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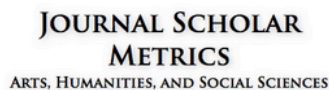
COVID 19 and Psychological Problems in Mexican Mothers

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Abstract

COVID-19 seriously affected people's mental health. Possibly symptoms of anxiety, depression and insomnia occur with most frequency in various sectors of the population, especially in mothers. The objective of this research was to evaluate levels of depression, anxiety and insomnia in Mexican mothers who had COVID-19, who care for or cared for patients with COVID-19, or in neither of these two conditions. A sample of 540 Mexican mothers was gathered, a questionnaire was applied to obtain data on sociodemographic variables, as well as instruments to measure depression, anxiety and insomnia. The 70% of the participants had insomnia, 77% had depressive symptoms, while 80.2% showed anxiety. Working mothers presented more severe symptoms of insomnia than housewives. Caring for a COVID-19 patient was significantly associated with the psychological variables evaluated. Mexican mothers who care or cared for COVID-19 patients have high rates of depression, anxiety, and insomnia.
Key words: COVID-19, mothers, depression, anxiety, insomnia.

Novelty and Significance

What is already known about the topic?

• Mental health problems increased as a side effect of COVID-19.
• An increase in the prevalence of depression and anxiety is reported because of COVID-19 crisis.

What this paper adds?

• Mothers of families who cared for a COVID-19 patient show high levels of depression, anxiety and insomnia compared to other population groups studied. Working mothers have more insomnia than housewives.
• The effects of the pandemic in conjunction with the new practices, increased the symptomatology and being in the care of a COVID-19 patient aggravated their mental health.

The World Health Organization (WHO) declared as a public health emergency of international importance, the outbreak of the disease caused by a new coronavirus named "severe acute respiratory syndrome coronavirus 2 (SARSCoV-2)" in January 2020. By March of the same year, a pandemic was declared due to the "coronavirus disease 2019" (WHO, March 11, 2020). After this statement, various sectors of society were subjected work overload and severe stress conditions due to the fatigue and uncertainty caused by the emerging pandemic. Certainly, this condition destabilized the physical and mental health of people around the world (Brooks et alia, 2020; Pearce, 2020).

Recently, studies have been published on the psychological impact of COVID-19 on various sectors of the population, especially on healthcare personnel (Dosil Santamaría *et alia*, 2021; Ferreira Gould, Coronel Díaz, & Rivarola Vargas, 2021; Forner Puntonet *et alia*, 2021; Gawrych, 2021; Johnson, Saletti Cuesta, & Tumas, 2020; Lai *et alia*, 2020; Urzúa *et alia*, 2020). However, a sector of the population particularly affected by this situation must be mothers. Undoubtedly, the activities within homes were completely modified. Some studies indicate that, especially in this group of population,

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the multitasking function they already carried out increased due to their children's online classes, work at home or remote work, loss of a parent's job, adaptation to new home routines (cleaning, meals, recreational activities) and the infeasibility to go out or going on vacation (Alonso, Barbero, & Gil Luciano, 2020; Chauhan, 2020; Ehsan & Jahan, 2021).

The care of COVID-19 patients comes in addition to the overload of activities. In regard to this, it is unknown those symptoms of depression, anxiety or quality of sleep that may manifest in mothers with an overload of daily activities at home, who also take or took care of COVID patients, or who even suffered from COVID-19. Accordingly, antecedents were sought. A survey by the American Psychological Association (APA) concluded that during the months after the announcement of the pandemic, parents with minor children were more stressed at home than those who were not parents. Also 71% of parents said that managing online learning for their children was a trigger of stress (Canady, 2020). Likewise, recent studies around the world indicate that both parents and children show an increase in symptoms of anxiety and depression, as well as substance abuse and aggravation of the pre-pandemic mental illnesses symptoms (Orgilés *et alia*, 2021; Palacio Ortíz et alia, 2020; Ranaei, Pilevar, & Aghamolaei, 2020).

Despite the extensive literature that already exists regarding the effects of COVID-19, the majority that included mothers among their participants were pregnant, first-time mothers or breastfeeding mothers, and what refers to the effects of suffering from the disease, symptoms of vaccination and recommendations for maintaining their health (DiLorenzo *et alia*, 2021; Mirbeyk, Saghazadeh, & Rezaei, 2021; Skjefte *et alia*, 2021). Only one study reported changes in mothers' and fathers' anxiety about parenting quality, as well as a particular risk of impaired well-being in mothers and families with lower income levels (Feinberg *et alia*, 2022). Although it is true that several studies have measured changes in mental health, they are not focused on mothers. Additionally, there is no information on the affectations of mental health in mothers with respect to their age.

In México, we do not know information about the impact of these conditions on psychological variables in family mothers (housewives or workers). Therefore, the objective of this research was to evaluate the levels of depression, anxiety and insomnia in Mexican mothers. The levels of the psychological variables were compared with respect to age and occupation. Finally, the relationship between psychological and COVID-19 variables was analyzed.

METHOD

Participants

An invitation to participate in this study was extended on social media. The inclusion criteria were being a mother (with no age limit for the child), have more than 18 years, Mexican by birth and living in México in the last 5 years. The exclusion criterion included not having communication and/or relationship with their sons. All participants selected signing an informed consent. A final sample of 540 mothers was gathered (250 housewives and 290 workers) through non-probabilistic snowball sampling. The youngest was 18 and the oldest 70 years of age (*M*= 38,5). Participants lived in the Northern (19%), Western (30%), Eastern (22%), Center (19%) and Southern (10%) regions of México.

Instruments and Measures

A questionnaire with demographic information (age, residency, and occupation) as well as questions about having suffered from COVID-19 or taking care of COVID-19 patients during the last year was applied. Additionally, measurement instruments of symptoms of anxiety, depression, and insomnia were applied:

Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). CES-D is a 20-items Depression Scale with Likert-type items that evaluated the frequency of depressive symptoms in the previous week, including depressed mood, feelings of guilt and worthlessness, psychomotor retardation, and sleeping difficulties. The maximum score of the instrument is 60, which indicates severe depression, and the minimum score is 0, which indicates the absence of depressive symptoms. This instrument has been validated and used in studies with non-clinical Mexican populations and has shown appropriated coherence in the student population of México, with Cronbach $\alpha= 0.8$ (González Forteza *et alia*, 2011). Demographic information was gathered, including participants' age, race/ethnicity, gender, sexual orientation, previous victimization status, and whether they have ever reported a sexual assault to police or law enforcement.

Beck Anxiety Inventory (BEI; Beck, Epstein, Brown, & Steer, 1988). 21-item questionnaire of which four or more symptoms determine a probable case of anxiety where the greater number of symptoms, the higher the level of anxiety. It has evidence of validity in the Mexican population which shows adequate internal consistency of 0.89 (Díaz Barriga & González-Celis Rangel, 2019; Galindo Vázquez *et alia*, 2015; Robles Varela, Jurado, & Páez, 2001).

Insomnia Severity Index (ISI; Fernández, Rodríguez, Vela, Olavarrieta, Calhoun, Bixler, & Vgontzas (2012). Questionnaire that is made up of seven elements. The first assesses the severity of insomnia symptoms (divided into three levels). The others are used to measure sleep satisfaction, daytime function interferences, others perception of sleep problems, and the patient's level of concern. It presents internal consistency of 0.91 and significant validity when compared to the *Athens Insomnia Scale*. The Mexican Clinical Practice Guide currently recommends it for epidemiological studies (Ojeda Paredes, Estrella Castillo, & Rubio Zapata, 2019).

Procedure

The measurement was carried out sending the questionnaire via Email from February to August of 2021 to ensure the confidentiality of the results. Doubts were clarified and questions were answered by Email.

Data Analysis

To identify possible differences between the levels of depression, anxiety and insomnia, concerning the variable suffers or suffered from COVID-19 and cared for COVID-19 patient, a successive multivariate analysis of variance (MANOVA) was executed. The statistical program IBM SPSS Statistics for Windows, Version 25.0 was used.

RESULTS

The prevalence of mothers suffering depression anxiety and insomnia regarding their occupation are shown in Table 1. From the participants, 77% presented depressive symptoms, of which 38.3% were mild symptoms, 25.7% moderate and 13.0% severe. 80% presented anxiety, of which 34.5% were mild, 37.8% moderate and 12.6% severe.

Table 1. Depression, Anxiety and Insomnia According to Occupation.

Variable	Category	Homemakers 46.3% (250)	Workers 53.7 (290)	Total 100% (540)
Depression	Absent	24.8 (62)	21.4 (62)	23 (124)
	Mild (subthreshold depressive episode)	40 (100)	36.9 (107)	38.3 (207)
	Moderate (probable major depressive episode)	23.6 (59)	27.5 (80)	25.7 (139)
	Severe (highly probable major depressive episode)	11.6 (29)	14.2 (41)	13.0 (70)
Anxiety	Absent or Minimal	19.6 (49)	20 (58)	19.8 (107)
	Mild	27.6 (69)	31.7 (92)	29.8 (161)
	Moderate	39.6 (99)	36.2 (105)	37.8 (204)
	Severe	13.2 (33)	12.1 (35)	12.6 (68)
Insomnia	Yes	59.6 (149)	79.9 (229)	70 (378)
	No	40.4 (101)	21 (61)	30 (162)

In relation to insomnia, 70.0% suffered it. When comparing the variables by occupation, there were significant differences only in the case of insomnia. Also, working mothers reported more insomnia than housewives ($t(538)= 7.66$, $p= .033$). No significant differences were found in the remaining variables between housewives and working mothers.

A comparison was made between age groups from variables assessed, those groups were classified according to the sample. Over half of the participants were in the 36-50 age group, Table 2 shows the frequencies and percentages among those with or without depressive, anxious or insomnia symptoms. Regarding this, it is striking that 47.5% of young mothers (between 18-35 years old) showed moderate depressive symptoms, while a greater number of mature mothers (51-67 years old) presented a high probability of suffering a serious depressive episode. The presence of moderate and severe anxiety was noted in 50.4% of the participants. It was observed that the 37.7% who present a moderate level corresponds to mothers aged between 18 and 50 years.

Table 2. Depression, Anxiety, and Insomnia According Age.

Variable	Category	18-35 27.6% (160)	36-50 53.1 (272)	51-67 19.3% (108)	Total 100% (540)
Depression	Absent	22.5 (36)	22 (60)	25.9 (28)	23 (124)
	Mild (subthreshold depressive episode)	25.6 (41)	50.4 (137)	26.9 (29)	38.3 (207)
	Moderate (probable major depressive episode)	47.5 (76)	19.1 (52)	10.2 (11)	25.7 (139)
	Severe (highly probable major depressive episode)	11.6 (29)	8.5 (23)	37 (40)	13.0 (70)
Anxiety	Absent or Minimal	16.9 (27)	17.3 (47)	30.6 (33)	19.8 (107)
	Mild	34.4 (55)	22 (60)	42.6 (46)	29.8 (161)
	Moderate	38.1 (61)	51.1 (139)	3.7 (4)	37.8 (204)
	Severe	10.6 (17)	9.6 (26)	23.1 (25)	12.6 (68)
Insomnia	Yes	74.4 (119)	80.5 (219)	37 (40)	70 (378)
	No	25.6 (41)	19.5 (53)	63 (68)	30 (162)

To analyze the relation between psychological variables and COVID-19 a MANOVA was executed. The results of this analysis are shown in Table 3. The cared

Table 3. COVID 19 and psychological Variables multivariate analysis of variance.

	F	df	p	η^2
Care or cared COVID-19 patient	9.97	3	.001	.050
Depression	19.89	1	.002	.035
Anxiety	17.44	1	.013	.013
Insomnia	25.20	1	.000	.039
Suffer or suffered COVID-19	4.6	3	.039	.013
Depression	13.9	1	.045	.016
Anxiety	5.3	1	.037	.012
Insomnia	6.5	1	.029	.015
Without COVID-19	4.1	3	.062	.022
Depression	2.85	1	.970	.007
Anxiety	4.7	1	.051	.011
Insomnia	2.9	1	.101	.007

of a COVID 19 patient was significantly associated with the psychological variables evaluated. Mothers who care or cared COVID-19 patient have higher levels of depression, anxiety, and insomnia. The variables depression ($F_{(1,198)}$= 19.89, p= .002, η^2= .035) and anxiety ($F_{(1,198)}$= 17.44, p= .013, η^2= .027)] have an intermediate effect size; while the insomnia variable showed a larger effect size ($F_{(1,198)}$= 25.20, p <.000, η^2= .039). Although with a small effect size, mothers who suffered from COVID 19 also presented depression $F_{(1,198)}$= 13.9, p= .041, η^2= .016), anxiety ($F_{(1,198)}$= 5.3, p= .037, η^2= .012) and insomnia ($F_{(1,198)}$= 6.5, p= .029, η^2= .015). No association was found among psychological variables and mothers without COVID-19, those who did not suffer from the disease or were not in the care of a patient. With the anxiety variable, a tendency was found, but it did not present statistical significance ($F_{(1,198)}$= 4.7, p= .051, η^2= .011).

Discussion

The aim of this research was to evaluate the levels of depression, anxiety, and insomnia in Mexican mothers. Although it is true that the diagnosis of a mental disorder must include a more complex psychological evaluation, accompanied by a physical examination (and even laboratory tests), the measurement instruments applied to our sample are useful to determine the current mental health scenario of Mexican mothers in the face of COVID-19 pandemic. Our results indicate that more than 70% of the mothers showed symptoms of depression and insomnia, and 8 out of 10 showed symptoms of anxiety. Almost half of the young mothers showed moderate depressive symptoms and working mothers showed more insomnia than housewives. Caring for a COVID-19 patient was significantly associated with the psychological variables evaluated.

The results shown here are definitely preoccupying. It is a fact that the pandemic´s aftermath has reached the psychological aspect seriously. We know that the impact of COVID-19 would pose a challenge unprecedented in all population sectors and that its implications would force it to maintain more demanding mental health conditions (Tandon, 2020). However, mothers (housewives or workers) have received an additional burden to their routines when caring for COVID-19 patients (Canady, 2020).

At the time of initiation of this research, it was expected to find moderate levels in the variables analyzed, however, the results obtained motivate the need to provide strategies for the care of this vulnerable population group that is and at serious risk of disabling their family, labor and social functions. The levels of depression, anxiety and insomnia reported here are elevated. For example, in its 2017 survey, the Instituto Nacional de Geografía y Estadística (2017) reported that 32.5% of people over 12 years of age in México had experienced depressive symptoms (not segmented by sex or occupation). Apparently, the effects of the pandemic in conjunction with the new routines, increased the symptomatology and caring for a COVID-19 patient aggravated their mental health (Chatterjee, Barikar, & Mukherjee, 2020). Similar results in these variables have been reported in health personnel, another sector of population visibly affected, especially in the case of women. They are the ones who show higher levels of anxiety and stress (Liu *et alia*, 2020). These studies conclude that the fear of contagion seems to be behind these results, which would make it even more difficult to take care of home and work, either indoors or outdoors (Lai *et alia*, 2020).

In the case of activity, it was expected that working mothers would experience greater depressive and anxious symptoms compared to housewives. However, no differences were found. It is a fact that demands for both groups are the same. In the

case of insomnia, working mothers showed higher rates than their counterparts. In previous investigations, greater stress has also been attributed to the labor factor due to the uncertainty of their permanence in jobs. Situation that could explain the results obtained in the present work (Mimoun, Ben Ari, & Margalit, 2020). Additionally, data from the Comisión Económica para América Latina y el Caribe (2021) remarks that in 2020 the employment rate for women fell 14.1% in México, a situation that surely exacerbated the mental health situation of Mexican mothers.

The considerable lack of knowledge about the pandemic is a decisive factor in exacerbating vulnerability and loss of control (Cheung & Ip, 2020; Sadeghmoghadam, Khoshkhoo, & Saadati, 2020). Furthermore, isolation has also played an important role in the outbreaking of these symptoms (Galea, Merchant, & Lurie, 2020). For this reason, it is necessary to conduct more studies that separately explore these variables. Knowing more about the consequences will enable us to establish care strategies. However, it is unfortunate to recognize that in México, the number of psychologists per inhabitant is low. According to INEGI, there are 12 specialists for every 100,000. This imbalance is not a good incentive ahead of these data, a situation that should immediately concern health authorities.

One of the fortresses of this study is the lack of similar research in México, contrary to that explored by other countries in the last year, so data presented here is a precedent for subsequent studies. Conversely, among the limitations, there stands out the sample age distribution. More than half of the participating mothers are between 36 and 50, so the results obtained, in the absence of younger or more mature participants, should be taken with caution. Therefore, it is important to conduct new studies with mothers of heterogeneous age groups. As mentioned in other research, non-probability sampling leads to bias as participation is voluntary. Apparently, there is a trend towards participation by people who are more emotionally aggrieved (Dosil Santamaría *et alia*, 2021). Therewith the emphasis on conducting new studies in various populations, highlighting their communities, occupations, socioeconomic and social strata (Inchausti *et alia*, 2020).

These results remark the need to lessen the psychological impact that the pandemic exert on mothers as soon as possible. It is essential that people in a position to make decisions at the government level guarantee psychological care in health institutions, invest in telephone or virtual psychological assistance centers and covenant with universities the participation of social service providers in mental health to assist in this urgent labor.

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