la crisis sanitaria del COVID-19?
Carga	¿Considera que hay un aumento de su carga de trabajo tras el inicio de la crisis sanitaria?
Estrés	¿Se siente más estresado/a en el trabajo?
Satisfacción	¿Cómo puntuaría el grado de satisfacción con su trabajo en la situación actual del COVID-19?
Aprecio	¿Cómo profesional de la salud se siente apreciado/a por la sociedad?

Tabla 4. Preguntas de ambiente laboral (work environment) relacionadas con la pandemia

Procedimiento

Para el procedimiento se utilizó un muestreo no probabilístico de bola de nieve, enviando el cuestionario a través de redes sociales y mediante varias instituciones públicas y universidades. El cuestionario fue distribuido a través de una plataforma online Qualtrics®, a personal de instituciones de salud, asociaciones científicas, se envió una invitación a participar por medio de e-mail, incluyendo un link para acceder al cuestionario. Los participantes fueron invitados a compartir el cuestionario con sus compañeros de trabajo como un efecto de muestreo de bola de nieve. Se llenó la información mediante diferentes medios electrónicos con acceso a internet. La recolección de los datos se realizó durante la primera fase de la pandemia, entre el 2 de abril y el 17 de mayo del 2020.

3.3. FASE 3

La fase 3 se realizó en base al tercer objetivo específico con la siguiente metodología.

Diseño

Se desarrolló un diseño de estudio cuantitativo (anexo 9.3), descriptivo de cohorte transversal. La recolección de datos tuvo su lugar entre el 2 de abril y el 17 de mayo del 2020.

Población y muestra

Para la muestra de este estudio se eliminaron todos los cuestionarios que no habían contestado al 99% de las preguntas, quedando una muestra final de 1056, procedentes de todas las provincias de Ecuador. Los criterios de inclusión para la investigación fueron las siguientes i) ser un profesional de la salud en activo, ii) tener más de 18 años de edad, iii) estar viviendo en Ecuador durante la pandemia generada por el virus SARS-CoV2, y iv) aceptar el consentimiento informado.

De acuerdo a los instrumentos de medida, en el presente estudio se ha considerado como variable dependiente el PD de los profesionales sanitarios y como variables independientes las características sociodemográficas, la presencia de síntomas físicos de COVID-19 y estado de salud, las medidas preventivas adoptadas e historial de posibles contactos con personas infectadas por el virus SARS-CoV2.

Intrumentos de medición

Para la recogida de datos se utilizaron dos instrumentos de medida, uno para la valoración de las variables independientes diseñado *ad hoc* para este fin, y el General Health Questionnaire (GHQ-12) para la evaluación del PD.

El primer instrumento, validado previamente en España (Domínguez-Salas et al., 2020) y adaptado a la población ecuatoriana (Gómez-Salgado et al., 2021), fue un cuestionario autoadministrado que incluía preguntas relacionadas con características sociodemográficas como sexo, edad, estado civil, nivel educativo, tipo de trabajo, hijos, mascotas o discapacidad. También se preguntó a los participantes si presentaban síntomas asociados con COVID-19, como fiebre mayor a 38°C, tos, dolor de cabeza, dolor muscular, mareos, diarrea, dolor de garganta, secreción nasal, escalofríos y dificultad para respirar. La variable de síntomas se analizó en las tablas como continua, pero se categorizó para ser considerada en el análisis CHAID. Para categorizar la variable de síntomas, se tomaron como límites del grupo los percentiles 25 y 75. En relación al estado de salud, se preguntó a los participantes si tenían alguna enfermedad crónica, además de indagar sobre medicación,

hospitalización y atención médica en los últimos 14 días. Todos estos ítems se evaluaron con una pregunta de respuesta dicotómica SÍ/NO.

La percepción de la propia salud se evaluó mediante una escala de Likert de cinco opciones que iban desde muy buena hasta muy mala. Se incluyeron preguntas sobre haber tenido contacto o creer haber tenido contacto con alguna persona o material infectado, si algún miembro de la familia o compañero de trabajo había sido infectado, y si se les había realizado una prueba diagnóstica para evaluar el contacto con personas o materiales infectados. La adherencia a las medidas preventivas se evaluó mediante preguntas sobre comportamientos preventivos específicos, como lavado de manos, protocolo respiratorio o distanciamiento social. Los participantes evaluaron la frecuencia con la que realizaron estas medidas a través de una escala de Likert del 1 al 5, donde 1 representaba nunca y 5, siempre.

El segundo instrumento utilizado fue el Cuestionario de Salud General (GHQ-12), que consta de 12 preguntas con 4 posibles respuestas. Se revisó la confiabilidad de los resultados, obteniendo un Alfa de Cronbach de 0.799. El análisis a nivel de ítem utilizó todos los valores de Likert, mientras que la suma de la escala se realizó en base a un sistema de puntuación binomial. Cada pregunta se categorizó como 0 (si la respuesta era 1 o 2) y 1 (si la respuesta era 3 o 4). Se estableció un punto de corte en valores mayores o iguales a 3, lo cual indica que las personas con una puntuación dentro del rango del punto de corte presentaban malestar psicológico (Goldberg et al., 1997).

Procedimiento

Respecto a la recogida de datos, una vez elaborado el cuestionario este fue distribuido online a través de la plataforma de encuestas Qualtrics®. Se enviaron correos electrónicos de invitación a participar a organizaciones oficiales de colectivos profesionales de la salud a los que se les solicitó facilitar su difusión. Además, se solicitó a los participantes distribuir el cuestionario a través de sus contactos profesionales y redes sociales buscando el fenómeno bolo de nieve. La recogida de datos se llevó a cabo entre el 2 de abril y el 17 de mayo de 2020.

4. RESULTADOS

4.1. RESULTADOS PRIMERA FASE

Arias-Ulloa, C. A., Gómez-Salgado, J., Escobar-Segovia, K., García-Iglesias, J. J., Facundo-Rivera, J., & Ruiz-Frutos, C. (2023). *Psychological distress in healthcare workers during covid-19 pandemic: a systematic REVIEW. Journal of Safety Research.*, 87.

JCR (SCCI) 2023: Journal of Safety Research. Q1.

De acuerdo con la literatura científica verificada dentro del trabajo de revisión sistemática, en los idiomas inglés, español, francés y portugués, las estrategias iniciales de búsquedas identificaron un total de 957 referencias, las cuales fueron objeto de sucesivos cribados conforme al tópico de esta revisión. Se seleccionaron finalmente un total de 59 estudios (figura 2), 56 de tipo cuantitativo de corte transversal, 1 estudio de casos-controles, 1 estudio de cohorte y 1 estudio cualitativo que valoraron el PD distribuidos en las bases de datos PubMed, Scopus, Web of Science, CINAHL y PsycINFO.

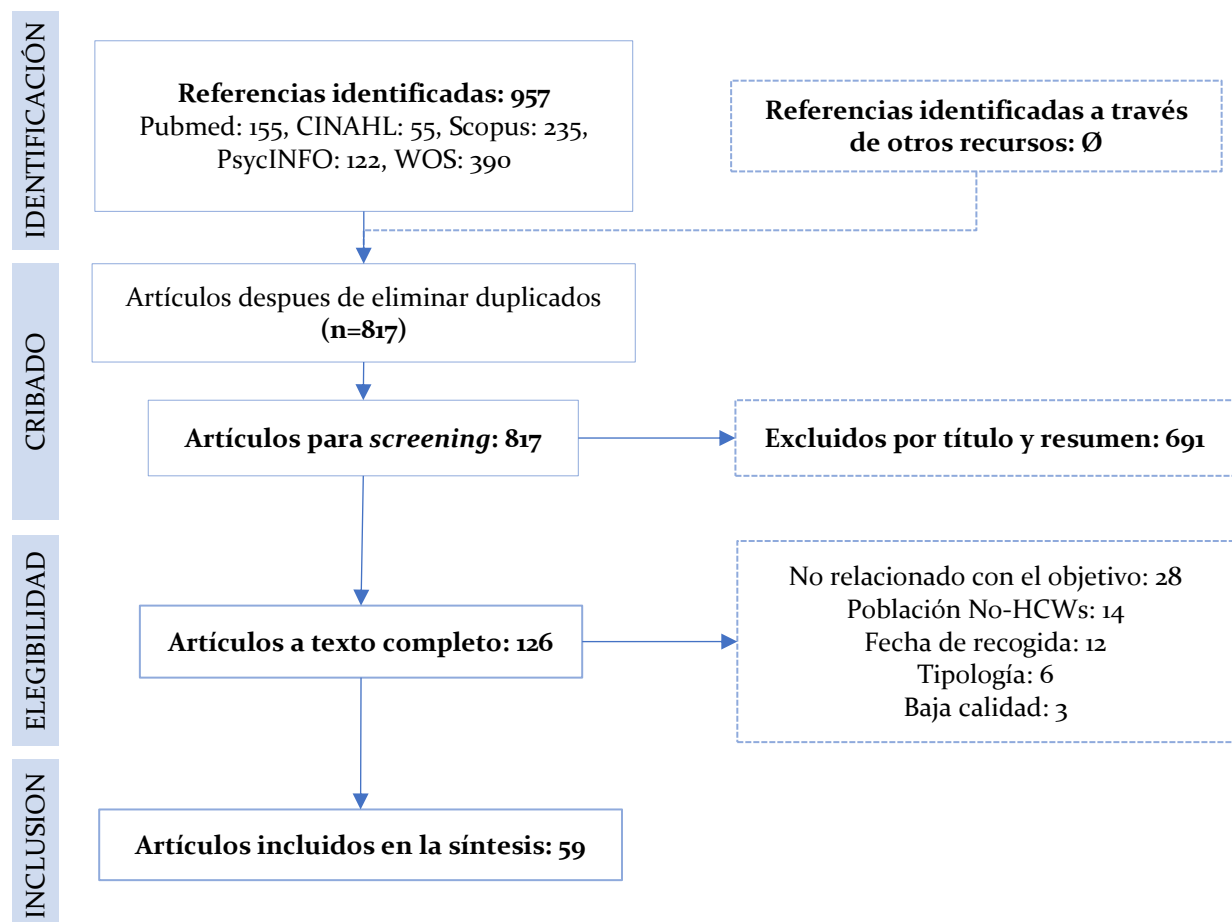


Figura 2. Resultados de la búsqueda (Diagrama de flujo – PRISMA)

Se encontraron 14 estudios realizados en China (Gonzalez Mendez et al., 2022; He et al., 2022; Hong et al., 2021; Juan et al., 2020; G. Li et al., 2020; Nie et al., 2020; H. Wang et al., 2020; N. Wang et al., 2021; Xia et al., 2021; X. Xiao et al., 2020; Y. Xiao et al., 2022; Xiaoming et al., 2020; Zeng et al., 2021; Y. Zhang et al., 2022), 5 en Italia (Collantoni et al., 2021; Del Piccolo et al., 2021; Fattori et al., 2021; Lasalvia et al., 2021; Vancappel et al., 2021), 4 en el Reino de Arabia Saudita (KSA) (Alfai et al., 2022; Almalki et al., 2021; Alqutub et al., 2021; Altwaijri et al., 2022) y en España (Aragonès et al., 2022; Gómez-Salgado, Domínguez-Salas, et al., 2020; Leira-Sanmartín et al., 2021; López-Atanes et al., 2021), 3 en Canadá (Binnie et al., 2021; Carazo et al., 2022; Zahiriharsini et al., 2022) y en Irán (Dahka et al., 2022; Galehdar et al., 2020; Shahsavarinia et al., 2022), 2 en Jordania (Hawari et al., 2021; Shahrour & Dardas, 2020), en Estados Unidos (Peccoralo et al., 2022; Voth et al., 2022), en Uganda (Migisha et al., 2021; Vancampfort & Mugisha, 2022) y en Zimbabue (Chingono et al., 2022; Moyo et al., 2022), y 1 en 12 Países árabes (Titi et al., 2022), en Japón (Ide et al., 2021), en Japón y Singapur (Ishikawa et al., 2021), Australia (Stubbs et al., 2021), Dinamarca (Nielsen et al., 2022), Ecuador (Ruiz-Frutos et al., 2022), Etiopía (Hajure et al., 2021), Francia (Laurent et al., 2022), India (Jain et al., 2020; Menon et al., 2022), Kuwait (AlKandari et al., 2022), Mexico (Martínez-Ponce et al., 2022), Nepal (Ghimire et al., 2022), Corea del Sur (Jang, Chung, Lee, Kim, & Seo, 2021), Sudáfrica (Lee et al., 2022), Túnez (Hammami et al., 2021), Turquía (Taşdelen et al., 2022), Reino Unido de Gran Bretaña e Irlanda (Roberts et al., 2021). 11 de los 59 y 2 de los 59 estudios se realizaron solo a personal de enfermería y personal de medicina, respectivamente. El resto (46 de 59) incluía a 2 o más grupos de HCWs.

En relación a los instrumentos de medida, predominaba el *General Health Questionnaire* ([GHQ], usado en 20 de los 59 estudios), el *Patient Health Questionnaire* ([PHQ], usado en 14 de los 59 estudios), la *Impact of Events Scale-Revised* ([IES-R], usado en 11 de los 59 estudios), tanto la *Depression Anxiety and Stress Scale* (DASS) como la *Generalized Anxiety Disorder Scale* se usaron en 8 de los 59 estudios, y en menor medida la *Kessler Psychological Distress Scale* (6 de 59), la *PTSD Screen for DSM-5* ([PTSD5], 4 de 59), la *Insomnia Severity Index* ([ISI], 3 de 59), la Escala de Bienestar de la Organización Mundial de la Salud (3 de 59), entre otros.

Los resultados han demostrado una variabilidad en cuanto a la prevalencia de malestar psicológico y al estrés en trabajadores de la salud (HCWs), oscilando entre el 13,82% (Ghimire et al., 2022) y el 92,6% (Vancampfort & Mugisha, 2022). Entre los factores de riesgos que pueden aumentar la susceptibilidad de presentar PD entre los HCWs durante la COVID-19, existen factores a nivel individual, como el género femenino (Alfai et al., 2022; Altwaijri et al., 2022; Aragonès et al., 2022; Collantoni et al., 2021; Fattori et al., 2021; Gonzalez Mendez et al., 2022; Hammami et al., 2021; Ishikawa et al., 2021; Jang et al., 2021; Leira-Sanmartín et al., 2021; G. Li et al., 2020; Ruiz-Frutos et al., 2022; Stubbs et al., 2021; Taşdelen et al., 2022; Titi et al., 2022; Voth et al., 2022; Xiaoming et al.,

2020), ser joven (Altwaijri et al., 2022; Del Piccolo et al., 2021; Fattori et al., 2021; Ishikawa et al., 2021; Shahrour & Dardas, 2020; Titi et al., 2022), trabajar como enfermera (Almalki et al., 2021; Collantoni et al., 2021; Ghimire et al., 2022; Gonzalez Mendez et al., 2022), tener antecedentes de enfermedad crónica o trastorno psiquiátrico (Almalki et al., 2021; Aragonès et al., 2022; Gonzalez Mendez et al., 2022; Taşdelen et al., 2022), años de experiencia (Stubbs et al., 2021; N. Wang et al., 2021; X. Xiao et al., 2020), presencia de síntomas de COVID-19 (Altwaijri et al., 2022; Gómez-Salgado, Domínguez-Salas, et al., 2020; Juan et al., 2020; Nie et al., 2020), historial de contacto (Altwaijri et al., 2022; Fattori et al., 2021; Gómez-Salgado, Domínguez-Salas, et al., 2020; Ide et al., 2021; Jang et al., 2021; Lasalvia et al., 2021; Leira-Sanmartín et al., 2021; Morioka et al., 2022; Ruiz-Frutos et al., 2022; Titi et al., 2022), no dormir lo suficiente (Collantoni et al., 2021; Leira-Sanmartín et al., 2021; H. Wang et al., 2020; Xia et al., 2021); a nivel interpersonal, como vivir solo/estar soltero (Ishikawa et al., 2021; Xiaoming et al., 2020), bajo apoyo familiar (Del Piccolo et al., 2021; Nie et al., 2020), miedo por contagiar a amigos y familiares (Altwaijri et al., 2022; Galehdar et al., 2020; Hawari et al., 2021; Laurent et al., 2022; Nie et al., 2020), pocas relaciones sociales (Leira-Sanmartín et al., 2021; Peccoralo et al., 2022; Y. Xiao et al., 2022; Zeng et al., 2021); y a nivel organizativo, hay una reducida percepción de protección biológica personal (Del Piccolo et al., 2021; Galehdar et al., 2020; Hammami et al., 2021; Ide et al., 2021; Migisha et al., 2021; Nie et al., 2020; Nielsen et al., 2022; Zeng et al., 2021), vacíos en la información sobre la pandemia (Galehdar et al., 2020; Hawari et al., 2021; Xiaoming et al., 2020), trabajar en primera línea (Altwaijri et al., 2022; Aragonès et al., 2022; Binnie et al., 2021; Fattori et al., 2021; Lee et al., 2022; Martínez-Ponce et al., 2022; Migisha et al., 2021; Morioka et al., 2022; Nie et al., 2020; Shahsavarinia et al., 2022; Taşdelen et al., 2022; N. Wang et al., 2021; Zeng et al., 2021), mayor duración del servicio (Alqutub et al., 2021; Gonzalez Mendez et al., 2022; He et al., 2022; Menon et al., 2022; Titi et al., 2022; Voth et al., 2022).

Los estudios incluidos fueron valorados con la herramienta de evaluación crítica de *Joanna Briggs Institute* para revisiones sistemáticas (JBI) (Munn et al., 2019) donde obtuvieron puntuaciones media-altas tanto en los estudios observacionales transversales y longitudinales, como en el estudio cualitativo, en el de cohortes y en el de casos-controles.

La tabla 5 está basada en el Manual del Centro Cochrane Iberoamericano (Higgins et al., 2019) y en ella se muestran las características de cada uno de los estudios incluidos en esta revisión. Estos fueron clasificados por autores, país, diseño y objetivo, participantes, instrumento y principales resultados; además, se añadió los resultados de la herramienta de evaluación crítica del JBI.

Estudios	Contexto	Objetivo del estudio	Tipo de estudio	Participantes	Métodos	Principales hallazgos	Calidad estudios
Gómez-Salgado, Dominguez	España	Describir los niveles de malestar psicológico y SOC de los HCWs durante la crisis provocada por el COVID-19, la relación entre ambas variables y su estado de salud.	Estudio transversal	1459 HCWs	- GHQ-12, - SOC-13	Los resultados mostraron que el 80,6% de los profesionales de la salud tenían malestar psicológico y la puntuación media en la escala SOC-13 fue de 62,8 puntos (DE = 12,02). Tanto el malestar psicológico como el SOC se relacionaron con la presencia de síntomas de COVID-19, así como con el historial de contacto.	6/8
Galehdar et al., 2020	Irán	Explorar las experiencias de angustia psicológica de las enfermeras durante el cuidado de pacientes con COVID-19.	Estudio cualitativo	20 enfermeras	Entrevistas semiestructuradas (método propuesto por Lundman y Graneheim)	ii categorías: ansiedad por la muerte, ansiedad por la naturaleza de la enfermedad, ansiedad causada por el entierro del cadáver, miedo a infectar a la familia, angustia por la pérdida de tiempo, angustia emocional por dar malas noticias, miedo a ser contaminado, aparición de pensamientos obsesivos, mala sensación de llevar equipos de protección personal, conflicto entre el miedo y la conciencia, y desconocimiento público de las medidas preventivas.	6/8
Juan et al., 2020	China	Proporcionar información importante sobre los problemas psicológicos que podrían usarse para informar, diseñar y comparar las medidas de crisis psicológica en el contexto de la pandemia del COVID-19	Estudio transversal	456 médicos y enfermeras (hospital)	- PHQ-9, - GAD-7, - Escala de Bienestar (OMS)	El 43,2% de los sujetos tenían síndrome de reacción al estrés. La mayor prevalencia de angustia psicológica fue por los síntomas obsesivos compulsivos (37,5%), seguida de síntomas de somatización (33,3%), síntomas de ansiedad (31,6%) y síntomas de depresión (29,6%).	8/8
G. Li et al., 2020	China	Determinar los predictores de estrés agudo, depresión y síntomas de ansiedad e investigar las fuentes del estrés agudo entre las mujeres HCWs.	Estudio transversal	4369 HCWs (hospital)	- PHQ-9, - GAD-7, - IES-R.	Se encontró que las mujeres con más hijos tenían más probabilidades de sentir la evitación de familiares y amigos después de las comparaciones múltiples post hoc (≥ 2 hijos: 23,6% frente a un hijo: 21,0% frente a ningún hijo: 17,5%, $p=0,002$). Los que trabajaban en salas de aislamiento no mostraron mayor sensación de exposición (sala de aislamiento: 40,1% vs otros departamentos: 39,6%, $p=0,800$).	8/8
Nie et al., 2020	China	Retratar la prevalencia y los factores asociados de angustia psicológica entre las enfermeras de primera línea durante el brote de COVID-19.	Estudio transversal	265 enfermeras (primera línea vs COVID-19, área de emergencias hospitalarias)	- GHQ-12, - Escala de Apoyo Social Percibido, - Escala de Estilo de Afrontamiento Simplificado, - IES-R	El 25,1% presentaron disfunciones psicológicas. Trabajar en el departamento de emergencias, preocuparse por la familia, ser tratado de manera diferente, el estilo de afrontamiento negativo y los síntomas de estrés relacionados con COVID-19 aumentaba la angustia psicológica. El apoyo social percibido y las medidas de precaución efectivas se asociaron negativamente con la angustia psicológica.	8/8
Shahrouf & Dardas, 2020	Jordania	Establecer la prevalencia del TEA y los predictores de angustia psicológica entre las enfermeras jordanas.	Estudio transversal	448 enfermeras (hospital)	- SASRQ, - Escala de autoeficacia para afrontar el trauma, - BSI-18	El 64% de las enfermeras experimentan TEA debido a la pandemia de COVID-19 y, por lo tanto, corren el riesgo de predisposición al TEPT, y un 41% también sufre angustia psicológica. La edad, el TEA y la autoeficacia para hacer frente a la COVID-19 predijeron significativamente la angustia psicológica.	8/8
H. Wang et al., 2020	China	Informar sobre el impacto psicológico de la pandemia COVID-19 y sus factores correlacionados en el personal médico en Guangdong, China.	Estudio transversal	1045 HCWs (hospital)	- Cuestionario modificado del Estado Psicológico, - GHQ-12	Los médicos eran más susceptibles a los síntomas depresivos de moderados a graves. El grupo de alto riesgo tenía niveles más altos de insomnio clínico (13,5% frente a 8,5%, $p = 0,011$) y era más probable que estuviera en el cuartil superior de síntomas de estrés (24,7% frente a 19,3%, $p = 0,037$) que el grupo de bajo riesgo.	6/8

<p>X. Xiao et al., 2020</p> <p>China</p> <p>Estudio transversal</p> <p>Examinar la prevalencia del estrés, la ansiedad y la depresión de los HCWs en China durante la epidemia de COVID-19, y determinar los factores de riesgo que predicen las morbilidades psicológicas que pueden utilizarse como objetivos de intervención psicológica.</p>	<p>958 HCWs y No-HCWs</p>	<p>- IES-R, - Escala de Ansiedad de Autoevaluación, - PHQ-9.</p>	<p>El 55,1 % de los encuestados presentaban un estrés psicológico superior al de los HCWs durante la COVID-19. Los niveles de estrés de los HCW fueron diferentes en los títulos de trabajo y los años de experiencia laboral.</p>	<p>8/8</p>
<p>Xiaoming et al., 2020</p> <p>China</p> <p>Estudio transversal</p> <p>Investigar el estado psicológico de los trabajadores del hospital y proporcionar referencias para la intervención de crisis psicológica en el futuro.</p>	<p>8817 HCWs (hospital)</p>	<p>Escalas de estrés y apoyo</p>	<p>La prevalencia de depresión, ansiedad y síntomas somáticos fue del 30,2 %, 20,7% y 52,7%, respectivamente. Las mujeres, solteras, con antecedentes educativos de tercer año o menos y que trabajaban en el hospital designado o del condado, necesitan asistencia psicológica antes o durante la epidemia, desconfianza en vencer al COVID-19, ignorancia sobre la epidemia y tener tiempo de ocio.</p>	<p>8/8</p>
<p>Almalki et al., 2021</p> <p>Arabia Saudita</p> <p>Estudio transversal</p> <p>Estimar la prevalencia de depresión, ansiedad y estrés entre los HCWs en Arabia Saudita e identificar los factores asociados con estos trastornos psicológicos.</p>	<p>501 HCWs</p>	<p>DASS-21</p>	<p>Las tasas de prevalencia estimadas de depresión, ansiedad y estrés fueron 54,69%, 60,88% y 41,92%, respectivamente. El análisis multivariante reveló que los HCW con enfermedades crónicas, las enfermeras y los HCW de la región sur tenían más probabilidades de sufrir depresión y estrés.</p>	<p>8/8</p>
<p>Alqutub et al., 2021</p> <p>Reino de Arabia</p> <p>Estudio transversal</p> <p>Evaluar los determinantes y la gravedad de la angustia psicológica entre los trabajadores de primera línea del Ministerio de Salud en Arabia Saudita durante la fase de rápida aceleración de la epidemia de COVID-19.</p>	<p>2,094 HCWs</p>	<p>K10</p>	<p>Factors associated with severe psychological distress in multiple regression analyses were male gender ($p < 0.001$), working for >45 hours/week ($p = 0.009$), age of >40 years ($p = 0.038$), years of experience for more than seven years ($p = 0.048$), and using psychological services ($p < 0.001$). The prevalence of severe psychological distress was 27,3%.</p>	<p>6/8</p>
<p>Binnie et al., 2021</p> <p>Canadá</p> <p>Estudio transversal</p> <p>Examinar la relación entre la exposición a la COVID-19 y la salud mental en los HCWs de la UCI de Canadá.</p>	<p>310 HCWs (cuidados intensivos, hospital)</p>	<p>GHQ-12</p>	<p>Se identificó angustia psicosocial clínicamente relevante entre la mayoría de los HCWs de la unidad de cuidados intensivos durante la fase de aceleración de la primera ola de la pandemia de COVID-19, incluidos aquellos con exposición mínima o nula a COVID-19.</p>	<p>8/8</p>
<p>Collantoni et al., 2021</p> <p>Italia</p> <p>Estudio transversal</p> <p>Evaluar el resultado psicológico entre los HCWs en las etapas finales de la primera ola de la pandemia de COVID-19.</p>	<p>996 HCWs (hospital)</p>	<p>- Percepción de riesgo, - Variables psicopatológicas, - Habilidades de afrontamiento a otros</p>	<p>En comparación con los médicos y auxiliares de salud, las enfermeras mostraron niveles más altos de depresión ($p = 0.002$), insomnio ($p < 0.001$) y ansiedad generalizada ($p = 0.001$). Las mujeres informaron mayores preocupaciones sobre la posibilidad de infectar a otros ($p = 0.046$), mayor ansiedad ($p < 0.001$), miedos relacionados con COVID-19 ($p < 0.001$), depresión ($p < 0.001$) y angustia postraumática ($p < 0.001$) que los hombres.</p>	<p>8/8</p>
<p>Del Piccolo et al., 2021</p> <p>Italy</p> <p>Estudio transversal</p> <p>Evaluar la angustia psicológica de los trabajadores de la salud que trabajan en el campo de la obstetricia durante la pandemia de COVID-19 e identificar los factores asociados con la angustia psicológica a nivel individual, interpersonal y organizacional.</p>	<p>503 HCWs (Obstetrics área)</p>	<p>- IPSICO, - GHQ-12</p>	<p>Un poco más de la mitad (51,1%; 246/481) de los encuestados con GHQ-12 informaron un nivel clínicamente significativo de angustia psicológica (GHQ-12 ≥ 3). La angustia psicológica se asoció con el individuo (es decir, género femenino, experiencia estresante relacionada con COVID-19, agotamiento y el uso de estrategias de afrontamiento disfuncionales), interpersonal (es decir, menor apoyo familiar, limitaciones en las interacciones con colegas) y organizacional (es decir, percepción reducida de protección por parte del equipo de protección personal, retrasos percibidos en las actualizaciones y vacíos en la información sobre la pandemia) factores para enfrentar la pandemia.</p>	<p>8/8</p>

<p>8/8</p> <p>El 39% de los sujetos expresó malestar psicológico general (GHQ-12), el 22% síntomas de estrés posttraumático (IES-R) y el 21% síntomas de ansiedad (GAD-7). Las mujeres, las enfermeras, los trabajadores más jóvenes, los sujetos con exposición laboral a la COVID-19 y con un familiar infectado mostraron un deterioro psicológico significativamente mayor en comparación con sus colegas.</p>	<p>- GHQ-12, - IES-R, - PHQ-9</p>	<p>550 HCWs</p>	<p>Longitudinal study</p> <p>Italia</p> <p>Examinar el bienestar psicológico de todos los empleados en un gran hospital universitario en Italia, utilizando escalas psicométricas validadas en el contexto de la vigilancia de la salud del médico del trabajo, en colaboración con la Unidad de Psiquiatría.</p> <p>Fattori et al., 2021</p>
<p>8/8</p> <p>El 40,2% de los participantes informaron tener síntomas de malestar psicológico. La mayoría de los participantes reportaron angustia psicológica leve (37%), seguida de angustia psicológica moderada (29%).</p>	<p>- DASS-21, - IES-R</p>	<p>127 HCWs</p>	<p>Estudio transversal</p> <p>Etiopía</p> <p>Evaluar la angustia psicológica relacionada con COVID-19 entre los HCWs en la ciudad de Mettu.</p> <p>Hajure et al., 2021</p>
<p>8/8</p> <p>El sexo femenino era un factor de riesgo para todos los resultados psicológicos, mientras que los antecedentes psiquiátricos eran un factor de riesgo tanto para la ansiedad como para el insomnio (OR = 2,86, IC del 95%: 1,78–4,60, p = 0,00 para el insomnio). El uso de equipo de protección se asoció con un menor riesgo de depresión (OR = 0,41, IC del 95%: 0,27–0,62, p = 0,00) y ansiedad.</p> <p>El 32% sufría mucha angustia mientras que el 20% sufría angustia severa.</p> <p>Aproximadamente el 34%, 34%, 19% y 29% de los sujetos informaron agotamiento, ansiedad, depresión y trastornos del sueño (en los últimos siete días) (respectivamente). Sufrir agotamiento; informar problemas funcionales relacionados con el sueño; agotamiento; ser farmacéutico (en relación con un médico); trabajar en un centro oncológico; albergar miedo a la propagación del virus; temor de que el virus amenazara la vida; miedo a la alienación de la familia/amigos; y el miedo a los aumentos de la carga de trabajo, se asociaron significativamente con una mayor angustia.</p>	<p>- ISI-7, - PHQ-2, - GAD-2</p> <p>- Sistema de información de medición de resultados informados por el paciente (PROMIS), - Kio</p>	<p>503 médicos</p>	<p>Estudio transversal</p> <p>Tunisia</p> <p>Evaluar la magnitud de los diferentes resultados psicológicos entre los HCWs durante la primera ola de la pandemia por COVID-19 e identificar los factores asociados.</p> <p>Hammami et al., 2021</p>
<p>8/8</p> <p>El 32% sufría mucha angustia mientras que el 20% sufría angustia severa.</p> <p>Aproximadamente el 34%, 34%, 19% y 29% de los sujetos informaron agotamiento, ansiedad, depresión y trastornos del sueño (en los últimos siete días) (respectivamente). Sufrir agotamiento; informar problemas funcionales relacionados con el sueño; agotamiento; ser farmacéutico (en relación con un médico); trabajar en un centro oncológico; albergar miedo a la propagación del virus; temor de que el virus amenazara la vida; miedo a la alienación de la familia/amigos; y el miedo a los aumentos de la carga de trabajo, se asociaron significativamente con una mayor angustia.</p>	<p>- Sistema de información de medición de resultados informados por el paciente (PROMIS), - Kio</p>	<p>937 HCWs</p>	<p>Estudio transversal</p> <p>Jordan</p> <p>Caracterizar la angustia psicológica y los factores asociados con la angustia en los trabajadores de la salud que trabajan durante un estricto confinamiento en un país (Jordania) que había exhibido una de las tasas de incidencia más bajas de COVID-19 a nivel mundial en el momento de la encuesta.</p> <p>Hawari et al., 2021</p>
<p>8/8</p> <p>De los 4.692 enfermeros que completaron la encuesta, se consideró que el 9,4% (n = 442) tenía síntomas depresivos, el 8,1% (n = 379) representaba ansiedad y el 42,7% (n = 2.005) tenía síntomas somáticos. Alrededor del 6,5% (n = 306) de los encuestados tenían ideación suicida.</p>	<p>- PHQ-9, - GAD-7, - Escala de Bienestar (OMS)</p>	<p>4.692 enfermeras (hospital)</p>	<p>Estudio transversal multicéntrico</p> <p>China</p> <p>Evaluar el impacto psicológico inmediato en las enfermeras de primera línea en China.</p> <p>Hong et al., 2021</p>
<p>8/8</p> <p>Los HCWs de alto riesgo, los que tenían 40 años y que tuvieron contacto directo real con al menos un paciente con COVID-19 tenían más probabilidades de reportar angustia general y angustia relacionada con el evento. Aquellos que mostraban confianza en la precaución estándar tenían menos probabilidades de informar angustia general y angustia relacionada con el evento.</p>	<p>- GHQ-12, - IES-R, - Estrés asociado a COVID-19</p>	<p>4133 HCWs (hospital)</p>	<p>Estudio transversal</p> <p>Japón</p> <p>Investigar los efectos psicológicos del brote de COVID-19 y los factores asociados en los trabajadores del hospital al comienzo del brote con un gran grupo de enfermedades en el crucero Diamond Princess.</p> <p>Ide et al., 2021</p>
<p>8/8</p> <p>En general, se encontró que las mujeres, los no médicos, los que vivían solos y los encuestados más jóvenes tenían una angustia psicológica significativamente mayor que sus contrapartes.</p>	<p>- GHQ-12</p>	<p>328 HCWs y No-HCWs (hospital)</p>	<p>Estudio transversal</p> <p>Japón</p> <p>Analizar el estado psicológico de los HCWs en Japón y los factores que influyeron durante la pandemia por COVID-19.</p> <p>Ishikawa et al., 2021</p>

Jang et al., 2021	South Korea	Identificar el impacto psicológico y los factores que contribuyen al probable aumento de la angustia emocional de los trabajadores de la salud	Estudio transversal	99 HCWs (hospital)	- GHQ-12, - PHQ-9, - IES-R	La angustia emocional fue reportada por el 45,3% de todos los participantes. El sexo femenino, el manejo de contactos cercanos, puntajes más altos en PHQ-9 y la sensación de que no se brindó la capacitación adecuada para el control de infecciones se asociaron con angustia emocional en la regresión logística.	8/8
Lasalvia et al., 2021	Italia	Evaluar la magnitud de la angustia psicológica y los factores asociados entre el personal del hospital durante la pandemia de COVID-19 en un gran hospital terciario ubicado en el noreste de Italia.	Estudio longitudinal	2.195 HCWs y No-HCWs	- IES-R, - Self-rating Anxiety Scale, - PHQ-9	El 63,2 % de los participantes informó sobre experiencias traumáticas relacionadas con la COVID-19 en el trabajo y el 53,8 % (IC del 95 %: 51,0 %-56,6 %) mostró síntomas de angustia posttraumática.	8/8
Leira-Sanmartín et al., 2021	Spain	Pretender objetivar el impacto psicológico de la pandemia de COVID-19 en los trabajadores de un hospital de tercer nivel.	Estudio transversal	536 HCWs and 121 non-HCWs (tertiary hospital)	GHQ-12	El sueño inadecuado, los malos hábitos nutricionales y de interacción social, el mal uso de psicotrópicos, el sexo femenino, el diagnóstico clínico de COVID-19 y la pérdida de un familiar por COVID-19 fueron variables asociadas con mayor probabilidad de tamizaje positivo para GHQ-12. No se encontraron diferencias significativas entre los "trabajadores de primera línea" y el resto, ni fue mayor la probabilidad de malestar psicológico en los TS frente a los no TS.	8/8
López-Atanes et al., 2021	España	Analizar desde una perspectiva de género el malestar psicológico experimentado por los HCWs durante el pico de la pandemia en España.	Estudio transversal	673 HCWs y No-HCWs (hospital)	- GHQ-28, - Escala de estrés percibido	Se observó que las mujeres y las personas con puestos peor pagados estaban en riesgo de mayor angustia psicológica y peor calidad de vida dentro de la fuerza laboral médica durante la primera ola de la pandemia.	6/8
Migisha et al., 2021	Uganda	Evaluar la percepción del riesgo y el estado psicológico inmediato de los trabajadores sanitarios al principio de la pandemia en hospitales de referencia que participan en el tratamiento de pacientes con COVID-19 en Uganda.	Estudio transversal	335 HCWs	GHQ-12	Ciento cuarenta y cuatro (44 %) tenían una puntuación GHQ-12 > 12. Las preocupaciones más comunes reportadas incluyeron el miedo a la infección en el lugar de trabajo (81 %), el estigma de los colegas (79 %), la falta de apoyo en el lugar de trabajo (63 %) e inadecuada disponibilidad de equipo de protección personal (56%). En el análisis multivariable, la percepción de riesgo moderado (aPR = 2,2, IC del 95 %: 1,2-4,0) y alto (aPR = 3,8, IC del 95 %: 2,0-7,0) hacia la COVID-19 (en comparación con la percepción de bajo riesgo) se asoció con malestar psicológico.	8/8
Roberts et al., 2021	UK and Ireland	Cuantificar la angustia psicológica experimentada por los médicos de urgencias, anestesiólogos y cuidadores intensivos durante la fase de aceleración de COVID-19 en el Reino Unido e Irlanda.	Estudio transversal	5440 doctors (emergency, anaesthetic and intensive care, hospital)	GHQ-12	El 44,2% (n=2405) de los encuestados puntuaron GHQ-12 >3, cumpliendo los criterios de angustia psicológica. El 57,3 % (n=3045) nunca antes había brindado atención clínica durante un brote de enfermedad infecciosa, pero más de la mitad de los encuestados se sentía algo preparado (48,6 %, n=2653) o muy preparado (7,6 %, n=46) para brindar atención clínica a pacientes con COVID-19.	8/8
Stubbs et al., 2021	Australia	Para medir el impacto de COVID-19 y los posibles cambios a lo largo del tiempo en su impacto, en la salud y el bienestar de los HCW en un hospital australiano de COVID-19.	Estudio transversal	433 HCWs (hospital)	Kio	Las mujeres eran significativamente más propensas a estar angustiadas que los hombres en la actualidad, pero no durante el punto álgido de la pandemia. Es más probable que los trabajadores sanitarios que estaban menos activos físicamente de lo habitual durante el punto álgido de la pandemia mantuvieran un nivel elevado de angustia durante el punto álgido de la pandemia (OR = 5,5); tenía una salud mental autoevaluada baja antes de la pandemia (OR = 4,8); y que tenían 10 o más años de experiencia profesional (OR = 3,9).	8/8

Vancappel et al., 2021	Italia	Investigar los efectos de la exposición a la crisis sanitaria de COVID-19 sobre los síntomas afectivos (ansiedad, TEPT, agotamiento) entre los HCWs franceses.	Estudio transversal	1010 HCWs (hospital)	Escalas analógicas visuales	8/8	La mayoría (57,8%) de los participantes presentó síntomas posttraumáticos. Dependiendo de los subdimensiones evaluados, una proporción de participantes informaron síntomas de agotamiento de moderados (25,9 a 31,2 %) a graves (17,2 a 40,7 %).
N. Wang et al., 2021	China	Investigar el impacto psicológico de COVID-19 en los HCWs en el hospital del Centro Xi'an de China.	Estudio transversal	1967 HCWs	GHQ-12	8/8	La experiencia laboral aumentó el estrés emocional ya que el 23% de los participantes con 10 años o más de experiencia exhibieron mayor estrés en comparación con aquellos con menos de 3 años de experiencia laboral (7,5%). Además, el 33,3% de los participantes que trabajaron o estuvieron expuestos a las áreas afectadas por la pandemia experimentaron estrés psicológico.
Xia et al., 2021	China	Explorar la prevalencia y los factores predictivos, especialmente los predictores defensivos asociados con el TEPT y la angustia psicológica en enfermeras durante la pandemia de COVID-19.	Estudio transversal	1728 enfermeras (primera línea)	- PTSD-5, - Cuestionario de autoinforme	8/8	La prevalencia de TEPT y angustia psicológica en enfermeras de toda China entre el 1 y el 13 de febrero de 2020 fue del 39,12 y el 24,36 %, respectivamente. El insomnio, la alta intensidad del pánico y el alto impacto de la pandemia de COVID-19 fueron predictores de riesgo de TEPT y angustia psicológica en enfermeras.
Zeng et al., 2021	China	Explorar los factores influyentes asociados con la angustia psicológica autoinformada entre una muestra de trabajadores de la salud en China en relación con COVID-19	Estudio transversal	712 HCWs	GHQ-12	8/8	Se observaron altos niveles de malestar psicológico (GHQ-12 ≥ 3) en el 29,2% y el análisis de regresión logística mostró que el malestar psicológico se asoció con baja preparación (OR = 0,91, IC 95% = 0,87-0,96), alto impacto laboral (OR = 1,11, IC del 95 % = 1,03-1,20), impacto en la vida personal (OR = 1,12, IC del 95 % = 1,07-1,17) y preocupaciones relacionadas con la seguridad (OR = 1,09, IC del 95 % = 1,02-1,16). En el punto de evaluación de 5 meses, la angustia psicológica alta fue menos frecuente (21,8%).
Alfai et al., 2022	Saudi Arabia	Evaluar la prevalencia de los síntomas de depresión, ansiedad y estrés y abordar los factores de riesgo asociados entre los trabajadores que no son trabajadores sanitarios en cuarentena, los trabajadores sanitarios en cuarentena y el personal médico en el centro de cuarentena del Ministerio de Salud.	Estudio transversal	301 HCWs and Non-HCWs	DASS-21	8/8	La prevalencia de síntomas de depresión, ansiedad y estrés entre los trabajadores sanitarios en cuarentena fue del 25,0 %, 29,8 % y 16,9 % y del 20,5 %, 20,5 % y 27,3 % entre el personal médico. Los predictores de síntomas de depresión, ansiedad y estrés entre los participantes del estudio fueron mujeres.
AlKandari et al., 2022	Kuwait	Evaluar el impacto psicológico de la pandemia de COVID-19 en los HCWs para determinar la prevalencia de los síntomas de depresión, ansiedad y bienestar, e identificar los factores asociados con los efectos psicológicos adversos.	Estudio transversal	378 HCWs (hospital)	- PHQ-9, - GAD-7, - Escala de Bienestar (OMS)	8/8	Un 52,9% de los participantes presentaban niveles moderados o altos de depresión, y el 40,5% reportaron niveles moderados o altos de ansiedad. Los HCWs solteros informaron niveles más severos de depresión; depresión moderadamente severa (24,0% vs 16,1%) y depresión severa (2,4% vs 6,8%); y una mayor gravedad de la ansiedad, así como un menor bienestar general.
Altwajiri et al., 2022	Reino de Arabia	Estimar la prevalencia y la gravedad de la angustia psicológica y caracterizar los factores de riesgo predisponentes entre los HCWs en el KSA durante la pandemia de COVID-19.	Estudio transversal	1985 HCWs	Saudi National Mental Health Survey questionnaire	8/8	La prevalencia de angustia psicológica informada por los HCWs en KSA fue alta. Los HCWs más jóvenes, las mujeres, las personas en contacto con pacientes con COVID-19 y aquellos que tenían seres queridos afectados o que ellos mismos estaban afectados por COVID-19 tenían el mayor riesgo de sufrir angustia psicológica.

Aragonès et al., 2022	Spain	Estudio transversal	2928 HCWs (primary care)	- Connor - Davidson Resilience Scale, - PHQ-9, - PTSD-5,	Sexo femenino (OR 1,61, IC 95% = 1,25 a 2,06), tener trastornos mentales previos (OR 2,58, IC 95% = 2,15 a 3,10), mayor exposición laboral a pacientes con COVID-19 (OR 2,63, IC 95% = 1,98 a 3,51), tener hijos o dependientes (OR 1,35, IC 95% = 1,04 a 1,76 y OR 1,59, IC 95% = 1,20 a 2,11, respectivamente), o tener un trabajo administrativo (OR 2,24, IC 95% = 1,66 a 3,03) se asociaron con un mayor riesgo de cualquier trastorno mental actual	8/8
Carazo et al., 2022	Canadá	Estudio casos y controles	4068 HCWs casos (prueba COVID-19 +) y 4152 HCWs controles (prueba COVID-19 -)	- K6, - Preguntas basadas en los modelos de Karasek y Siegrist (conflictos de valores y equilibrio trabajo-vida)	La prevalencia de gran malestar psicológico relacionado con el trabajo fue del 42%; se asoció con la conciliación de la vida laboral y personal, los conflictos de valores y las altas demandas psicológicas, pero no con la infección por SARS-CoV-2.	7/9
Chingono et al., 2022	Zimbabwe	Estudio transversal	345 HCWs (hospital)	- Shona Symptom Questionnaire.	Los datos mostraron altos niveles de ansiedad, síntomas psicósomáticos y agotamiento relacionados con la pandemia. El bienestar mental se vio afectado por la inseguridad financiera, las necesidades de salud física insatisfechas y la incapacidad de brindar atención de calidad dentro de un sistema de salud frágil.	8/8
Dahka et al., 2022	Iran	Estudio transversal	432 nurses (hospital)	- GHQ-12, - CD-RISC-10	El malestar psicológico probable (puntaje GHQ-12 \geq 15) estuvo presente en el 57,2% de las enfermeras. Entre las variables demográficas y relacionadas con COVID-19, solo el nivel educativo se correlacionó significativamente y negativamente con la salud mental. Después de controlar las variables, los resultados de los análisis de regresión jerárquica mostraron que una menor resiliencia se asoció con una mala salud mental ($\beta = -0,49$; $P < 0,001$).	6/8
Ghimire et al., 2022	Nepal	Estudio transversal	608 HCWs (hospital)	- DASS-21, - IES-R	La prevalencia general de depresión, ansiedad, estrés y trastorno de estrés posttraumático fue del 20,89%, 24,18%, 13,82% y 15,46%, respectivamente. Las enfermeras tenían puntajes más altos de depresión, ansiedad, estrés y TEPT, mientras que los FCHVs tenían una mayor depresión y TEPT en comparación con los médicos. Para algunas variables, los HCWs que trabajaban en hospitales provinciales tenían un alto nivel de estrés.	8/8
He et al., 2022	China	Estudio transversal	374 frontline nurses	- PHQ-9, - SSS, - GAD-7	La prevalencia de somatización, depresión y ansiedad entre las enfermeras de primera línea fue del 41,4%, 40,1% y 37,4%, respectivamente. Las enfermeras de los hospitales de nivel provincial tenían menos probabilidades de informar sobre somatización (OR = 0,50; $p = 0,018$), depresión (OR = 0,52; $p = 0,024$) y ansiedad (OR = 0,35; $p < 0,001$) que las enfermeras de nivel de condado. Hospitales La mayor duración del servicio se asoció significativamente con una mayor probabilidad de reportar somatización (OR = 1,06; $p = 0,008$) y depresión (OR = 1,06; $p = 0,006$).	8/8
Gonzalez Mendez et al., 2022	China	Estudio transversal	1,263 HCWs	- DASS-21, - PC-PTSD-5, - PHQ-9, - SCSQ-20	La pandemia de COVID-19 tuvo un impacto psicológico negativo en los trabajadores de la salud, que aún era evidente 1 año después del brote inicial. Las enfermeras mostraron mayor depresión y ansiedad que otros trabajadores de la salud. El género femenino, el afrontamiento pasivo, largas jornadas laborales, tener una enfermedad crónica y experimentar violencia, entre otros factores, fueron factores de riesgo para el deterioro psicológico.	8/8

8/8	Los factores de riesgo para el desarrollo de PTSD fueron haber experimentado eventos difíciles adicionales durante la crisis, tener un alto nivel de angustia psicológica, un alto nivel de estrés percibido relacionado con la carga de trabajo y los problemas de recursos humanos, la carga emocional relacionada con el paciente y la familia, y factores estresantes específicos de COVID-19 durante el primer pico de la crisis.	- GHQ-12, - PS-ICU, - Brief-COPE, - IES-R	2153 HCWs (hospital)	Estudio transversal	Medir la prevalencia del trastorno de estrés posttraumático en trabajadores de la salud e identificar factores de riesgo y factores protectores durante la epidemia en Francia	France	Laurent et al., 2022
8/8	Se encontró un alto grado de angustia psicológica (57,4 % por encima del valor de corte del Cuestionario de Salud General) y una fuerte asociación entre los riesgos percibidos asociados con la presencia de COVID-19 en el lugar de trabajo de atención médica y malestar psicológico (OR ajustado = 2,35, $p < 0,01$).	- Índice de tensión relacionado con el trabajo, - Cuestionario relacionado con la formación, - Cuestionario de Conocimientos, Actitudes, Prácticas y Comportamientos	154 HCWs	Estudio transversal	Examinar los factores contextuales del lugar de trabajo asociados con la forma en que se experimentó la angustia psicológica en un entorno sudafricano donde se experimentó una primera ola grave.	Sudáfrica	Lee et al., 2022
8/8	En la subescala de estrés, las variables que confirieron una asociación significativa fue trabajar dentro del área de COVID-19 (OR: 17,05), estar gravemente afectado por la muerte de pacientes infectados (OR: 4,23) y el miedo a entrar en la zona roja (OR: 4,23): 19,47). La necesidad de atención psicológica se asoció con depresión y ansiedad moderadas a severas (OR: 7,38; OR: 9,50, respectivamente).	DASS-21	116 nurses (a second-level hospital)	Estudio transversal	Examinar la prevalencia de depresión, ansiedad y estrés en enfermeras y analizar los factores asociados a su presencia durante la pandemia de COVID-19.	México	Martínez-Ponce et al., 2022
8/8	El 52,9% de los participantes tenían riesgo de angustia psicológica que necesitaba una evaluación adicional. El riesgo de angustia psicológica se asoció significativamente con más horas de trabajo.	- GHQ-12, - Cuestionario de Burnout	967 HCWs y No-HCWs	Estudio transversal	Determinar los niveles de agotamiento y los factores asociados con el riesgo de angustia psicológica entre los HCWs que participan en el manejo de COVID-19 en India.	India	Menon et al., 2022
8/8	Los factores de riesgo significativos para la angustia psicológica prolongada incluían ser enfermera de primera línea, tener una afección médica subyacente, experimentando prejuicios porque atendieron a pacientes con COVID-19, teniendo problemas para tratar con pacientes en pánico o que no cooperan y experimentando un brote de COVID-19 en el hospital.	Kio	1644 FHCW (hospital)	Estudio transversal	Explorar los factores que contribuyen a la angustia psicológica prolongada de las enfermeras y los médicos de primera línea que atienden a pacientes con COVID-19 en hospitales de Singapur y Japón.	Japón y Singapur	Morioka et al., 2022
8/8	Se encontró que el riesgo percibido de los empleados de COVID-19 aumenta su desconexión, intención de rotación, agotamiento y baja moral. Estos hallazgos arrojan luz sobre cómo la pandemia de COVID-19 está afectando las cogniciones y los comportamientos de los trabajadores de primera línea que son vulnerables a esta enfermedad contagiosa.	Cuestionario <i>ad hoc</i> : Maslach's burnout inventory scale, turnover intention, employee disengagement PSS (adapted)	443 FHCW (hospital privado)	Estudio transversal	Examinar cómo la COVID-19 afecta la toma de decisiones y el desempeño de los empleados.	Zimbabue	Moyo et al., 2022
8/8	Los enfermeros con breve experiencia laboral relataron mayor aumento de la angustia. Sentirse inseguro en el trabajo, tener poca confianza en la gerencia y estar ansioso por los familiares se asociaron con una mayor angustia. Finalmente, sentirse inseguro en el trabajo, estar ansioso por los familiares y tener poca confianza en la gerencia fueron predictores de la intención de cambiar de trabajo.	- PHQ-9, - GAD-7, - ISI-7, - PSS-10	426 nurses (hospital)	Estudio transversal	Describir los cambios en la angustia entre las enfermeras de los hospitales daneses durante el primer mes de la pandemia de COVID-19 y examinar los predictores de angustia y las intenciones de rotación.	Denmark	Nielsen et al., 2022

Peccoralo et al., 2022	Estados Unidos	Describir el curso y las correlaciones de la angustia psicológica en los HCWs de primera línea, durante la pandemia de COVID-19 en la ciudad de Nueva York.	Estudio de cohorte prospectivo	786 HCWs (hospital urbano)	- GAD-7, - PHQ-8, - PTSD-5 - 2-item Maslach Burnout Inventory (MBI)	6/9	Un 16,0% de los FHCW tenían angustia persistente; un 19,1% remitieron angustia un 4,5% malestar de nueva aparición; y un 60,4% sin mínima angustia. Aquellos HCWs con angustia persistente informaron mayores preocupaciones sobre las relaciones, agotamiento prepandémico, menor optimismo disposicional, menos apoyo emocional y sentirse menos valorado por la dirección del hospital.
Ruiz-Frutos et al., 2022	Ecuador	Analizar los niveles de malestar psicológico entre los HCWs en Ecuador durante la pandemia de COVID-19.	Estudio transversal	1.056 HCWs	- Cuestionario <i>ad hoc</i> , - GHQ-12	8/8	Se observó que el 66,0% de los participantes manifestó malestar psicológico, con niveles significativamente mayores en mujeres con síntomas de COVID-19 y contacto previo con personas u objetos infectados ($p < 0,001$).
Shahsavarinia et al., 2022	Iran	Examinar la asociación entre TEPT relacionado con COVID-19 en el personal de emergencia y la autocompasión y el apoyo social percibido	Estudio transversal	222 HCWs (emergency staff)	- TEPT-5, - MSPSS, - Escala de autocompasión	8/8	Edad ($r = 0,17$, $P = 0,034$), autocrítica ($r = 0,36$, $P < 0,001$), aislamiento ($r = 0,44$, $P < 0,001$) y sobreidentificación ($r = 0,15$, $P = 0,031$) fueron asociados con la puntuación de TEPT, y también hubo una relación inversa estadísticamente significativa entre la puntuación de la subescala de bondad hacia uno mismo ($r = -0,19$, $P = 0,006$) y la puntuación global de TEPT en el personal de urgencias.
Titi et al., 2022	12 Arab countries	Para investigar el impacto psicológico relacionado con COVID-19 en los trabajadores de la salud en 12 países árabes	Estudio transversal	2879 HCWs	- DASS-21, - ISI-7	8/8	La ansiedad, la depresión, el estrés y el insomnio fueron reportados por el 48,9%, 50,6%, 41,4% y 72,1% de los encuestados, respectivamente. Los países de ingresos medios-bajos y bajos tenían una prevalencia significativamente mayor de todos los resultados psicológicos que los países de ingresos altos. La prevalencia de síntomas de salud mental fue mayor entre los trabajadores de la salud de 30 a 39 años, los que trabajaban > 44 horas por semana y los que estaban en contacto con casos de COVID-19, así como los trabajadores de la salud que no estaban satisfechos con las medidas preventivas. La prevalencia de síntomas de salud mental fue menor entre los trabajadores sanitarios masculinos.
Taşdelen et al., 2022	Turkey	Investigar los desafíos psicológicos de los trabajadores de la salud turcos durante el brote y discutir los factores que aumentan su carga, incluida la estigmatización.	Estudio transversal	634 HCWs	DASS-21	8/8	La prevalencia de depresión moderada a grave, ansiedad y síntomas relacionados con el estrés fue del 36 %, 35 % y 22 %, respectivamente. Ser mujer, trabajar con contacto cercano con pacientes con COVID-19 y tener antecedentes de trastornos psiquiátricos fueron factores de riesgo para el malestar psicológico. Los trabajadores de la salud que percibían a otras personas como más desdénosas tenían puntuaciones de depresión y ansiedad significativamente más altas.
Vancampfort & Mugisha, 2022	Uganda	Explorar la prevalencia de la angustia psicológica y los síntomas del TEPT entre las enfermeras de salud mental de Uganda e investigar las asociaciones entre estos resultados de salud mental y los factores del estilo de vida.	Estudio transversal	108 mental health nurses	- K-6, - PTSD-5, - SIMPAQ, - PSQI, - AUDIT-C	8/8	El 92,6 % tenía malestar psicológico ($K-6 \geq 13$), el 44,4 % síntomas elevados de TEPT ($PCL-5 \geq 41$), el 75,9 % informó mala calidad del sueño ($PSQI > 5$) y el 24,4 % consumo nocivo ($AUDIT-C \geq 3$ para mujeres y ≥ 4 para hombres). El ejercicio SIMPAQ se correlacionó con K-6 ($rho = -0,36$, $P < 0,001$) y PCL-5 ($rho = -0,24$, $P = 0,013$), SIMPAQ caminando con PCL-5 ($rho = -0,31$, $P < 0,001$).
Voth et al., 2022	Ontario, USA	Describir los niveles de angustia informados por los trabajadores sanitarios en los entornos de atención y los factores asociados con la angustia.	Estudio transversal	403 HCWs	Kio	8/8	En general, 228 (74,2 %) trabajadores de la salud que completaron el Kio informaron una gran angustia, con tasas más altas entre los trabajadores de la salud hospitalarios y de atención a largo plazo. La angustia fue más probable en los HCW que se identificaron como mujeres, menores de 55 años, percibieron menos respeto entre el equipo y experimentaron una mayor preocupación por la salud física y mental y la gestión de grandes cargas de trabajo.

<p>Y. Xiao et al., 2022</p>	<p>China</p> <p>Probar el efecto de mediación del agotamiento en la asociación entre el estrés de rol y la angustia psicológica, y si esta mediación es moderada por el apoyo social.</p> <p>Estudio transversal</p> <p>623 enfermeras (hospital de primera línea)</p>	<p>- Escala de Estrés Percibido, Hospitalaria</p> <p>- Escala de Ansiedad/Depresión</p>	<p>8/8</p> <p>El agotamiento medió parcialmente la asociación positiva entre el estrés de rol y la angustia psicológica. El apoyo social moderó el efecto indirecto del estrés del rol en la angustia psicológica a través del agotamiento, siendo el efecto más fuerte para las enfermeras con bajo apoyo social que para aquellas con alto apoyo social.</p>
<p>Zahiriharsini et al., 2022</p>	<p>Canada</p> <p>Evaluar las asociaciones entre un conjunto de estresores psicosociales en el trabajo y el daño moral en trabajadores de la salud durante la tercera ola de la pandemia de COVID-19 en Quebec, Canadá</p> <p>Estudio transversal</p> <p>572 HCWs and leaders</p>	<p>- OHWQ,</p> <p>- EMIS-M</p>	<p>8/8</p> <p>Los trabajadores de la salud expuestos a factores estresantes psicosociales en el trabajo tenían entre 2,22 y 5,58 veces más probabilidades de sufrir daños morales. Una cultura ética baja tuvo la asociación más fuerte (RP: 5,58; IC 95%: 1,34–23,27), seguida de una recompensa baja (RP: 4,43; IC 95%: 2,14–9,16) y altas exigencias emocionales (RP: 4,32; IC 95%: 1,89–9,88)</p>
<p>Y. Zhang et al., 2022</p>	<p>China</p> <p>Evaluar la salud mental y una intervención psicológica temprana para los HCWs.</p> <p>Estudio transversal</p> <p>3055 HCWs (unidades de cuidados, hospital)</p>	<p>- IES-R,</p> <p>- DASS-21</p>	<p>8/8</p> <p>Un 45,99% cumplieron con las puntuaciones clínicas de corte para el TEPT, y las proporciones de participantes con síntomas leves a extremadamente graves de depresión, ansiedad y estrés fueron del 39,69%, 36,46% y 17,12%, respectivamente.</p>

TS: Trabajadores de la salud; GHQ-12/GHQ-28: Cuestionario de Salud General; PHQ-8/PHQ-9: Cuestionario de Salud del Paciente; K10/K6: Escala de Angustia Psicológica de Kessler; DASS-21: Escala de Depresión, Ansiedad y Estrés-21; IES-R: Escala de Impacto de Eventos-Revisada; GAD-7: Escala de Trastorno de Ansiedad Generalizada; TEA: Trastorno de estrés agudo; TEPT: Trastorno de estrés posttraumático; SOC-13: Escala Sentido de coherencia; ISI-7: Índice de Severidad del Insomnio; IPSICO: Encuesta de 104 ítems Impatto Psicologico COVID-19 en Ostetricia; SSS: Escala de Autoevaluación Somática; SASRQOMS: Cuestionario de reacción al estrés agudo de Stanford; BSI-18: Inventario Breve de Síntomas-18; PS-ICU: Escala de percepción de factores estresantes en la UCI; Brief-COPE: Inventario de orientación del afrontamiento ante problemas experimentados; PSS-10: Escala de Estrés Percibido; PC-PTSD-5: Evaluación de PTSD de atención primaria para DSM-5; SCSQ-20: Cuestionario de estilo de afrontamiento simplificado; CD-RISC-10: escala de resiliencia de Connor-Davidson de 10 ítems; Organización mundial de la salud, FHCW: Trabajadores de la salud de primera línea; FCHVs: Voluntarios de salud de comunidades femeninas; OR: razón de probabilidades; PR: Razones de prevalencia; MSPSS: Escala Multidimensional de Apoyo Social Percibido; OHWQ: Cuestionario simple de actividad física; PSQI: índice de calidad del sueño de Pittsburgh; AUDIT-C: prueba concisa de identificación del trastorno por consumo de alcohol; EMIS-M: Escala de Expresiones de Daño Moral-Versión Militar; aPR: razón de prevalencia ajustada; CI: intervalo de confianza.

Tabla 5. Características de los estudios incluidos en la revisión sistemática.

4.2. RESULTADOS SEGUNDA FASE

Gómez-Salgado, J., Arias-Ulloa, C. A., Ortega-Moreno, M., García-Iglesias, J. J., Escobar-Segovia, K., & Ruiz-Frutos, C. (2022). *Sense of Coherence in Healthcare Workers During the COVID-19 Pandemic in Ecuador: Association with Work Engagement, Work Environment and Psychological Distress Factors*. *International Journal of Public Health*, 28(4). available from: <https://www.ssph-journal.org/articles/10.3389/ijph.2022.1605428/full>

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Variables sociodemográficas en relación al sentido de coherencia

La muestra analizada presenta una media de 33.8 años con una desviación típica de 8.13 años, entre un rango de edad de 18 a 70 años. Una mayoría de mujeres (65.3%), que no vivían en pareja (56.9%), sin hijos (52.2%), con mascotas (57.2%) y en su mayoría con nivel de estudios universitarios (95.6%) y trabajando fuera de casa durante la pandemia (76.6%) (tabla 6). En dicha tabla 6 se puede observar diferencia estadísticamente significativa en el SOC que es superior entre los que tenían pareja y los que tenían hijos, $p < .05$

	N (%)	SOC-13		
		M (SD)	Statistics	d de Cohen
Sexo				
o. Hombre	279 (34.7)	65.74 (12.56)	1.130	.084
1. Mujer	524 (65.3)	64.67 (12.82)		
Estado civil				
o. Con pareja	346 (43.1)	66.29 (13.29)	2.421*	.173
1. Sin pareja	457 (56.9)	64.10 (12.23)		
Nivel educativo				
o. Upper secondary school or less	35 (4.4)	66.89 (14.72)	.762	.151
1. University or higher	768 (95.6)	64.96 (12.64)		
Hijos				
o. Si	384 (47.8)	66.25 (12.73)	2.582*	.182
1. No	419 (52.2)	63.94 (12.66)		
Mascota				
o. Si	459 (57.2)	65.21 (13.11)	.429	.031
1. No	344 (42.8)	64.82 (12.23)		
Trabaja				
o. Desde casa	188 (23.4)	65.78 (12.49)	.903	.075
1. Fuera de casa	615 (76.6)	64.82 (12.81)		

* $p < .05$; N: muestra, %: Porcentaje, M: Media, SD: Desviación estándar

Tabla 6. Variables sociodemográficas versus Sentido de coherencia

Calidad de atención sanitaria, condiciones de trabajo, salud y seguridad del paciente previo y posterior a la pandemia

En la tabla 7 se puede observar como la calidad de atención sanitaria que se percibe ha disminuido con respecto a la existente antes de la emergencia sanitaria por la COVID-19: M=5.16 (SD=2.48) frente a M=6.19 (SD=2.11). De forma similar también ha empeorado las condiciones de trabajo M=5.69 (SD=2.45) frente a M=6.63 (2.10), la percepción sobre la salud laboral M=5.47 (SD=2.57) respecto a M=6.61 (SD=2.26) y sobre la seguridad del paciente M=5.90 (SD=2.61) frente a la previa M=6.86

	LA CALIDAD DE LA ATENCIÓN SANITARIA		LAS CONDICIONES DE TRABAJO		LA SALUD LABORAL		LA SEGURIDAD DEL PACIENTE	
	Antes de la emergencia sanitaria	Actualmente / Durante la emergencia sanitaria	Antes de la emergencia sanitaria	Actualmente / Durante la emergencia sanitaria	Antes de la emergencia sanitaria	Actualmente / Durante la emergencia sanitaria	Antes de la emergencia sanitaria	Actualmente / Durante la emergencia sanitaria
<i>N</i>	803	803	803	803	797	803	786	803
<i>MEDIA</i>	6.19	5.61	6.63	5.69	6.61	5.47	6.86	5.90
<i>SD</i>	2.11	2.48	2.10	2.45	2.26	2.57	2.05	2.61
<i>ASIMETRÍA</i>	-.555	-.182	-.668	-.241	-.517	-.102	-.575	-.217
<i>CURTOSIS</i>	-.035	-.823	.139	-.777	-.327	-.891	-.107	-.935
<i>STATISTICS</i>	8.032**		11.783**		13.583**		10.389**	
<i>D DE COHEN</i>	.283		.416		.479		.371	

Puntuación de variables sobre 10; ** $p < .01$

Tabla 7. Percepción de la variación antes y después de la pandemia respecto a la calidad de atención sanitaria, condiciones de trabajo, salud laboral y seguridad del paciente

Sentido de coherencia (SOC), compromiso laboral (WE), malestar psicológico y correlaciones entre las variables

En la tabla 8 se pueden observar el valor medio del SOC M=65.04 (SD=12.74), donde la dimensión mayor de media es la comprensibilidad M=23.90 (SD=6.08) y la menor la manejabilidad M=18.90 (SD=4.86). La media de WE es M=39.36 (SD=10.53), con la mayor dimensión es la dedicación M=13.77 (SD=3.84), a poca distancia de la dimensión absorción M=13.55 (SD=3.51). El valor medio de PD es M=4.58 (SD=3.44).

	<i>N</i>	<i>Media</i>	<i>SD</i>	<i>Asimetría</i>	<i>Curtosis</i>	<i>Mínimo</i>	<i>Máximo</i>
SOC-13	803	65.04	12.74	-0.26	-0.32	19	91
Comprensibilidad	803	23.90	6.08	-0.34	-0.39	5	35
Manejabilidad	803	18.90	4.68	-0.32	-0.19	4	28
Significabilidad	803	22.25	4.39	-0.43	-0.69	10	28
WE	803	39.36	10.53	-0.74	-0.05	2	54
Vigor	803	12.04	4.03	-0.48	-0.61	0	18
Dedicación	803	13.77	3.84	-0.92	0.23	0	18
Absorción	803	13.55	3.51	-0.89	0.57	0	18

GHQ-12	803	4.58	3.44	0.47	-0.81	0	12
Edad	797	33.8	8.13	1.76	3.51	18	70
Efectividad	803	6.41	2.90	-0.50	-0.89	1	10
Seguridad	803	6.42	2.94	-0.48	-0.95	1	10
Distancia	615	6.73	2.67	-0.59	-0.60	1	10
Contacto	615	8.59	2.17	-1.75	2.50	1	10
Conflicto	803	6.21	3.01	-0.42	-1.07	1	10
Riesgo	803	8.72	2.13	-1.82	2.69	1	10
Aceptación	803	6.38	3.31	-0.46	-1.18	1	10
Psico1	803	9.25	1.66	-2.62	6.89	1	10
Psico2	803	9.42	1.38	-2.89	8.84	1	10
Psico3	803	9.19	1.52	-2.11	4.20	1	10
Carga	803	7.76	2.74	-1.08	0.03	1	10
Estrés	803	7.91	2.56	-1.23	0.58	1	10
Satisfacción	803	6.57	2.44	-0.55	-0.36	1	10
Aprecio	786	6.63	2.66	-0.56	-0.58	1	10

N: muestra, SD: Desviación estándar. SOC: Sense of coherence: WE: Work Engagement; GHQ-12: Salud general de Goldberg EFICACIA. ¿Cree que su departamento, servicio, unidad o empresa le ha proporcionado los medios y material necesarios para el desempeño EFICAZ de su trabajo?

SEGURIDAD. ¿Cree que su departamento, servicio, unidad o empresa le ha proporcionado los medios y material necesarios para realizar su trabajo con SEGURIDAD?

DISTANCIA. ¿Considera adecuada la distancia mantenida con sus compañeros de trabajo?

CONTACTO. ¿Está en contacto con clientes/usuarios/pacientes que puedan ser fuente de riesgo?

CONFLICTO. ¿Ha observado algún aumento de la conflictividad laboral en su puesto de trabajo?

RIESGO. ¿Crees que tu profesión o lugar de trabajo te pone en riesgo de infectarte?

ACEPTACIÓN. ¿Acepta el riesgo de infectarse como parte de su trabajo?

PSICO1. ¿Crees que sería importante ofrecer apoyo psicológico a los profesionales y voluntarios que están participando activamente en la crisis sanitaria del COVID-19?

PSICO2. ¿Cree que sería importante ofrecer apoyo psicológico a las personas y sus familias directamente afectadas por el COVID-19 para hacer frente a las dificultades derivadas de la crisis sanitaria?

PSICO3. ¿Cree que sería importante ofrecer apoyo psicológico a la población en general para hacer frente a las dificultades derivadas de la crisis sanitaria del COVID-19?

CARGA. ¿Considera que ha habido un aumento de la carga de trabajo tras el inicio de la crisis sanitaria?

ESTRÉS. ¿Te sientes más estresado en el trabajo?

SATISFACCIÓN. ¿Cómo calificaría su satisfacción laboral durante la situación actual del COVID-19?

Tabla 8. Resultados del sentido de coherencia (SOC-13), work engagement (WE) y sus respectivas dimensiones; Psychological distress (GHQ-12), de las variables edad, efectividad y seguridad frente a la pandemia de COVID-19

La valoración sobre las medidas que han tomado las empresas para protegerse ante la pandemia tiene una valoración similar y entre 6 y 7 las de efectividad, seguridad y distancia mantenida por los compañeros de trabajo. Menor puntuación se le da al nivel de conflicto en los lugares de trabajo $M=6.21$ ($SD=3.05$). El riesgo de contagio en el trabajo se considera alto $M=8.72$ ($SD=2.13$). El grado de aceptación a infectarse en su trabajo es bajo $M=6.38$ ($SD=3.31$), similar al grado de satisfacción con su trabajo durante la pandemia $M=6.57$ ($SD=2.44$) y el nivel de percepción de ser apreciado como profesional sanitario durante este proceso $M=6.63$ ($SD=2.66$). Por el contrario, las mayores puntuaciones se dan a la importancia de ofrecer apoyo psicológico a los profesionales y voluntarios que intervienen directamente en la crisis sanitaria $M=9.25$ ($SD=1.66$); las personas afectadas y familias $M=9.42$ ($SD=1.38$) y a la población general $M=9.19$ ($SD=1.52$), siendo estas variables las que presentan mayor asimetría y curtosis. La media de las personas que se sienten estresado en el

trabajo es de $M=7.91$ ($SD=2.56$) y los que han experimentado un aumento de su carga de trabajo tras el inicio de la crisis sanitaria $M=7.76$ ($SD=2.74$).

En la tabla 9 se puede ver que existe correlación significativa estadísticamente ($p<.01$) de manera positiva entre el SOC y el WE y negativa con el PD. De igual forma existe correlación positiva ($p<.01$) entre el SOC y la efectividad proporcionada por la empresa para realizar un trabajo efectivo y seguro, que los compañeros mantienen la distancia de seguridad, el grado de satisfacción con su trabajo y el nivel de percepción de aprecio como profesional por parte de la sociedad. También hay una correlación positiva ($p<.01$) entre el SOC y la edad, y entre el SOC y las necesidades de apoyo psicológico de enfermos, profesionales que los atienden y población general. Por el contrario, hay una correlación negativa ($p<.01$) entre el SOC y la percepción de aumento de conflicto en su trabajo, así como con la percepción de estrés.

<i>Rho de Spearman</i>	<i>SOC_13</i>	<i>Edad</i>	<i>WE</i>	<i>GHQ_12</i>	<i>Efectividad</i>	<i>Seguridad</i>	<i>Distancia</i>	<i>Conflicto</i>	<i>PSICO1</i>	<i>PSICO2</i>	<i>PSICO3</i>	<i>Estrés</i>	<i>Satisfacción</i>	<i>Aprecio</i>
<i>SOC_13</i>	--													
<i>Edad</i>	,171**	--												
<i>WE</i>	,439**	,089*	--											
<i>GHQ_12</i>	-,483**	-,013	-,422**	--										
<i>Efectividad</i>	,202**	-,042	,266**	-,235**	--									
<i>Seguridad</i>	,192**	-,048	,255**	-,223**	,923**	--								
<i>Distancia</i>	,169**	,071	,217**	-,116**	,416**	,425**	--							
<i>Conflicto</i>	-,186**	,023	-,148**	,229**	-,114**	-,093**	-,031	--						
<i>PSICO1</i>	,106**	,053	,029	,076*	,011	,023	,055	,095**	--					
<i>PSICO2</i>	,115**	,046	,062	,032	,028	,030	,079*	,069	,744**	--				
<i>PSICO3</i>	,124**	,065	,083*	,045	,049	,054	,082*	,092**	,591**	,671**	--			
<i>Estrés</i>	-,176**	-,027	-,265**	,357**	-,122**	-,099**	-,085*	,405**	,296**	,241**	,281**	--		
<i>Satisfacción</i>	,244**	-,033	,371**	-,263**	,322**	,312**	,212**	-,070*	-,011	,021	,059	-,091*	--	
<i>Aprecio</i>	,297**	,071*	,342**	-,271**	,281**	,302**	,205**	-,054	,037	,076*	,093**	-,102**	,420**	--

** La correlación es significativa en el nivel .01

* La correlación es significativa en el nivel .05

SOC: Sentido de coherencia ; WE: Work Engagement ; GHQ-12: Salud general de Goldberg

Tabla 9. Correlaciones entre las variables.

Modelo de regresión lineal múltiple y Árbol de clasificación obtenido en dicho modelo

Para determinar el modelo de regresión lineal múltiple que explica el SOC se consideraron variables con correlación significativa, a nivel .01, con el SOC-13. Información relevante sobre las variables independientes incluidas en el modelo fue recogida en la tabla 10. Entre estas destaca con una relación inversa el distrés psicológico, con menor importancia y con una relación directa la puntuación del test UWES-9, la edad y el aprecio de la sociedad; por último, el aumento de conflicto laboral con relación inversa, siendo todas ellas significativas estadísticamente. El modelo presentado es válido, F-Snedecor = 80.085, con sig. <.001, y explica el 34.1% de la varianza de la variable dependiente (R^2 ajustado = .337). Además, se estudió la normalidad de los residuos estandarizados con el test de Kolmogorov-Smirnov, cuyo valor ha sido .032 con nivel de significación .053. Valores próximos a la unidad de la tolerancia y el VIF fueron indicadores de la no colinealidad. Por último, un valor de Dubin-Watson de 1.941 probó la independencia de los residuos.

Modelo	Coeficientes									
	Coeficientes no estandarizados		Coeficientes estandarizados		t	Sig.	95,0% intervalo de confianza para B		Estadísticas de colinealidad	
	B	Desv. Error	Beta	Límite inferior			Límite superior	Tolerancia	VIF	
Constante	52,086	2,556			20,375	<.001	47,068	57,104		
GHQ-12	-1,294	,124	-,349		-10,476	<.001	-1,537	-1,052	,768	1,302
WE	,283	,040	,235		7,040	<.001	,204	,362	,765	1,307
Edad	,209	,048	,129		4,362	<.001	,115	,304	,975	1,026
Aprecio	,423	,150	,088		2,819	,005	,128	,717	,867	1,153
Conflicto	-,309	,127	-,073		-2,426	,016	-,558	-,059	,946	1,057

a. Variable dependiente: SOC-13; SOC: Sense of coherence; WE: Work Engagement; GHQ-12: Salud general de Goldberg.

APRECIO: ¿Cómo profesional de la salud se siente apreciado/a por la sociedad?

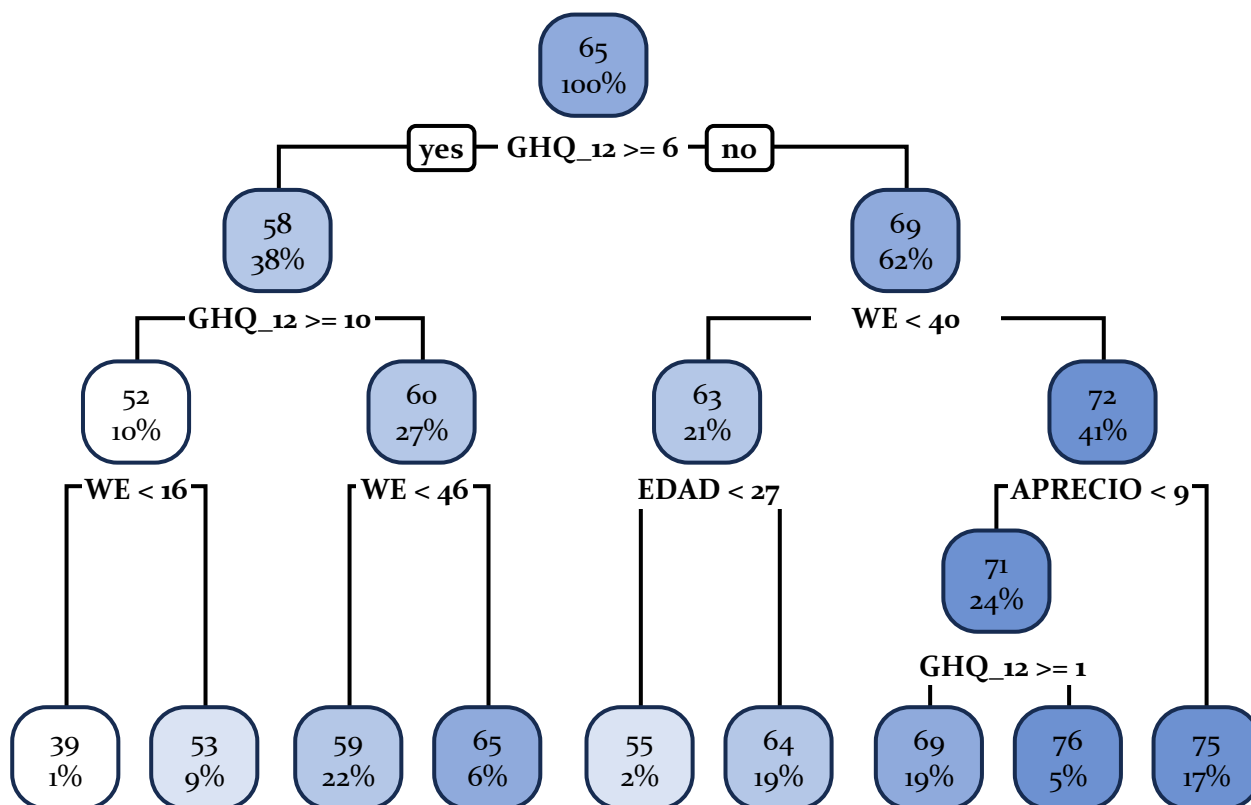
CONFLICTO: ¿Ha observado algún aumento de la conflictividad laboral en su puesto de trabajo?

Nota: Para el modelo se comprobaron los siguientes supuestos y validación: Normalidad de los residuos estandarizados. Estadístico del test de Kolmogorov-Smirnov 0.032 con nivel de significación 0.053. La Multicolinealidad, Tolerancia y VIF próximos a la unidad. Se comprobó gráficamente las hipótesis de linealidad de las variables independientes y la homocedasticidad de los residuos. La Independencia de los residuos. Durbin-Watson = 1.941. ANOVA. F-Snedecor = 80.085, con sig. <.001 y un $R^2 = .341$, R^2 ajustado = .337

Tabla 10. Modelo de regresión lineal múltiple

En la figura 3, podemos observar como el árbol de clasificación y regresión para el sentido de coherencia (SOC) parte de un nodo raíz a partir del cual se ramifica en función del malestar psicológico y el compromiso laboral (WE). Para valores del superiores o iguales a 9.5 se distinguen dos nodos terminales con valores medios del SOC iguales a 38.87, en el 1% de los casos con puntuación UWES inferior a 15.5, y 53.22 puntos, en el 9% complementario. Cuando la puntuación del oscila entre 5.5 y 9.5, el SOC medio es 58.69 en el 22% de los datos con puntuación UWES inferior a 45.5 puntos y 65.31 puntos cuando es superior o igual. Para el 21% de la muestra con un

PD inferior a 5.5 y puntuación UWES inferior a 39.5, el valor medio del SOC es igual a 55.15 en los individuos menores de 26.5 años, aumentando a 64.44 en mayores de dicha edad. Por último, cuando el PD es inferior a 5.5 y la puntuación UWES superior o igual a 39.5, el SOC se clasifica en tres nodos terminales; si el nivel de aprecio por parte de la sociedad es inferior a 8.5 y el distrés psicológico inferior a 0.5 puntos se agrupa un 5% de la muestra con un sentido de coherencia medio de 76.33 puntos, con valores superiores de PD un 19% con valor medio de 69.07 y si el aprecio de la sociedad alcanza valores superiores a 8.5 se clasifican un 17% con una media de 74.81.



SOC: Sentido de coherencia; WE: compromiso laboral; GHQ-12: Cuestionario de Salud General de Goldberg.

Figura 3. Árbol de clasificación en base a las variables obtenidas en el modelo de regresión lineal.

4.3. RESULTADOS TERCERA FASE

Ruiz-Frutos, C., Arias-Ulloa, C. A., Ortega-Moreno, M., Romero-Martín, M., Escobar-Segovia, K. F., Adanaque-Bravo, I., & Gómez-Salgado, J. (2022). Factors associated to psychological distress during the COVID-19 pandemic among healthcare workers in Ecuador. *International journal of public health*, 36. Available from: <https://www.ssph-journal.org/articles/10.3389/ijph.2022.1604626/full>

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Datos sociodemográficos

De los 1056 cuestionarios que finalmente se han analizados hay un predominio de mujeres (65.2%), el 47.0% de 30 años de edad o menos, con estudios universitarios o superiores el 95.8%, un 57.7% vive sin pareja, con hijos el 48.6%, trabajan como empleados públicos el 65.6%, viven con alguna mascota el 56.3% y un 2.2% presentan alguna discapacidad (tabla 11).

	SANITARIOS (N=1056)				X ²	P
	N (%)	NO (N=359)	SI (N=697)	GHQ		
Sexo						
	Hombre	368 (34.8)	44.6	55.4	28.118	<.001
	Mujer	688 (65.2)	28.3	71.7		
Edad* (N=1045)						
	30 años o menos	491 (47.0)	35.6	64.4	1.435	.231
	Más de 30 años	554 (53.0)	32.1	67.9		
Estado civil						
	Sin pareja	609 (57.7)	34.8	65.2	0.426	.514
	Con pareja	447 (42.3)	32.9	67.1		
Nivel educativo						
	Upper secondary school or less	44 (4.2)	43.2	56.8	1.726	0.189
	University or higher	1012 (95.8)	33.6	66.4		
Usted es (N=811)						
	Independiente	79 (9.7)	36.7	63.3	7.070	.029
	Empleado público	532 (65.6)	31.2	68.8		
	Trabajador empresa privada	200 (24.7)	41.5	58.5		
Hijos						
	SI	513 (48.6)	35.1	64.9	0.530	0.467
	NO	543 (51.4)	33.0	67.0		
Mascota						
	SI	594 (56.3)	34.0	66.0	0.000	.993
	NO	462 (43.8)	34.0	66.0		
Discapacidad						
	SI	23 (2.2)	39.1	60.9	0.276	0.599
	NO	1033 (97.8)	33.9	66.1		

* Variable agrupada a partir del valor mediano

Tabla 11. Asociación entre variables sociodemográficas y distrés psicológico durante la pandemia

Malestar psicológico (PD)

Como observamos en la tabla 12, las preguntas que dan las valoraciones medias más altas en PD son la pregunta 5. *¿Se ha notado constantemente agobiado/a y en tensión?* ($M = 2.81$, $SD = 0.88$) y 7. *¿Ha sido capaz de disfrutar de sus actividades normales de cada día?* ($M = 2.69$, $SD = 0.87$). Al contrario, las preguntas que presentan valores más bajos son la 10. *¿Ha perdido confianza en sí mismo/a?* ($M = 1.77$, $SD = 0.92$) y 11. *¿Ha pensado que usted es una persona que no vale para nada?* ($M = 1.34$, $SD = 0.72$). La puntuación promedio global obtenida en un total de una escala de 12 puntos fue de 4.64 ($SD = 3.47$). Estableciendo un punto de corte para valores mayores o iguales a 3, los resultados presentaron que un 66.0% de los participantes del estudio presentaron distrés psicológico (tabla 12).

Item	SANITARIOS
	(N=1056)
	M (SD)
1. <i>¿Ha podido concentrarse bien en lo que hacía?</i>	2.50 (0.73)
2. <i>¿Sus preocupaciones le han hecho perder mucho sueño?</i>	2.66 (0.96)
3. <i>¿Ha sentido que está desempeñando un papel útil en la vida?</i>	1.81 (0.85)
4. <i>¿Se ha sentido capaz de tomar decisiones?</i>	1.94 (0.78)
5. <i>¿Se ha notado constantemente agobiado/a y en tensión?</i>	2.81 (0.88)
6. <i>¿Ha tenido la sensación de que no puede superar sus dificultades?</i>	2.23 (0.93)
7. <i>¿Ha sido capaz de disfrutar de sus actividades normales de cada día?</i>	2.69 (0.87)
8. <i>¿Ha sido capaz de hacer frente adecuadamente a sus problemas?</i>	2.27 (0.72)
9. <i>¿Se ha sentido poco feliz o deprimido/a?</i>	2.44 (0.96)
10. <i>¿Ha perdido confianza en sí mismo/a?</i>	1.77 (0.92)
11. <i>¿Ha pensado que usted es una persona que no vale para nada?</i>	1.34 (0.72)
12. <i>¿Se siente razonablemente feliz considerando todas las circunstancias?</i>	2.18 (0.74)
<i>GHQ-12 (puntuación sobre 12)</i>	
	4.64 (3.47)
Punto de corte ≥ 3	
	N (%)
SI	697 (66.00)
NO	359 (34.00)

$$\alpha\text{-Cronbach (sanitarios)} = 0.799$$

Tabla 12. Psychological Distress: General Health Questionnaire GHQ-12

VARIABLES SOCIODEMOGRÁFICAS Y MALESTAR PSICOLÓGICO

Analizando las variables sociodemográficas (tabla 11) y su relación con desarrollar malestar psicológico, con un punto de corte de $GHQ \geq 3$, vemos como las mujeres presentan mayor porcentaje de PD (71.7%) que los hombres (55.4%), $p < 0.001$. Los empleados públicos tienen mayor PD en comparación a los empleados de empresas privadas o independientes ($p = 0.029$). Por el contrario, no se ha observado diferencia estadísticamente significativa en el desarrollo de PD con las variables: edad, nivel educativo, vivir en pareja, tener hijos, alguna mascota o presentar discapacidad.

Síntomas físicos y malestar psicológico.

Los mayores porcentajes de la presencia de síntomas físicos (tabla 13) se dan en el dolor de cabeza (44,3%), congestión nasal (27,7%), dolor de garganta (25,3%), y dolor muscular (21,9%). Respecto a la asociación entre presentar síntomas y generar PD, todos ellos presentan una diferencia estadísticamente significativa salvo la fiebre; observándose mayor significación en los síntomas de dolor de cabeza, mareos o dolor de garganta, y siendo la dificultad respiratoria el que presenta un mayor porcentaje de PD (84.4%). El número de síntomas que presentan es otra variable que se asocia con desarrollar PD ($p < 0.001$).

No se aprecia asociación entre tener enfermedad crónica, hospitalización o atención médica durante los últimos 14 días y desarrollar PD, asociación que si se ve entre los que tomaban medicación en el momento del estudio (tabla 13). Un 83,5% contestaron que tenían una percepción de salud óptima (muy buena o buena), frente a regular o pésima.

		N (%)	GHQ		X ²	P
			NO	SI		
Fiebre	SI	55 (5.2)	32.7	67.3	.042	.838
	NO	1001 (94.8)	34.1	65.9		
Tos	SI	199 (18.8)	27.1	72.9	5.143	.023
	NO	857 (81.2)	35.6	64.4		
Dolor de cabeza	SI	468 (44.3)	26.1	73.9	23.542	<.001
	NO	588 (55.7)	40.3	59.7		
Dolor muscular	SI	231 (21.9)	26.0	74.0	8.480	.004
	NO	825 (78.1)	36.2	63.8		
Mareos	SI	124 (11.7)	20.2	79.8	11.985	.001
	NO	932 (88.3)	35.8	64.2		
Diarrea	SI	134 (12.7)	23.1	76.9	8.070	.005
	NO	922 (87.3)	35.6	64.4		
Dolor de garganta	SI	267 (25.3)	25.8	74.2	10.587	.001
	NO	789 (74.7)	36.8	63.2		
Congestión nasal	SI	292 (27.7)	27.1	72.9	8.667	.003
	NO	764 (72.3)	36.6	63.4		
Escalofríos	SI	59 (5.6)	22.0	78.0	3.985	.046
	NO	997 (94.4)	34.7	65.3		
Dificultades respiratorias	SI	45 (4.3)	15.6	84.4	7.123	.008
	NO	1011 (95.7)	34.8	65.2		
SALUD						
Percepción de la salud	Óptima	882 (83.5)	37.0	63.0	20.975	<.001
	Regular o pésima	174 (16.5)	19.0	81.0		
Enfermedad crónica	SI	180 (17.0)	30.6	69.4	1.145	.285
	NO	876 (83.0)	34.7	65.3		
Toma medicación actualmente	SI	226 (21.4)	26.1	73.9	7.977	.005
	NO	830 (78.6)	36.1	63.9		
Hospitalización últimos 14 días	SI	11 (1.00)	27.3	72.7	.224	.636
	NO	1045 (99.0)	34.1	65.9		
Atención medica últimos 14 días	SI	103 (9.8)	29.1	70.9	1.206	.272
	NO	953 (90.2)	34.5	65.5		

Nº síntomas	M (SD)	GHQ		Estadístico	p
		NO	SI		
	1.77 (2.01)	1.33 (1.75)	2.00 (2.1)	-5.520	<.001

Tabla 13. Asociación entre síntomas físicos y la salud con el distrés psicológico durante la pandemia

Historial de contactos y malestar psicológico

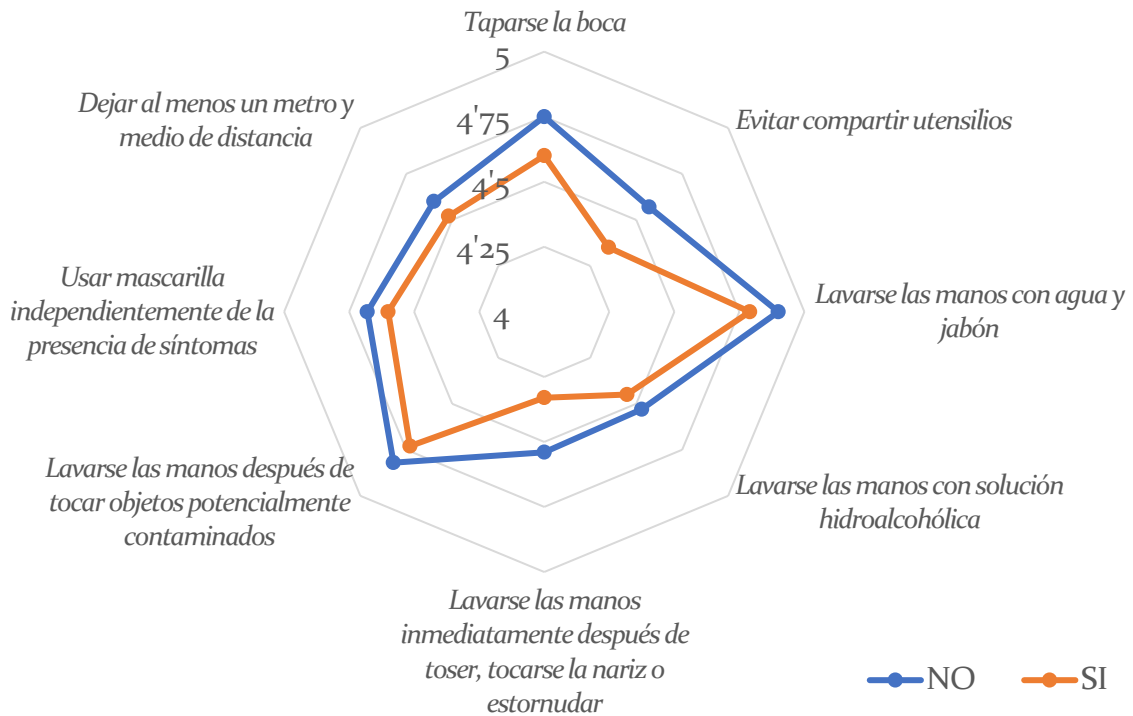
Como podemos observar en la tabla 13, el 58.3% de los participantes del estudio manifestaron haber tenido o no saber si tuvieron contacto cercano con personas confirmadas que estaban infectadas por COVID-19, el 55.1% habían tenido o no sabían si tuvieron contacto casual, y el 63.8 % expresó que mantuvo o no sabe si tuvo algún contacto con persona o material sospechoso de estar infectado. En los tres supuestos estaba asociado con desarrollar PD ($p < 0.001$). Un 75.1% afirmó que ningún miembro de la familia había sido infectado, habiéndose realizado una prueba diagnóstica al 17.3% de los encuestados. En ambos supuestos no se asocia con desarrollar PD (tabla 14).

	N (%)	GHQ		Estadístico	p
		NO	SI		
Contacto >15' <2m con persona infectada					
Si o no lo sé	616 (58.3)	29.9	70.1	11.217	.001
No	440 (41.7)	39.8	60.2		
Contacto casual persona infectada					
Si o no lo sé	582 (55.1)	28.5	71.5	17.314	<.001
No	474 (44.9)	40.7	59.3		
Algún contacto con persona o material sospechoso de estar infectado					
Si o no lo sé	674 (63.8)	30.0	70.0	13.458	<.001
No	382 (36.2)	41.1	58.9		
Miembro de la familia infectado					
Si o no lo sé	263 (24.9)	30.4	69.6	1.998	.157
No	793 (75.1)	35.2	64.8		
Le han realizado la prueba diagnóstica					
Si	183 (17.3)	35.0	65.0	.094	.759
No	873 (82.7)	33.8	66.2		

Tabla 14. Asociación entre variables relacionadas con el historial de contactos y distrés psicológico durante la pandemia

Medidas preventivas y malestar psicológico durante la pandemia

Las medidas preventivas que los profesionales de la salud dan un mayor valor medio son lavarse las manos con jabón y agua ($M=4.83$; $SD=0.45$), lavarse las manos tras tocar objetos potencialmente contaminados ($M=4.77$; $SD=0.52$), cubrirse la boca al toser o estornudar ($M=4.68$; $SD=0.62$) y llevar mascarilla ($M=4.65$; $SD=0.75$). La adopción de las medidas preventivas se asocia con el desarrollo de PD, salvo en lavarse las manos con solución hidroalcohólica y llevar mascarilla con o sin síntomas (figura 4).



NO = participantes sin malestar psicológico; SI = participantes con malestar psicológico.

Figura 4. Valores medios de medidas preventivas según malestar psicológico (Ecuador, 2021).

Predicción del malestar psicológico durante la pandemia en profesionales sanitarios

En los 1056 casos estudiados, el método CHAID señala el número de síntomas como la variable más significativa con el distrés psicológico, distinguiendo entre ningún síntoma, entre uno y tres síntomas y más de tres síntomas. Para el 35.3% de personas (373) sin síntomas, los hombres presentan un 47.0% de casos de PD frente a las mujeres, cuya proporción varía entre un 72.0% y un 52.8% según haya o no habido contacto casual con alguna persona cuya infección haya sido confirmada. Entre las personas con uno, dos o tres síntomas (509) el sexo es también nodo diferenciador y al igual que en el caso anterior el número de casos con PD es superior en las mujeres, 73.7%, que en los hombres; en estos últimos, el hecho de haber tenido o no contacto estrecho, más de 15 minutos a menos de 2 metros, con alguna persona confirmada de infección hace que estos porcentajes varíen entre un 49.2% y 69.1% respectivamente. La percepción que se tiene de la salud en los últimos catorce días es el nodo diferenciador cuando ha habido más de tres síntomas (174 casos), si la percepción es óptima el porcentaje de distrés es del 68.1% y alcanza el 87.3% cuando la percepción de la salud es regular o pésima (figura 5).

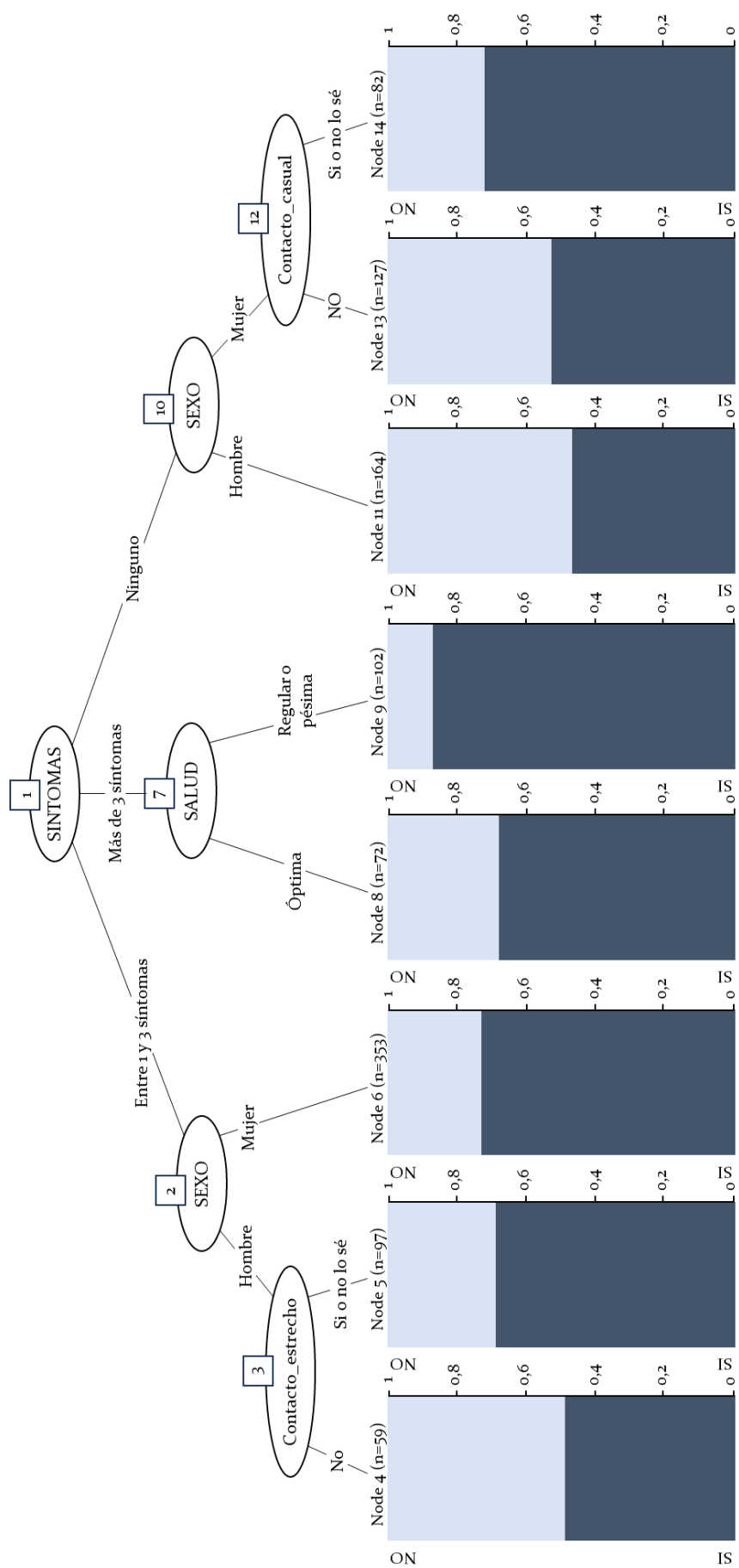


Figura 5. Árbol de segmentación que muestra el nivel de malestar psicológico sobre la base de sexo, síntomas, contacto con el virus y percepción de salud

5. DISCUSIÓN

La actual tesis doctoral tuvo como finalidad poder evaluar el malestar psicológico o psychological distress (PD) que presentaron los profesionales de la salud del Ecuador en torno a la pandemia COVID-19. Este trabajo nos ha permitido obtener un mayor conocimiento sobre el nivel de PD en estos profesionales sanitarios durante la primera fase de la pandemia. Se ha conocido la influencia de diferentes variables como lo son el sentido de coherencia, el compromiso laboral o ambiente laboral dentro de la aparición de PD en dichos trabajadores. Este conocimiento puede generar varios beneficios en relación a la salud mental del personal sanitario, pues en futuras pandemias se podría prevenir la aparición de estos cuadros de PD en dicho colectivo de trabajadores para generar mayor armonía laboral y así lograr mayor salud ocupacional.

En relación al primer objetivo de nuestro estudio, para identificar el conocimiento científico sobre los factores de riesgo asociados con el malestar psicológico entre los trabajadores de la salud durante la pandemia de COVID-19, se ha podido observar que en la sociedad actual existe un aumento de PD agravado por la austeridad pública y crisis económica que se vive por la pandemia COVID-19 (Bethge & Radoschewski, 2020). Los profesionales de la salud presentan un aumento más considerable de PD, en especial los que se encuentran combatiendo en primera línea la pandemia, pues poseen más carga laboral y horas de trabajo para abordar esta problemática mundial (Goldberg et al., 1997c; Houdmont et al., 2022).

En este sentido, uno de los principales factores que genera predisposición al PD de acuerdo a los hallazgos de la actual revisión sistemática podría ser el género femenino (Alfai et al., 2022; Altwaijri et al., 2022; Aragonès et al., 2022; Collantoni et al., 2021; Fattori et al., 2021; Gonzalez Mendez et al., 2022; Hammami et al., 2021; Ishikawa et al., 2021; Jang et al., 2021; Leira-Sanmartín et al., 2021; G. Li et al., 2020; Ruiz-Frutos et al., 2022; Stubbs et al., 2021; Taşdelen et al., 2022; Titi et al., 2022; Voth et al., 2022; Xiaoming et al., 2020), esta afirmación coincide con la de otros metaanálisis en los que se analizó el estado mental de los trabajadores de la salud (HCWs) durante la pandemia por COVID-19 y se encontró que las mujeres desarrollaron más desordenes psicológicos que los hombres (Ching et al., 2021; da Silva & Neto, 2021a; Vizheh et al., 2020). Como indican, esto se podría justificar porque a los hombres les cuesta más reconocer el PD, así como por factores biológicos, sociales y demográficos (Aragonès et al., 2020). Además, otro factor como es el de trabajar como enfermera, también se ha asociado a un mayor PD (Almalki et al., 2021; Collantoni et al., 2021; Ghimire et al., 2022; Gonzalez Mendez et al., 2022), siendo este colectivo eminentemente copado por enfermeras mujeres, lo cual se sustenta con el metaanálisis de Ching et al, el cual indica que las enfermeras tuvieron un incremento de síntomas como depresión y ansiedad (OR = 1.21; 95%CI = 1.02–1.45) a diferencia de otro tipo de HCWs. Los resultados destacan la importancia de la

salud mental de las mujeres y la pertinencia de planificar intervenciones psicológicas, considerándolas un grupo de mayor riesgo.

El factor edad, ha mostrado más discrepancias entre los autores. En la mayoría de los estudios, ser joven es un factor de riesgo para el PD (Altwaijri et al., 2022; Del Piccolo et al., 2021; Fattori et al., 2021; Ishikawa et al., 2021; Shahrour & Dardas, 2020; Shahsavarinia et al., 2022; Titi et al., 2022), pero en otros estudios de (Alqutub et al., 2021; (Shahsavarinia et al., 2022), han mostrado lo contrario. Estas inconsistencias podrían estar relacionadas con circunstancias laborales y personales, diferentes métodos de evaluación y diferentes agrupaciones de años. Este motivo, podría explicar también que mientras más años de experiencia tengan los HCWs mayor presencia de PD (Stubbs et al., 2021; N. Wang et al., 2021; X. Xiao et al., 2020). De acuerdo con (H. Wang et al., 2020), una mayor experiencia laboral se relaciona con una mayor sintomatología de PD, y aquellos participantes que tenían 10 años o más de experiencia laboral presentaban un mayor PD en comparación con aquellos que únicamente tenían 3 años de experiencia. Sin embargo, en un metaanálisis (Krishnamoorthy et al., 2020) dentro del cual analizaron las morbilidades psicológicas en los HCWs y pacientes con COVID-19 durante la pandemia, si encontraron una media de edad para la aparición de PD, la cual fue de 30 a 49 años.

Se ha visto, además, que la depresión y ansiedad son los principales síntomas que acompañan al estrés psicosocial generado por la pandemia COVID-19. De acuerdo a otro artículo, los síntomas depresivos y de ansiedad encabezaban la lista de síntomas relacionados al PD en un grupo de 4.692 enfermeros de China (Hong et al., 2021), representando el 8,1% y 9,4% respectivamente. Por otro lado, en otro estudio (Xiaoming et al., 2020), se observó que en un grupo de 8817 HCWs de un hospital de China, la prevalencia de depresión y ansiedad fueron de 30,3% y 20,7% respectivamente. Esta aseveración coincide con otro metaanálisis y revisión sistemática (Abdulla et al., 2021), en el cual se analizó la depresión y ansiedad en relación con la pandemia COVID-19 entre HCWs de India, en el que se encontró que estos síntomas se desarrollaron principalmente por las preocupaciones de contagio personal y a familiares y por la falta de equipo de protección por el brote repentino de SARS-CoV-2, al igual como se ha demostrado para el PD (Del Piccolo et al., 2021; Galehdar et al., 2020; Hammami et al., 2021; Ide et al., 2021; Migisha et al., 2021; Nie et al., 2020; Nielsen et al., 2022; Zeng et al., 2021).

Todos estos síntomas relacionados al estrés se exacerbaban aún más ante la presencia de otras variables diferentes a la alta carga laboral generada por la pandemia COVID-19, dentro de estas variables se incluyen el miedo al contagio propio o familiar (Altwaijri et al., 2022; Galehdar et al., 2020; Hawari et al., 2021; Laurent et al., 2022; Nie et al., 2020), pocas relaciones sociales (Leira-Sanmartín et al., 2021; Peccoralo et al., 2022; Y. Xiao et al., 2022; Zeng et al., 2021), menor apoyo familiar (Del Piccolo et al., 2021; Nie et al., 2020), entre otras. Otras de las variables que generaba

una mayor aparición de estrés laboral en el personal sanitario era la experiencia laboral. Quizás, en este ámbito, los dos factores más influyentes podían ser trabajar en primera línea (Altwaijri et al., 2022; Aragonès et al., 2022; Binnie et al., 2021; Fattori et al., 2021; Lee et al., 2022; Martínez-Ponce et al., 2022; Migisha et al., 2021; Morioka et al., 2022; Nie et al., 2020; Shahsavarinia et al., 2022; Taşdelen et al., 2022; N. Wang et al., 2021; Zeng et al., 2021) y mayor duración del servicio (Alqutub et al., 2021; Gonzalez Mendez et al., 2022; He et al., 2022; Menon et al., 2022; Titi et al., 2022; Voth et al., 2022). Esto hace que aumente la probabilidad de contagio (Altwaijri et al., 2022; Fattori et al., 2021; Gómez-Salgado, Domínguez-Salas, et al., 2020; Ide et al., 2021; Jang et al., 2021; Lasalvia et al., 2021; Leira-Sanmartín et al., 2021; Morioka et al., 2022; Ruiz-Frutos et al., 2022; Titi et al., 2020) y que los sujetos tengan déficit de horas de sueño (Collantoni et al., 2021; Leira-Sanmartín et al., 2021; H. Wang et al., 2020; Xia et al., 2021), con el consiguiente PD que le puede causar el exceso de carga de trabajo. Estos datos coinciden con otro metaanálisis (da Silva & Neto, 2021a), pues en este estudio en el cual se analizaron los desórdenes psiquiátricos de los HCWs, encontraron que una larga jornada de trabajo, el aislamiento social, alteraciones en el ciclo de sueño, la alta demanda laboral relacionada a la pandemia, entre otros, podrían ser razón de aparición de PD.

Es fundamental realizar una clasificación de las diversas afecciones que pueden manifestarse en un territorio específico, dado que se reconoce que cada grupo de individuos puede estar influenciado por problemáticas particulares que pueden dar lugar a diferentes resultados. Considerando este punto, se puede incluir al territorio ecuatoriano dentro del cual se produjo una de las mayores alertas sanitarias de Latinoamérica especialmente en zonas más pobladas e industrializadas como Guayaquil (Pacheco et al., 2020), representando en ciertos momentos el 70% de todos los casos declarados en el país (Mautong et al., 2020). Dentro de este contexto es interesante analizar si el compromiso laboral, sentido de coherencia y ambiente de trabajo se asocian al PD en el personal sanitario ecuatoriano durante la pandemia COVID-19.

Ecuador es un país con unos 17 millones de habitantes, con una distribución desigual del sistema sanitario para atender casos graves de la enfermedad, especialmente en las zonas de la Costa donde los casos de COVID-19 se superponen con el alto número de casos de dengue. Situación similar al de otros muchos países de Latinoamérica y que difieren de las menores dificultades que tienen los países de Europa o EEUU para el diagnóstico y control de la pandemia (Navarro et al., 2020).

En nuestro estudio se ha podido evidenciar que las personas que tienen pareja y los que tienen hijos presentan mayor sentido de coherencia, siendo este resultado similar al obtenido en España con respecto al sexo y nivel de estudios y diferente en relación a su asociación con los problemas de salud y soporte social (Malagon-Aguilera et al., 2019).

Los resultados obtenidos confirman los hallazgos previos en los que un alto sentido de coherencia (SOC) se asocia positivamente con el compromiso laboral (WE) y ambos negativamente con el

malestar psicológico (Berger et al., 2022; Rodríguez-Domínguez et al., 2022b). El WE está influenciado por el nivel de satisfacción laboral, en los que el SOC actúa como factor modulador, y en los que tanto la satisfacción laboral como el SOC son mejores predictores del WE que la resiliencia (Derbis & Jasiński, 2018). Esto pone de manifiesto la conveniencia de actuar sobre estos factores para reducir los efectos negativos de la pandemia por COVID-19 en la salud mental de los profesionales de la salud. Puesto que es posible que aparezcan nuevas pandemias en el futuro, el sistema sanitario público debería prepararse para actuar en el menor tiempo posible ante dichas circunstancias, dado el papel fundamental que ejercen los sanitarios en las pandemias.

De la misma forma que la asociación que se ha encontrado entre un ambiente laboral positivo con un alto SOC confirma estudios previos, en las que se ha visto que una mejora del entorno de trabajo del personal de enfermería, con un aumento del SOC, lo que conduce a mejoras en su salud (Ogata et al., 2022).

Dentro de la población ecuatoriana, es interesante además, poder analizar los niveles de estrés psicosocial que se han presentado durante la pandemia COVID-19 dentro de estos profesionales. Y de acuerdo a los resultados obtenidos en el estudio, se pudo evidenciar un nivel de malestar psicológico moderado-alto (66,0%) entre los profesionales sanitarios durante la pandemia por COVID-19 en el Ecuador. Estos resultados coinciden con los obtenidos por otros estudios internacionales sobre la ansiedad, depresión y estrés entre los profesionales sanitarios que trabajan en primera línea frente a la crisis del coronavirus (da Silva & Neto, 2021b; Serrano-Ripoll et al., 2020; Si et al., 2020). Los estudios previos que incluyeron profesionales sanitarios ecuatorianos en su muestra también obtuvieron resultados similares en relación con las manifestaciones de estrés (59,5%), ansiedad (45,7%), depresión (55,4%) y estrés postraumático (70,2%) (Bermejo-Martins et al., 2021; Passavanti et al., 2021). Sin embargo, nuestros resultados fueron más altos que los de Mautong et al. (2021) en su estudio sobre la salud mental de la población ecuatoriana durante el confinamiento, obteniendo 17,7% de depresión, 30,7% de ansiedad y 14,2% de estrés. Esta diferencia es concordante con estudios previos que identificaron niveles significativamente más altos de PD en los profesionales de salud en comparación con la población general (Arpacioglu et al., 2021; Luo et al., 2020). En particular, el distress se ha descrito especialmente elevado en los profesionales de salud de primera línea frente a los que no trabajan con pacientes COVID-19 (Lai et al., 2020b; Trumello et al., 2020b).

Algunos autores han sugerido la falta de recursos y equipos de protección como un factor asociado a la ansiedad de los trabajadores sanitarios frente a la pandemia (X. Liu et al., 2020; Shanafelt et al., 2020). En Ecuador, la respuesta del sistema de salud al brote de coronavirus fue insuficiente, especialmente en los recursos humanos sanitarios y el abastecimiento de equipos de protección individual (Alava & Guevara, 2021). Los resultados de Martín-Delgado (2020) describieron una

escasez de material de protección individual manifestada por el 70% los trabajadores sanitarios de Brasil, Colombia y Ecuador, especialmente de trajes, mascarillas y protecciones faciales, incluso en áreas donde se realizaron procedimientos generadores de aerosoles. Para hacer frente a las carencias de recursos materiales y técnicos, Ecuador solicitó ayuda internacional y finalmente tuvo que aceptar las donaciones de la Pan-American Health Organization (PAHO) de material de protección para los trabajadores de primera línea (Alava & Guevara, 2021). Las carencias no solo afectaron al abastecimiento de equipo, sino también a la formación sobre su correcto uso, ya que el 51,5% de los profesionales sanitarios ecuatorianos reconocen no haber recibido formación sobre el uso de los equipos de protección individual (Martin-Delgado et al., 2020). Sin embargo, el estudio de Zhang et al. (2020) sobre el apoyo organizacional a los trabajadores sanitarios de Perú, Ecuador y Bolivia, no identificó el control del riesgo y la protección como un predictor de la ansiedad de los profesionales.

Es relevante examinar las diversas medidas que podrían contribuir a la mejora del estado de salud del PD. En el contexto de atención médica en Ecuador, se ha identificado que la práctica de ejercicio físico, el mantenimiento de rutinas diarias y la obtención de información sobre COVID-19, limitando su exposición a una hora, se correlacionan con una mejor salud mental (Paz et al., 2020).

La crisis sanitaria surgida como consecuencia de la pandemia por COVID-19 ha puesto de manifiesto la necesidad de fortalecer los servicios de salud pública y de integrar la “perspectiva de salud laboral” en todas las intervenciones y servicios proporcionados por el sistema de salud público (García et al, 2021). Este impacto positivo generado por la crisis ha resaltado la importancia de considerar la salud laboral como un componente esencial para la gestión efectiva de la salud en general, reconociendo así la interrelación entre el bienestar físico, mental y social de los individuos.

6. LIMITACIONES

En la Fase 1, al existir un manejo de escalas diferentes y distintos puntos de corte para el procesamiento de datos, se generaron resultados heterogéneos, lo cual plantea limitaciones significativas en la comparabilidad y generalización de los hallazgos obtenidos. Esta disparidad en los resultados puede atribuirse a la falta de una mejor estandarización en los criterios de escala.

Por otro lado, en la misma fase mencionada, el estudio se limitó a la selección de artículos publicados exclusivamente en inglés, español, francés y portugués. Esta decisión puede haber llevado a la exclusión de investigaciones y estudios relevantes en otros idiomas, lo que podría haber restringido la comprensión y el análisis completo de la literatura existente sobre el tema de investigación. La elección de estos idiomas se basó en la disponibilidad de recursos y la capacidad del equipo investigador para realizar una revisión exhaustiva en las lenguas seleccionadas. Sin embargo, es importante reconocer que esta restricción implica una posible pérdida de perspectivas y conocimientos valiosos que podrían haber sido aportados por estudios publicados en otros idiomas.

En la fase dos encontramos como limitación una proporción desequilibrada de participantes entre los médicos y el personal de enfermería en comparación con otros profesionales de la salud. Esta desproporción puede haber introducido un sesgo en los resultados y limitar la generalización de los hallazgos obtenidos a un espectro más amplio de trabajadores sanitarios del Ecuador. La exclusión de otras categorías de trabajadores de la salud, como técnicos de laboratorio, farmacéuticos, terapeutas ocupacionales, entre otros, podría haber omitido perspectivas importantes y matices específicos de cada grupo profesional, afectando así la integralidad y representatividad de los resultados. La mayor limitación debe haber sido los requerimientos laborales del personal sanitario durante la primera fase de pandemia, que es cuando se realizó la recogida de información, condicionado el número de respuestas, pero, al mismo tiempo, da un mayor valor a las personas que contestaron.

En la tercera fase se debe reconocer el muestreo por conveniencia que no garantiza que sea representativa de la población de estudio, por lo que se recomienda cierta prudencia en la generalización de los resultados. Al realizarse una recogida de datos online, la distribución territorial de la muestra no es homogénea.

Otra de las limitaciones del trabajo es la falta de seguimiento a largo plazo. El estudio se centró en la primera fase de la pandemia COVID-19 y no realizó un seguimiento a largo plazo de los trabajadores sanitarios. No se pudo evaluar la evolución del malestar psicológico a lo largo del tiempo ni determinar si los resultados se mantuvieron o cambiaron en etapas posteriores de la pandemia.

Es importante también abordar las variables no controladas. Aunque se han considerado varias variables en el estudio, es fundamental reconocer la posibilidad de la existencia de otros factores no medidos que podrían tener una influencia significativa en el malestar psicológico experimentado por los trabajadores sanitarios. Factores como la falta de preparación y capacitación adecuadas para enfrentar la pandemia, los cambios en las rutinas de trabajo habituales y otros elementos similares, pueden desempeñar un papel adicional en la configuración de los resultados observados. Es crucial tener en cuenta esta limitación y reconocer que la comprensión completa del malestar psicológico en este contexto complejo puede requerir una consideración más amplia y exhaustiva de las múltiples variables en juego.

7. CONCLUSIONES

1. En nuestra muestra, durante la primera fase de la pandemia en Ecuador, el 66% de los profesionales de la salud presentaron un malestar psicológico (PD) alto.
2. Se evidenció una diferencia en presentar malestar psicológico de acuerdo al género, siendo las mujeres las que presentaban un mayor malestar psicológico durante la pandemia por COVID-19.
3. De acuerdo a los datos encontrados entre los diferentes trabajadores de la salud (HCWs), se pudo poner en manifiesto que el pertenecer al personal de enfermería generaba mayor malestar psicológico que en otro tipo de profesionales de la salud.
4. Otros de los factores principales para desarrollar malestar psicológico fueron: vivir solo/estar soltero, tener una enfermedad crónica o antecedentes de trastornos psiquiátricos, la presencia de síntomas de COVID-19 e historial de contacto.
5. También se asocia el malestar psicológico con la deficiencia de horas de sueño, tener poco apoyo familiar y pocas relaciones sociales, manifestar miedo por contagiar a amigos y familiares y trabajar en primera línea con los pacientes infectados por el nuevo coronavirus.
6. En los profesionales de la salud, la satisfacción con su trabajo, el sentirse apreciado por la sociedad o el posible aumento de conflictividad laboral durante la pandemia, condicionan el sentido de coherencia y se asocia con el nivel de malestar psicológico.
7. Una mejor percepción de salud y una mayor adherencia a las medidas preventivas para evitar el contagio al COVID-19 se asoció con un menor nivel de PD. Estando condicionado el uso de las medidas preventivas a su disponibilidad y obligación de uso. Siendo influido el ambiente laboral de manera significativa por el nivel de seguridad y efectividad suministrado por la empresa para protegerse del contagio o la distancia mantenida con los compañeros de trabajo.

8. En el personal sanitario del Ecuador, durante la primera fase de pandemia, las variables que determinan el nivel del sentido de coherencia (SOC) son el PD, el Compromiso laboral, el ambiente de trabajo, la edad, el sentirse apreciado por la sociedad como profesional de la salud y haber observado un aumento de conflictividad laboral en su trabajo durante la pandemia.
9. Respecto al ambiente de trabajo, este se correlaciona significativamente con el nivel de seguridad y efectividad proporcionado por las empresas para protegerse del contagio por la COVID-19 o la distancia mantenida por los compañeros para evitar el contagio. El grado de satisfacción con su trabajo durante la pandemia o la percepción de aprecio como profesional de la salud por parte de la sociedad son variables que condicionan el SOC, así como el nivel de conflicto en su lugar de trabajo o el nivel de estrés se asocian de manera inversa.
10. El impacto psicosocial directo o indirecto de la pandemia por COVID-19 sobre el personal de salud es evidente, afectando a su salud mental y en ciertas ocasiones influyendo incluso en el bienestar físico. Futuros esfuerzos podrían priorizar la salud mental del personal sanitario, abordando de manera efectiva las necesidades actuales y futuras que los mismos puedan presentar para un mejor desempeño.

8. REFERENCIAS BIBLIOGRÁFICAS

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9. ANEXOS

9.1. PRIMER ARTÍCULO

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Psychological distress in healthcare workers during COVID-19 pandemic: A systematic review

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ABSTRACT

Objectives: Healthcare workers serving during the COVID-19 pandemic may have been exposed to high work overload, which may have had an impact on their physical, mental, and social health. The aim of this study was to assess the risk factors associated with psychological distress among healthcare workers serving during the COVID-19 pandemic from January 2020 to December 2022. **Methods:** A systematic review was conducted based on the 2020 PRISMA statement. Articles were searched in the Pubmed, Scopus, Web of Science, CINAHL, and PsycINFO databases. **Results:** A total of 59 articles were included in this systematic review. It was observed that the prevalence of psychological distress during the COVID-19 pandemic was high. Female sex, being a nurse, being young, living alone/being single, and having a chronic disease or psychiatric disorder history are the main risk factors at the personal level. Other occupational and pandemic-related factors such as having many years of work experience, the presence of COVID-19 symptoms and contact history, not enough sleep, having lower family support and limited social relationships, fear of infecting friends and family, having a reduced perception of protection by personal protective equipment, working on the frontline, and having longer service duration were found to be factors influencing the development of psychological distress during the COVID-19 pandemic. **Conclusions:** There are personal, interpersonal, and organizational risk factors that can lead to the occurrence of psychological distress among healthcare staff working during the COVID-19 pandemic.

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1. Introduction

The severe acute respiratory syndrome type 2 coronavirus (SARS-CoV-2) causing COVID-19 was first identified in Wuhan, a city in the northeastern part of the Republic of China. On 11 March 2020, the World Health Organisation (WHO) declared the spread of this virus a pandemic outbreak. As of 7 November 2022, more than 629 million infections and more than 6 million deaths had been reported worldwide (World Health Organization, 2022).

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Among the different measures to combat the pandemic were home confinement and teleworking (Lang & Hofer-Fischinger, 2022). However, healthcare workers remained on the frontline fighting the progression of the virus by treating cases of SARS-CoV-2 infections that appeared as the pandemic unfolded, in addition to other pathologies that occur in healthcare centers on a daily basis (Soubelet-Fagoaga et al., 2022). This meant that healthcare professionals were exposed to high levels of stress and work overload, which translated in effects on their physical, mental, and social health. In addition, the uncertainty of the progression of the pandemic, misinformation on social networks, and different levels of severity of the disease, among others, caused further alterations in the mental well-being of healthcare workers (Trogolo et al., 2022).

In recent decades, stress has been widely studied and considered as a common occupational problem. This condition is much more consistently reported among healthcare professionals, given

the demands and obligations that are persistently placed on them. Most notably, during the pandemic, this group of workers was affected as a consequence of a shortage of healthcare professionals and when some of them became ill, the rest had to take on responsibility for more patients (Zamir et al., 2022).

Putting an end to the pandemic and reducing its impact in the short, medium, and long term are among current global priorities (Agarwal et al., 2022). Much of the responsibility for these goals rests with the different health systems globally; this, incidentally, produces much more anxiety and stress for healthcare workers. These consequences are further triggered by burnout syndrome and the fear of getting infected by this virus, and of infecting their relatives when working in high-risk areas such as hospitals (Jun et al., 2020; Liu et al., 2020).

According to WHO (2022), health is understood as a state of complete physical, mental, and social well-being, and not merely by the absence of diseases or pathologies. This is why an assessment of the stress experienced by healthcare professionals in the current context of the pandemic is of utmost importance, as well as the determination of the possible risk factors causing psychological distress (PD).

One of the main consequences of the increase in PD among healthcare professionals is the deterioration of their mental health, which in turn leads to higher levels of stress, depression, and anxiety. This will ultimately have a negative direct impact on the healthcare professional and an indirect effect on the patient.

The present study was carried out with the aim of assessing the appearance of symptoms related to psychological distress in healthcare workers (nurses, doctors, and other frontline physicians) during the COVID-19 pandemic, addressing the different psychopathological results obtained in the included studies by means of a systematic review. In addition, the objective is to evaluate the risk factors that may lead to the appearance of symptoms related to psychosocial stress among healthcare workers at individual, interpersonal, and organizational levels.

2. Methods

2.1. Study design

A systematic review was conducted following the guidelines of the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) statement (Moher et al., 2009). For this purpose, the authors relied on a protocol for the development of this systematic review, which was registered in the International Prospective Register for Systematic Reviews (PROSPERO) with identification code CRD42022344270.

2.2. Databases and search strategy

The search was carried out in the Pubmed, Scopus, Web of Science, CINAHL (Cumulative Index to Nursing and Allied Health

Table 1
PICOT format: keywords.

Population	Healthcare professionals
Intervention	Assessing psychological distress
Comparison	Identifying risk factors
Outcome	Level of burnout, stress, and anxiety; number of cases of people with depression; comparison of levels before vs. during the COVID-19 pandemic and comparison according to type of profession/service; differences between frontline and second-line professionals.
Time	During the COVID-19 pandemic
Research question	What factors influence psychological distress in healthcare workers during the COVID-19 pandemic?

Literature), and PsycINFO electronic databases on the basis of the keywords that the research question yielded following the PICOT strategy (Table 1).

Following these keywords, the Medical Subject Headings (MeSH) thesaurus was consulted, yielding the descriptors Health Personnel, Psychological Distress, Risk Factors, and COVID-19. In order to enlarge the scope of the search, synonymous terms were used to complete the search based on the Medical Subject Headings (MeSH) descriptors (Table 2), linked by the Boolean operators AND and OR.

Table 3 shows the search strategy used, carried out up to 04 December 2022, for each of the databases mentioned above during the search process.

2.3. Selection criteria

The following criteria were used for the selection of articles:
Inclusion criteria:

- Original articles published in English, Spanish, French, or Portuguese.
- Type: original articles and meta-analyses.
- Data collection must have taken place during the COVID-19 pandemic (30 January 2020 to present)
- Articles measuring any of the following values and/or effects: level of psychological distress, level of burnout, level of depression, level of stress and level of anxiety, number of cases of professionals with depression, stress and/or anxiety, comparison of levels of psychological distress before vs during the COVID-19 pandemic, and comparison according to country/type of profession/service.

Exclusion criteria:

- Studies in a language other than English, Spanish, French, or Portuguese.
- Studies of low scientific-technical quality after applying the quality assessment tool.
- Articles that did not answer the research question and were not related to the objective of the review.
- Data not collected during the COVID-19 pandemic (by 30 January 2020) or where the date of collection was unclear or not explicit.
- Typology: opinion articles, editorials and letters to the editor, systematic reviews, short communication papers, and case reports.

2.4. Data collection and extraction

Two authors independently carried out the search for articles, eliminated duplicate studies, and selected articles for inclusion after reading the abstract and title according to the previously established inclusion criteria. Citations from each search in the five databases were downloaded from Mendeley and identified duplicates were removed. Subsequently, the same two authors reviewed

Table 2
Terms used in the search.

MeSH	Terms
Health personnel	Healthcare professionals or Healthcare workers or Healthcare providers or Physician or Nurse* or Doctor*
Psychological Distress	Psychological impact or Psychological Distress
Risk Factors	Risk Factors or Factors Associated
COVID-19	COVID-19

Table 3
Search strategy used in each database.

Database	Search strategy	Results
Pubmed	((Healthcare professionals [Title/Abstract] OR Healthcare workers [Title/Abstract] OR Healthcare providers [Title/Abstract] OR Physician [Title/Abstract] OR Nurse*[Title/Abstract] OR Doctor*[Title/Abstract]) AND (Psychological impact[Title/Abstract] OR Psychological Distress[Title/Abstract])) AND (Risk Factors[Title/Abstract] OR Factors Associated[Title/Abstract] AND (COVID-19[Title/Abstract]))	155
Scopus	(TITLE-ABS-KEY ("healthcare professionals" OR "healthcare workers" OR "healthcare providers" OR physician OR nurse* OR doctor*) AND TITLE-ABS-KEY ("psychological impact" OR "psychological distress") AND TITLE-ABS-KEY ("risk factors" OR "factors associated") AND TITLE-ABS-KEY (covid-19))	235
Web of Science	TOPIC: "healthcare professionals" OR "healthcare workers" OR "healthcare providers" OR physician OR nurse* OR doctor* AND "psychological impact" OR "psychological distress" AND "risk factors" OR "factors associated" AND "COVID-19"	390
CINAHL	AB (healthcare professionals or healthcare workers or healthcare providers or physician or nurse or doctor) AND AB (psychological impact or psychological distress) AND AB (risk factors or factors associated) AND AB (COVID-19)	55
PsycInfo	tiab(healthcare professionals OR healthcare workers OR healthcare providers OR physician OR nurse OR doctor) AND tiab (psychological impact OR psychological distress) AND tiab(risk factors OR factors associated) AND tiab(COVID-19)	122
Search date: 04 Dec. 2022	Total	957

the full text of the studies and made the decision to include or exclude articles by consensus. The authors collected specific information (studies, context, main aim, type of study design, population, methods used, and main outcomes) and studies were rejected according to the exclusion criteria. Discrepancies were resolved by a third author.

2.5. Assessment of methodological quality

Two authors independently determined the methodological quality of the selected studies using the Joanna Briggs Institute (JBI) critical appraisal tools for non-randomized studies (Jordan et al., 2019), and a third author re-assessed their quality for verification purposes. This allowed assessing the methodological quality of the studies and determining the extent to which a study had avoided or minimized the risks of bias in its design, conduct, and/or analysis. Three different versions were used: one for quantitative cross-sectional studies (Moola et al., 2020) (8 items), a second one for qualitative studies (Lockwood et al., 2015) (10 items), and a third one for case-control or cohort studies (9 items) (Moola et al., 2020), setting the cut-off point at 6 or more positive responses in each study for acceptance for inclusion in this review (see Supplementary Material).

3. Results

According to the scientific literature verified for the present study in English, Spanish, French, or Portuguese, the initial search strategies identified a total of 957 references, which were screened according to the topic of this review. A total of 59 studies were included (Fig. 1): 56 quantitative cross-sectional studies; 1 case-control study; 1 cohort study; and 1 qualitative study.

3.1. Factors related to psychological distress at the individual level

Among the risk factors that may increase the likelihood of developing PD among healthcare workers (HCWs) during the COVID-19 pandemic, factors at the individual level have been highlighted such as female sex (Alfai et al., 2022; Altwajiri et al., 2022; Aragonès et al., 2022; Collantoni et al., 2021; Fattori et al., 2021; Gonzalez Mendez et al., 2022; Hammami et al., 2021; Ishikawa et al., 2021; Jang et al., 2021; Leira-Sanmartín et al., 2021; Li et al., 2020; Ruiz-Frutos et al., 2022; Stubbs et al., 2021; Taşdelen et al., 2022; Titi et al., 2022; Voth et al., 2022; Xiaoming et al., 2020), being younger (Altwajiri et al., 2022; Del Piccolo et al., 2021; Fattori et al., 2021; Ishikawa et al., 2021; Shahrour &

Dardas, 2020; Titi et al., 2022), working as a nurse (Almalki et al., 2021; Collantoni et al., 2021; Ghimire et al., 2022; Gonzalez Mendez et al., 2022), having a chronic disease or psychiatric disorder history (Almalki et al., 2021; Aragonès et al., 2022; Gonzalez Mendez et al., 2022; Taşdelen et al., 2022), years of experience (Stubbs et al., 2021; N. Wang et al., 2021; X. Xiao et al., 2020), presence of COVID-19 symptoms (Altwajiri et al., 2022; Gómez-Salgado et al., 2020; Juan et al., 2020; Nie et al., 2020), contact history (Altwajiri et al., 2022; Fattori et al., 2021; Gómez-Salgado et al., 2020; Ide et al., 2021; Jang et al., 2021; Lasalvia et al., 2021; Leira-Sanmartín et al., 2021; Morioka et al., 2022; Ruiz-Frutos et al., 2022; Titi et al., 2022), insufficient sleep (Collantoni et al., 2021; Leira-Sanmartín et al., 2021; H. Wang et al., 2020; Xia et al., 2021), and more.

3.2. Factors related to psychological distress at the interpersonal and/or relational level

At the interpersonal level, factors such as living alone/being single (Ishikawa et al., 2021; Xiaoming et al., 2020), lower family support (Del Piccolo et al., 2021; Nie et al., 2020), fear of infecting friends and relatives (Altwajiri et al., 2022; Galehdar et al., 2020; Hawari et al., 2021; Laurent et al., 2022; Nie et al., 2020), limited social relationships (Leira-Sanmartín et al., 2021; Peccoralo et al., 2022; Y. Xiao et al., 2022; Zeng et al., 2021), and more have been described.

3.3. Factors related to psychological distress at the organisational level

Finally, at the organizational level, factors such as reduced perception of protection by personal protective equipment (Del Piccolo et al., 2021; Galehdar et al., 2020; Hammami et al., 2021; Ide et al., 2021; Migisha et al., 2021; Nie et al., 2020; Nielsen et al., 2022; Zeng et al., 2021), gaps in information on the pandemic (Galehdar et al., 2020; Hawari et al., 2021; Xiaoming et al., 2020), working on the frontline (Altwajiri et al., 2022; Aragonès et al., 2022; Binnie et al., 2021; Fattori et al., 2021; Lee et al., 2022; Martínez-Ponce et al., 2022; Migisha et al., 2021; Morioka et al., 2022; Nie et al., 2020; Shahrour et al., 2022; Taşdelen et al., 2022; N. Wang et al., 2021; Zeng et al., 2021), and longer service duration (Alqutub et al., 2021; Gonzalez Mendez et al., 2022; He et al., 2022; Menon et al., 2022; Titi et al., 2022; Voth et al., 2022) have been identified.

The included studies were assessed with the JBI critical appraisal tool, where both cross-sectional and longitudinal observational

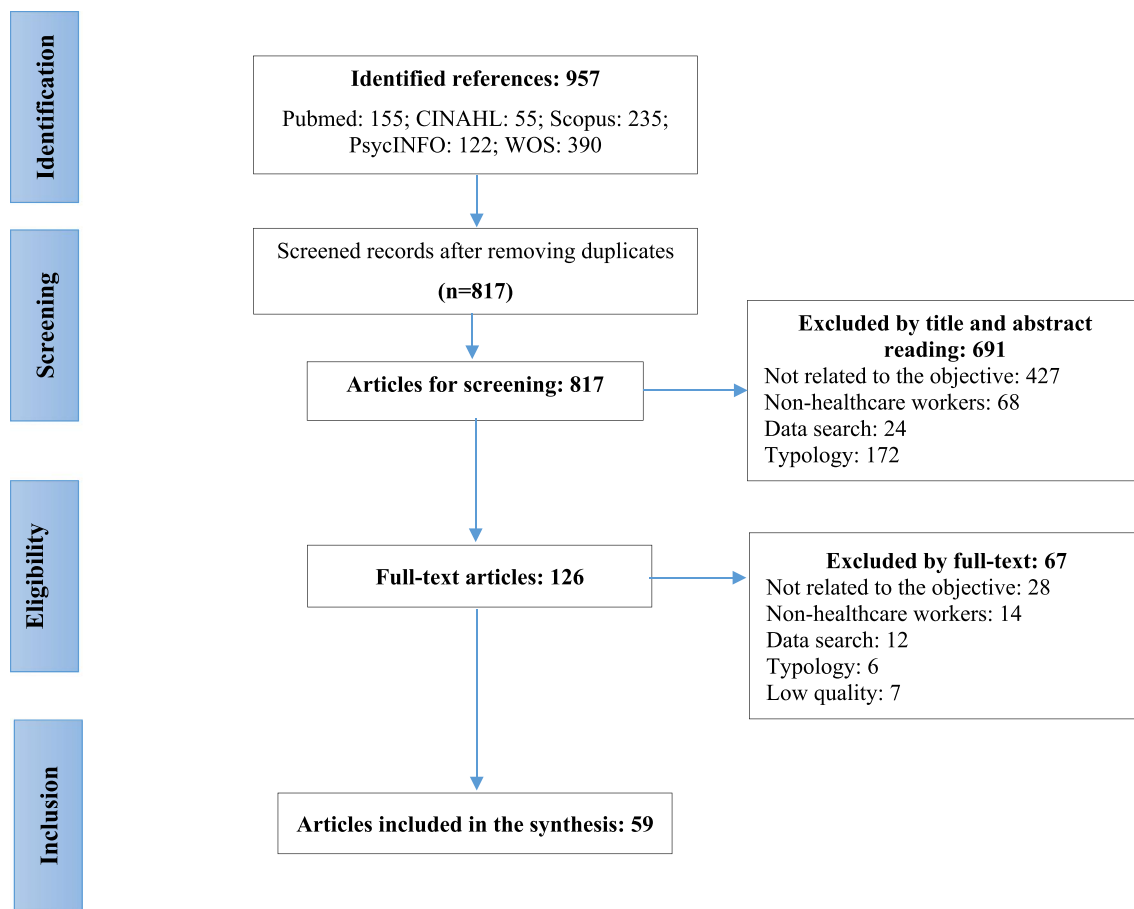


Fig. 1. Search results (PRISMA Flowchart).

studies, as well as qualitative, cohort, and case-control studies, obtained medium–high scores.

Table 4 is based on the Iberoamerican Cochrane Centre Handbook (Higgins et al., 2019) and shows the characteristics of each of the studies included in this review. They have been categorized by authors, country, design and objective, participants, instrument, and main outcomes. In addition, the results of the JBI critical appraisal tool have been added.

4. Discussion

The aim of this systematic review was to assess the occurrence of psychosocial stress-related symptoms in healthcare workers during the COVID-19 pandemic and to determine the risk factors predisposing to the development of these psychopathological symptoms.

First, the wide variability in the prevalence of psychological distress and stress in healthcare workers (HCWs), ranging from 13.82% (Ghimire et al., 2022) to 92.6% (Vancampfort & Mugisha, 2022) may be due to the variability of the samples and the time period in which the data were collected.

In this sense, one of the main factors predisposing to PD could be female sex (Alfai et al., 2022; Altwaijri et al., 2022; Aragonès et al., 2022; Collantoni et al., 2021; Fattori et al., 2021; Gonzalez Mendez et al., 2022; Hammami et al., 2021; Ishikawa et al., 2021; Jang et al., 2021; Leira-Sanmartín et al., 2021; Li et al., 2020; Ruiz-Frutos et al., 2022; Stubbs et al., 2021; Taşdelen et al., 2022; Titi et al., 2022; Voth et al., 2022; Xiaoming et al., 2020). As Aragonès et al. (2022) stated, this could be justified by the fact

that males find it more difficult to recognize PD, as well as by biological, social, and demographic factors. In addition, another factor, working as a nurse, has also been associated with higher PD (Almalki et al., 2021; Collantoni et al., 2021; Ghimire et al., 2022; Gonzalez Mendez et al., 2022). Given that this is still an eminently female profession, the results highlight the importance of addressing females' mental health and the relevance of planning psychological interventions, given that they are a higher risk group.

The age factor has shown more discrepancies among the authors. In most studies, being young was a risk factor for PD (Altwaijri et al., 2022; Del Piccolo et al., 2021; Fattori et al., 2021; Ishikawa et al., 2021; Shahrour & Dardas, 2020; Titi et al., 2022). However, in the studies by Alqutub et al. (2021) and Shahsavarinia et al. (2022), opposite results have been found. These inconsistencies could be related to work and personal circumstances, different assessment methods, and different year groupings. This reason could also explain that the more years of work experience HCWs have, the higher the presence of PD (Stubbs et al., 2021; N. Wang et al., 2021; X. Xiao et al., 2020). According to H. Wang et al. (2020), greater work experience was associated with greater PD symptomatology, and those participants who had 10 or more years of work experience as HCW had greater PD compared to those with only 3 years of experience in their professional career.

Depression and anxiety were also found to be the main symptoms accompanying psychosocial stress generated by the COVID-19 pandemic. According to Hong et al. (2021), depressive and anxiety symptoms topped the list of PD-related symptoms in a group of 4,692 nurses in China, accounting for 8.1% and 9.4%, respectively. On the other hand, in the study by Xiaoming et al. (2020), it was

Table 4
Characteristics of the studies included in the systematic review.

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Gómez-Salgado et al., 2020	Spain	To describe the levels of psychological distress and SOC of HCWs during the COVID-19 crisis, the relationship between both variables, and the health status of the participants.	Cross-sectional study	1,459 HCWs	- GHQ-12. - SOC-13.	The results showed that 80.6% of the healthcare professionals had psychological distress and the mean score in the SOC-13 scale was 62.8 points (SD = 12.02). Both psychological distress and SOC were related to the presence of COVID-19 symptoms as well as to contact history.	6/8
Galehdar et al., 2020	Iran	To explore nurses' experiences of psychological distress during care of patients with COVID-19.	Qualitative study	20 nurses	Semi-structured interviews (method proposed by Lundman and Graneheim).	11 categories: death anxiety, anxiety due to the nature of the disease, anxiety caused by corpse burial, fear of infecting the family, distress about time wasting, emotional distress of delivering bad news, fear of being contaminated, the emergence of obsessive thoughts, the bad feeling of wearing personal protective equipment, conflict between fear and conscience, and the public ignorance of preventive measures.	6/8
Juan et al., 2020	China	To provide important insights into the psychological issues that could be used to inform, design, and benchmark psychological crisis measures in the context of the COVID-19 pandemic.	Cross-sectional study	456 doctors and nurses (hospital)	- PHQ-9 and PHQ-15. - GAD-7. - IES-15. - Yale-Brown Obsessive-Compulsive Scale.	43.2% had stress reaction syndrome. The highest prevalence of psychological distress was obsessive compulsive symptoms (37.5%), followed by somatization symptoms (33.3%), anxiety symptoms (31.6%), and depression symptoms (29.6%).	8/8
Li et al., 2020	China	To determine the predictors of acute stress, depression and anxiety symptoms and investigate the sources of acute stress among the women HCWs.	Cross-sectional study	4,369 HCWs (hospital)	- PHQ-9. - GAD-7. - IES-R.	It was found that women with more children were more likely to feel family members and friends' avoidance after post hoc multiple comparisons (≥ 2 children: 23.6% vs one child: 21.0% vs no child: 17.5%, $p = 0.002$). Those who worked in isolation wards did not show more fear of exposure (isolation wards: 40.1% vs other departments: 39.6%, $p = 0.800$).	8/8
Nie et al., 2020	China	To portray the prevalence and associated factors of psychological distress among frontline nurses during COVID-19 outbreak.	Cross-sectional study	263 nurses (frontline vs COVID-19, Emergency department)	- GHQ-12. - Perceived Social Support Scale. - Simplified Coping Style Scale. - IES-R.	25.1% showed psychological distress. Working in the Emergency department, concern for family, being treated differently, negative coping style, and COVID-19-related stress symptom were positively related to psychological distress. Perceived greater social support and effective precautionary measures were negatively associated with psychological distress.	8/8
Shahrour & Dardas, 2020	Jordan	To establish the prevalence of acute stress disorder and predictors of psychological distress among Jordanian nurses.	Cross-sectional study	448 nurses (hospital)	- SASRO. - Trauma Coping Self-Efficacy Scale. - BSI-18.	64% were experiencing ASD due to the COVID-19 pandemic and thus were at risk for PTSD predisposition. More than one-third of nurses (41%) were also suffering significant psychological distress. Age, ASD, and coping self-efficacy significantly predicted psychological distress.	8/8
H. Wang et al., 2020	China	To assess the psychological effects of the COVID-19 on medical staff and the general public.	Cross-sectional study	1,093 HCWs (hospital)	- SDS, - PSS-10, - IES-R	The medical staff showed higher PSS-10 scores (16.81 ± 4.87) and IES-R scores (22.40 ± 12.12) compared to members of the general population PSS-10 (14.80 ± 5.60) and IES-R scores (17.89 ± 13.08). However, there was no statistically significant difference between the SDS scores of medical staff (44.52 ± 12.36) and the general public (43.08 ± 11.42).	6/8
X. Xiao et al., 2020	China	To examine the prevalence of stress, anxiety and depression of HCW in China during the COVID-19 epidemic, and to determine the risk factors predicting psychological morbidities that can be used as psychological intervention targets.	Cross-sectional study	958 HCWs and Non-HCWs	- Perceived Stress Scale (PSS-14) - Hospital Anxiety/Depression scale (HAD)	55.1% of respondents had higher psychological stress than that of HCW during SARS. 54.2% and 58% of participants had symptoms of anxiety and depression. Stress levels of HCW were different regarding job titles and years of work experience.	8/8
Xiaoming et al., 2020	China	To investigate the psychological status of hospital workers and provide references for psychological crisis intervention in the future.	Cross-sectional study	8,817 HCWs (hospital)	Stress and support scales.	The prevalence of depression, anxiety, and somatic symptoms in hospital workers was 30.2%, 20.7%, and 46.2%, respectively. Being female, single, Tujia minority,	8/8

(continued on next page)

Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Almalki et al., 2021	Kingdom of Saudi Arabia	To estimate the prevalence of depression, anxiety, and stress among healthcare workers in Saudi Arabia, and to identify the factors associated with these psychological disorders.	Cross-sectional study	501 HCWs	DASS-21	educational background of junior or below, designated or county hospital, need for psychological assistance before or during the epidemic, unconfident about defeating COVID-19, ignorance about the epidemic, willingness of attending parties, and poor self-rated health condition were independent factors associated with high-level depression, somatic symptoms, and SSI among hospital workers. The estimated prevalence rates of depression, anxiety, and stress were 54.69, 60.88, and 41.92%, respectively. The multivariate analysis revealed that healthcare workers with chronic diseases, nurses, and healthcare workers from the southern region were more likely to suffer from depression and stress. Factors associated with severe psychological distress in multiple regression analyses were male gender ($p < 0.001$), working for >45 hours/week ($p = 0.009$), age of >40 years ($p = 0.038$), years of experience for more than seven years ($p = 0.048$), and using psychological services ($p < 0.001$). The prevalence of severe psychological distress was 27.3%.	8/8
Alqutub et al., 2021	Kingdom of Saudi Arabia	To assess the determinants and severity of psychological distress among frontline Ministry of Health workers within Saudi Arabia during the rapid acceleration phase of the COVID-19 epidemic.	Cross-sectional study	2,094 FHCW	K10	Clinically-relevant psychosocial distress was identified amongst a majority of ICU HCW during the acceleration phase of the first wave of the COVID-19 pandemic, including those with minimal or no exposure to COVID-19.	6/8
Binnie et al., 2021	Canada	To examine the relationship between COVID-19 exposure and mental health in Canadian ICU HCW.	Cross-sectional study	310 HCWs (Intensive Care, hospital)	GHQ-12	Compared to physicians and healthcare assistants, nurses showed higher levels of depression ($p = 0.002$), insomnia ($p < 0.001$), and generalized anxiety ($p = 0.001$). Females reported increased concerns about the possibility of infecting others ($p = 0.046$), greater anxiety ($p < 0.001$), COVID-19 related fears ($p < 0.001$), depression ($p < 0.001$), and post-traumatic distress ($p < 0.001$) than males. Just over half (51.1%; 246/481) of the GHQ-12 respondents reported a clinically significant level of psychological distress ($GHQ-12 \geq 3$). Psychological distress was associated with either individual (i.e., female sex, stressful experience related to COVID-19, exhaustion, and the use of dysfunctional coping strategies), interpersonal (i.e., lower family support, limitations in interactions with colleagues), and organizational (i.e., reduced perception of protection by personal protective equipment, perceived delays on updates and gaps in information on the pandemic) factors in dealing with the pandemic. 39% of the subjects expressed general psychological discomfort ($GHQ-12$), 22% post-traumatic stress symptoms (IES-R), and 21% symptoms of anxiety (CAD-7). Women, nurses, younger workers, subjects with COVID-19 working exposure and with an infected family member showed significantly higher psychological impairment compared to colleagues. 40.2% of the participants reported to have the symptoms of psychological distress. The majority of the participants reported mild psychological distress (37%) followed by moderate psychological distress (29%).	8/8
Collantoni et al., 2021	Italy	To evaluate the psychological outcome among HCWs at the final stages of the first wave of the COVID-19 pandemic.	Cross-sectional study	996 FHCW (hospital)	- Risk perception. - Psychopathological variables. - Coping skills.		8/8
Del Piccolo et al., 2021	Italy	To assess the psychological distress of HCWs working in the field of obstetrics during the COVID-19 pandemic and to identify factors associated with psychological distress at the individual, interpersonal, and organizational level.	Cross-sectional study	503 HCWs (Obstetrics field)	- IPSICO. - GHQ-12		8/8
Fattori et al., 2021	Italy	To examine the psychological wellbeing of all employees in a large University Hospital in Italy, using validated psychometric scales in the context of the occupational physician's health surveillance, in collaboration with the Psychiatric Unit.	Longitudinal study	550 HCWs	- GHQ-12, IES-R, and GAD-7 (first phase)- PHQ-9, DES-II, and SCI-90 (second phase)		8/8
Hajure et al., 2021	Ethiopia	To assess the psychological distress related to COVID-19 among healthcare workers in Mettu town.	Cross-sectional study	127 FHCW	- DASS-21. - IES-R.		8/8

Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Hamdami et al., 2021	Tunisia	To evaluate the magnitude of different psychological outcomes among Tunisian healthcare professionals (HCPs) during the first wave of the coronavirus disease 2019 (COVID-19) pandemic, and to identify the associated factors.	Cross-sectional study	503 HCPs.	- ISI-7. - PHQ-2. - GAD-2.	Female gender was a risk factor for all psychological outcomes, whereas psychiatric history was a risk factor for both anxiety and insomnia [odds ratio (OR) = 2.86, 95% CI 1.78–4.60, p = 0.00 for insomnia]. Using protective equipment was associated with a lower risk for depression (OR = 0.41, 95% CI 0.27–0.62, p = 0.00) and anxiety. 32% suffered from high distress while 20% suffered from severe distress. Exhaustion, anxiety, depression, and sleep disturbances were reported (in past seven days) by approximately 34%, 34%, 19%, and 29% of subjects (respectively). Suffering burnout; reporting sleep-related functional problems; exhaustion; being a pharmacist (relative to a physician); working in a cancer centre; harbouring fear about virus spreading; fear that the virus threatened life; fear of alienation from family/friends; and fear of workload increases, were significantly associated with higher distress. Of the 4,692 nurses who completed the survey, 9.4% (n = 442) were considered to have depressive symptoms, 8.1% (n = 379) represented anxiety, and 42.7% (n = 2,005) had somatic symptom. About 6.5% (n = 306) respondents had suicidal ideation. High-risk HCWs, those in their 40 s, and those who had real direct contact with at least one patient infected with COVID-19 were most likely to have both general and event-related distress. Those who showed confidence in standard precaution were less likely to report general distress and event-related distress. Overall, women, non-physicians, those living alone and younger participants were found to have significantly greater psychological distress than their counterparts. Emotional distress was reported by 45.3% of all participants. Female gender, managing close contacts, higher scores on PHQ-9, and a feeling that proper infection control training was not provided were associated with emotional distress in logistic regression. 63.2% of participants reported COVID-related traumatic experiences at work and 53.8% (95% CI 51.0–56.6%) showed symptoms of post-traumatic distress.	8/8
Hawari et al., 2021	Jordan	To characterize psychological distress and factors associated with distress in HCWs working during a stringent lockdown in a country (Jordan) that had exhibited one of the lowest incidence rates of Covid-19 globally at the time of the survey.	Cross-sectional study	937 HCWs	- Patient-Reported Outcomes Measurement Information System (PROMIS). - K6.		8/8
Hong et al., 2021	China	To assess the immediate psychological impact on frontline nurses in China.	Cross-sectional multicentre study	4,692 nurses (hospital)	- PHQ-9. - GAD-7. - PHQ-15		8/8
Ide et al., 2021	Japan	To investigate the psychological effects of the COVID-19 outbreak and associated factors on hospital workers at the beginning of the outbreak with a large disease cluster on the Diamond Princess cruise ship.	Cross-sectional study	4,133 HCWs (hospital)	- GHQ-12. - IES-R. - COVID-19-stress-related questions.		8/8
Ishikawa et al., 2021	Japan	To analyse the psychological status of healthcare workers in Japan and the influencing factors during the 2019 coronavirus disease pandemic.	Cross-sectional study	328 HCWs and Non-HCWs (hospital)	- GHQ-12		8/8
Jang et al., 2021	South Korea	To identify the psychological impact and the factors contributing to the likely increase in emotional distress of HCWs	Cross-sectional study	99 HCWs (hospital)	- GHQ-12. - PHQ-9. - IES-R.		8/8
Lasalvia et al., 2021	Italy	To assess the magnitude of psychological distress and associated factors among hospital staff during the COVID-19 pandemic in a large tertiary hospital located in north-east Italy.	Longitudinal study	2,195 HCWs and Non-HCWs	- IES-R. - Self-rating Anxiety Scale. - PHQ-9. - GHQ-12		8/8
Leira-Sanmartín et al., 2021	Spain	To objectify the psychological impact of the COVID-19 pandemic on the workers of a tertiary hospital.	Cross-sectional study	536 HCWs and 121 non-HCWs (tertiary hospital)		Inadequate sleep, poor nutritional and social interaction habits, misuse of psychotropics, female gender, COVID-19 clinical diagnosis, and losing a relative by COVID-19 were variables associated with higher probability of GHQ-12 positive screening. Significant differences between “frontline workers” and the rest were not found, nor was higher the probability of psychological distress in HCWs vs non-HCWs. Women and those with lower-paid positions were at risk of higher psychological distress and worse quality of life within the medical workforce during the first wave of the pandemic.	8/8
López-Atanes et al., 2021	Spain	To analyse from a gender perspective the psychological distress experienced by the medical workforce during the peak of the pandemic in Spain.	Cross-sectional study	673 HCWs and Non-HCWs (hospital)	- GHQ-28. - PSS-14.		6/8

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Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Migisha et al., 2021	Uganda	To assess the risk perception and immediate psychological state of HCWs early in the pandemic in referral hospitals involved in the management of COVID-19 patients in Uganda.	Cross-sectional study	335 HCWs	GHQ-12	One hundred and forty-four (44%) had a GHQ-12 score > 12. The most common concerns reported included fear of infection at the workplace (81%), stigma from colleagues (79%), lack of workplace support (63%), and inadequate availability of personal protective equipment (56%). In multivariable analysis, moderate (aPR = 2.2, 95% CI 1.2–4.0) and high (aPR = 3.8, 95% CI 2.0–7.0) risk perception towards COVID-19 (compared with low-risk perception) were associated with psychological distress.	8/8
Roberts et al., 2021	UK and Ireland	To quantify psychological distress experienced by emergency, anaesthetic and intensive care doctors during the acceleration phase of COVID-19 in the UK and Ireland.	Cross-sectional study	5,440 doctors (emergency, anaesthetic and intensive care, hospital)	GHQ-12	44.2% (n = 2405) of respondents scored GHQ-12 > 3, meeting the criteria for psychological distress. 57.3% (n = 3045) had never previously provided clinical care during an infectious disease outbreak but over half of respondents felt somewhat prepared (48.6%, n = 2653) or very prepared (7.6%, n = 416) to provide clinical care to patients with COVID-19.	8/8
Stubbs et al., 2021	Australia	To measure the impact of COVID-19 and potential changes over time in its impact, on the health and well-being of HCWs in an Australian COVID-19 hospital.	Cross-sectional study	433 HCWs (hospital)	K10	At the moment of the study, females were significantly more likely to be distressed than males, but not during the height of the pandemic. High distress during the height of the pandemic was more likely to be maintained by HCWs who were less physically active than usual during the height of the pandemic (OR = 5.5), by those who had low self-rated mental health before the pandemic (OR = 4.8), and by those who had 10 or more years of professional experience (OR = 3.9).	8/8
Vancappel et al., 2021	France	To investigate the effects of exposure to COVID-19 sanitary crisis on affective symptoms (anxiety, post-traumatic stress, burnout) among French HCWs.	Cross-sectional study	1,010 HCWs (hospital)	- Online questionnaires. - Visual analogic scales.	The majority (57.8%) of the participants presented post-traumatic symptoms. Depending on the sub-dimensions evaluated, a proportion of participants reported moderate (25.9–31.2%) to severe (17.2–40.7%) burnout symptoms.	8/8
N. Wang et al., 2021	China	To investigate the psychological impact of COVID-19 on healthcare workers in China Xi'an Center hospital.	Cross-sectional study	1,967 HCWs	GHQ-12	Work experience increased emotional stress as 23% of participants with 10 years or more of experience exhibited higher stress compared to those with fewer than 3 years of work experience (7.5%). Moreover, 33.3% of participants who worked in or were exposed to the affected areas of the pandemic experienced psychological stress.	8/8
Xia et al., 2021	China	To explore the prevalence and the predictive factors especially defensive predictors associated with posttraumatic stress and psychological distress in nurses during the COVID-19 pandemic.	Cross-sectional study	1,728 nurses (frontline)	- PTSD-5.- Self-Reporting Questionnaire (SRQ)	The prevalence of posttraumatic stress and psychological distress in nurses throughout China between February 1, 2020 and February 13, 2020 was 39.12 and 24.36%, respectively. Insomnia, high panic intensity, and high impact of the COVID-19 pandemic were risk predictors of posttraumatic stress and psychological distress in nurses.	8/8
Zeng et al., 2021	China	To explore the influencing factors associated with self-reported psychological distress among a sample of HCWs in China in relation to COVID-19.	Cross-sectional study	712 HCWs	GHQ-12	High levels of psychological distress (GHQ-12 ≥ 3) were observed in 29.2% and logistic regression analysis showed that psychological distress was associated with low preparedness (OR = 0.91, 95% CI = 0.87–0.96), high work impact (OR = 1.11, 95% CI = 1.03–1.20), personal life impact (OR = 1.12, 95% CI = 1.07–1.17), and safety-related concerns (OR = 1.09, 95% CI = 1.02–1.16). At the 5-month assessment point, high psychological distress was less frequent (21.8%).	8/8

Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Alfai et al., 2022	Saudi Arabia	To assess the prevalence of depression, anxiety, and stress symptoms and to address the associated risk factors among quarantined non-HCWs, quarantined HCWs, and medical staff in the Ministry of Health quarantine facility.	Cross-sectional study	301 HCWs and Non-HCWs	DASS-21	The prevalence of depression, anxiety, and stress symptoms among quarantined HCWs were 25.0%, 29.8%, and 16.9% and 20.5%, 20.5%, and 27.3% among the medical staff. The predictors of depression, anxiety, and stress symptoms among the study participants were female gender, perceived COVID-19 stigma, presence of other relatives in quarantine, comorbidities, and abnormal sleep duration.	8/8
Alkandari et al., 2022	Kuwait	To evaluate the psychological impact of the COVID-19 pandemic on healthcare workers to determine the prevalence of symptoms of depression, anxiety, and well-being, and to identify the factors associated with adverse psychological effects.	Cross-sectional study	378 HCWs (hospital)	- PHQ-9, - GAD-7, - WHO-5.	52.9% exhibited moderate or high levels of depression, and 40.5% reported moderate or high levels of anxiety. Unmarried HCWs reported more severe levels of depression; moderately severe depression (24.0% vs. 16.1%) and severe depression (12.4% vs. 6.8%). Unmarried HCWs also reported more severity of anxiety as well as lower overall wellbeing.	8/8
Altwayjri et al., 2022	Kingdom of Saudi Arabia (KSA)	To estimate the prevalence and severity of psychological distress and characterized predisposing risk factors among HCWs in KSA during the COVID-19 pandemic.	Cross-sectional study	1.985 FHCW	Saudi National Mental Health Survey questionnaire	The prevalence of psychological distress reported by HCWs in KSA was high, ranging from mild-moderate to severe in severity. Younger HCWs, women, those in contact with COVID-19 patients, and those who either had loved ones affected or who were themselves affected by COVID-19 were the most at-risk of psychological distress.	8/8
Aragóns et al., 2022	Spain	To investigate the prevalence of and associated factors for psychological distress in primary care workers during the first COVID-19 outbreak.	Cross-sectional study	2.928 HCWs (primary care)	- Connor-Davidson Resilience Scale, - PHQ-8, - PTSD-5.	Female sex (OR 1.61, 95% CI = 1.25 to 2.06), having previous mental disorders (OR 2.58, 95% CI = 2.15 to 3.10), greater occupational exposure to patients with COVID-19 (OR 2.63, 95% CI = 1.98 to 3.51), having children or dependents (OR 1.35, 95% CI = 1.04 to 1.76 and OR 1.59, 95% CI = 1.20 to 2.11, respectively), or having an administrative job (OR 2.24, 95% CI = 1.66 to 3.03) were associated with a higher risk of any current mental disorder.	8/8
Carazo et al., 2022	Canada	To measure the prevalence of psychological distress among Quebec healthcare workers (HCWs) during the second and third pandemic waves.	Case-control study	4.068 HCWs cases (+COVID-19 test) and 4152 HCWs controls (-COVID-19 test)	- K6- PSR: questions based on Karasek and Siegrist models (value conflicts, and work-life balance)	Prevalence of high work-related psychological distress was 42%; it was associated with PSRs (mainly work-life balance, value conflicts, and high psychological demands) but not with SARS-CoV-2 infection.	7/9
Chingono et al., 2022	Zimbabwe	To investigate changes in psychological distress and anxiety among HCWs accessing the programme over 12 months across three SARS-CoV-2 waves.	Cross-sectional study	345 HCWs (hospital)	- Shona Symptom Questionnaire.	Qualitative data showed high levels of anxiety, psychosomatic symptoms and burnout related to the pandemic. Mental wellbeing was affected by financial insecurity, unmet physical health needs and inability to provide quality care within a fragile health system.	8/8
Dahka et al., 2022	Iran	To investigate the mental health and the resilience level in the nurses' population.	Cross-sectional study	432 nurses (hospital)	- GHQ-12, - CD-RISC-10.	Probable psychological distress (GHQ-12 score ≥ 15) was present in 57.2% of nurses. Among demographic and COVID-19-related variables, only educational level was significantly and negatively correlated with mental health. After controlling the variables, hierarchical regression analyses results showed that lower resilience was associated with poor mental health ($\beta = -0.49$; $P < 0.001$).	6/8
Ghimire et al., 2022	Nepal	To assess the psychological impact of this pandemic in different groups of HCWs, factors associated with it and the degree of satisfaction with the ongoing mental health support system.	Cross-sectional study	608 HCWs (hospital)	- DASS-21, - IES-R.	Out of 608 respondents, the overall prevalence of depression, anxiety, stress, and post-traumatic stress disorder (PTSD) was 20.89%, 24.18%, 13.82%, and 15.46%, respectively. Nurses had higher depression,	8/8

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Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
He et al., 2022	China	To investigate the prevalence and risk factors of somatization, depression, and anxiety among 374 frontline nurses in less severely affected areas during the initial period of the COVID-19 outbreak.	Cross-sectional study	374 frontline nurses	- PHQ-9. - SSS. - GAD-7.	anxiety, stress, and PTSD scores while FCHVs had high depression and PTSD compared to doctors. For various types of health facilities, HCWs working in provincial-level hospitals had high-stress level. The prevalence of somatization, depression, and anxiety among frontline nurses was 41.4%, 40.1%, and 37.4%, respectively. Nurses from provincial-level hospitals were less likely to report somatization (OR = 0.50; p = 0.018), depression (OR = 0.52; p = 0.024), and anxiety (OR = 0.35; p < 0.001) than those from county-level hospitals. Longer service duration was significantly associated with a higher likelihood of reporting somatization (OR = 1.06; p = 0.008) and depression (OR = 1.06; p = 0.006).	8/8
Gonzalez Mendez et al., 2022	China	To analyse the prevalence of five psychological outcomes (depression, anxiety, stress, PTSD, and suicidal ideation) among Chinese HCWs, and to measure the total possible negative psychological impact 1 year after the COVID-19 initial outbreak.	Cross-sectional study	1,263 HCWs	- DASS-21. - PC-PTSD-5. - PHQ-9. - SCSQ-20.	COVID-19 pandemic had a negative psychological impact on HCWs, which was still evident 1 year after the initial outbreak. Nurses showed higher depression and anxiety than other HCWs. Female gender, passive coping, long working hours, having a chronic disease, and experiencing violence, among other factors, were all risk factors for psychological impairment.	8/8
Laurent et al., 2022	France	To measure the prevalence of post-traumatic stress disorder in HCWs and to identify risk factors and protective factors during the epidemic in France.	Cross-sectional study	2,153 HCWs (hospital)	- GHQ-12. - PS-ICU. - Brief-COPE. - IES-R.	Risk factors for the development of PTSD were having experienced additional difficult events during the crisis, having a high level of psychological distress, a high level of perceived stress related to the workload and human resources issues, the emotional burden related to the patient and family, and stressors specific to COVID-19 during the first peak of the crisis.	8/8
Lee et al., 2022	South Africa	To examine workplace contextual factors associated with how psychological distress was experienced in a South African setting where a severe first wave was being experienced.	Cross-sectional study	154 FHCW	- GHQ-12. - Job-Related Tension Index. - Perception of Risks Associated with COVID-19. - Training-Related Questionnaire. - Questionnaire on Knowledge, Attitude, Practices, and Behaviour. DASS-21	A high degree of psychological distress (57.4% above the General Health Questionnaire cut-off value) was found, and a strong association between perceived risks associated with the presence of COVID-19 in the healthcare workplace and psychological distress (adjusted OR = 2.35; p < 0.01).	8/8
Martínez-Ponce et al., 2022	Mexico	To examine the prevalence of depression, anxiety, and stress in nurses and to analyse the factors associated with their presence during the COVID-19 pandemic.	Cross-sectional study	116 nurses (a second-level hospital)	- GHQ-5. - ICWR-NIOH Burnout questionnaire.	In the stress subscale, the variables that conferred a significant association were working inside the COVID-19 area (OR: 17.05), being severely affected by the death of infected patients (OR: 4.23), and fear of entering the red zone (OR: 19.47). The need for psychological care was associated with moderate to severe depression and anxiety (OR: 7.38, OR: 9.50, respectively). 52.9% of the participants had the risk of psychological distress that needed further evaluation. Risk of psychological distress was significantly associated with longer hours of work.	8/8
Menon et al., 2022	India	To determine the burnout levels and factors associated with the risk of psychological distress among healthcare workers (HCW) engaged in the management of COVID 19 in India.	Cross-sectional study	967 HCWs and Non-HCWs	- GHQ-5. - ICWR-NIOH Burnout questionnaire.	Significant risk factors for prolonged psychological distress included being a frontline nurse, having an underlying medical condition, experiencing prejudice because they undertook COVID-19 patient care, having trouble dealing with panicked or uncooperative patients, and experiencing an outbreak of COVID-19 in the hospital.	8/8
Morioka et al., 2022	Japan and Singapore	To explore the factors contributing to the prolonged psychological distress of frontline nurses and physicians caring for COVID-19 patients in hospitals in Singapore and Japan.	Cross-sectional study	1,644 FHCW (hospital)	K10		

Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Moyo et al., 2022	Zimbabwe	To examine how COVID-19 impacts employee decision-making and performance.	Cross-sectional study	443 FHCW (private hospital)	Ad hoc questionnaire; Maslach's burnout inventory scale; turnover intention; employee disengagement PSS (adapted). - PHQ-9. - GAD-7. - ISI-7. - PSS-10.	It was found that employees' perceived risk of COVID-19 increased their disengagement, turnover intention, burnout, and low morale. These findings shed light on how the global pandemic is affecting the cognitions and behaviours of frontline workers.	8/8
Nielsen et al., 2022	Denmark	To describe changes in distress among Danish hospital-based nurses during the early months of the COVID-19 pandemic and to examine predictors of distress and turnover intentions.	Cross-sectional study	426 nurses (hospital)	- PHQ-9. - GAD-7. - ISI-7. - PSS-10.	Nurses with brief work experience reported higher increase in distress. Feeling unsafe at work, having low trust in management and being anxious for relatives were associated with increased distress. Finally, feeling unsafe at work, being anxious for relatives and having low trust in management were predictors of intention to change job.	8/8
Peccoraro et al., 2022	USA	To describe the course and correlates of psychological distress in frontline healthcare workers (FHCWs) during the COVID-19 pandemic in New York City (NYC).	Prospective cohort study	786 HCWs (urban hospital)	- GAD-7. - PHQ-8. - PTSD-5	16.0% FHCWs had persistent distress; 150 (19.1%) remitted distress; 35 (4.5%) new-onset distress; and 475 (60.4%) no/minimal distress. Relative to FHCWs with no/minimal distress, those with persistent distress reported greater relationship worries, pre-pandemic burnout, lower dispositional optimism, less emotional support, and feeling less valued by hospital leadership.	6/9
Ruiz-Frutos et al., 2022	Ecuador	To analyse the levels of psychological distress among healthcare workers in Ecuador during the COVID-19 pandemic.	Cross-sectional study	1,056 FHCW	- Ad hoc questionnaire. - GHQ-12.	66.0% of the participants manifested psychological distress, with significantly higher levels in women with symptoms of COVID-19 and previous contact with infected people or objects ($p < 0.001$).	8/8
Shahsavarinia et al., 2022	Iran	To examine the association between Post-Traumatic Stress Disorder (PTSD) related to COVID-19 in emergency staff and self-compassion and perceived social support.	Cross-sectional study	222 HCWs (emergency staff)	- PTSD-5. - MSPSS. - Self-Compassion Scale.	Age ($r = 0.17$, $P = 0.034$), self-judgment ($r = 0.36$, $P < 0.001$), isolation ($r = 0.44$, $P < 0.001$) and over-identification ($r = 0.15$, $P = 0.031$) were associated with PTSD score, and there was also a statistically significant inverse relationship between the score of the self-kindness ($r = -0.19$, $P = 0.006$) subscale and the overall score of PTSD in the emergency staff.	8/8
Titi et al., 2022	12 Arab countries	To investigate COVID-19-related psychological impact on HCWs in 12 Arab countries.	Cross-sectional study	2,879 HCWs	- DASS-21. - ISI-7.	Anxiety, depression, stress, and insomnia were reported by 48.9%, 50.6%, 41.4% and 72.1% of respondents, respectively. Lower-middle- and lower-income countries had a significantly higher prevalence of all the psychological outcomes than high-income countries. The prevalence of mental health symptoms was higher among HCWs aged 30–39 years, those who worked > 44 hours per week, and those in contact with COVID-19 cases, as well as HCWs who were not satisfied with the preventive measures. The prevalence of mental health symptoms was lower among male HCWs.	8/8
Tasdelen et al., 2022	Turkey	To investigate the psychological challenges of Turkish HCWs during the outbreak and discuss the factors that increase their burden, including stigmatisation.	Cross-sectional study	634 HCWs	DASS-21	The prevalence of moderate to severe depression, anxiety, and stress-related symptoms was 36%, 35%, and 22%, respectively. Being female, working in close contact with patients with COVID-19, and having a psychiatric disorder history were risk factors for psychological distress. HCWs who perceived other people as more dismissive had significantly higher depression and anxiety scores.	8/8

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Table 4 (continued)

Study	Context	Study objective	Type of study	Participants	Methods	Main findings	Quality
Vancampfort & Mugisha, 2022	Uganda	To explore the prevalence of psychological distress and PTSD symptoms among Ugandan mental health nurses and to investigate associations between these mental health outcomes and lifestyle factors.	Cross-sectional study	108 mental health nurses	- K-6. - SIMPAQ. - PSQI. - AUDIT-C.	92.6% had psychological distress (K-6 \geq 13), 44.4% elevated PTSD symptoms (PCL- \geq 41), 75.9% reported poor sleep quality (PSQI $>$ -5), and 24.4% reported harmful drinking (AUDIT-C \geq 3 for women and \geq 4 for men). SIMPAQ exercise correlated with K-6 ($\rho = -0.36$, $P < 0.001$) and PCL-5 ($\rho = -0.24$, $P = 0.013$), SIMPAQ walking with PCL-5 ($\rho = -0.31$, $P < 0.001$).	8/8
Voth et al., 2022	Ontario, USA	To describe distress levels reported by HCWs across care settings and factors associated with distress.	Cross-sectional study	403 HCWs	K10	Overall, 228 (74.2%) HCWs who completed the K10 reported high distress, with greater rates among hospital and long-term care HCWs. Distress was more likely to appear in HCWs identified as female, younger than 55, with lower perceived respect among their team, and who experienced greater worry about physical and mental health and managing high workloads.	8/8
Y. Xiao et al., 2022	China	To test the mediation effect of burnout in the association between role stress and psychological distress, and whether this mediation is moderated by social support.	Cross-sectional study	623 nurses (frontline hospital)	- Role Conflict, Ambiguity and Overload Scale (RCAOS). - MBI. - DASS-21. - Self-designed scale for social support.	Burnout partially mediated the positive association between role stress and psychological distress. Social support moderated the indirect effect of role stress on psychological distress via burnout, with the effect being stronger for nurses with low social support than those with high social support.	8/8
Zahirharsini et al., 2022	Canada	To evaluate the associations between a set of psychosocial stressors at work and moral injury in HCWs during the third wave of the COVID-19 pandemic in Quebec, Canada.	Cross-sectional study	572 HCWs and leaders	- OHWQ. - EMIS-M.	HCWs exposed to psychosocial stressors at work were 2.22–5.58 times more likely to experience moral injury. Low ethical culture had the strongest association (PR: 5.58, 95% CI: 1.34–23.27), followed by low reward (PR: 4.43, 95% CI: 2.14–9.16) and high emotional demands (PR: 4.32, 95% CI: 1.89–9.88).	8/8
Zhang et al., 2022	China	To perform a mental health evaluation and an early psychological intervention for HCWs during the COVID-19 epidemic.	Cross-sectional study	3,055 HCWs (paediatric intensive care units, hospital)	- IES-R. - DASS-21.	45.99% were considered to meet the clinical cut-off scores for posttraumatic stress, and the proportions of participants with mild to extremely severe symptoms of depression, anxiety and stress were 39.69%, 36.46% and 17.12%, respectively.	8/8

aPR: adjusted prevalence ratio; ASD: Acute stress disorder; AUDIT-C: Alcohol use disorder identification test-concise; Brief-COPE: Coping Orientation to Problems Experienced Inventory; BSI-18: Brief Symptom Inventory-18; CD-RISC-10: 10-item Connor-Davidson Resilience Scale; CI: confidence interval; DASS-21: Depression Anxiety and Stress Scale-21; EMIS-M: Expressions of Moral Injury Scale-Military Version; FCHVs: Female Community Health Volunteers; FHCW: Frontline healthcare workers; GAD-7: Generalized Anxiety Disorder Scale; GHQ-12/GHQ-28: General Health Questionnaire; HCWs: Healthcare workers; IES-R: Impact of Events Scale-Revised; IPSICO: 104-item survey Impactto Psicológico COVID-19 in Osetricia; ISI-7: Insomnia Severity Index; K10/K6: Kessler Psychological Distress Scale; MSPSS: Multidimensional Perceived Social Support Scale; OHWQ: Occupational Health and Well-being Questionnaire; OR: Odds ratio; PC-PTSD-5: Primary Care PTSD Screen for DSM-5; PHQ-8/PHQ-9: Patient Health Questionnaire; PR: Prevalence ratios; PS-ICU: ICU Perceived Stressors Scale; PSS-10: Perceived Stress Scale; PSQI: Pittsburgh sleep quality index; PTSD: Post-traumatic stress disorder; SASROOMS: Stanford Acute Stress Reaction Questionnaire; SCSQ-20: Simplified Coping Style Questionnaire; SIMPAQ: Simple physical activity questionnaire; SOC-13: Sense of coherence scale; SSS: Somatic Self-Rating Scale.

observed that in a group of 8,817 HCWs in a hospital in China, the prevalence of depression and anxiety was 30.3% and 20.7%, respectively. This is consistent with the meta-analysis and systematic review conducted by [Abdulla et al. \(2021\)](#), which examined depression and anxiety in relation to the COVID-19 pandemic among HCWs in India. In this study, it was found that these symptoms developed mainly due to concerns about personal and family contagion and lack of protective equipment generated by the sudden outbreak of SARS-CoV-2, as has been also shown for PD ([Del Piccolo et al., 2021](#); [Galehdar et al., 2020](#); [Hammami et al., 2021](#); [Ide et al., 2021](#); [Migisha et al., 2021](#); [Nie et al., 2020](#); [Nielsen et al., 2022](#); [Zeng et al., 2021](#)).

All these stress-related symptoms were further exacerbated by variables other than the high workload generated by the COVID-19 pandemic, including fear of self or family infection ([Altwajiri et al., 2022](#); [Galehdar et al., 2020](#); [Hawari et al., 2021](#); [Laurent et al., 2022](#); [Nie et al., 2020](#)), limited social relationships ([Leira-Sanmartín et al., 2021](#); [Peccoraro et al., 2022](#); [Y. Xiao et al., 2022](#); [Zeng et al., 2021](#)), and lower family support ([Del Piccolo et al., 2021](#); [Nie et al., 2020](#)). Another variable that generated a higher occurrence of work-related stress in healthcare workers was work experience. Perhaps, in this area, the two most influential factors could be working on the frontline ([Altwajiri et al., 2022](#); [Aragonès et al., 2022](#); [Binnie et al., 2021](#); [Fattori et al., 2021](#); [Lee et al., 2022](#); [Martínez-Ponce et al., 2022](#); [Migisha et al., 2021](#); [Morioka et al., 2022](#); [Nie et al., 2020](#); [Shahsavarinia et al., 2022](#); [Taşdelen et al., 2022](#); [N. Wang et al., 2021](#); [Zeng et al., 2021](#)) and longer service duration ([Alqutub et al., 2021](#); [Gonzalez Mendez et al., 2022](#); [He et al., 2022](#); [Menon et al., 2022](#); [Titi et al., 2022](#); [Voth et al., 2022](#)). These factors increase the likelihood of contagion ([Altwajiri et al., 2022](#); [Fattori et al., 2021](#); [Gómez-Salgado et al., 2020](#); [Ide et al., 2021](#); [Jang et al., 2021](#); [Lasalvia et al., 2021](#); [Leira-Sanmartín et al., 2021](#); [Morioka et al., 2022](#); [Ruiz-Frutos et al., 2022](#); [Titi et al., 2022](#)) and of subjects having a sleep deficit ([Collantoni et al., 2021](#); [Leira-Sanmartín et al., 2021](#); [H. Wang et al., 2020](#); [Xia et al., 2021](#)), especially in those with excessive workload.

5. Limitations

Among the limitations found in this study, the heterogeneity observed in the different studies included stands out, as they applied different scales and cut-off points for data processing, thus making comparison difficult. Although a specific period of time was considered (during the COVID-19 pandemic), there were different predisposing factors to stress when comparing the beginning of the pandemic and later stages, and the samples were not comparable due to the period of the study and the characteristics of the context (work or social characteristics, measures adopted by each country, etc.). In addition, the languages considered for the selection of articles can also be added as a limitation, as they limited the number of articles to those written in English, Spanish, French, and Portuguese, which in turn reduced the number of studies included. Finally, it is worth noting that many of the risk factors for psychological distress are highly interrelated and could be confounded with one another. For example, being female and being a nurse are strongly related, in comparison to other HCWs (e.g., physicians). This fact makes it necessary to conduct studies that assess levels of psychological distress prior to the COVID-19 pandemic versus during the COVID-19 pandemic, as future lines of research, to find out whether the variability in the relationship with psychological distress is actually explained by one of these risk factors.

6. Conclusions

The COVID-19 pandemic continues to be a major health problem that the whole world is still fighting, although to a large extent already overcoming. Regarding the different problems generated by this SARS-CoV-2 outbreak, one of the main issues in the area of health is related to the psychosocial distress that HCWs could develop.

In the present study, it became evident that mental health has been affected during this pandemic process and that the appearance of PD is a problem that has frequently occurred among HCWs. The main factors for developing PD were female sex, belonging to the nursing staff, being young, living alone/being single, having a chronic disease or psychiatric disorder history, having many years of experience, the presence of COVID-19 symptoms and contact history, not enough sleep, having lower family support and limited social relationships, fear of infecting friends and family, having reduced perception of protection by personal protective equipment, working on the frontline, and having longer service duration.

In conclusion, the direct or indirect psychosocial impact that the COVID-19 pandemic has had on healthcare workers is evident. It has affected their mental health and, sometimes, even influenced their physical well-being. It is therefore recommended to prioritize the mental health of healthcare workers by effectively addressing their current and future needs for better performance.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

All data generated or analyzed during this study are included in this published article [and its [supplementary information files](#)].

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CRedit authorship contribution statement

Cristian Arturo Arias-Ulloa: Conceptualization, Data curation, Writing – original draft, Methodology, Software, Formal analysis, Investigation, Writing – review & editing, Methodology, Project administration, Resources, Visualization. **Juan Gómez-Salgado:** Conceptualization, Writing – original draft, Supervision, Investigation, Resources, Software, Project administration, Methodology, Validation, Writing – review & editing, Visualization, Formal analysis. **Kenny Escobar-Segovia:** Conceptualization, Writing – original draft, Investigation, Resources, Validation, Formal analysis, Methodology, Writing – review & editing, Visualization. **Juan Jesús García-Iglesias:** Conceptualization, Writing – original draft, Investigation, Visualization, Validation, Software, Formal analysis, Data curation, Methodology, Writing – review & editing, Supervision, Resources. **Javier Fagundo-Rivera:** Conceptualization, Investigation, Writing – original draft, Validation, Resources, Visualization, Formal analysis, Methodology, Writing – review & editing, Supervision. **Carlos Ruiz-Frutos:** Conceptualization, Methodology, Writing – original draft, Resources, Data curation, Formal analysis, Investigation, Supervision, Visualization, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jsr.2023.07.016>.

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9.2. SEGUNDO ARTÍCULO

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Sense of Coherence in Healthcare Workers During the COVID-19 Pandemic in Ecuador: Association With Work Engagement, Work Environment and Psychological Distress Factors

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Objectives: The aim of this study was to test the association between the sense of coherence, work engagement, and psychological distress in healthcare workers in Ecuador during the first phase of the COVID-19 pandemic.

Methods: A cross-sectional observational study in a sample of 803 healthcare professionals from all regions of Ecuador between 2 April and 17 May 2020. A self-administered questionnaire was used, which contained sociodemographic and work environment variables, the Utrecht Work Engagement Scale (UWES-9), the General Health Questionnaire (GHQ-12), and Sense of Coherence Scale (SOC-13).

Results: The mean value of sense of coherence was $M = 65.04$; $SD = 12.74$; for work engagement, it was $M = 39.36$; $SD = 10.53$; and for psychological distress, $M = 4.58$; $SD = 3.44$. There is a positive correlation ($p < 0.01$) between the sense of coherence and work engagement, and a negative correlation with psychological distress.

Conclusion: During the pandemic in Ecuador, healthcare professionals have suffered a major deterioration of their mental health. Sense of coherence has been associated with work engagement and psychological distress. They have perceived a worsening of the quality of care and working conditions compared to those existing before COVID-19.

Keywords: COVID-19, health personnel, psychological distress, sense of coherence, work engagement

INTRODUCTION

COVID-19, which originated in Wuhan, China as an atypical pneumonia [1], brought about an overload in health systems in all countries, especially in Intensive Care Units in Europe [2] and in less economically developed countries, such as Ecuador, with a lack of supplies, personnel, and installed capacity [3]. This situation did not only lead to biological pathologies, but also the psychological distress (PD) of healthcare professionals increased [4].

A multicentre study found that the COVID-19 pandemic was associated with a higher incidence of mental health symptoms than that identified in previous stressful situations such as post-traumatic stress disorder, anxiety, depression, insomnia, and dissociation, being higher in Latin America and lower in North America [5].

Healthcare workers are being the most studied group internationally in relation to the COVID-19 pandemic, although there is still a gap in the literature regarding organisational support aimed at the mental health of healthcare workers [6], especially concerning professionals in charge of treating infected patients [7]. PD has been proven to be linked with patient safety and care, family and work environment, media and public perceptions, and government response to the pandemic, with exacerbations of uncertainty, hypervigilance, and moral distress found to increase the level of PD [8].

Ecuador is a country of about 17 million people with an uneven distribution of the health system to deal with severe cases of the disease, especially in the coastal areas, where COVID-19 cases have overlapped with a high number of dengue cases. In addition, it is considered that there is no universal health coverage because of transport difficulties and geographical issues. Therefore, some groups of indigenous population or refugees found it more difficult to receive appropriate health attention [9]. This situation is similar to that of many other Latin American countries and differs from the lower number of difficulties faced by European countries and the USA in diagnosing and controlling the pandemic [10]. Ecuador is a country where one of the largest COVID-19 pandemic health scares in Latin America occurred, especially in more populated and industrialised areas such as Guayaquil [11], which accounted at certain times for 70% of all reported cases in the country [12]. This revealed that the response of the Ecuadorian health system in the early stages of the pandemic was not as rapid and effective as might have been expected [13].

Compared to studies in Asia, the USA, or Europe, there are few articles assessing the PD of healthcare workers in Latin American countries [14–16]. In these cases, stress, anxiety, depression, and post-traumatic stress reached significantly high levels of incidence [17]. In particular, distress has been described as especially high in front-line healthcare professionals who worked with COVID-19 patients [18].

Work engagement (WE), measured through the Utrecht Work Engagement Scale (UWES) is a positive and satisfying work-related attitude defined by the vigour, dedication, and absorption dimensions [19]. It is a multi-axial concept that brings together multiple factors that influence WE, including organisational

climate; work, professional, and personal resources; job demands; and demographic variables [20]. Sense of coherence (SOC) is described as an ability to understand a situation, perceive it as manageable, and mobilise resources to develop an effective response, and is composed of the comprehensibility, manageability, and meaningfulness dimensions [21].

It is known from previous studies that sense of coherence and work engagement are key influencing factors for healthcare workers [22] and that lower SOC may be a protective factor in later stages of the pandemic [2]. Work engagement and sense of coherence positively correlated with each other and both negatively with PD. Thus, healthcare professionals, though experiencing PD, perceive their work positively and satisfactorily despite the severity of the situation and the harsh working conditions [23]. Looking specifically at women, both healthcare and non-healthcare workers, the presence of work overload and concerns about their health status or economic situation were observed, and these variables were predictors of stress among these workers in the second wave of the pandemic [24].

The importance of maintaining an optimal work environment has been shown not only to increase workers' motivation, satisfaction, or performance [25], but also to reduce the negative effects of the pandemic on workers' mental health [26]. It was found that, among nurses, the increased workload of the pandemic was positively associated with work engagement [27].

Sense of coherence, according to the salutogenic model [28, 29], is known to be an important predictor and modulator of mental health and psychopathological symptoms during the pandemic, and these changes are sustained over a long period of time [30]. Prior to the COVID-19 pandemic, it had been proven that a high SOC in nurses was associated with better health and work engagement [31]. In non-healthcare workers who performed essential activities during the confinement period of the first phase of the pandemic, it was observed that low levels of WE and SOC were associated with higher levels of PD [32].

The purpose of this research was to test the association between the sense of coherence, work engagement, work environment, and psychological distress in healthcare workers in Ecuador during confinement in the first phase of the COVID-19 pandemic.

METHODS

Study Design

The study design was descriptive cross-sectional.

Participants

According to data from 2019, the global number of healthcare professionals in Ecuador was about 90,000, with 39,593 physicians, 25,483 nurses, 17,221 nursing assistants, 5,508 dentists, 1,615 clinical psychologists, and 2,278 midwives [33]. A total of 1,235 healthcare professionals from all provinces (regions) of Ecuador participated, yet with higher percentages from the province (region) of Pichincha (31.2%) and Guayas

TABLE 1 | Pandemic-related work environment questions (Ecuador, 2020).

Variable	Question
Effectiveness	Do you think your department, service, unit or company has provided you with the necessary means and material to EFFECTIVELY carry out your job?
Safety	Do you think your department, service, unit or company has provided you with the necessary means and material to SAFELY carry out your job?
Distance	Do you consider appropriate the distance maintained with your work mates?
Contact	Are you in contact with clients/users/patients that could be a source of risk?
Conflict	Have you observed any increase in labour conflict in your job?
Risk	Do you think your profession or workplace put you at risk of getting infected?
Acceptance	Do you accept the risk of getting infected as part of your job?
Psycho1	Do you believe it would be important to offer psychological support to professionals and volunteers who are actively taking part in the COVID-19 health crisis?
Psycho2	Do you believe it would be important to offer psychological support to persons and their families who are directly affected by COVID-19 to deal with the difficulties arisen from the health crisis?
Psycho3	Do you believe it would be important to offer psychological support to the general population to deal with the difficulties arisen from the COVID-19 health crisis?
Workload	Do you consider there has been an increase in the workload after the onset of the health crisis?
Stress	Do you feel more stressed at work?
Satisfaction	How would you score your job satisfaction during the present COVID-19 situation?
Appreciation	As a healthcare professional, do you feel appreciated by society?

Scoring of the variables out of 10, being 1 the least favourable and 10 the most favourable.

(24.5%). After eliminating questionnaires that were not 99% completed, 803 (65%) were finally incorporated. The criteria for inclusion in the research were: 1) being an active healthcare professional; 2) over 18 years of age; and 3) living in Ecuador during the COVID-19 pandemic.

Measuring Instruments

A self-elaborated questionnaire based on similar studies of other pandemics was applied for data collection [34] (**Supplementary Material**). Different sources were used: socio-demographic data (sex, age, marital status, educational level, children, pet, type of work) and work environment (**Table 1**). The categorisation of those variables was related to the work environment, with scores between 1 and 10 [14], sense of coherence (SOC) [29], Utrecht Work Engagement Scale (UWES) [35], and Goldberg's General Health Questionnaire [36]. They were asked to assess the changes in the quality of care, working conditions, occupational health, and patient safety pre and post-pandemic. Scoring of the variables was established out of 10.

SOC was measured with the SOC-13 scale, a 13-item questionnaire with a Likert-type response range from 1 to 7, where 1 is least frequent and 7 is most frequent. The score range of the scale can vary from 13 to 91, with a lower score indicating a low level of SOC, and it has 3 dimensions: meaningfulness, comprehensibility, and manageability. A Cronbach's alpha index of 0.808 was calculated, considering the whole instrument. The internal consistency indices presented by the different dimensions were $\alpha = 0.652$ for comprehensibility, $\alpha = 0.575$ for manageability, and $\alpha = 0.570$ for meaningfulness [28, 29, 37–39].

To assess the WE, the UWES-9 was used. This questionnaire consists of 9 questions, with the highest score being 54 and indicative of high WE. It has a Likert-type response range from 0 (never) to 6 (always), distributed in 3 dimensions: Vigour, Dedication, and Absorption. The internal consistency for the complete questionnaire was $\alpha = 0.928$, being $\alpha = 0.855$ for Vigour, $\alpha = 0.852$ for Dedication, and $\alpha = 0.757$ for Absorption [35].

PD was measured with the Goldberg's General Health Questionnaire (GHQ-12). This tool is designed to assess mental health through 12 questions or items, using a Likert-type response range from 1 to 4, taking as 0 the answers scored as 1 or 2, and as 1 the answers scored as 3 or 4, and assuming an overall score from 0 to 12 points. The total score was calculated by adding the scores obtained in all items of the dichotomous scale and 3 was considered a breakpoint for this one-dimensional screening instrument (Cronbach's $\alpha = 0.874$) [36].

The entire questionnaire was validated in Spain by a group of experts [14] and then culturally adapted to the population of Ecuador to ensure good understanding of the items and to include country-specific data.

Procedure

Non-probability snowball sampling was used, sending the questionnaire through social networks and through the channels of various public institutions and universities. The questionnaire was distributed through the Qualtrics® online platform to staff of health institutions and scientific associations. An invitation to participate was sent by e-mail, including a link to access the questionnaire. Participants were invited to share the questionnaire with their colleagues, following a snowball sampling effect. The information was filled in through different electronic media with internet access. Data collection took place between 2 April and 17 May 2020.

Data Analysis

Absolute frequencies and percentages were presented for the different categories of socio-demographic variables, and mean values and standard deviations were collected for the SOC variable in each of them. The t-student test for independent samples allowed to contrast the existence or absence of differences in SOC between categories; in order to establish the difference in perception of the pre and post-pandemic

TABLE 2 | Socio-demographic variables versus Sense of Coherence (Ecuador, 2020).

	N (%)	SOC-13 M (SD)	Independent t-tests (Sig.)	Cohen's d
Sex				
Male	279 (34.7)	65.74 (12.56)	1.130 (0.259)	0.084
Female	524 (65.3)	64.67 (12.82)		
Marital status				
With a partner	346 (43.1)	66.29 (13.29)	2.421 (0.016)	0.173
Without a partner	457 (56.9)	64.10 (12.23)		
Educational level				
Upper secondary school or lower	35 (4.4)	66.89 (14.72)	0.762 (0.451)	0.151
University or higher	768 (95.6)	64.96 (12.64)		
Children				
Yes	384 (47.8)	66.25 (12.73)	2.582 (0.010)	0.182
No	419 (52.2)	63.94 (12.66)		
Pet				
Yes	459 (57.2)	65.21 (13.11)	0.429 (0.668)	0.031
No	344 (42.8)	64.82 (12.23)		
You work				
From home	188 (23.4)	65.78 (12.49)	0.903 (0.367)	0.075
Outside	615 (76.6)	64.82 (12.81)		

N: sample; %: percentage; M: mean; SD: standard deviation.

situation, t-student test was used for the related samples; and, finally, the effect size was assessed with Cohen's d. For the quantitative variables of interest in the study, descriptive measures were provided (mean, standard deviation, skewness, kurtosis, minimum, and maximum) and correlations were studied with Spearman's Rho coefficient.

A multiple linear regression model for SOC was presented for those variables that were significantly correlated. The model was validated through the ANOVA test; the normality of the standardised residuals was studied with the Kolmogorov-Smirnov test; multicollinearity was assessed based on the tolerance and the variance inflation factor (VIF), selecting a model with a maximum condition index of less than 20, i.e. the limit established by Belsley. The hypotheses of linearity of the independent variables and homoscedasticity of the residuals were tested graphically, and the independence of the residuals was tested with the Durbin-Watson statistic.

Finally, a regression tree (CART) was built for the SOC with cases from the sample to detect relationships of interest. Optimal cut-off points were selected for improvement so that cases in each part were similar to each other and different from cases in any other part. The nodes showed the mean values of the group and the percentage of cases in the node over the total sample. This method allowed to predict the percentage of those suffering from PD in new cases. The tree was validated by sample splitting. Analyses were carried out using SPSS 26.0 and R statistical software, version 4.0.0.

Ethical Considerations

The study was authorised in Ecuador by the Research Ethics Committee of the Universidad San Gregorio de Portoviejo (USGP-DI-049-2021) and in Spain by the Research Ethics Committee of the Health System in Huelva, belonging to the Regional Ministry of Health of Andalusia, Spain (PI 036/20).

RESULTS

Socio-Demographic Variables in Relation to the Sense of Coherence

The sample had a mean age of 33.8 years, with a standard deviation of 8.13 years, within an age range of 18–70 years. The majority were women (65.3%), not living with a partner (56.9%), without children (52.2%), with pets (57.2%), and mostly with university education (95.6%) and working outside from home during the pandemic (76.6%) (Table 2). Table 2 shows a statistically significant difference in the SOC, which is higher among those with a partner and those with children, $p < 0.05$.

Quality of Healthcare, Working Conditions, and Patient Health and Safety Before and After the Pandemic

Table 3 shows the perceived quality of healthcare compared to that existing before the COVID-19 health emergency: $M = 5.16$ versus $M = 6.19$. The results obtained for working conditions were $M = 5.69$ versus previous $M = 6.63$; perception of occupational health, $M = 5.47$ versus previous $M = 6.61$; and patient safety, $M = 5.90$ versus previous $M = 6.86$, all differences being statistically significant $p < 0.01$.

Sense of Coherence, Work Engagement, Psychological Distress, and Correlations Between Variables

Table 4 shows the mean value of sense of coherence is $M = 65.04$, where the dimension comprehensibility is $M = 23.90$ and manageability $M = 18.90$. The UWES mean is $M = 39.36$, with dimension dedication $M = 13.77$ and absorption dimension, $M = 13.55$. The mean value of PD was $M = 4.58$.

TABLE 3 | Perception of pre and post-pandemic variation in quality of care, working conditions, occupational health, and patient safety (Ecuador, 2020).

	Quality of care		Working conditions		Occupational health		Patient safety	
	Before the health emergency	Currently/During the health emergency	Before the health emergency	Currently/During the health emergency	Before the health emergency	Currently/During the health emergency	Before the health emergency	Currently/During the health emergency
N	803	803	803	803	797	803	786	803
Mean	6.19	5.61	6.63	5.69	6.61	5.47	6.86	5.90
SD	2.11	2.48	2.10	2.45	2.26	2.57	2.05	2.61
Skewness	-0.555	-0.182	-0.668	-0.241	-0.517	-0.102	-0.575	-0.217
Kurtosis	-0.035	-0.823	0.139	-0.777	-0.327	-0.891	-0.107	-0.935
Paired t-tests (Sig.)	8.032 (<0.001)		11.783 (<0.001)		13.583 (<0.001)		10.389 (<0.001)	
Cohen's d	0.283		0.416		0.479		0.371	

Scoring of the variables out of 10.

The assessment of the measures taken by the companies to protect themselves against the pandemic had a similar rating, with those of effectiveness, safety, and distance maintained by co-workers being rated between 6 and 7. The lowest score was given to the level of conflict in the workplace $M = 6.21$ ($SD = 3.05$). The mean risk of infection at work was $M = 8.72$. The degree of acceptance of being infected at work was $M = 6.38$, the degree of satisfaction with their work during the pandemic $M = 6.57$ and the level of perception of being appreciated as a healthcare professional during this situation $M = 6.63$. On the contrary, the highest scores were given to the importance of offering psychological support to professionals and volunteers who intervene directly in the health crisis $M = 9.25$, affected people and families $M = 9.42$, and the general population $M = 9.19$, these variables being the ones with the greatest skewness and kurtosis. The mean of people who felt stressed at work was $M = 7.91$, and for those who had experienced an increase in their workload after the onset of the health crisis, it was $M = 7.76$.

Table 4 also shows that there is a statistically significant ($p < 0.01$) positive correlation between the SOC and WE, and a negative correlation with PD. Similarly, there is a positive correlation ($p < 0.01$) between the SOC and the effectiveness provided by the company to perform an effective and safe job, that colleagues keep a safe distance, the degree of satisfaction with their work, and the level of perceived appreciation as a professional by society. There is also a positive correlation ($p < 0.01$) between the SOC and age, and between the SOC and the psychological support needs of patients, caregivers, and the general population. In contrast, there is a negative correlation ($p < 0.01$) between the SOC and the perception of increased conflict in their work, as well as with the perception of stress at work.

Multiple Linear Regression Model and Classification Tree Obtained in the Multiple Linear Regression Model

To determine the multiple linear regression model explaining the sense of coherence (SOC), variables with a significant correlation with SOC-13, at the 0.01 level, were considered. Relevant data on the independent variables included in the model is shown in **Table 5**. Among these, PD stands out with an inverse

relationship; age, social esteem, and the WE test score were assessed as with less importance and with a direct relationship. Finally, the increase in work conflict shows an inverse relationship. All of them were statistically significant. The presented model is valid, F -Snedecor = 80.085, with sig. <0.001, and explains 34.1% of the variance of the dependent variable (adjusted $R^2 = 0.337$). In addition, the normality of the standardised residuals was studied with the Kolmogorov-Smirnov test, whose value was 0.032, with a significance level of 0.053. Values close to tolerance and VIF values were indicators of non-collinearity. Finally, a Durbin-Watson value of 1.941 proved the independence of the residuals.

In **Figure 1**, it is shown how the classification and regression tree for the SOC starts on a root node from which it branches according to PD and WE. For PD values greater than or equal to 9.5, two terminal nodes are distinguished with mean SOC values equal to 38.87, in 1% of the cases with UWES scores below 15.5, and equal to 53.22 points in the other 9%. When the PD score ranges between 5.5 and 9.5, the mean SOC is 58.69 in 22% of the data with UWES score below 45.5 points, and 65.31 points when it is above or equal. For 21% of the sample with a PD below 5.5 and UWES score below 39.5, the mean SOC value is equal to 55.15 in individuals younger than 26.5 years, increasing to 64.44 in individuals older than 26.5 years. Finally, when the PD is lower than 5.5 and the UWES score is greater than or equal to 39.5, the SOC is classified into three terminal nodes; if the level of appreciation by society is lower than 8.5 and the PD is lower than 0.5 points, 5% of the sample is grouped together with a mean sense of coherence of 76.33 points; with higher PD values, 19% of the sample is classified with a mean value of 69.07; and if the appreciation of society reaches values above 8.5, 17% is classified with a mean value of 74.81.

DISCUSSION

This study has allowed to assess the SOC of healthcare professionals in Ecuador during the first phase of the COVID-19 pandemic, which could have been influenced by the WE, work environment, and PD variables.

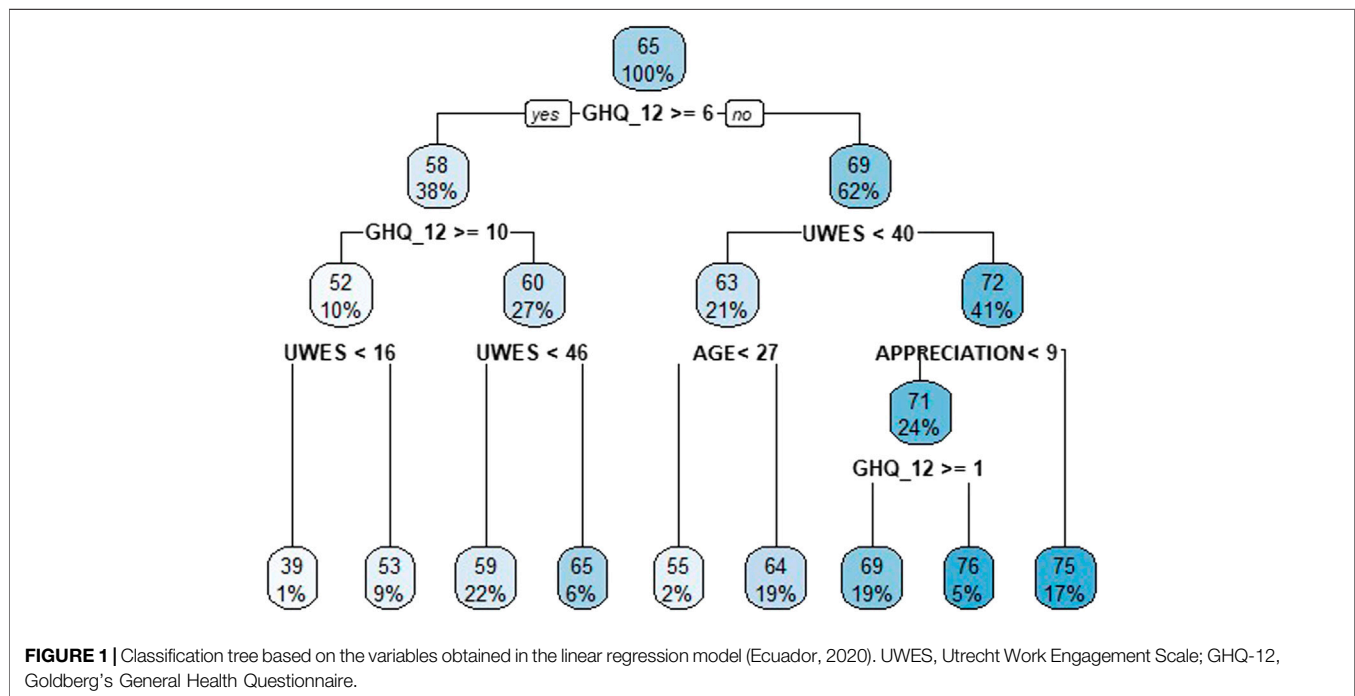
The results obtained confirm previous findings in which a high SOC was positively associated with work environment, and both

TABLE 5 | Multiple linear regression model (Ecuador, 2020).

Model	Standardised coefficients	95.0% confidence interval for B		Collinearity statistics	
	Beta	Lower limit	Upper limit	Tolerance	VIF
Constant		47.068	57.104		
GHQ-12	-0.349	-1.537	-1.052	0.768	1.302
UWES-9	0.235	0.204	0.362	0.765	1.307
Age	0.129	0.115	0.304	0.975	1.026
Appreciation	0.088	0.128	0.717	0.867	1.153
Conflict	-0.073	-0.558	-0.059	0.946	1.057

Dependent variable: SOC-13. SOC: Sense of Coherence Scale; UWES: Utrecht Work Engagement Scale; GHQ-12: Goldberg's General Health Questionnaire. Appreciation: As a healthcare professional, do you feel appreciated by society? CONFLICT: Have you observed any increase in labour conflict in your job?

Note: The hypotheses of linearity of the independent variables and homoscedasticity of the residuals were tested graphically.



Stressors may be associated with the threat of contracting the disease, infecting others, or with work itself, but may also be due to measures taken to limit the transmission of the virus [5]. Socio-economic and political reasons have been offered for why certain countries had a worse response to the pandemic [51], among others the low percentage of healthcare professionals who had been vaccinated in some countries and which may have been influencing their behaviour within the population as a whole [52]. In Ecuador, the public health system's response seemed insufficient specially regarding human resources and equipment, which increased the exposure to risk and fear of contagion of relatives [53].

The results found in the present study, in which healthcare workers have perceived a clear worsening of their working conditions during the pandemic, are consistent with what has already been published in Ecuador [11, 12] and explainable by the slow response of the Ecuadorian health system [13]. Being

able to maintain and not worsen the working conditions in health centres during a pandemic will depend, to a large extent, on the strength of the public health system to take on this unforeseen increase in workload, especially in Primary Health Care [54]. However, as detailed in previous studies, public employees showed higher PD compared to employees of private or independent companies in this country [55]. The need to redefine the public mental health system after the COVID-19 pandemic in developed countries has been raised [56, 57], but this is more difficult for developing countries, such as most Latin American ones.

It should be noted that the data were collected in the first phase of the COVID-19 pandemic, where the peak incidence occurred. This can be compared to the study conducted in four countries (Argentina, Chile, Colombia, and Ecuador) where, as expected, the worst mental health outcomes for healthcare workers were found during the peaks of the highest incidence of cases, in those

working in Intensive Care Units, and those who were infected or had doubts about being infected [15].

The COVID-19 pandemic has highlighted the role of public health and the importance of acting in all areas of life: family, community, education, leisure, and work; this would be facilitated by incorporating the “occupational health perspective” into the public health system [58].

Among the limitations of the study, it is worth mentioning that most of the analysed population had university level of studies, as it was focused on medical and nursing staff. Thus, the results are less applicable to less qualified healthcare workers, who should also be studied. Another limitation is not having analysed the results in terms of the job function or whether the participant was working for a public or private institution. Another limitation could have been the need to have devices with internet access, but the group studied did not encounter any problem in this regard, and the questionnaire could be answered from any device: computer, tablet, or mobile phone. Regarding the statistical analysis, the non-probabilistic snowball sampling design, disseminated through institutions and social networks, was chosen to achieve a rapid response in the first phase of the pandemic, being this the method that has subsequently been used in the European [59]. Furthermore, it should also be noted that the internal consistency of the SOC scale in its published version adapted to Spanish obtained low values. On the other hand, the validation of the SOC-13 published in Spanish does not provide values for the minimum clinically important differences (MCID) either [60]. This issue could affect the assessment of the sense of coherence in the present study. Therefore, future studies should update the psychometric properties of the scale in its Spanish adaptation.

The greatest limitation of this research is related to the work requirements of health personnel during the first phase of the pandemic, when the information was collected, conditioning the number of responses but, at the same time, giving greater value to the people who responded. Some variables have not been considered in this study, but it would be necessary to include them in future research, such as the specific area of work, work experience and work status.

In conclusion, during the first phase of the pandemic, the variables that determine the level of sense of coherence among healthcare workers in Ecuador are PD, WE, work environment, age, feeling appreciated by society as a healthcare professional, and having observed an increase in labour conflict in their work during the pandemic.

The healthcare workers assessed felt that the quality of care, working conditions, occupational health, and patient safety had significantly worsened, as compared to the situation prior to the health emergency caused by the COVID-19 pandemic. As a whole, these workers have a high SOC and are associated with WE in its three dimensions: Vigour, Absorption, and Dedication, as well as

with PD, but inversely. Work environment is significantly correlated with the level of safety and effectiveness provided by the companies to protect themselves from infection by COVID-19 or the distance maintained by colleagues to avoid infection. The degree of job satisfaction during the pandemic or the perception of being appreciated as a healthcare professional by society are variables that condition the SOC, while the level of conflict in the workplace or the level of stress are inversely associated. Finally, it is worth noting the great importance given to the need for psychological support for those affected by the disease, the healthcare professionals involved in the treatment, and even the general population.

DATA AVAILABILITY STATEMENT

Data are available online as **Supplementary Material** of the present article. Additional data and materials related to the study are available from the corresponding author.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Ecuador by the Research Ethics Committee of the Universidad San Gregorio de Portoviejo (USGP-DI-049-2021) and in Spain by the Research Ethics Committee of the Health System in Huelva, belonging to the Regional Ministry of Health of Andalusia, Spain (PI 036/20). The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

Conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing—original draft, and writing—review and editing, CA-U, JG-I, MO-M, KE-S, CR-F, and JG-S. All authors have read and agreed to the published version of the manuscript.

CONFLICT OF INTEREST

The authors declare that they do not have any conflicts of interest.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: <https://www.ssph-journal.org/articles/10.3389/ijph.2022.1605428/full#supplementary-material>

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9.3. TERCER ARTÍCULO

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Factors Associated to Psychological Distress During the COVID-19 Pandemic Among Healthcare Workers in Ecuador

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Objective: The global COVID-19 pandemic has challenged health systems. Healthcare professionals had to face harsh conditions that have caused psycho-emotional consequences. Ecuador has been one of the countries hit hardest by the pandemic in Latin America. The objective of this study was to analyse the levels of psychological distress among healthcare workers in Ecuador during the COVID-19 pandemic.

Methods: A cross-sectional descriptive study was conducted with a convenience sample of 1,056 healthcare professionals, assessing their psychological distress, physical symptoms of COVID-19, state of health, the preventive measures adopted, and the history of contact with people infected with the SARS-CoV2 virus.

Results: showed that 66.0% of the participants manifested psychological distress, with significantly higher levels in women with symptoms of COVID-19 and previous contact with infected people or objects ($p < 0.001$). However, adherence to preventive measures and perception of health were associated with less psychological distress ($p < 0.001$).

Conclusions: The importance of monitoring the mental health of healthcare workers during the COVID-19 pandemic was confirmed, having identified factors associated with the development of psychological distress among professionals in Ecuador.

Keywords: COVID-19, SARS-CoV-2, psychological distress, Ecuador, healthcare professionals

INTRODUCTION

The World Health Organization (WHO) declared the Sars-CoV-2 virus outbreak in early 2020 as a global public health emergency [1]. Although the outbreak was initially located in China, it quickly spread throughout Asia and the rest of the world. According to the WHO, as of the end of July 2021, there have been 190,770,507 confirmed cases of COVID-19 worldwide, of which 4,095,924 have died [2]. In April 2021, Mautong et al. published that in Ecuador, the first case of coronavirus was identified in February 2020, and after a few weeks, in the city of Guayaquil

alone, the largest in the country, approximately 2,200 cases were reported, which corresponded to 70% of the cases in the country [3]. The number of confirmed cases is 476,065 and 21,953 deaths according to the WHO [2]. However, as Cevallos-Valdiviezo et al. pointed out, the actual figure could be much higher due to underestimation derived from delays in death records, the lack of enough test kits across the country, false-negative test results, or the incorrect attribution of COVID-19 deaths [4].

The spread of the pandemic is accelerating thanks to the fluidity of the international mobility of the population and the ease of transmission of the virus [5]. COVID-19 is transmitted through close contact with an infected person, through droplets or aerosols emitted by the infected person during respiratory activities such as talking, coughing, laughing, sneezing. The receptor can be contaminated by direct inspiration from an infected aerosol in the vicinity of a sick person or by touching a contaminated surface [6]. Many of the patients remain asymptomatic and are unaware of their spreading potential, which is the same as that of a patient with symptoms, something that aggravates and favours transmission [7].

Before the availability of the vaccine and in the absence of specific treatment, the most effective way to address the pandemic was preventive containment measures, hand hygiene, face mask, social distance, and isolation [8]. Despite these measures, the virus spread rapidly, collapsing health systems. The Sars-CoV-2 virus triggers a respiratory inflammatory crisis that, together with certain previous risk factors such as advanced age (≥ 65 years), male sex, hypertension, cardiovascular diseases, diabetes, COPD, and malignant neoplasms, causes the person to require hospitalisation, complex respiratory support, admission to the ICU and, in many cases, leads to death [9]. Patients with COVID-19 remain hospitalised between 5 and 29 days, and those admitted to the ICU have a mean stay between 1 and 3 weeks [10]. All this translates into a care overload that healthcare workers, especially those on the front line, have to face, working directly with COVID-19 patients. In addition to work overload and long hours, healthcare professionals have had to perform their work in very difficult physical and psychological conditions [11]. The complex situation of the pandemic forces them to work under the feeling of constant threat due to direct exposure to the pathogen itself, with a shortage, at times, of protective material, and also due to fear of transmitting the virus to family or friends that can lead to social isolation, or professional frustration at the loneliness and death of the coronavirus patients they care for [11–13].

These exceptional circumstances have an unavoidable impact on the mental health of healthcare workers. High levels of anxiety, depression, post-traumatic stress, insomnia, obsessive-compulsive symptoms, emotional disorders, and somatization among healthcare workers have been described during the COVID-19 pandemic [14–17]. These consequences are especially accentuated in nurses, women, involved in the diagnosis, treatment or care of patients with coronavirus [16]. During the pandemic, high levels of compassion fatigue and burnout have been reported among healthcare professionals and a significant decrease in compassion satisfaction [18, 19]. This burnout is not only conditioned by the overload of work and the

psychological demands of the pandemic situation, but also by the feeling of threat the workers experience and the lack of social support [20]. The psychological and emotional load of healthcare workers has repercussions in the performance of their functions, by conditioning their capacity for attention, understanding, and decision-making [17]. It is therefore imperative to address the psychological needs of healthcare workers in order to effectively deal with the pandemic.

Although the health crisis caused by COVID-19 has been a challenge for all health systems in the world, for low and middle-income countries, which are currently in a situation of inadequate resources, the challenge of COVID-19 has led to a worsening of the health gap, especially in terms of mental health [21]. Ecuador has been one of the countries hardest hit by the pandemic with a mortality rate among the highest in Latin America [22], which reached 8.5%, although it was probably much higher as many people died from the virus but undiagnosed [23]. In March 2020, of the four geographical regions of Ecuador, the coast and the city of Guayaquil were the most seriously affected areas since they accounted for 82.57% of the confirmed cases of COVID-19 and coincided with an area that had already been seriously affected by dengue cases (84%) [24].

To cope with the advance of the pandemic, the Ecuadorian government established containment measures such as confinement, traffic and movement restrictions, and curfew [25]. However, these measures were implemented unevenly throughout the country due to the fact that there is no universal health coverage because of difficulties in communications and geographical. Some groups such as indigenous populations or refugees may find it more difficult to take preventive measures [26]. The response of the Ecuadorian public health system has been slow and insufficient. The high number of cases and deaths collapsed the system and evidenced its operational shortcomings and the absence of a strategic plan to contain the spread of the infection [23]. Given this scenario and with the country's scarce health resources, the threat is particularly serious for Ecuadorian healthcare workers, who have to fight the pandemic in one of the countries with the highest number of cases and deaths per capita worldwide [24]. It is necessary to know the psychological impact of the pandemic on health staff due to the negative consequences it can trigger for the group itself, for the people affected, and for society in general given its leading role in addressing and containing the pandemic.

The objective of this study is to analyse the levels of psychological distress during the COVID-19 pandemic among healthcare workers in Ecuador.

METHODS

Type of Study

The present study follows a quantitative, descriptive cross-sectional cohort design.

Sample

A total of 1,235 questionnaires were collected and, after filtering, 179 questionnaires (14.49%) were eliminated for not having answered 99% of the questions, leaving 1,056 questionnaires.

The variables that did not collect some responses were identified in the tables, indicating the number of responses collected. The final sample came from all the provinces of Ecuador, with highest percentages from the provinces of Pichincha (31.2%), Guayas (24.5%), Azuay (6.4%) and Tungurahua (6.3%). By region, Andean (66.1%), Coastal (29.7%), Amazon (4.1%), and Galápagos (0.1%). 64.96% were physicians, 12.59% were nurses and 22.44% were other healthcare professionals. 86.36% were involved in care activities in contact with the patients. The inclusion criteria for the research were the following: 1) being an active healthcare professional; 2) being over 18 years of age; 3) living in Ecuador during the pandemic generated by the SARS-CoV2 virus; and 4) accepting the informed consent located on the first page of the questionnaire prior to its start.

Study Variables

In the present study, the psychological distress (PD) of healthcare professionals has been considered as a dependent variable, and the sociodemographic characteristics, the presence of physical symptoms of COVID-19 and health status, the preventive measures adopted, and the history of possible contacts with people infected by the SARS-CoV2 virus have been considered as independent variables.

Measuring Instruments

For data collection, two instruments were used; one designed ad hoc for the assessment of independent variables, and the General Health Questionnaire (GHQ-12) for the assessment of PD.

The first instrument, developed by the authors of this study, was a self-administered questionnaire with items related to sociodemographic characteristics such as sex, age, marital status, level of education, type of work, children, pet, or having a disability. Participants were also asked whether they had symptoms associated with COVID-19 such as fever greater than 38°C, cough, headache, muscle pain, dizziness, diarrhoea, sore throat, coryza, chills, and breathing difficulties. The symptoms variable is analysed in the tables as continuous but was categorised in order to be considered in the CHAID analysis. To categorise the symptoms variable, the 25 and 75 percentiles have been considered as group limits. In relation to the state of health, participants were asked whether they had any chronic illnesses and, in addition, about medication, hospitalisation and medical care during the last 14 days. All these items were assessed with a dichotomous YES/NO answer question. The perception of one's own health was assessed with a Likert scale of five options that ranged from very good to very bad. Questions about having had or believing to have had contact with any infected person or material, whether any family member or co-worker have been infected, and whether they had been performed a diagnostic test were included to assess contact with any infected person or material. Adherence to preventive measures was assessed with items on certain preventive behaviours such as hand washing, respiratory protocol, or social distancing. The participants assessed the frequency with which they had performed these measures through a Likert scale from 1 to 5, being 1 never and 5, always.

The second instrument used was the General Health Questionnaire (GHQ-12), which consists of 12 questions with 4 possible answers. The reliability of the results was revised, giving a

Cronbach's Alpha of 0.799. Analysis at the item level used all of the Likert values, while the scale sum was done based on a binomial scoring system. Each question can be categorised as 0 (if the answer is 1 or 2) and 1 (if the answer is 3 or 4). Values greater than or equal to 3 were estimated as a cut-off point, which represents that people with a score within the range at the cut-off point had psychological distress [27].

Data Collection

Once the questionnaire was prepared, it was distributed online through the survey platform Qualtrics®. Invitation to participate was sent via email to official organisations of healthcare professional groups who were asked to facilitate their dissemination. In addition, participants were asked to distribute the questionnaire through their professional contacts and social networks, looking for the snowball phenomenon. Data collection took place between 2 April and 17 May 2020.

Data Analysis

The frequencies, percentages, measurements of position and dispersion, depending on the type of variable, allowed a descriptive analysis of the data. Next, the chi-squared association test and the Student's t-test for independent samples were used to contrast existence and differences or not of relationship with the dichotomised psychological distress variable. The Chi-squared automatic interaction detection (CHAID) method detected those variables most related to psychological distress through the creation of a classification tree. To do this, the chi-squared test of independence was used, selecting among the predictors the most significant ones. Among its advantages over alternatives, such as regression, we find that it is non-parametric, has no restrictions on independent variables and is based on the significance of the chi-squared statistic; it also avoids cross-analysis and identifies significant relationships between variables. The analyses were carried out with the statistical software SPSS 26.0 and R version 4.0.0.

Ethical Considerations

Participants were previously informed about the purpose and means of the study. Participation in the study was entirely voluntary and posed no risk to the participants. Informed consent to participate in the study was obtained from the research subjects prior to study commencement. The questionnaires were anonymous and recorded in a confidential database that could only be accessed by the research team. This study has the favorable report of the Research Ethics Committee of Huelva, belonging to the Regional Ministry of Health of Andalusia (PI 036/20) and by the Ethics Committee of the University of Portoviejo, Ecuador (USGP-DI-049-2021).

RESULTS

Sociodemographic Data

Of the 1,056 questionnaires that were finally analysed, there was a predominance of women (65.2%). 47.0% were 30 years of age or younger, 95.8% had university studies or higher, 57.7% were living without a partner, 48.6% with children, 65.6% were

TABLE 1 | Association between sociodemographic variables and psychological distress during the pandemic (Ecuador, 2021).

	Healthcare staff (N = 1,056)				χ^2	p
	N (%)	GHQ				
		No (N = 359)	Yes (N = 697)			
Sex						
Male	368 (34.8)	44.6	55.4	28.118	<0.001	
Female	688 (65.2)	28.3	71.7			
Age ^a (N = 1,045)						
30 or younger	491 (47.0)	35.6	64.4	1.435	0.231	
Older than 30	554 (53.0)	32.1	67.9			
Marital status						
With a partner	609 (57.7)	34.8	65.2	0.426	0.514	
Without a partner	447 (42.3)	32.9	67.1			
Educational level						
Upper secondary school or lower	44 (4.2)	43.2	56.8	1.726	0.189	
University or higher	1,012 (95.8)	33.6	66.4			
You are (N = 811)						
Independent	79 (9.7)	36.7	63.3	7.070	0.029	
Public employee	532 (65.6)	31.2	68.8			
Worker for private company	200 (24.7)	41.5	58.5			
Children						
Yes	513 (48.6)	35.1	64.9	0.530	0.467	
No	543 (51.4)	33.0	67.0			
Pet						
Yes	594 (56.3)	34.0	66.0	0.000	0.993	
No	462 (43.8)	34.0	66.0			
Disability						
Yes	23 (2.2)	39.1	60.9	0.276	0.599	
No	1,033 (97.8)	33.9	66.1			

^aGrouped variable from median value. GHQ, General Health Questionnaire. Statistically significant results are presented in bold.

TABLE 2 | Psychological distress: General Health Questionnaire GHQ-12 (Ecuador, 2021).

Item	Healthcare staff (N = 1,056) M (SD)
1. Have you been able to concentrate well on what you were doing?	2.50 (0.73)
2. Have your worries made you lose a lot of sleep?	2.66 (0.96)
3. Have you felt that you are playing a useful role in life?	1.81 (0.85)
4. Have you felt capable of making decisions?	1.94 (0.78)
5. Have you felt constantly overwhelmed and stressed?	2.81 (0.88)
6. Have you had the feeling that you cannot overcome your difficulties?	2.23 (0.93)
7. Have you been able to enjoy your normal daily activities?	2.69 (0.87)
8. Have you been able to adequately cope with problems?	2.27 (0.72)
9. Have you felt unhappy or depressed?	2.44 (0.96)
10. Have you lost confidence in yourself?	1.77 (0.92)
11. Have you thought that you are a worthless person?	1.34 (0.72)
12. Do you feel reasonably happy considering all the circumstances?	2.18 (0.74)
GHQ-12 (over 12 points)	4.64 (3.47)
Cut-off point ≥ 3	N (%)
Yes	697 (66.00)
No	359 (34.00)
α -Cronbach (healthcare staff)	0.799

working as public employees, 56.3% were living with a pet, and 2.2% had a disability (Table 1).

Psychological Distress

As shown in Table 2, the items that gave the highest mean ratings in PD were question 5 “Have you felt constantly overwhelmed and in tension?” (M = 2.81; SD = 0.88) and 7 “Have you been able to enjoy your normal daily activities?” (M = 2.69; SD = 0.87). On the contrary, the questions with the lowest values were number 10 “Have you lost confidence in yourself?” (M = 1.77; SD = 0.92) and 11 “Have you thought that you are a worthless person?” (M = 1.34; SD = 0.72). The overall mean score obtained on a total of a 12-point scale was 4.64 (SD = 3.47). Establishing a cut-off point for values greater than or equal to 3, the results showed that 66.0% of the study participants presented psychological distress (Table 2).

Sociodemographic and Psychological Distress Variables

Analysing the sociodemographic variables (Table 1) and their relationship with developing PD, with a cut-off point of GHQ ≥ 3 , women showed a higher percentage of PD (71.7%) than men

TABLE 3 | Association between physical symptoms and health and psychological distress during the pandemic (Ecuador, 2021).

	N (%)	GHQ		χ^2	p
		No	Yes		
Fever					
Yes	55 (5.2)	32.7	67.3	0.042	0.838
No	1,001 (94.8)	34.1	65.9		
Cough					
Yes	199 (18.8)	27.1	72.9	5.143	0.023
No	857 (81.2)	35.6	64.4		
Headache					
Yes	468 (44.3)	26.1	73.9	23.542	<0.001
No	588 (55.7)	40.3	59.7		
Myalgia					
Yes	231 (21.9)	26.0	74.0	8.480	0.004
No	825 (78.1)	36.2	63.8		
Dizziness					
Yes	124 (11.7)	20.2	79.8	11.985	0.001
No	932 (88.3)	35.8	64.2		
Diarrhoea					
Yes	134 (12.7)	23.1	76.9	8.070	0.005
No	922 (87.3)	35.6	64.4		
Sore throat					
Yes	267 (25.3)	25.8	74.2	10.587	0.001
No	789 (74.7)	36.8	63.2		
Coryza					
Yes	292 (27.7)	27.1	72.9	8.667	0.003
No	764 (72.3)	36.6	63.4		
Chills					
Yes	59 (5.6)	22.0	78.0	3.985	0.046
No	997 (94.4)	34.7	65.3		
Breathing difficulties					
Yes	45 (4.3)	15.6	84.4	7.123	0.008
No	1,011 (95.7)	34.8	65.2		
Health					
Perceived health					
Optimal	882 (83.5)	37.0	63.0	20.975	<0.001
Mediocre/ very bad	174 (16.5)	19.0	81.0		
Chronic illness					
Yes	180 (17.0)	30.6	69.4	1.145	0.285
No	876 (83.0)	34.7	65.3		
Currently taking medication					
Yes	226 (21.4)	26.1	73.9	7.977	0.005
No	830 (78.6)	36.1	63.9		
Hospitalised last 14 days					
Yes	11 (1.00)	27.3	72.7	0.224	0.636
No	1,045 (99.0)	34.1	65.9		
Medical care last 14 days					
Yes	103 (9.8)	29.1	70.9	1.206	0.272
No	953 (90.2)	34.5	65.5		
Symptoms					
N° symptoms	M (SD)			Statistical	p
	1.77 (2.01)	1.33 (1.75)	2.00 (2.1)	-5.520	<0.001

Statistically significant results are presented in bold.

TABLE 4 | Association between variables related with history of contacts and psychological distress during the pandemic (Ecuador, 2021).

	N (%)	GHQ		Statistical	p
		No	Yes		
Contact >15' <2 m with infected person					
Yes, or does not know	616 (58.3)	29.9	70.1	11.217	0.001
No	440 (41.7)	39.8	60.2		
Casual contact with infected person					
Yes, or does not know	674 (55.1)	28.5	71.5	17.314	<0.001
No	474 (44.9)	40.7	59.3		
Any contact with person or material suspicious of being infected					
Yes, or does not know	674 (63.8)	30.0	70.0	13.458	<0.001
No	382 (36.2)	41.1	58.9		
Infected family member					
Yes, or does not know	263 (24.9)	30.4	69.6	1.998	0.157
No	793 (75.1)	35.2	64.8		
Having been performed diagnostic test					
Yes	183 (17.3)	35.0	65.0	0.094	0.759
No	873 (82.7)	33.8	66.2		

Statistically significant results are presented in bold.

(55.4%), $p < 0.001$. Public employees had higher PD compared to employees of private or independent companies ($p = 0.029$). On the contrary, no statistically significant difference has been observed in the development of PD with regards to the variables age, educational level, living as a couple, having children, having a pet, or having a disability.

Physical Symptoms and Psychological Distress

The highest percentages of the presence of physical symptoms (Table 3) resulted in headache (44.3%), coryza (27.7%), sore throat (25.3%), and muscle pain (21.9%). Regarding the association between presenting symptoms and generating PD, all of them showed a statistically significant difference except for fever, observing greater significance the symptoms of headache, dizziness, or sore throat, and being respiratory difficulty the one that scored a higher percentage of PD (84.4%). The number of symptoms was another variable associated with PD ($p < 0.001$).

There was no association between having a chronic disease, having been hospitalised, or having received medical care during the last 14 days and developing PD, an association that was found among those who were taking medication at the time of the study (Table 3). 83.5% answered that they had an optimal health perception (very good or good), versus mediocre or lousy.

Contact History and Psychological Distress

As can be seen in Table 4, 58.3% of the study participants reported having or not knowing whether they had had close contact with people confirmed to be infected with COVID-19, 55.1% had or did not know if they had had casual contact, and 63.8% said they had or did not know if they had had any contact with a person or material suspicious of being infected. All three assumptions were associated with symptoms of PD ($p < 0.001$).

75.1% of participants said that no member of the family had been infected, and 17.3% had been performed a diagnostic test. Neither of these cases was associated with PD (Table 4).

Preventive Measures and Psychological Distress During the Pandemic

The preventive measures that healthcare professionals scored a higher mean value were washing hands with soap and water ($M = 4.83$; $SD = 0.45$); washing hands after touching potentially contaminated objects ($M = 4.77$; $SD = 0.52$); covering the mouth when coughing or sneezing ($M = 4.68$; $SD = 0.62$); and wearing a mask ($M = 4.65$; $SD = 0.75$). The adherence to preventive measures was associated with PD, except in washing hands with hydroalcoholic solution and wearing a mask regardless of the presence of symptoms (Figure 1).

Prediction of Psychological Distress During the Pandemic in Healthcare Professionals

In the 1,056 cases studied, the CHAID method indicated the number of symptoms as the most significant variable related with psychological distress, distinguishing between without symptoms, one to three symptoms and more than three symptoms. For 35.3% of people without symptoms (373), men imply 47.0% of PD cases, as compared to women, whose proportion varies between 72.0% and 52.8% depending on whether or not there has been casual contact with someone whose infection has been confirmed. Among people with one, two, or three symptoms (509), sex was also a differentiating node and, as in the previous case, the number of cases with PD was higher in women, 73.7%, than in men. In the latter, the fact of having had or not close contact more than 15 min at less than 2 m with a person confirmed of infection made these percentages vary between 49.2% and 69.1%, respectively. The perception of health in the last 14 days was the differentiating node when there have been more than three symptoms (174 cases); if the perception is optimal, the percentage of distress was 68.1%, and reached 87.3% when the perception of health was mediocre or lousy (Figure 2).

DISCUSSION

The results of the study revealed a moderate-high level of psychological distress (66.0%) among healthcare professionals during the COVID-19 pandemic. These results coincide with those obtained by other international studies on anxiety, depression, and stress among healthcare professionals working on the front lines of the COVID-19 crisis [14, 28, 29]. Previous studies that included Ecuadorian healthcare professionals in their sample also obtained similar results in relation to the manifestations of stress (59.5%), anxiety (45.7%), depression (55.4%), and post-traumatic stress (70.2%) [5, 30]. However, our results were higher than those found by Mautong et al. in their study on the mental health of the Ecuadorian population during confinement, obtaining 17.7% of depression, 30.7% of anxiety, and 14.2% of stress [3]. This difference is consistent with

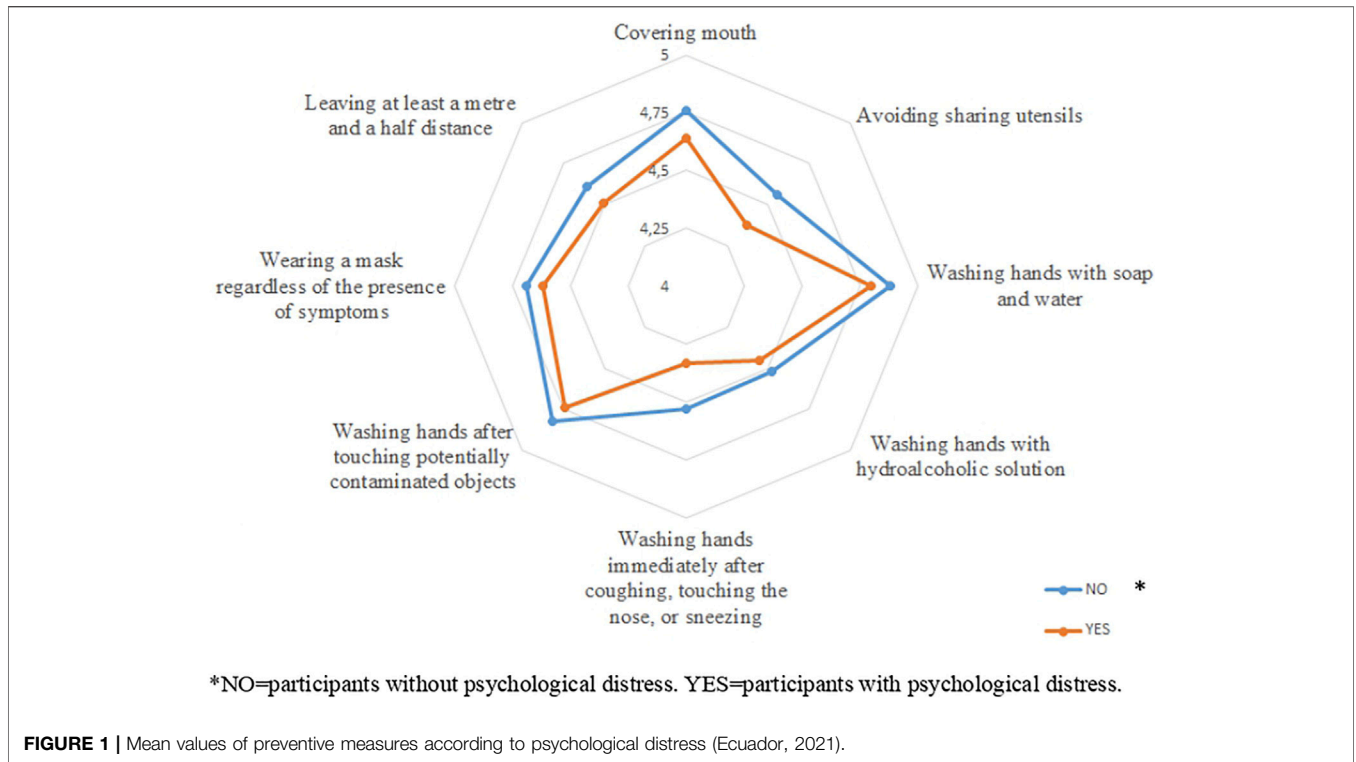


FIGURE 1 | Mean values of preventive measures according to psychological distress (Ecuador, 2021).

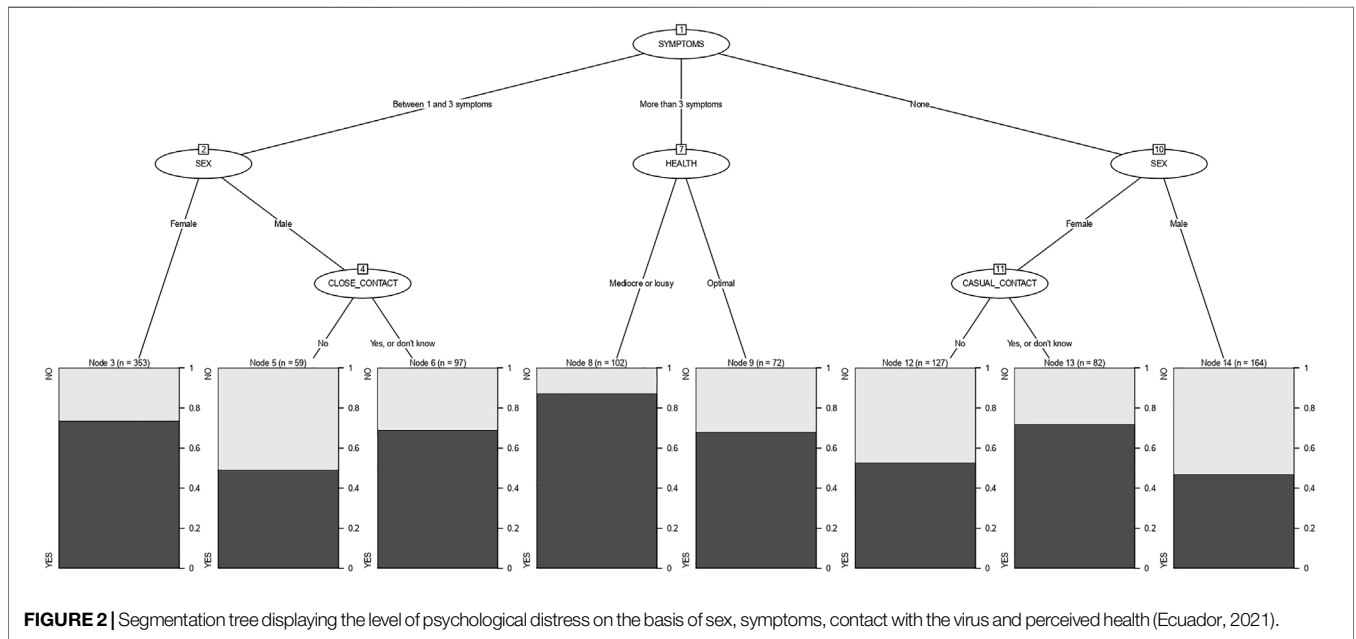


FIGURE 2 | Segmentation tree displaying the level of psychological distress on the basis of sex, symptoms, contact with the virus and perceived health (Ecuador, 2021).

previous studies that identified significantly higher levels of PD among healthcare professionals, as compared to the general population [31, 32]. In particular, distress has been described as especially high in front-line healthcare professionals versus those who do not work with COVID-19 patients [16, 19].

Some authors have suggested the lack of resources and protective equipment as a factor associated with healthcare

workers' anxiety in the face of the pandemic [33, 34]. In Ecuador, the health system's response to the coronavirus outbreak was insufficient, especially regarding healthcare human resources and the provision of personal protective equipment [23]. The results found by Martín-Delgado et al. described a shortage of personal protective material manifested by 70% of healthcare workers in Brazil, Colombia, and Ecuador,

especially of suits, masks, and face shields, even in areas where aerosol-generating procedures were performed [35]. To address the lack of material and technical resources, Ecuador requested international assistance and eventually had to accept donations from the Pan-American Health Organization (PAHO) of protective equipment for front-line workers [23]. The deficiencies not only affected the supply of equipment, but also the training on its correct use, since 51.5% of Ecuadorian healthcare professionals admit not having received training on the use of personal protective equipment [35]. However, Zhang et al. study on organisational support for healthcare workers in Peru, Ecuador, and Bolivia did not identify risk control and protection as a predictor of professionals' anxiety [36].

On the other hand, it has been pointed out that being informed about the health crisis through official sources with verified data is associated with fewer PD [37] and that a greater number of daily hours obtaining information from different sources increases PD in non-healthcare workers [38]. Ecuadorian healthcare professionals have said they are unaware of the protocols for the care of COVID-19 patients [35]. This lack of knowledge could explain the high levels of PD found in our study. Chen et al. conducted a study on the COVID-19 beliefs of healthcare workers in Ecuador and identified conspiracy theories regarding the origin of the virus. Professionals who believed the virus was intentionally developed in a laboratory were more likely to have an anxiety disorder [39]. The study by Bates et al. on the Ecuadorian general population, despite identifying good knowledge about COVID-19, concluded that this was not enough to motivate a change of attitude towards the pandemic and confidence in overcoming it [40].

According to our results, women have greater psychological distress than men, which resembles previous similar studies [30, 31, 41]. Similarly, in the present study, the presence of COVID-19 symptoms and the history of contacts with infected people was associated with higher levels of PD and taking preventive measures against COVID-19 implied a lower decline of the mental health of healthcare workers. Similar results were obtained by Wang et al. in their study on psychological responses during the first stage of the pandemic in China. According to these authors, participants with symptoms such as chills, myalgia, cough, dizziness, rhinitis, sore throat, and shortness of breath had higher levels of anxiety, depression, and post-traumatic stress [42]. In addition, according to the results found by Alkhamees et al. from a similar study, not experiencing any of the symptoms listed above was significantly associated with lower PD scores [43]. It is striking that, as in previous studies, the least frequent symptoms were fever and respiratory difficulties, given that COVID-19 is an inflammatory respiratory disease.

As our results show, contact with infected people or material has previously been identified as an influential factor for the psychological impact on healthcare professionals [44]. Healthcare professionals working in the front line, at greater risk of infection by close contact with COVID-19 patients, have reported greater psychological deterioration than others [16, 19]. It has been identified that these professionals are more likely to suffer from anxiety, depression, and insomnia [16, 45] and have

more secondary traumatization [31]. Exposure to risk and threat perception leads professionals to feel more vulnerable and, as a result, suffer more PD [46, 47]. The lack of protective measures has been associated with higher levels of anxiety and depression among healthcare professionals [48].

In Ecuador, in the sociocultural context in which this study was developed, the population has suffered a greater psychological exhaustion than other countries, which confirms our results [5]. The Ecuadorian coast was considered the region most affected by COVID-19, with the highest number of cases [24] and significantly higher levels of anxiety and depression [22]. An international study conducted in Ecuador, Chile, Colombia and Spain, revealed that Ecuadorians, although they perceived the health crisis with severity, showed less adherence to health recommendations and reported lower levels of awareness of their health status, as compared to other countries [30]. The psychological impact has had consequences for the health of the population in relation to their eating habits, with changes in meal times or increased intake and a worsening of sleep quality [49]. However, according to Bermerjo-Martins et al. [30] in relation to self-care, the elderly and women are generally more involved in self-care activities and adopt healthier daily routines. The crisis has been particularly severe for healthcare professionals, who, in addition to the exposure to risk and fear of contagion of their relatives, have endured an overload of work in difficult conditions, under psychological and emotional pressure. Despite working in this harsh scenario, healthcare professionals in Ecuador have manifested high levels of work engagement and compassion satisfaction, which describes them as a positively involved and committed group despite the difficulties [50]. Initiatives have been proposed that promote coping strategies and self-care to maintain the psycho-emotional balance of these workers and enable them to play their role in the fight against the pandemic [41]. In the Ecuadorian healthcare environment, it has been identified that exercising, maintaining daily routines, and staying informed about COVID-19, but limiting it to 1 h a day, is associated with better mental health [22].

Limitations

As limitations to the present study, convenience sampling should be recognised, as it does not guarantee that it is representative of the study population, so some caution is recommended in the generalisation of the results. When an online data collection is carried out, the territorial distribution of the sample is not homogeneous. As mentioned, the highest incidence of cases is concentrated in the coastal area and the city of Guayaquil, so care overload is more intense in these areas and its impact on healthcare professionals could be expected to be geographically uneven. The data of the study were collected during the first phase of the pandemic and may have changed in the following phases, so a new collection has been planned with those participants who have voluntarily accepted, which will allow to know their evolution. At the end of the questionnaire, participants were asked whether they were interested in repeating the questionnaire after 6 months to know if there were any modifications. In order to do so, they had to indicate an email address to be contacted.

Conclusion

It was evidenced that the level of psychological distress for health staff in Ecuador was 66% of the sample analysed, with women presenting greater distress as compared to men. The presence of psychological distress was revealed to be associated with the number of symptoms of COVID-19, each of them except fever, and especially headache, with taking medication during the last 14 days, and having had contact with infected people or material. The better perception of health and adherence to preventive measures was associated with lower psychological distress, conditioned by availability of these preventive measures and their mandatory use in the workplace.

The results of this study are a contribution to the knowledge of the state of health of the Ecuadorian healthcare team fighting against COVID-19. Monitoring the mental health of healthcare workers is imperative to implement an adequate response to the COVID-19 pandemic. Further similar work is needed to allow a more complete diagnosis of the psycho-emotional state of Ecuadorian healthcare workers, identifying the factors associated with these alterations in order to monitor their mental integrity and design support and coping strategies that help them maintain the psycho-emotional balance necessary to continue exercising their essential role in the fight against the pandemic.

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ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Research Ethics Committee of Huelva, belonging to the Regional Ministry of Health of Andalusia (PI 036/20). The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

Conceptualization, CR-F and JG-S; Methodology, CA-U; Software, MO-M; Validation, CA-U, KE-S, and IA-B; Formal analysis, MO-M; Investigation, MR-M; Resources, JG-S; Data curation, MR-M; Writing—original draft preparation, IA-B; Writing—review and editing, MR-M; Visualization, JG-S; Supervision, CR-F; Project administration, CR-F. All authors have read and agreed to the published version of the manuscript.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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9.4. REGISTRO PROSPERO DE LA REVISIÓN SISTEMÁTICA

Psychological distress in healthcare workers during COVID-19: a systematic review

Review methods were amended after registration. Please see the revision notes and previous versions for detail.

Citation

Kenny Escobar-Segovia, Ingrid Adanaque-Bravo, Cristian Arias-Ulloa. Psychological distress in healthcare workers during COVID-19: a systematic review. PROSPERO 2022 CRD42022344270 Available from: https://www.crd.york.ac.uk/prospERO/display_record.php?ID=CRD42022344270

Review question

Has COVID-19 affected the levels of psychological distress in healthcare workers during the pandemic?

Searches [2 changes]

A systematic review was carried out following the PRISMA format in the electronic databases PubMed, Scopus, Web of Science, CINAHL, PsycINFO in November, 6th 2022. As restrictions we have the language, type of article, articles that are complete, that have undergone peer review and that measure mental health.

Additional search strategy information can be found in the attached PDF document (link provided below).

Types of study to be included [1 change]

Inclusion criteria:

- Original articles published in English, Spanish, French and Portuguese.
- Typology: original articles and meta-analysis
- The data collection must have been carried out during COVID-19.
- Articles that measure any of the following values and/or effects: level of burnout, level of depression, level of stress and level of anxiety, number of cases of professionals with depression, stress and/or anxiety, comparison of levels before vs. during the COVID-19 pandemic and comparison by country/type of profession/service

Exclusion criteria:

- Studies with a language other than English, Spanish, French and Portuguese.
- Studies of low scientific-technical quality after applying the quality assessment tool.
- Articles that do not answer the research question and are not related to the objective of the review.
- Data not collected during the COVID-19 pandemic or where the collection date is unclear or not specified.
- Typology: opinion articles, editorials and letters to the director/editor, systematic reviews, brief/short communication

and case reports.

Condition or domain being studied

The objective of this study was to assess psychological distress in healthcare workers during the COVID-19 pandemic.

Participants/population

The study focuses on healthcare workers.

Intervention(s), exposure(s)

Psychological distress in healthcare workers during COVID-19.

Comparator(s)/control

Level of burnout, stress and anxiety, number of cases of people with depression, comparison of levels before vs. during the COVID pandemic and comparison according to type of profession, influencing factors.

Context

It is desired to clearly know the affectation of healthcare workers in studies of good scientific quality and that there is no bias or biased opinion of the author or authors, and articles that have evaluated mental health in the COVID-19 pandemic.

Main outcome(s)

It is expected to review how the COVID-19 pandemic has affected the study staff, in terms of psychological distress, we hope to find high levels of psychological distress in the study population.

Measures of effect

A list of studies will be presented, classified by authors and year of publication, country, design and objective, participants, instrument and main results; in addition, the results of Joanna Briggs Institute (JBI-University of Adelaide) critical evaluation tool will be added.

Additional outcome(s)

None.

Data extraction (selection and coding) [2 changes]

The search strategy used was collected, carried out on May 18, 2022 for each of the aforementioned databases during the search process. Two researchers will carry out the searches independently, eliminating duplicate studies and selecting the articles likely to be included after reading the abstract and title according to the previously established criteria. Subsequently, the same two authors will review the full text of the studies potentially susceptible to inclusion in the review and the decision to include or exclude studies in it will be made by consensus. Discrepancies will be resolved by a third author. Levels of stress, depression and anxiety will be assessed in the selected studies, the quality of the papers will be assessed using the critical appraisal tools of the Joanna Briggs Institute (JBI) for non-randomized studies at the University of Adelaide, for qualitative and quantitative papers. Prevalence, measures of association of studies using qualitative data synthesis methods will be taken into account. No meta-analysis

Risk of bias (quality) assessment [1 change]

The PRISMA methodology will be followed, there will be two reviewers, in case of disagreement or a third party will decide. To avoid bias, original articles, meta-analyses, systematic reviews, brief/short communication and case reports will be reviewed. Articles available in full text. Articles submitted to peer review. Articles that measure any of the following values and/or effects: level of burnout, level of depression, level of stress and level of anxiety, number of cases of professionals with depression, stress and/or anxiety, comparison of levels before vs. the COVID-19 pandemic and comparison by country/type of profession/service

Strategy for data synthesis [1 change]

The results of the selected studies will be detailed, analyzing the impact on the psychological distress of health workers who provided care to patients during Covid-19. For it, levels of stress, depression and anxiety in the selected studies, the quality of the works will also be evaluated using the Joanna Briggs Institute (JBI) critical evaluation tools for non-randomized studies at the University of Adelaide, qualitative and quantitative works will be reviewed, prevalences will be taken into account, measures association of studies using qualitative synthesis methods data. Meta-analysis will not be performed

Analysis of subgroups or subsets

None planned.

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Type and method of review [1 change]

Epidemiologic, Systematic review

Anticipated or actual start date

18 May 2022

Anticipated completion date [2 changes]

28 February 2023

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Conflicts of interest

Language

English

Country

Ecuador

Stage of review [1 change]

Review Completed published

Details of final report/publication(s) or preprints if available [1 change]

Arias-Ulloa CA, Gómez-Salgado J, Escobar-Segovia K, García-Iglesias JJ, Fagundo-Rivera J, Ruiz-Frutos C. Psychological distress in healthcare workers during COVID-19 pandemic: A systematic review. J Safety Res [Internet]. 2023; Disponible en: <https://www.ScienceDirect.com/science/article/pii/S0022437523001019>

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Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Attitude of Health Personnel; COVID-19; Delivery of Health Care; Health Personnel; Humans; Mental Disorders; Mental Health; Occupational Health; Occupational Stress; Pandemics; Psychological Distress; SARS-CoV-2

Date of registration in PROSPERO

08 July 2022

Date of first submission

04 July 2022

Stage of review at time of this submission [1 change]

Stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Revision note

The paper has been published in the Journal Safety Research since August 7, 2023

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

08 July 2022

15 November 2022

18 September 2023

GLOSARIO DE ACRÓNIMOS

aPR	Razón de prevalencia ajustada
AUDIT-C	Prueba concisa de identificación del trastorno por consumo de alcohol
Brief-COPE	Inventario de orientación del afrontamiento ante problemas experimentados
BSI-18	Inventario Breve de Síntomas - 18
CD-RISC-10	Escala de resiliencia de Connor-Davidson de 10 ítems
CHAID	<i>Chi-squared Automatic Interaction Detection</i>
CI	Intervalo de Confianza.
CINAHL	<i>Cumulative Index of Nursing and Allied Literature Complete</i>
DASS-21	Escala de Depresión, Ansiedad y Estrés-21 o <i>Depression Anxiety and Stress Scale-21</i>
DSM-5	<i>Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition</i>
EMIS-M	Escala de Expresiones de Daño Moral - Versión Militar
FCHVs	Voluntarios de salud de comunidades femeninas
FHCW	Trabajadores de la salud de primera línea
GAD-7	Escala de Trastorno de Ansiedad Generalizada
GHQ	Cuestionario de Salud General o <i>General Health Questionnaire</i> - ítems
HCWs	Trabajadores de la salud o <i>HealthCare Workers</i>
IES-R	Escala de Impacto de Eventos-Revisada o <i>Impact of Events Scale-Revised</i>
IPSIICO	Encuesta de 104 ítems Impacto Psicológico COVID-19 en Obstetricia
ISI-7	Índice de Severidad del Insomnio
JB1	Joanna Briggs Institute para revisiones sistemáticas
JCR	<i>Journal Citation Reports</i> (Factor de Impacto)
K10/K6	Escala de Angustia Psicológica de Kessler
MeSH	Descriptores en ciencias de la salud o <i>Medical Subject Headings</i>
MSPSS	Escala Multidimensional de Apoyo Social Percibido
OHWQ	Cuestionario de Salud y Bienestar Ocupacional
OR	<i>Razón de probabilidades</i>
PC-PTSD-5	Evaluación de PTSD de Atención Primaria para DSM-5
PD	Malestar psicológico o <i>Psychological Distress</i> .
PHQ	Cuestionario de Salud del Paciente o <i>Patient Health Questionnaire</i>
PICOT	Estrategia de investigación (Población, Intervención, Comparación, Outcomes/resultados, Tiempo)
PR	Razones de prevalencia
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
PROSPERO	International Prospective Register for Systematic Reviews
PS-ICU	Escala de percepción de factores estresantes en la UCI
PSQI	índice de calidad del sueño de Pittsburgh
PSS-10	Escala de Estrés Percibido
SASRQOMS	Cuestionario de reacción al estrés agudo de Stanford
SCCI	JCR Social Sciences Edition
SCSQ	Cuestionario de estilo de afrontamiento simplificado - ítems
SD	Desviación estándar
SIMPAQ	Cuestionario simple de actividad física
SOC	Sentido de coherencia o <i>Sense of Coherence</i>
SSS	Escala de Autoevaluación Somática
TEA	Trastorno de estrés agudo
TEPT	Trastorno de estrés postraumático
TS	Trabajadores de la salud
UCI	Unidad de Cuidados Intensivos
UWES-9	Escala <i>Utrecht Work Engagement Scale</i>
WE	Compromiso laboral o <i>Work Engagement</i>