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Original Article

Impact on mental health during the first fifteen days of confinement by COVID-19 in Ecuador

Impacto en la salud mental durante los primeros quince días de confinamiento por COVID-19 en Ecuador

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Abstract

Introduction. During the COVID-19 pandemic, several countries began confinement due to the viral spread in the population, with various mental consequences due to this measure. **Objetive.** To determine the levels of anxiety and depression in health personnel and the general population during the first fifteen days of confinement by COVID-19 in Ecuador. **Methodology.** A cross-sectional, descriptive study was carried out. On May 10, 2020 (the first fifteen days of confinement due to COVID-19), surveys were applied based on validated questionnaires from BAI and BECK, with prior informed consent to 500 rural health professionals and the general population (126 families). for determination of anxiety and depression. Sociodemographic variables were collected, all the information was compiled in Microsoft Excel 2019. Qualitative and quantitative variables were analyzed, a bivariate and multivariate analysis was performed, parsimonious and saturated models were compared, using the plausibility test. **Results.** Information was collected from 421 people, the female gender predominated, anxiety and depression were more frequent in the general population, anxiety was found in 28,59% (n=117/421) and 27,77% (n=103/421) depression in the population, people from the coastal and eastern regions reported a lower probability of presenting depression versus the highland region. **Conclusions.** It was evidenced that anxiety symptoms were more frequent in men and depression in women. It was possible to determine that 3,8% (n=16) and 7.84% (n=33) corresponded to levels of depression and severe anxiety, respectively.

Keywords: Anxiety, Depression, COVID-19, Controlled Confinement, Concurrent Symptoms.

Resumen

Introducción. *Durante la pandemia por COVID-19, varios países iniciaron confinamiento debido a la propagación viral en la población, con varias consecuencias mentales debido a esta medida.* ***Objetivo.*** *Determinar los niveles de ansiedad y depresión en el personal de salud y población general durante los primeros quince días del confinamiento por COVID-19 en el Ecuador.* ***Metodología.*** *Se realizó un estudio transversal analítico. El 10 de mayo de 2020 (quince primeros días de confinamiento por COVID-19), se aplicaron encuestas con base a cuestionarios validados de BAI y BECK, con previo consentimiento informado a 500 profesionales de la salud rural y a población general (126 familias), para determinación de ansiedad y depresión. Se recolectaron variables sociodemográficas, toda la información fue recopilada en Microsoft Excel 2019. Se analizaron variables cualitativas y cuantitativas, se realizó un análisis bivariado y multivariado, se compararon modelos parsimoniosos y saturados, mediante el test de verosimilitud.* ***Resultados.*** *Se recolectó información de 421 personas, predominó el género femenino, la ansiedad y depresión con mayor frecuencia en población general, se encontró ansiedad en el 28,59% (n=117/421) y 27,77% (n=103/421) depresión en la población, las personas de la región costa y oriente reportaron menor probabilidad de presentar depresión versus la región sierra.* ***Conclusión.*** *Se evidenció que la sintomatología para ansiedad fue más frecuente en hombres y la depresión en mujeres. Se logró determinar que el 3,8% (n=16) y el 7,84% (n=33) correspondieron a niveles de depresión y ansiedad grave respectivamente.*

Palabras clave: *Ansiedad, Depresión, COVID-19, Confinamiento Controlado, Síntomas Concomitantes.*

Introduction

The COVID-19 disease, caused by the infection of coronavirus 2 (SARS CoV-2), which generates severe acute respiratory syndrome, was first identified in Wuhan, Hubei, China in December 2019 and declared a global pandemic by the World Health Organization (WHO) on March 11, 2020 (1). The COVID-19 pandemic has been a subject of ongoing research and uncertainties due to its complexity in development, mutations, and clinical presentation. Officially, for Ecuador, the first case of coronavirus was reported on February 29, 2020. According to reports from the National Service for Risk and Disease Management of Ecuador, 491,185 confirmed cases were reported as of August 6, 2021 (2).

Due to the rapid spread of this virus, the decision was made to enforce quarantine, generating impacts on the mental health of the population. Pre-pandemic data on psychiatric disorders according to the WHO represented over a fifth of the global burden of morbidity, with depression and alcohol consumption being its major representatives, noting that these two conditions coexist with anxiety disorders (3). Globally and regionally, negative psychological effects such as anger, confusion, post-traumatic distress were observed, as well as the perception and/or experience of a lack of supplies for confinement, infecting a family member, economic losses, unemployment, among others. All these factors constituted negative determinants leading to the disruption of mental health in patients and their families (3).

In healthcare workers, factors such as direct contact with COVID-19 patients and the experience of witnessing the death of infected patients led to the onset of anxiety, depression, frustration, fear, post-traumatic stress, and even suicide (4,5).

Anxiety and depression are two disorders that should be constantly evaluated in the population. The data found are fundamental to determining the psychological impact on those who experience them, with the aim of designing preventive and curative interventions, which are responsibilities of national and international public health importance.

The objective of this study is to determine the impact on mental health (anxiety/depression) and compare the results between healthcare personnel and the general population during the first 15 days of confinement (red alert) due to the COVID-19 pandemic in Ecuador in individuals over 15 years of age.

Methodology

A cross-sectional, analytical study was conducted. Surveys were administered on May 10, 2020, marking the first 15 days of absolute lockdown due to the red traffic light system implemented in all provinces of Ecuador since April 26, 2020. Health personnel working during this period and the general population under total confinement were surveyed. Sociodemographic data were collected, and variables were measured to determine anxiety and depression in both groups. Exclusion criteria included foreign individuals and those who denied to the informed consent for the disclosure of collected information for academic-scientific purposes.

Data Collection and Mental Health Impact Assessment.

An online survey was conducted and sent to 500 rural health professionals (doctors, nurses, midwives) from the 2019 graduating class who were working in various health units in the year 2020. Additionally, the survey was distributed to 126 students in the preparatory course at the Central University of Ecuador in clinical laboratory, obstetrics, and radiology programs. The aim was to encourage responses from family members outside the healthcare field.

At the beginning of the online survey, a declaration of informed consent was sought for the use of collected data. Demographic information, such as age, gender, marital status, education level, ethnicity, province of residence, urban or rural area, employment at the time, socioeconomic group, and occupation (healthcare personnel or general population), was collected. Participants were also asked about personal or family history of SARS-CoV-2 (COVID-19) infection, pre-COVID-19 history, the use of antidepressant and anxiolytic medications categorized as "history of mental disorders."

To determine anxiety and depression, the BAI and BECK questionnaires were employed, respectively. These questionnaires include subvariables and are coded with scores of 0 (no), 1 (mild), 2 (moderate), and a score of 3 (severe) for the presence of characteristics of these two disorders. The collected variables were compiled using Microsoft Excel 2019.

Statistical Analysis.

Dichotomous variables were described as percentages and frequencies, as well as multinomial variables, both ordinal and non-ordinal. Numeric variables with a normal distribution were described using standard deviation and mean.

For bivariate analysis, the Chi-square test was conducted to assess whether there were significant differences in the proportions of anxiety and depression among different categories of explanatory variables. When there were fewer than five observations per cell, the Fisher's exact test was applied.

For multivariate analyses, logistic regression models were employed. Saturated models were initially created, including all variables that were statistically significant with a p-value less than 0.25 during the univariate analyses. Once the saturated model was constructed, variables that were not significant according to the Wald test were sequentially excluded. Finally, parsimonious models were compared to saturated models using the likelihood ratio test.

Several sensitivity analyses were performed: (1) participants with high anxiety or depression were excluded, (2) unemployed participants were excluded, and (3) participants with COVID-19 were excluded.

Ethical Considerations.

The study was based on an online survey and adhered to the ethical principles of the Declaration of Helsinki. We acknowledge the crucial importance of approval from a human research ethics committee to conduct studies involving human participation. However, the study conducted during the peak of the pandemic did not involve any interactions that could be considered invasive or sensitive for participants. The survey questions focused on general issues, and no sensitive personal information was collected, ensuring the privacy and anonymity of the participants.

Furthermore, at that critical moment, our study aimed to inform and support urgent public health measures that could result in significant benefits for society. Despite not obtaining formal approval due to exceptional circumstances, we consistently adhered to basic principles of bioethics, including respect for autonomy, non-maleficence, beneficence, and justice.

Results

According to the conducted analysis, there was a higher frequency of women, individuals with single marital status, those with higher education, mestizo ethnicity, middle socioeconomic group, and the region with the highest number of respondents was the highlands. Most respondents resided in urban areas, were unemployed, and lived with other family members. During the survey period, 10% of respondents reported having a family member who tested positive for COVID-19, and 3% of respondents reported being infected with the disease.

Despite the lockdown, 36% of the population

reported engaging in physical exercise. This was more common among individuals classified as the general population. Regarding pre-COVID-19 history, 5.7% of the population reported having a previous diagnosis related to the use of antidepressant and anxiolytic medications categorized as "history of mental disorders."

Of the total respondents, 3.8% and 7.84% were found to have severe depression and anxiety, respectively (Table 1)

Table 1. Descriptive Data of the Analyzed Population

Variables	Categories	n	%
Sex	Woman	272	64,61
	Man	149	35,39
Age	Mean (DE) 29,7 (±11,45)		
Marital status	Single	282	66,98
	Cohabiting	27	6,41
	Married	95	22,57
	Divorced	15	3,56
	Widowed	2	0,48
Education	Basic Education	8	1,9
	High School	107	25,42
	Higher Education	306	72,68
Ethnicity	Afro-Ecuadorian	3	0,71
	White	16	3,8
	Indigenous	10	2,38
	Mestizo	384	91,21
	Other	8	1,9
Socioeconomic Group	Low	9	2,14
	Low-Middle	101	23,99
	Middle	278	66,03
	Upper-Middle	32	7,6
	High	1	0,24
Region of Residence	Coastal & Galapagos	111	26,37
	Sierra	296	70,31
	Amazon	14	3,33
Residence Area	Urban	351	83,37
	Rural	70	16,63
Employment	Unemployed	184	43,71
	Permanent Employment	125	29,69
	Unstable Employment	46	10,93
	Temporary Employment	66	15,68
Living Alone	Yes	37	8,79
	No	384	91,21
Family Members with COVID	Yes	44	10,45
	No	377	89,55
Diagnosed with COVID-19	Yes	13	3,09
	No	408	96,91
Activities at Home	Physical Exercise	152	36,1
	Musical Instruments	56	13,3
	Board/Electronic Games	93	22,09
	Meditation	6	1,43
	None	31	7,36

Source: Self-prepared

* Previous history before the COVID-19 pandemic, the use of antidepressant and anxiolytic medications categorized as "history of mental disorders"

It was found that 28.59% (n=117/421) of the analyzed population experienced anxiety. The variables, along with their respective categories, that were statistically significant concerning the presence versus absence of anxiety symptoms were gender, employment status, activities at home, pre-COVID-19 history, and the use of antidepressant and anxiolytic medications categorized as "history of mental disorders." The presence of symptoms was more predominant in men, unemployed individuals, those not engaging in physical activity, the general population, and individuals without a history of previous mental disorders (Table 2).

Table 2. Inferential Analysis Data for Anxiety

Variables	Categories	Presencia de síntomas de ansiedad (%)	Ausencia de síntomas de ansiedad (%)	p-valor
Sex	Woman	27 (18,12)	122 (81,88)	p-valor <0,01
	Man	90 (33,09)	182 (66,91)	
Age		Media (DE) 28,59 (±10,60)	Media (DE) 30,13 (±11,75)	
Marital status	Single	84 (29,79)	198 (70,21)	0,10
	Cohabiting	6 (22,22)	21 (77,78)	
	Married	21 (22,11)	74 (77,89)	
	Divorced	4 (26,67)	11 (73,33)	
	Widowed	2 (100)	0 (0)	
Education	Basic Education	6 (75,00)	2 (25,00)	0,12
	High School	30 (28,04)	77 (71,96)	
	Higher Education	81 (26,46)	225 (73,53)	
Ethnicity	Afro-Ecuadorian	1 (33,33)	2 (66,67)	0,12
	White	1 (6,25)	15 (93,75)	
	Indigenous	5 (50)	5 (50)	
	Mestizo	109 (28,39)	275 (71,61)	
	Other	1 (12,50)	7 (87,50)	
Socioeconomic Group	Low	1 (11,11)	8 (88,89)	0,07
	Low-Middle	32 (31,68)	69 (68,32)	
	Middle	79 (28,42)	199 (71,58)	
	Upper-Middle	4 (12,50)	28 (87,50)	
	High	1 (100)	0 (0)	
Region of Residence	Coastal & Galapagos	28 (25,23)	83 (74,77)	
	Sierra	87 (29,39)	209 (70,61)	
	Amazon	2 (14,29)	12 (85,71)	
Residence Area	Urban	93 (26,50)	258 (73,50)	0,18
	Rural	24 (34,29)	46 (65,71)	
Employment	Unemployed	62 (33,70)	122 (66,30)	0,02
	Permanent Employment	26 (20,80)	99 (79,20)	
	Unstable Employment	8 (17,39)	38 (82,61)	
	Temporary Employment	21 (31,82)	45 (68,18)	
Living Alone	Yes	11 (29,73)	26 (70,27)	0,78
	No	106 (27,60)	278 (72,40)	
Family Members with COVID	Yes	15 (34,09)	29 (65,91)	0,32
	No	102 (27,06)	275 (72,94)	
Diagnosed with COVID-19	Yes	6 (46,15)	7 (53,85)	0,13
	No	111 (27,21)	297 (72,79)	
Activities at Home	**Physical Exercise**	**35 (23,03)**	**117 (76,97)**	**p-valor <0,01**
	Musical Instruments	20 (35,71)	36 (64,29)	
	Board/Electronic Games	25 (26,88)	68 (73,12)	
	Meditation	2 (33,33)	4 (66,67)	
	None	17 (54,84)	14 (45,16)	
	Others	18 (21,69)	65 (78,31)	
Occupation	General Population	83 (27,21)	222 (72,79)	0,06
	Healthcare Personnel	34 (29,31)	82 (70,69)	
Mental Health History*	Yes	16 (66,67)	8 (33,33)	p-valor <0,01
	No	101 (25,44)	296 (74,56)	

Source: Self-prepared

* Previous history before the COVID-19 pandemic, the use of antidepressant and anxiolytic medications categorized as "history of mental disorders."

It was found that 27.77% (n=103/421) of the analyzed population experienced depression. According to the analysis conducted among the population with the presence versus absence of depression symptoms, statistically significant variables included gender, place of residence, activities during confinement, and previous mental disorders. The presence of depression symptoms was more predominant in women, individuals residing in urban areas, those engaging in physical exercise, and individuals without previous history related to pre-COVID-19, the use of antidepressant and anxiolytic medications categorized as "history of mental disorders" (Table 3).

Table 3. Inferential Analysis Data for Depression

Variables	Categories	Presencia de síntomas de depresión (%)	Ausencia de síntomas de depresión (%)	p-valor
Sex	Woman	76 (27,94)	196 (72,06)	0,02
	Man	27 (18,12)	122 (91,99)	
Age		Media (DE) 27,77 (±10,36)	Media (DE) 30,33 (±11,73)	
Marital status	Single	79 (28,01)	203 (71,99)	0,08
	Cohabiting	3 (11,11)	24 (88,89)	
	Married	16 (16,84)	79 (83,16)	
	Divorced	4 (26,67)	11 (73,33)	
	Widowed	1 (50)	1 (50)	
Education	Basic Education	4 (50)	4 (50)	0,23
	High School	25 (23,36)	82 (76,64)	
	Higher Education	74 (24,18)	232 (75,82)	
Ethnicity	Afro-Ecuadorian	1 (33,33)	2 (66,67)	0,49
	White	2 (12,50)	14 (87,50)	
	Indigenous	4 (40)	6 (60)	
	Mestizo	93 (24,22)	291 (75,78)	
	Other	3 (37,50)	5 (62,50)	
Socioeconomic Group	Low	3 (33,33)	6 (66,67)	0,10
	Low-Middle	34 (33,66)	67 (66,34)	
	Middle	61 (21,94)	217 (78,06)	
	Upper-Middle	5 (15,63)	27 (84,38)	
	High	0 (0)	1 (100)	
Region of Residence	Coastal & Galapagos	17 (15,32)	94 (84,68)	
	Sierra	85 (28,72)	211 (71,28)	
	Amazon	1 (7,14)	13 (92,86)	
Residence Area	Urban	77 (21,94)	274 (78,06)	p-valor <0,01
	Rural	26 (37,14)	44 (62,86)	
Employment	Unemployed	55 (29,89)	129 (70,11)	0,15
	Permanent Employment	25 (20)	100 (80)	
	Unstable Employment	9 (19,57)	37 (80,43)	
	Temporary Employment	14 (21,21)	52 (78,79)	
Living Alone	Yes	9 (24,32)	28 (75,68)	0,98
	No	94 (24,48)	290 (75,52)	
Family Members with COVID	Yes	13 (29,55)	31 (70,45)	0,40
	No	90 (23,87)	287 (76,13)	
Diagnosed with COVID-19	Yes	5 (38,46)	8 (61,54)	0,23
	No	98 (24,02)	310 (75,98)	
Activities at Home	**Physical Exercise**	**36 (23,68)**	**116 (76,32)**	**0,01**
	Musical Instruments	13 (23,21)	43 (76,79)	
	Board/Electronic Games	19 (20,43)	74 (79,57)	
	Meditation	2 (33,33)	4 (66,67)	
	None	16 (51,61)	15 (48,39)	
	Others	17 (20,48)	66 (79,52)	
Occupation	General Population	74 (24,26)	231 (75,74)	0,875
	Healthcare Personnel	29 (25)	87 (75)	
Mental Health History*	Yes	14 (58,33)	10 (41,67)	p-valor <0,01
	No	89 (22,42)	308 (77,58)	

Source: Self-prepared

* Previous history before the COVID-19 pandemic, the use of antidepressant and anxiolytic medications categorized as "history of mental disorders"

After conducting multivariate logistic regression analyses to estimate the odds ratios of experiencing anxiety (Table 4), it was observed that women had a higher likelihood of developing anxiety (aOR=2.67, 95% CI: 1.59 to 4.50) compared to men. There were also differences in the likelihood of developing anxiety based on ethnicity. Specifically, considering the mestizo group as the reference, indigenous and Afro-descendant individuals had a higher likelihood of experiencing anxiety (aOR=3.52, 95% CI: 0.95 to 13.01; and aOR=1.43, 95% CI: 0.12 to 16.85, respectively). However, these associations were not statistically significant. On the other hand, belonging to the white ethnicity was associated with a lower probability of having anxiety compared to mestizos (aOR=0.11, 95% CI: 0.01 to 0.97). Finally, it was found that having no pre-COVID-19 history, the use of antidepressant and anxiolytic medications categorized as "history of mental disorders" was associated with a lower likelihood of anxiety (95% CI: 0.04 to 0.3).

In Table 5, the results of the multivariate analyses and odds ratio estimates for experiencing depression are presented. It was found that female gender was associated with a higher frequency of depression (aOR=1.89, 95% CI: 1.11 to 3.22). Additionally, having a pre-COVID-19 history and the use of antidepressant and anxiolytic medications categorized as a "history of mental disorders" were associated with a higher prevalence of depression (aOR=3.56, 95% CI: 0.67 to 0.40). On the other hand, being married or in a domestic partnership was associated with a lower probability of depression compared to other marital statuses, such as widowed or divorced (aOR=0.43, 95% CI: 0.24 to 0.77). Similarly, middle and lower-middle socioeconomic statuses had a lower likelihood of depression compared to the high socioeconomic level (aOR=0.32, 95% CI: 0.10 to 0.97; and aOR=0.48, 95% CI: 0.28 to 0.81, respectively). Finally, individuals living in the coastal and eastern regions, when compared to those residing in the highlands, had lower chances of experiencing depression (aOR=0.49, 95% CI: 0.26 to 0.90; and aOR=0.19, 95% CI: 0.24 to 1.56).

Table 4. Crude and adjusted Odds Ratios for developing anxiety for each explanatory variable, estimated by logistic regression models.

Variables ANXIETY	Crude HRs (95% CI)	P Value	Adjusted HRs (95% CI)			
			Saturated model	P value	Parsimonious model	P value
Female (male is the reference)	2,23 (1,37 to 3,64)	p-valor <0,01	2,41 (1,40 to 4,15)	p-valor <0,01	2,67 (1,59 to 4,50)	p-valor <0,01
Age (for each year of increase)	0,99 (0,97 to 1,00)	0,21	1,00 (0,98 to 1,03)	0,72	-	-
Marital status						
Single, divorced (reference)	1	-	1	-	-	-
Married - Common-law union	0,66 (0,40 to 1,08)	0,09	0,70 (0,37 to 1,32)	0,27	-	-
Education						
Higher education (lower education is the reference)	0,79 (0,49 to 1,26)	0,32	0,90 (0,511 to 1,59)	0,71	-	-
Ethnicity						
Mestizo (reference)	1	-	1	-	1	-
White	0,17 (0,02 to 1,29)	0,08	0,099 (0,008 to 1,26)	0,07	0,11 (0,01 to 0,97)	0,04
Indigenous	2,52 (0,72 to 8,89)	0,15	2,81 (0,72 to 11,06)	0,13	3,52 (0,95 to 13,01)	0,05
Afro-Ecuadorian	1,26 (0,11 to 14,05)	0,85	1,90 (0,16 to 22,72)	0,61	1,43 (0,12 to 16,85)	0,77
Other	0,36 (0,04 to 2,96)	0,34	0,34 (0,04 to 2,93)	0,32	0,34 (0,04 to 2,80)	0,33
Socioeconomic group						
High stratum (reference)	1	-	1	-	-	-
Lower middle	0,93 (0,57 to 1,50)	0,75	0,93 (0,54 to 1,60)	0,78	-	-
Middle	0,42 (0,15 to 1,17)	0,09	0,48 (0,15 to 1,51)	0,21	-	-
Employment						
Unemployed (reference)	1	-	1	-	-	-
Permanent employment	0,52 (0,30 to 0,88)	0,01	0,54 (0,26 to 1,10)	0,09	-	-
Unstable employment	0,69 (0,41 to 1,16)	0,15	0,63 (0,32 to 1,25)	0,18	-	-
Occupation	1,11 (0,69 to 1,78)	0,66	1,42 (0,77 to 2,61)	0,25	-	-
Lives alone (living with someone is the reference)	0,90 (0,43 to 1,89)	0,78	0,75 (0,31 to 1,79)	0,51	-	-
Activities at home (not performing them is the reference)	1,13 (1,00 to 1,28)	0,03	1,11 (0,97 to 1,28)	0,12	-	-
Family members with COVID-19 (not having them is the reference)	0,72 (0,37 to 1,40)	0,32	0,87 (0,37 to 2,04)	0,74	-	-
COVID-19 positive (not experiencing is the reference)	0,44 (0,14 to 1,33)	0,14	0,44 (0,11 to 1,77)	0,24	-	-
No history of mental disorders* (having them is the reference)	0,17 (0,07 to 0,41)	p-valor <0,01	0,14 (0,05 to 0,39)	p-valor <0,01	0,11 (0,04 to 0,30)	p-valor <0,01

Source: Own elaboration

*Pre-COVID-19 pandemic history, the use of antidepressant and anxiolytic drugs classified as "history of mental disorders".

Table 5. Crude and adjusted Hazard Ratios, estimated by mixed-effects proportional hazards models for each DEPRESSION variable.

Variables Depression	Crude HRs (95% CI)	P value	Adjusted HRs (95% CI)			
			Saturated model	P value	Parsimonious model	P value
Gender	1,75 (1,06 to 2,87)	0,02	1,83 (1,05 to 3,20)	0,03	1,89 (1,11 to 3,22)	0,01
Age	0,97 (0,95 to 1,00)	0,05	0,99 (0,96 to 1,02)	0,80	-	-
Marital Status						
Married - Common-law Union	0,47 (0,27 to 0,81)	p-valor <0,01	0,45 (0,22 to 0,89)	0,02	0,43 (0,24 to 0,77)	p-valor <0,01
Education						
Higher Education	0,94 (0,57 to 1,55)	0,82	1,20 (0,66 to 2,16)	0,54	-	-
Ethnicity						
White	0,44 (0,99 to 2,00)	0,29	0,42 (0,73 to 2,46)	0,34	-	-
Indigenous	2,08 (0,57 to 7,55)	0,26	1,78 (0,45 to 6,99)	0,40	-	-
Afro-Ecuadorian	1,56 (0,14 to 17,45)	0,71	2,94 (0,24 to 35,88)	0,39	-	-
Other	1,87 (0,44 to 8,00)	0,44	1,58 (0,34 to 7,33)	0,55	-	-
Socioeconomic Group						
Lower Middle	0,55 (0,34 to 0,90)	0,01	0,49 (0,28 to 0,84)	0,01	0,48 (0,28 to 0,81)	p-valor <0,01
Middle	0,35 (0,12 to 0,98)	0,04	0,35 (0,11 to 1,09)	0,07	0,32 (0,10 to 0,97)	0,044
Region of Residence						
Coast and Galapagos	0,44 (0,25 to 0,79)	p-valor <0,01	0,34 (0,16 to 0,72)	p-valor <0,01	0,49 (0,26 to 0,90)	0,02
East	**0,19 (0,24 to 1,48)**	**0,11**	**0,14 (0,016 to 1,23)**	**0,07**	**0,19 (0,24 to 1,56)**	**0,12**
Employment						
Permanent Employment	0,58 (0,34 to 1,00)	0,05	0,79 (0,38 to 1,63)	0,53	-	-
Unstable Employment	0,60 (0,34 to 1,05)	0,07	0,66 (0,32 to 1,36)	0,26	-	-
Occupation	1,04 (0,63 to 1,70)	0,87	1,27 (0,68 to 2,38)	0,44	-	-
Lives Alone	1,00 (0,45 to 2,21)	0,98	0,86 (0,35 to 2,11)	0,74	-	-
Activities at Home	1,09 (0,97 to 1,24)	0,12	1,07 (0,92 to 1,23)	0,34	-	-
Family Members with COVID-19	0,74 (0,37 to 1,49)	0,40	0,75 (0,31 to 1,82)	0,53	-	-
COVID-19 Positive	0,50 (0,16 to 1,58)	0,24	0,59 (0,14 to 2,53)	0,48	-	-
Mental Health History*	0,20 (0,88 to 0,48)	p-valor <0,01	0,18 (0,70 to 0,46)	p-valor <0,01	3,56 (0,67 to 0,40)	p-valor <0,01

Source: Own elaboration

*Pre-COVID-19 pandemic history, the use of antidepressant and anxiolytic drugs classified as "history of mental disorders".

Discussion

The imposed lockdown, both in our country and globally, resulted in various negative personal feelings, being an unpleasant experience for those who went through it during the COVID-19 pandemic. Different aspects such as loss of freedom, lack of control, worry, and overall negative circumstances changed the mental health of a significant portion of the population.

In our study, considering the impact on mental health as previously mentioned, we demonstrated that being female and having a history before the COVID-19 pandemic of using antidepressant and anxiolytic medications classified as "history of mental disorders" were associated with a higher likelihood of anxiety and depression among the surveyed healthcare workers. Participants who self-identified as indigenous had a higher chance of showing anxiety symptoms; on the other hand, there was a lesser association with anxiety symptoms when participants identified themselves as white. We also found that being married or in a domestic partnership, having a middle or lower-middle socioeconomic status, and living in the eastern or coastal regions of Ecuador were associated with a lower likelihood of depression compared to their counterparts.

Likewise, findings by other researchers who have analyzed mental health determinants during the COVID-19 lockdown, our study confirmed that the female population suffered a greater impact on their mental health, experiencing more anxiety and depression. This greater effect on females appears to be linked to a higher burden of work-related stress (for those working for compensation) and at home, as women address the needs of all family members, especially children, older adults, and people with disabilities.

This suggests that gender roles in Ecuador exhibit a clear sexist tendency and operate within a patriarchal environment (7).

We have found an association between indigenous and Afro-descendant ethnicity and a higher prevalence of depressive symptoms. Like other health effects, such as a higher prevalence of non-communicable chronic diseases, especially in the Afro-descendant population compared to white and mestizo ethnicities, the impact of the pandemic also seems to be greater based on participants' ethnic self-identification. There is wide scientific evidence demonstrating the health gradient as ethnic groups become more vulnerable. Additionally, it seems that this finding is independent of economic and educational conditions and is likely explained by a significant burden of racism and discrimination, especially in urban environments like those in this survey.

While we found that anxiety is not associated with socioeconomic strata, there does appear to be a higher prevalence of depression with higher socioeconomic strata compared to intermediate strata. It is challenging to explain this situation; however, we speculate that the frustration of the middle classes due to the inability to carry out their work activities may have influenced the participants' mood, resulting from the reduced mobility and socialization to which they were likely accustomed prior to the pandemic (8).

The onset of the COVID-19 pandemic was a severely stressful and chaotic event for many people. The fear and anxiety surrounding the emergence of a new disease and medical uncertainty triggered strong emotions in both adults and children. The measures imposed by the WHO, such as social distancing, caused people to feel isolated and lonely, leading to increased stress, anxiety, and fear of new disease outbreaks.

Symptoms of depression and anxiety significantly increase as social connection and physical activity decrease, as humans are inherently social beings, and depriving them of their daily environment hinders their ability to soothe their emotional state. The impact of the COVID-19 pandemic on mental health represented a significant health problem, especially for healthcare workers, leading to conditions with a profound impact on their daily and professional lives. Their mental exhaustion may prevent them from performing effectively in their work environment.

In contrast to other studies analyzed, we found that the majority of individuals with symptoms of anxiety and depression were men, while in our study, statistics show that men are the most affected in this case. We assume that this occurs because, in most households, men are the head and provider, and due to the limitations of not being able to work, they enter a process of depression and anxiety.

The impact of the COVID-19 pandemic on mental

health represents a significant problem affecting daily life. Following the onset of the pandemic, control and prevention measures implemented to prevent the spread of the coronavirus included social distancing, mask-wearing, hand hygiene, and home confinement. Due to this novel worldwide experience, it was necessary to investigate and contribute to understanding the impact on mental health.

Sociodemographic variables such as single marital status, mestizo ethnicity, residing in the Sierra region, living with or having family members, not contracting COVID-19 during confinement, and engaging in physical exercise were the most common factors associated with anxiety and depression. Unfortunately, these data couldn't be compared with other reports as they are not available in our country.

The middle socioeconomic stratum was the most common among respondents at 66%, similar to findings reported in the study by Nacimba CA and colleagues, with approximately 80% (9). Urban residence coincided with high rates of depression and anxiety (p=0.007), consistent with results from other research, such as Puchaicela S and colleagues, where predominantly moderate to extremely severe anxiety and depression were reported in over 80% (10). The higher education level, concerning anxiety and depression levels, was not statistically significant, in line with studies by Nacimba CA, Puchaicela S, and colleagues (9,10).

The unemployment rates are high, and individuals with positive criteria for anxiety, concerning the variable of being unemployed, are statistically significant with p=0.026, while for individuals with depression, it was not specific, aligning with the findings in the study by Puchaicela S and colleagues (10).

In our study, the COVID-19 pandemic demonstrated that the impact on mental health, with symptoms indicative of anxiety and depression, had high rates more frequently in the general population than in healthcare personnel in Ecuador. It was evident that anxiety symptoms were more frequent in men, and depression was more prevalent in women, with p=0.001 and p=0.025, respectively. The gender trend in depression has been confirmed by the study of Dosil and colleagues (11). However, anxiety has not been reflected in other research with a male tendency, making it an important finding in this report.

Regarding respondents' contact with people with COVID-19, Dosil, and colleagues indicated that over 50% of participants had this history, while in our study, this characteristic was not significant due to low trends of association with individuals with COVID-19 (11).

According to the evaluation, minimal anxiety and depression are the most frequent and characteristic levels in our study, which is confirmed by other research (12), with predominant percentages in a 2 to 1 ratio, more commonly seen in our report.

During the first fifteen days of the COVID-19 confinement, the lowest percentages of mental symptomatology were severe anxiety at 7.84% and moderate depression at 6.89%. In other reports of similar studies, severe depression had lower percentages, and severe or extreme anxiety showed higher figures in the classification levels of this pathological condition (11).

The results of our study should be interpreted considering the possible similarities and differences between healthcare workers and those who are not. Regarding potential similarities in general characteristics, both healthcare personnel and the general population are exposed to stressful factors that can impact their mental health (13), although the specific factors may vary. On the other hand, concerning potential differences, and based on general knowledge, healthcare personnel tend to have a higher level of education, which could be related to a better understanding and management of health-related issues, including mental health (14). Also, healthcare personnel might lean towards a medium to high socioeconomic group due to their stable and generally well-paid employment, which could provide them with more resources to handle stress and other factors related to mental health (15).

It's worth mentioning that healthcare workers are exposed to a unique set of occupational stress factors, including close contact with diseases and often demanding work schedules, which could uniquely affect their mental health (16). Additionally, healthcare personnel may have better coping skills and resilience due to their training and experience in handling high-pressure

situations, although this could be a double-edged sword if it leads to neglecting their mental health (17). Lastly, healthcare workers have better access to healthcare services, which could impact variables such as the early diagnosis and treatment of mental health conditions (18).

This study underscores the importance of mental health for the overall well-being of the population, especially in times of crisis like the COVID-19 pandemic we have experienced. It is crucial for research and the development of measures to ensure access to the necessary resources for the care and prevention of future mental health problems. Governments should prioritize addressing mental health issues on their agenda to tackle current and future challenges.

Peer Review

The manuscript underwent blind peer review and was promptly approved by the Editorial Team of the INSPILIP journal.

Data Availability

The data supporting this manuscript is available upon request to the corresponding author.

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Conflicts of Interest

The authors declare no conflicts of interest.

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