Prevalence and risk factors of depression and anxiety in frontline healthcare workers in the COVID-19 pandemic in Bucaramanga and its metropolitan area

Prevalencia y factores de riesgo de depresión y ansiedad en trabajadores de salud de primera línea en la pandemia de COVID-19 en Bucaramanga y su área metropolitana

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Abstract

Introduction: The rapid spread of the SARS-CoV-2 virus worldwide has created a health emergency leading to overloading health systems and exposing the personnel who work in these health institutions to stressors that impact their physical and emotional health. Available information on conditions caused by viral outbreaks and previous pandemics indicates that healthcare workers and others on the front lines are at increased risk of infection and various adverse outcomes. **Objective:** To establish the prevalence of anxiety and depression symptoms and associated factors in frontline care workers during the COVID-19 pandemic in Bucaramanga and its Metropolitan Area, Santander, Colombia. **Methods:** Analytical cross-sectional study. The outcomes were symptoms of anxiety and depression assessed with the Hopkins Checklist-25 Scale (HSCL-25) questionnaire. The prevalence of anxiety and depression symptoms was calculated, and bivariate and multivariate analyses were performed using logistic regression. **Results:** A total of 1118 participants were included. The prevalence of anxiety symptoms was 5.55% (95% CI 4.27-7.05), depression 4.56% (95% CI 3.41-5.95), and both 7.42% (95% CI 5.95-9.12). In the bivariate analysis, seven factors were associated with symptoms of anxiety and depression, however, only four of them remained in the multivariate model: marital status OR: 2.65 (95% CI 1.17-5.98); obesity (OR: 3.21, 95% CI 1.67-6.17); "someone in your household has been diagnosed with COVID-19" (OR: 2.28, 95% CI 1.39-3.76) and "has

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symptoms of COVID-19 in the last 14 days" (OR: 2.09, 95% CI 1.25-3.50). **Conclusions:** The prevalence of symptoms of anxiety and depression was lower than that reported in other studies. However, it is important to continue taking these symptoms into account and, as necessary, conduct an intervention with psychological support programs by mental health specialists.

Keywords: Anxiety; COVID-19; Depression; Prevalence; Risk factors; SARS-CoV-2.

Resumen

Introducción: la rápida diseminación del virus SARS-CoV-2 a nivel mundial ha creado una emergencia sanitaria llevando a sobrecargar los sistemas de salud, exponiendo al personal que labora en estas instituciones de salud a factores estresores que impactan en su salud física y emocional. La información disponible sobre las afecciones ocasionadas por los brotes virales y pandemias previas indican que los trabajadores del área de la salud y otros de atención en primera línea se exponen a un mayor riesgo de infección y a distintos desenlaces adversos. **Objetivo:** establecer la prevalencia de síntomas de ansiedad, depresión y factores asociados en trabajadores de atención de primera línea durante la pandemia de COVID-19 en Bucaramanga y su Área Metropolitana, Santander, Colombia. **Métodos:** estudio transversal analítico. Los resultados fueron síntomas de ansiedad y depresión evaluados con el cuestionario Hopkins Checklist-25 (HSCL-25). Se calculó la prevalencia de síntomas de ansiedad y depresión y se realizaron análisis bivariados y multivariados mediante regresión logística. **Resultados:** se incluyeron 1118 participantes. La prevalencia de síntomas de ansiedad fue 5,55 % (IC 95 % 4,27-7,05), depresión 4,56 % (IC 95 % 3,41-5,95) y ambos 7,42 % (IC 95 % 5,95-9,12). En el análisis bivariado se asociaron 7 factores con síntomas de ansiedad y depresión, sin embargo, solo 4 de ellos permanecieron en el modelo multivariado: estado civil, OR: 2,65 (IC 95 % 1,17-5,98); obesidad, OR: 3,21 (IC 95 % 1,67-6,17); "alguien en su hogar ha sido diagnosticado con COVID-19", OR: 2,28 (IC 95 % 1,39-3,76) y "tiene síntomas de COVID-19 en los últimos 14 días", OR: 2,09 (IC 95 % 1,25-3,50). **Conclusiones:** la prevalencia de síntomas de ansiedad y depresión fue menor a la reportada en otros estudios. Sin embargo, es importante seguir teniendo en cuenta estos síntomas, y en caso necesario, realizar una intervención con programas de apoyo psicológico por parte de especialistas en salud mental.

Palabras clave: Ansiedad; COVID-19; Depresión; Prevalencia; Factores de riesgo; SARS-CoV-2.

Introduction

The evolution of the human lifestyle towards the establishment of settlements and the beginning of prolonged coexistence with domestic animals has favored the appearance of zoonotic diseases, leaving people exposed to acquiring infectious diseases from other species that otherwise would not affect humans. Sometimes these diseases have reached such an accelerated propagation speed affecting the population worldwide[1]. The first pandemic of which there are historical records is that of Athens in 425 BC, and since then, humanity has faced multiple pandemics with social and economic effects[2]. Since 2,000, there have been outbreaks of viral diseases such as SARS, MERS, H1NQ, H7N9, and Ebola[2]. The most recent was caused by the SARS-CoV-2 virus, which was declared on March 11, 2020, by the World Health Organization as a pandemic[3].

Consequently, the rapid spread of this virus worldwide has generated an emergency, overloading health systems and exposing people who work in these institutions to stressors that affect their physical and emotional health[4]. In the context of the COVID-19 pandemic, a critical focal point of concern revolves around the well-being of healthcare workers, who stand as the primary agents in managing and mitigating the crisis. While the pandemic's global implications are widely acknowledged, it is imperative to distinctly address the challenges specific to this group. This article squarely centers on the mental health challenges faced by frontline healthcare professionals. From escalated workloads and emotional stressors to inadequate resources and information overload, this study seeks to dissect the prevalence of anxiety and depression symptoms among these healthcare providers. By conducting such an analysis, we aim to not only underscore the urgency for tailored mental health interventions within this demographic but also to recognize the pivotal role they play in upholding public health, warranting a focused and empirical exploration of their unique challenges[5].

During the development of COVID-19, the increase in workload, emotional overload, demanding work hours, an insufficient supply of personal protective equipment,

overexposure to information disseminated in the media, elevated tension, and uncertainty, feeling inadequate support from their employers, staying isolated from their relatives for fear of infecting them and lack of social support have been contributing factors for a healthcare worker to have a higher prevalence of mental health diseases derived from professional practice during the current pandemic[6-8]. In this group of workers, facing high levels of stress increases the incidence of anxiety and depression, psychoactive drug consumption, posttraumatic stress cases, and suicidal thoughts also reduces job satisfaction, concentration, decision-making skills, effective communication, and the appearance of suicidal thoughts and ideas[9].

Accordingly, the objective of this study was to establish the prevalence of anxiety and depression symptoms and associated factors in frontline care workers during the COVID-19 pandemic in Bucaramanga and its Metropolitan area. This information will allow us to compare our prevalence and factors associated with symptoms of anxiety and depression with the records available in the literature from other medical centers. Likewise, this study will be favorable to define and support the need for mental health interventions in this population, to counteract the impact of these pathologies in their personal and professional lives.

Materials and methods

An analytical cross-sectional study was carried out in eight health care institutions in Bucaramanga and its Metropolitan area, Santander, Colombia, between March and April 2021 (the beginning of the second wave of the COVID-19 pandemic). Health professionals and workers from other areas aged ≥ 18 years, who were working in the frontline of care for patients diagnosed with COVID-19 or those at high risk of exposure to the virus, were included in this study.

This is an analysis of secondary data from a previously published study. A convenience sampling was carried out. Initially, a formal invitation to participate in the study was made to health-providing institutions that granted care to patients with COVID-19. Upon receiving an acceptance response from each of the medical centers, they were subsequently asked for a list of the workers with significant exposure to SARS-CoV-2 with their respective emails. The invitation to participate in this study was made through the electronic medium above mentioned. There was also the support of the coordinators of each institution who spread the information. The message sent contained an informative poster with a general description of the study and a link to electronically fill out the informed consent and the information collection form on the REDCap platform. At the end of the completion, the participant could obtain a copy of the signed informed consent and a unique code that identified him at the time of attending the health institutions for antibody testing and polymerase chain reaction (PCR) test for COVID-19. The data collection format included sociodemographic characteristics, personal history, symptomatology, exposure, and aspects related to mental health.

The dependent variable included symptoms of anxiety and depression; it was evaluated with the Hopkins Checklist-25 Scale (HSCL-25) questionnaire. The HSCL-25 is a short version of the Hopkins Symptom Checklist-58 scale. It is made up of 25 self-reported items that are scored using a 4-point Likert-type scale where 1 "not at all"; 2 "A little"; 3 "Quite a bit"; and 4 "A lot". The HSCL-25 scale groups the items into two dimensions: items 1 to 10 explore anxiety symptoms, and items 11 to 25 depression symptoms[10]. The final score results from dividing the sum of the score of each item by 25 (total items) and a cut-off point ≥ 1.75 is established as a suspected diagnosis of anxiety/depression or both. Likewise, and with the same cut-off point, it is calculated independently for anxiety and depression, dividing by 10 and 15 (items), respectively. The scale has adequate psychometric properties for its use[11].

A descriptive analysis was performed. The continuous variables did not present a normal distribution with the Shapiro-Wilk test. Therefore, the median was assigned to the first and third quartiles, and the categorical ones were described with absolute and relative values. The prevalence of anxiety and depression symptoms was calculated with their respective 95% confidence intervals (CI). Anxiety and depression symptoms were analyzed dichotomously (no/yes). A bivariate analysis was performed using logistic regressions. Variables with p-values less than 0.20 were included in the multivariate model. A manual Backward Stepwise Regression was used, and those with a p-value <0.05 were kept in the model. Finally, the Goodness of Fit test for the logistic regression model was evaluated with the Hosmer-Lemeshow test. Data were analyzed using STATA version 15.0 statistical software.

Results

A total of 1,118 participants were analyzed. The median age was 33 years (Q1=27; Q3=41), 75.20% were women, 56.62% belonged to the middle class, and they were

mainly residents of the municipalities of Bucaramanga (42.58%) and Floridablanca (34.70%), 48.30% of their marital status was single, and 46.87% were married or lived in a free union; 50% of the participants lived with three or more people. At that moment of the interview, 21.08% of the participants reported that someone in their household had been diagnosed with COVID-19. 20.21% had at least one comorbidity, the most prevalent being obesity (6.89%), succeeded by high blood pressure (4.92%), among others. In the last 14 days, 17.44% had symptoms of COVID-19, 4.56% had positive IgM and IgG antibodies against COVID-19, and only 1.34% had a positive PCR test. 57.51% had the COVID-19 vaccine: 56.30% and 43.70% first and second doses, respectively Table 1.

Regarding work characteristics, four institutions contributed more than 150 participants. 64.67% labored in private centers; 73.39% worked in healthcare areas; 77.64% had a co-worker diagnosed with COVID-19; 19.59% had shared the same break room with co-workers without face masks less than a meter away for more than 15 minutes, and 37.92% had shared the same meal room with colleague less than a meter away (Table 2).

Table 1. Sociodemographic characteristics and personal history of the participants (n=1118).

Characteristics	n (%)
Sex	
Women	840 (75.20)
Men	277 (24.80)
Age (years)*	33 (Q1=27; Q3=41)
18-27	306 (27.39)
28-33	254 (22.74)
34-41	283 (25.34)
>42	274 (24.53)
Socioeconomic status	
Low	360 (32.88)
Middle	620 (56.62)
High	115 (10.50)
Municipality of residence	
Bucaramanga	476 (42.58)
Floridablanca	388 (34.70)
Girón	121 (10.82)
Piedecuesta	118 (10.55)
Rionegro/Lebrija	15 (1.34)
Education	
Doesn't have baccalaureate/Complete baccalaureate	82 (7.33)
Incomplete Technician/ Complete	411 (36.76)
Incomplete university/Complete	367 (32.83)
Incomplete postgraduate degree/Complete	258 (23.08)
Marital status	
Single	540 (48.30)
Married or free union	524 (46.87)
Separated, divorced or widower	54 (4.83)

Continued Table 1.

Characteristics	n (%)
Number of people do you live with*	3 (Q1=2; Q3=4)
Has anyone in your household been diagnosed with COVID-19?	231 (21.08)
Comorbidities	
Obesity	77 (6.89)
High blood pressure	55 (4.92)
COPD/Asthma	49 (4.38)
Hypothyroidism	49 (4.38)
Diabetes mellitus	20 (1.79)
Autoimmune disorders	14 (1.25)
Dyslipidemia	13 (1.16)
Heart disease	9 (0.81)
Cancer	4 (0.36)
HIV/AIDS	2 (0.18)
Kidney disease	2 (0.18)
At least one comorbidity	
Yes	226 (20.21)
No	892 (79.79)
Symptoms of COVID-19 in the last 14 days	
Yes	195 (17.44)
No	923 (82.56)
Antibodies against COVID-19	
IgM (+) / IgG (+)	51 (4.56)
IgM (+) / IgG (-)	172 (15.38)
IgM (-) / IgG (+)	154 (13.77)
IgM (-) / IgG (-)	741 (66.28)
A positive PCR test for COVID-19	15 (1.34)
COVID-19 vaccines	
Yes	643 (57.51)
No	475 (42.49)
COVID-19 vaccine dose received	
First	362 (56.30)
Second	281 (43.70)

*Median (1st and 3rd quartile); COPD = Chronic obstructive pulmonary disease

Table 2. Labor characteristics of the participants (n=1,118).

Characteristics	n (%)
Healthcare institution	
A	212 (18.96)
B	206 (18.43)
C	197 (17.62)
D	172 (15.38)
E	132 (11.81)
F	108 (9.66)
G	69 (6.17)
H	22 (1.97)
Type of healthcare institution	
Private	723 (64.67)
Public	395 (35.33)
Working area	
Health care	825 (73.79)
Administrative staff	220 (19.68)
Different trades (cleaning area, security area, maintenance area)	73 (6.53)
Has a co-worker been diagnosed with COVID-19?	
Yes	868 (77.64)
No/Do not know	250 (22.36)
Have you shared the same break room with co-workers without a mask and less than 1 meter apart for more than 15 minutes?	
Yes	219 (19.59)
No	899 (80.41)
Have you shared the same eating room with co-workers less than 1 meter away?	
Yes	424 (37.92)
No	694 (62.08)

The prevalence of anxiety symptoms was 5.55% (n=62) (95% CI 4.27 - 7.05%), depression symptoms was 4.56% (n=51) (95% CI 3.41 - 5.95%) and the global prevalence was 7.42% (n=83) (95% CI 5.95 - 9.12%) (Figure 1).

In the bivariate analysis, seven factors were associated with symptoms of anxiety and depression (Table 3). However, only four of them remained in the multivariate model: separated, divorced, or widowed marital status vs. single Odds Ratio (OR) of 2.65 95% CI 1.17 - 5.98, p=0.019, obesity OR: 3.21 (95% CI 1.67 - 6.17; p=0.000), someone in your household has been diagnosed with COVID-19 OR: 2.28 (95% CI 1.39 - 3.76; p=0.001) and symptoms of COVID-19 in the last 14 days OR: 2.09 (95% CI 1.25 - 3.50; p=0.005) (Table 4). The model had adequate Goodness of Fit (p=0.267).

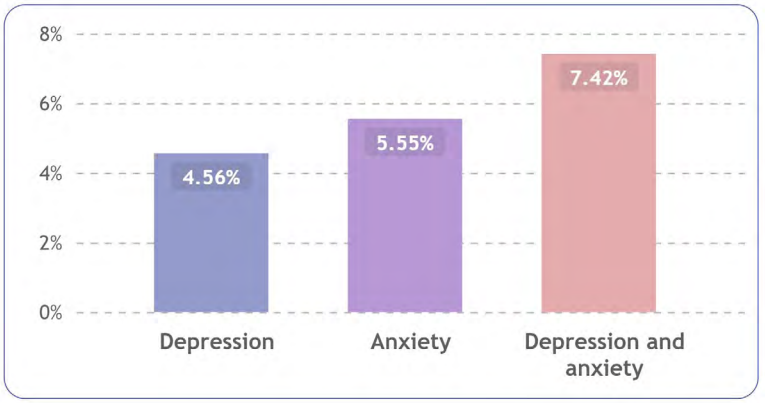

Figure 1. A bar graph plotting the percentage of healthcare workers with symptoms of depression and anxiety. Significantly more people have mixed symptoms.

Table 3. Factors associated with symptoms of anxiety and depression, bivariate analysis (n=1118).

Characteristics	OR	CI 95%	P-value*
Sex			
Men	Reference		
Women	1.85	1.01 - 3.39	0.048
Age (years)*			
18-27	Reference		
28-33	1.12	0.63 - 2.01	0.694
34-41	0.86	0.47 - 1.57	0.630
>42	0.49	0.24 - 0.99	0.049
Socioeconomic status			
Low	Reference		
Middle	1.25	0.76 - 2.08	0.377
High	0.64	0.24 - 1.71	0.370
Education			
Doesn't have baccalaureate/Complete baccalaureate	Reference		
Incomplete Technician/ Complete	0.99	0.40 - 2.48	0.995
Incomplete university/ Complete	1.17	0.47 - 2.90	0.737
Incomplete postgraduate degree/Complete	0.84	0.32 - 2.21	0.721
Marital status			
Single	Reference		
Married or free union	0.82	0.51 - 1.31	0.407
Separated, divorced or widower	2.43	1.11 - 5.33	0.026
Number of people do you live with	1.09	0.95 - 1.24	0.203
Has anyone in your household been diagnosed with COVID-19?			
No	Reference		
Yes	2.16	1.33 - 3.50	0.002
Comorbidities			
Obesity	3.13	1.67 - 5.87	0.000
High blood pressure	0.98	0.34 - 2.77	0.965
COPD/Asthma	1.44	0.56 - 3.74	0.450
Diabetes mellitus	0.65	0.09 - 4.93	0.679
Autoimmune disorders	0.96	0.12 - 7.42	0.968
At least one comorbidity			
No	Reference		
Yes	1.68	1.02 - 2.76	0.042

Continued Table 3.

Characteristics	OR	CI 95%	P-value*
Symptoms of COVID-19 in the last 14 days			
No	Reference		
Yes	2.19	1.33 - 3.60	0.002
COVID-19 vaccines			
Yes	Reference		
No	1.22	0.78 -1.91	0.389
Types of the healthcare institution			
Private	Reference		
Public	0.87	0.54 - 1.41	0.579
Occupation			
Administrative staff	Reference		
Health care	0.80	0.46 - 1.37	0.419
Different trades (cleaning area, security area, maintenance area)	0.95	0.36 - 2.47	0.912
Healthcare professionals working in COVID-19 ICU			
No	Reference		
Yes	0.95	0.53 - 1.70	0.863
Has a co-worker been diagnosed with COVID-19?			
No/Do not know	Reference		
Yes	0.84	0.50 - 1.40	0.505
Have you shared the same break room with co-workers without a mask and less than 1 meter apart for more than 15 minutes?			
No	Reference		
Yes	1.24	0.73 - 2.11	0.431
Have you shared the same eating room with co-workers less than 1 meter away?			
No	Reference		
Yes	1.28	0.81 - 2.01	0.289

OR=Odds ratio; *P-value from a logistic regression; ICU= Intensive care units

Table 4. Factors associated with symptoms of anxiety and depression, multivariate analysis (n=1118).

Characteristics	OR	CI 95%	P-value *
Marital status			
Single	Reference		
Married or free union	0.83	0.51 - 1.36	0.466
Separated, divorced or widower	2.65	1.17 - 5.98	**0.019**
Obesity			
No	Reference		
Yes	3.21	1.67 - 6.17	**0.000**
Has anyone in your household been diagnosed with COVID-19?			
No	Reference		
Yes	2.28	1.39 - 3.76	**0.001**
Symptoms of COVID-19 in the last 14 days			
No	Reference		
Yes	2.09	1.25 - 3.50	**0.005**

OR=Odds ratio.

Discussion

In this cross-sectional study of frontline healthcare workers during the COVID-19 pandemic, we found a low prevalence of symptoms of anxiety and depression and four factors associated with it: marital status, obesity, someone in your household has been diagnosed with COVID-19 and have symptoms of COVID-19 in the last 14 days.

The prevalence of symptoms of anxiety and depression was lower than that reported in other studies. Salari et al.[12] in a meta-analysis that brought together 29 studies, reported in 23 of them the prevalence of anxiety and in 21 the presence of depression; they determined a prevalence of anxiety of 25.8% and depression of 24.3% among frontline healthcare workers who tend to patients with COVID-19. Likewise, Pappa et al. (2020)[9] in another meta-analysis showed that the prevalence of anxiety ranged between 6.3% and 87.5% in 53 studies, and depression ranged between 3.1% and 87.3% in 48 studies about health workers. Similarly, the study by Thakur & Pathak (2021)[13] in a meta-analysis that included 49 studies (41 anxiety and 39 depression) established a general prevalence of anxiety of 26.3% and depression of 25.9% among frontline and non-frontline healthcare providers, as well as in the general population. Additionally, in Spanish adults from the general population, frontline health workers, and students, a prevalence of anxiety of 20% and depression of 22% was determined[14]. The variation in prevalence could be explained by the sample size of the studies, showing an inverse relationship (the larger the size, the lower the prevalence), as demonstrated by a meta-regression[12]. Concurrently, this dissimilarity could also be explained because of the multiple instruments used to assess anxiety and depression, the population studied[9], and based on the moment of the pandemic (country, year, waves, and others).

About the associated factors, in our study, the separated, divorced, or widowed marital status compared to singles was associated with a higher frequency of anxious and depressive symptoms. Contrary to those described by Oginni et al.[15] who found no association when they compared the same categories of marital status with symptoms of depression and anxiety related to COVID-19 in a population sample of Nigerians. However, Gutiérrez-Rojas et al.[16] in a systematic review of 29 studies found in 26 that major depressive disorders were associated with separated or divorced marital status compared to married in the adult population at the community level.

We have found an association between obesity and symptoms of anxiety and depression. Obesity and depression are common conditions that tend to develop simultaneously and maintain a bidirectional relationship. The responsible mechanisms are the different biological pathways such as genetics and brain circuits that integrate homeostatic regulatory responses and mood[17]. Moreover, peripheral inflammation, hormonal dysregulation, and genetic deficiency have been documented to play a role in the comorbidity of obesity and mental disorders[18]. During the COVID-19 pandemic, it was possible to show that obesity was a risk factor for developing a severe coronavirus disease[19]. The previously mentioned was generally known among health personnel and the community, which could have influenced the fact that participants with this condition presented a higher frequency of symptoms of anxiety and depression, almost three times higher than people without obesity.

In the present study, having symptoms of COVID-19 in the last 14 days was associated with symptoms of anxiety and depression, a finding consistent with that found in other studies. In the research by Chen et al.[20] health workers who had respiratory symptoms in the last few weeks were almost twice as likely to have anxiety as people without respiratory symptoms (OR: 1.89 95% CI 1.21 - 2.94). It was similar for depression (OR: 1.87; 95% CI 1.20-2.90). Zhong et al.[21] found that the presence of symptoms of SARS-CoV-2 infection was associated with anxiety (OR: 1.40; 95% CI 1.16-1.68). Likewise, it was found that having a household member diagnosed with COVID-19 was associated with symptoms of anxiety and depression. Similar information was reported by Oginni et al.[15] who in a multivariate analysis found an association between concern about the spread of COVID-19 in relatives and depression (β=0.38; 95% CI 0.22 to 0.54); while no association was found with anxiety (β=0.10; 95% CI -0.18 to 0.37).

One of the strengths of this research is the sample size. Until now, it is one of the largest samples of frontline health workers for COVID-19 exploring mental disorders in Colombia. Additionally, this population is diverse, including care and non-care staff (healthcare, administrative, and several trades personnel), while most studies have focused on frontline health workers. Within the limitations, we can recognize that the sample was selected non-probabilistic, which could have introduced selection bias; we controlled it by involving eight institutions from Bucaramanga and its metropolitan area and with a large sample size.

In addition, we have used an instrument that is little known and utilized concerning others that measure the same event (anxiety and depression) which may have introduced a non-differential detection bias. However, we have previously evaluated some psychometric properties that were within our reach, such as internal consistency and construct validity in the same sample, showing results that are very suitable for use (Unpublished data. Article in process of publication). Finally, since this was a secondary analysis, labor aspects that would have been interesting to evaluate as risk factors were left unmeasured.

Conclusions

This study indicates that during the start of the second wave of the COVID-19 pandemic in Bucaramanga and its metropolitan area, the prevalence of symptoms of anxiety and depression was lower than that reported in other studies. However, it is necessary to consider it and, where possible, intervene with psychological support programs by mental health specialists. Likewise, it is relevant to increase surveillance of these symptoms in people with a separated, divorced, or widowed marital status, with obesity problems, those who live with people previously diagnosed with COVID-19, or individuals with active signs and symptoms of SARS-CoV-2. Follow-up studies are suggested; they can evaluate the dynamics of anxiety and depression symptoms during the pandemic, which allows for assessing their persistence or resolution.

Author contributions

Conceptualization: Loren Katiana Flórez, Lyda Z. Rojas, Norma C. Serrano and Doris Cristina Quintero-Lesmes. Methodology: Lyda Z. Rojas. Software and validation: Isail Salazar-Acosta and Diana Paola Suárez. Formal análisis: Lyda Z. Rojas. Investigation: Norma C. Serrano and Doris Cristina Quintero-Lesmes. Writing (Original draft preparation): Loren Katiana Flórez, Lida Z. Rojas and Doris Cristina Quintero-Lesmes. Writing (Review and editing): Loren Katina Flórez, Lida Z. Rojas, Claudia M. Serrrano, Norma Cecilia Serrano and Doris Cristina Quintero-Lesmes. Supervision: Norma C. Serrano. Project administration: Norma Cecilia Serrano and Doris Cristina Quintero-Lesmes. All authors have read and agreed to the published version of the manuscript.

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Ethical considerations

The study was conducted following the standards issued by the World Medical Association's Declaration of Helsinki guidance and the Research Ethics Committee (CEI) of Fundación Cardiovascular de Colombia approved this study (protocol code CEI-2020-01485, September 17, 2020).

Written informed consent was obtained directly by all participants and health institutions.

Conflicts of interest

The authors declare no conflict of interest.

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IA Technological support

The authors report that they did not use Artificial Intelligence, language models, machine learning or similar technologies to create or assist with the elaboration or editing of any of the contents of this document.

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