

## Anxiety and depression in patients with confirmed and suspected COVID-19 in Ecuador

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The rapid spread of the novel coronavirus, SARS-CoV-2 throughout the world has forced local and national administrations to take unprecedented measures to reduce the impact of the coronavirus diseases (COVID-19) pandemic.<sup>1</sup> In South America, the arrival of the virus took longer than in other regions of the world, nevertheless, the impact has already been unprecedented. For instance, Ecuador was one of the most affected countries by the pandemic, reported hundreds of deaths each day during the last weeks of March and the first weeks of April 2020.<sup>2</sup> The mortality rates were high during these months due to late implementation of restrictive measures of social distancing and limited capacity of health services (testing capacities and contact tracing). In this scenario, the Ecuadorian Ministry of Public Health (MoPH) established an epidemiological surveillance program for COVID-19 confirmed and suspected patients. The Department of Mental Health at the MoPH in Ecuador lead an active surveillance of the emotional impact of the disease by deploying an online self-reporting tool among patients to identify needs and provide standard of care treatment. The authors of this study were asked to participate in the development of this survey. The tool recorded sociodemographic variables and responses from two questionnaires: the Patient Health Questionnaire (PHQ-9)<sup>3</sup> to measure the presence and severity of depressive symptoms, and the Generalized Anxiety Disorder (GAD-7)<sup>4</sup> to assess the presence and severity of anxiety symptoms.

Once collected, and after serving its clinical purpose, the information was deidentified and made available for research purposes. All participants included in the analyses were adults who had provided

informed consent during data collection. We present here a secondary data analysis of the study conducted by Ortiz-Prado *et al.*<sup>2</sup> which received an exemption from the Universidad de las Américas Ethics Committee.

In total, 759 persons under epidemiological surveillance for COVID-19 completed the survey, 40.3% were confirmed and 59.7% were suspected cases. Comparisons of demographic and clinical characteristics of confirmed and suspected patients can be found in Table 1. No significant differences were found for the proportion of males in each group. The mean age of the confirmed was higher than the suspected cases. No significant differences were found regarding the prevalence of depression and anxiety when comparing confirmed and suspected cases. However, the distribution of the patients according to the severity of depressive symptoms was different in the two populations. Confirmed patients presented higher symptom endorsement.

**Table 1**

Demographic and clinical characteristics according to COVID-19 status

	<b>Confirmed (<i>n</i> = 306)</b>	<b>Suspected (<i>n</i> = 453)</b>	<b><math>\chi^2/t</math></b>	<b><i>P</i></b>
Gender <i>n</i> (%)				
Male	149 (48.7)	237 (52.3)	0.04	0.84
Female	157 (51.3)	216 (47.7)		
Age (years)	38.27 ± 10.99	35.61 ± 10.91	-3.27	0.001
Prevalence of depression <i>n</i> (%) <sup>†</sup>	70 (22.9)	84 (18.5)	1.86	0.17
Severity of depressive symptoms <i>n</i> (%)			14.09	0.003
None	121 (39.5)	239 (52.8)		
Mild	115 (37.6)	130 (28.7)		
Moderate	39 (12.8)	54 (11.9)		
Severe	31 (10.1)	30 (6.6)		
Prevalence of anxiety	74 (24.2)	97(21.4)	0.65	0.41
Severity of anxiety symptoms <i>n</i> (%) <sup>†</sup>			6.21	0.10
None	113 (36.9)	205 (45.3)		

	Confirmed ( <i>n</i> = 306)	Suspected ( <i>n</i> = 453)	$\chi^2/t$	<i>P</i>
Mild	119 (38.9)	151 (33.3)		
Moderate	45 (14.7)	66 (14.5)		
Severe	29 (9.5)	31 (6.9)		
Depression comorbid with anxiety <i>n</i> (%)	49 (16.0)	59 (13.0)	1.10	0.29

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†Total scores  $\geq 10$  in PHQ-9 and GAD-7 were considered to define the presence of depression and anxiety respectively.

Zhang *et al.*<sup>5</sup> conducted a similar study in China, although with a smaller number of participants, but also comparing with the general population. The prevalence of depression was higher in their study (29.2%) for confirmed patients, but lower in suspected cases (9.8%) than in our data. Regarding the prevalence of anxiety, our study showed higher levels of anxiety in both confirmed (24.2% vs 20.8%) and suspected patients (21.4% vs 10.2%) than those in the study by Zhang *et al.*<sup>5</sup> study. The presence of higher anxiety symptoms might be explained by the critical situation that the Ecuadorian health system was going through at that time. Of note, only 28.6% met the cut-off for moderate to severe symptoms of anxiety and/or depression, and 33.6% reported no symptoms at all. Future studies might pay attention to the protective factors of those participants who did not present psychological symptoms even if they were experiencing confinement, isolation, mourning the loss of the loved ones, the presence of physical symptoms produced by COVID-19, or the lack of appropriate health care. To the authors best knowledge this is the first study presenting information about the mental health status of Ecuadorians in epidemiological surveillance during the pandemic, however, our data did not confirm that the presence of psychological symptoms was a product of being under surveillance. It is necessary to assess general population to reach such conclusions.

[Go to:](#)

## Disclosure statement

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The authors have no conflicts of interest to declare.

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