

## Original Research Article

# Factor associated with mental health of patients during the COVID-19 pandemic

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## ABSTRACT

**Background:** The objective of this study was to determine the factors associated with the psychological impact on patients due to the COVID-19 pandemic in primary care.

**Methods:** Study was analytical cross-sectional, prior authorization from the local research committee and informed consent, a survey was applied to 468 beneficiaries of the family medicine unit number 2 of Mexico City, which contained sociodemographic aspects, background, habits and behaviors, styles of coping, fear of death, and the DASS-21 scale. Descriptive and analytical statistics were used Chi square OR CI at 95% considering significance when  $p < 0.05$ .

**Results:** The sociodemographic profile of the studied population were 61.3% women, 40.6% in the range of 35-59 years, 44.4% undergraduate education, 42.1% single marital status and 23.5% professionals. 56% reported symptoms in any of the mental health subscales, of which 35% were depressive symptoms, 44.9% anxiety symptoms and 37.8% stress symptoms. Associated factors were fear of the pandemic, having suffered from COVID-19, being a professional, feeling of loneliness, changes in character.  $p < 0.00$ .

**Conclusions:** The pandemic affected mental health, so it is important to carry out an intentional search for the degree of repercussions to provide timely treatment as part of comprehensive care at the first level of care.

**Keywords:** Anxiety, COVID-19, Death stress, Depression, Mental health, Psychological stress

## INTRODUCTION

The COVID-19 pandemic, declared by the World Health Organization on March 11, 2020, was an unexpected event of sudden onset that posed risks to the health and lives of the population and generated various impacts, as it brought about a sudden change in the entire social structure by affecting all levels of organization.<sup>1</sup> Experiences from previous pandemics have shown the impact on mental health in the population.<sup>2</sup> This crisis

exposed a series of psychological experiences in individuals, such as restrictive confinement, absence of interpersonal communication, irritability, fear of contracting and spreading the disease, depression, insomnia, loneliness, and anxiety.<sup>3,4</sup> COVID-19 is arguably the pandemic that has had the most significant impact in recent decades, unprecedented in its disruption of normal community functioning and the threat it posed to many lives. In addition to the duration of quarantine, rapidly changing confinement measures caused

frustration, boredom, insufficient supplies, scarcity of hospitalization facilities, lack of knowledge, overwhelming access to inadequate information, uncertainty, economic impact with limited access to goods and services, loss of income sources, and the stigma associated with the infection. These had a negative impact on the biological, psychological, and social dimensions of the entire population, albeit in an unequal and inequitable manner, as certain population groups are more vulnerable to these repercussions.<sup>5-7</sup> The reaction of each individual is influenced by their environment, mechanisms of emotional regulation, and ability to adapt to everyday life in order to maintain an optimal state of health. The way stress is coped with acts as a bridge between normality and mental pathology.<sup>8,9</sup> Several factors have been identified that increase the impact on mental health, such as the elderly population with comorbidities susceptible to the life-threatening risks associated with COVID-19, pre-existing social isolation, cognitive impairment, and mental disorders.<sup>4,10-12</sup> Younger population experiencing increased emotional burden during social isolation due to the loss of routine, social connection, closure of in-person schooling and extracurricular activities, which generated insecurity about the future and limited social development.<sup>10,13</sup>

Women also faced an increased work-family burden, leading to an escalation of domestic violence, as well as individuals in limited environments where living conditions and limited access to services increase the risk of infection and stress levels.<sup>14,15</sup>

This research aimed to understand the factors associated with the impact on the mental health of the Mexican population one year after the onset of the pandemic, with an emphasis on adapting to the acute crisis. It also intended to provide recommendations for the general population.

## METHODS

It was an analytical cross-sectional study conducted at the family medicine unit number 2 of the Mexican Insurance Institute in Mexico City during July 2021 to December 2021. Sample size calculation was performed for proportions, with a confidence level of 97%, statistical power of 80%, and an adjustment for potential loss of 20%; a sample of 468 participants was obtained. The sampling was systematically randomized by consultation room according to the census of beneficiaries.

### *Inclusion and exclusion criteria*

Inclusion criteria consisted of adult beneficiaries who resumed their in-person medical care, agreed to participate in the study, and signed an informed consent form. Exclusion criteria included individuals with any pathology or cognitive impairment that prevented them from answering the self-report, as well as those who did not answer more than 80% of the survey.

After obtaining approval from the ethics and research committee, a battery of purpose-designed questions was applied, adapted in collaboration with the research team based on the literature from Mexico and China and the DASS 21 scale.<sup>16,17</sup>

The items were grouped into the following sections: sociodemographic variables and background: age, education, occupation, marital status, number of children, living arrangements, history of COVID-19, and existing illnesses. Social environment, habits and behaviors, fears and concerns, change in temperament, feelings of loneliness: fear, concerns, coping strategies during the pandemic, changes in temperament and how they have changed, distracting activities, changes in these activities during the pandemic, sleep patterns, dreaming, and feelings of loneliness. Fear of death: fear of dying, specific concerns related to death or loss of a loved one. Depression, anxiety, and stress (DASS-21): the reliability of this instrument was measured by Cronbach's alpha, resulting in a global alpha of 0.911; for depression  $\alpha=0.758$ , for anxiety  $\alpha=0.732$ , and for stress  $\alpha=0.826$ <sup>18,19</sup>.

This tool consists of three subscales grouped into 21 items: depression (items: 3, 5, 10, 13, 16, 17, and 21), anxiety (items: 2, 4, 7, 9, 15, 19, and 20), and stress (items: 1, 6, 8, 11, 12, 14, and 18). Each item was evaluated using a Likert scale: 0 = not at all, 1 = a little bit, or some of the time, 2 = considerably, or a good part of the time, 3 = very much, or most of the time.

The interpretation of scores is as follows: depression: (5-6 mild depression; 7-10 moderate depression; 11-13 severe depression; 14 or more, extremely severe depression). Anxiety: (4 mild anxiety; 5-7 moderate anxiety; 8-9 severe anxiety; 10 or more, extremely severe anxiety). Stress: (8-9 mild stress; 10-12 moderate stress; 13-16 severe stress; 17 or more, extremely severe stress).

Statistical analysis was performed using SPSS v.25 software, reporting frequencies and percentages for qualitative variables, and mean and standard deviation for quantitative variables. Bivariate analysis using Chi-square, odds ratios, and 95% confidence intervals were conducted to explore associations between the study variables, considering a significance level of 5% ( $p<0.05$ ).

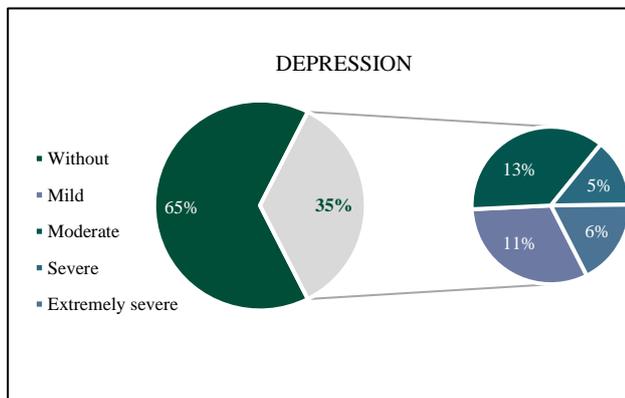
## RESULTS

A total of 468 beneficiaries from family medicine unit number 2 were surveyed, with a mean age of  $45.05\pm 16.80$  years.

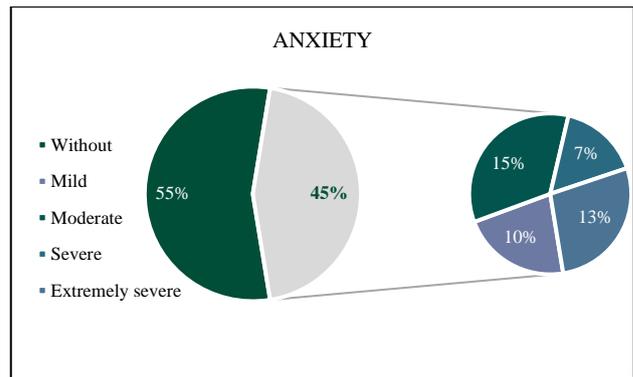
The following sociodemographic profile predominated: 61.3% (287) were women, 40.6% (190) were in the 35-59 age range, 44.4% (208) had a bachelor's degree, 42.1% (197) were unmarried, and 23.5% (110) were professionals. Reported characteristics of the social

environment were as follows: 62.4% (292) had parental status with 2 of 7 children, 83.8% (392) lived with their nuclear family, and 94.7% (443) perceived social support, with 32.6% (215) of that support coming from their partner or spouse. Clinical history revealed that 49.6% (232) had comorbidities, with systemic arterial hypertension being the most frequent at 31.6% (97), followed by diabetes mellitus at 20.2% (62).

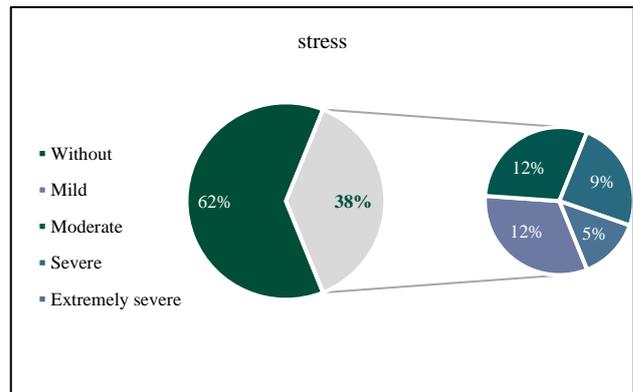
Additionally, 72.6% (340) reported not having had COVID-19. Participants were asked to provide information about their habits, behaviors, changes in temperament, concerns, and fears before and during the pandemic. Habits reported prior to the pandemic showed that 93.6% (438) engaged in some leisure activity, with audiovisual activities being the most common at 21.9% (141), such as using social media, watching series, movies, television, listening to music, etc. This was followed by sports activities at 18% (116). However, 58.3% (273) reported changes or abandonment of these activities during the pandemic. Behavioral changes in sleeping habits were observed, with 40% (180) reporting not sleeping through the night, only 26.1% (122) sleeping 8 hours or more, and an average sleep duration of 6.17 hours. Furthermore, 72.4% (339) reported having dreams. The most common fears related to the COVID-19 pandemic and concerns were family-related, reported by 30.4% (346), followed by concerns about their own or a family member's death at 21.5% (245). The majority of the surveyed population, 58.3% (298), reported that their way of coping with the pandemic was by taking care of themselves and their family through physical protection. Fear of death was present in 58.8% (275) of the respondents, with the predominant reason being the possibility of dying in a hospital far from friends and family (37.1% or 219). The majority expressed fear of losing a loved one, accounting for 91.7% (429), and these feelings increased with the COVID-19 pandemic in 80.1% (375) of cases. Changes in temperament perceived by the beneficiaries during confinement compared to their previous situation were reported by 54.5% (255), characterized by feelings of irritability, explosiveness, anger, intolerance, and impatience (18.4% or 86).



**Figure 1: Patients with symptoms of depression.**



**Figure 2: Patients with symptoms of anxiety.**



**Figure 3 Patients with symptoms of stress.**

Beneficiaries reported feelings of loneliness in 45.5% (213) of cases. 56% of the sample reported symptoms of anxiety, stress, and/or depression, which are further detailed in the graphs (Figures 1-3).

The factors associated with the presence of depressive symptoms were being in the age range of 18-34 years, having parental status with children, not engaging in leisure activities, not sleeping through the night, sleeping less than 8 hours, expressing fear related to the pandemic, perceiving changes in temperament, and experiencing feelings of loneliness.

The factors associated with the presence of anxiety symptoms were being unmarried, having a history of a COVID-19 diagnosis, not sleeping through the night, sleeping less than 8 hours, expressing fear related to the pandemic, perceiving changes in temperament, and experiencing feelings of loneliness.

The factors associated with the presence of stress symptoms were being female, being in the age range of 18-34 years, being a professional, having a history of COVID-19, not sleeping through the night, sleeping less than 8 hours, expressing fear related to the pandemic, and perceiving changes in temperament.

The results are summarized in the next table (Table 1).

**Table 1: Summary of result.**

	OR	95% CI	P value
<b>Depression</b>			
Age 18-34 years old >60 years old	2.08	1.24-3.48	0.016
Parental status: With children	1.62	1.10-2.40	0.013
Lack of leisure activities	2.23	1.06-4.71	0.026
Sleep difficulty	2.67	1.80-3.95	0.000
Sleeping less than 8 hours	1.64	1.04-2.58	0.030
Fear of the pandemic	3.04	2.00-4.01	0.000
Perception of personality change	3.26	2.16-4.92	0.000
Feelings of loneliness	4.70	3.02-7.32	0.000
<b>Anxiety</b>			
Single	1.66	1.10-2.51	0.014
History of COVID-19	7.04	4.64-10.67	0.000
Sleep difficulty	2.58	1.76-3.78	0.000
Sleeping less than 8 hours	2.07	1.35-3.19	0.000
Fear of the pandemic	3.06	2.07-4.51	0.000
Perception of personality change	3.26	2.04-4.40	0.000
Feelings of loneliness	3.09	2.07-4.62	0.000
<b>Stress</b>			
Women	1.50	1.01-2.20	0.040
Age 18-34 years old >60 years old	2.59	1.54-4.35	0.001
Professionals	4.17	1.50-11.63	0.003
History of COVID-19	1.75	1.16-2.65	0.007
Sleep difficulty	2.81	1.91-4.14	0.000
Sleeping less than 8 hours	2.02	1.28-3.20	0.002
Fear of the pandemic	2.59	1.73-3.86	0.000
Perception of personality change	2.74	1.84-4.07	0.000
Feelings of loneliness	2.55	1.69-3.84	0.000

**DISCUSSION**

This research demonstrated the behavioral and emotional changes experienced by individuals one year into the pandemic in Mexico. More than half of the participants reported psychological symptoms, in contrast to the findings of Córtes et al, who reported lower incidences, possibly because the full extent of the confinement and the degree of uncertainty regarding human losses in the Mexican population had not yet been fully realized.<sup>16,17</sup> The population perceived changes in character, sleep patterns, feelings of loneliness, fear of the pandemic, fear of death, and increased consumption of alcohol and tobacco, which are common psychological and psychosocial reactions observed during pandemics.<sup>2,18</sup> It has also been suggested that the duration and magnitude of the quarantine intensify these fears.<sup>14</sup> Similar effects have been reported in other populations such as China, Ethiopia, Canada, Spain and Peru.<sup>11,19-22</sup>

Professionals exhibited higher levels of stress compared to retirees, contrary to the findings of in China population, who reported that individuals with higher levels of stress were students.<sup>6</sup> We attribute this finding to 5 of 7 the changes experienced by workers, such as

adapting to remote work or having to continue commuting to work, both of which caused psychological distress for this particular group.

Young adults aged 18-34 years were associated with a higher risk of depression and stress. This age group is vulnerable to mental health issues and has been particularly affected by the confinement, as they have experienced limitations in tasks related to their developmental stage. In the United Kingdom, the “Young Minds” association reported increased feelings of loneliness and concerns about school, university, and work among young people.<sup>14</sup> A history of COVID-19 diagnosis increased anxiety. Gómez suggested that this could be attributed to patients experiencing higher levels of stress and distress after being discharged from the disease, due to the vulnerability they experienced.<sup>4</sup> Parenthood was associated with stress, one explanation for this phenomenon could be the closure of schools and the shift to online academic activities, which demands greater parental support and monitoring.

The lack of engagement in leisure activities was identified as a risk factor for anxiety, which aligns with the contribution reported by Kolokotroni et al, who described a correlation between the lack of physical

activities and the impact on mental health.<sup>23</sup> The perceived changes in character reported by our participants were very similar to those reported by Balluerka Lasa et al in Spain, showing an increase in feelings of uncertainty, fear, irritability, anger, depressive feelings, distress, and loss of tranquility, among others.

Regarding changes in sleep habits, Palagini et al found that individuals with insomnia have lower resilience and less capacity to adapt to stress compared to those without insomnia.<sup>24</sup> Supporting this, González-Sanguino et al reinforce the importance of social support as a protective factor against mood disorders.<sup>25,26</sup> Single individuals perceived higher levels of anxiety, similar to the findings of Xiong et al in their meta-analysis involving European, Asian, and Latin American populations.<sup>26</sup>

The study mentioned that having a partner reduces the psychological impact due to the perception of social support it provides. Women were found to have a higher risk of stress, which is consistent with the findings of Saidi et al, where females were the most affected gender.<sup>27</sup> This could be attributed to greater sensitivity to interpersonal relationships, as well as genetic, hormonal, biological, physical, environmental, and social factors.<sup>28</sup>

Additionally, women may face an added burden of balancing work and family responsibilities due to the confinement.

However, throughout the study, the following limitations were encountered: a significant decrease in patient flow, with the majority of older adults absent, resulting in underrepresentation of this group; the questions used to gather information on sleep quality focused on qualitative and subjective responses, which may be less useful, suggesting the use of targeted instruments to capture sleep patterns or changes in sleep habits in the future; and finally, the DASS-21 is a self-evaluation method that explores the current moment, so it is unknown whether the results are attributable to the pandemic or if the health emergency simply made preexisting issues more apparent.

## CONCLUSION

In conclusion, one year into the pandemic, it is evident that the mental health of the population has been significantly affected. This research highlighted behavioral and emotional changes in the population. Due to the relevance of mental health and the low response observed in some health centers, it is important to follow up with those patients in whom significant changes were observed in their survey responses. As a result, we suggest the following recommendations: it is important to stay connected with friends and family, provide support to your social environment, maintain previous routines and establish new healthy ones, limit exposure to audiovisual media, stay mentally and physically active, engage in completing projects and learning new skills,

improve coexistence, eat a healthy diet, moderate alcohol and caffeine consumption, stay informed through official sources and follow recommendations, avoid overexposure to information, and recognize emotions/feelings and seek professional help when needed.

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