

Psychological impact of the COVID-19 pandemic on head of household residents in a marginal population of North Lima



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ABSTRACT

The objective of this research is to determine the psychological impact of the coronavirus pandemic on heads of families residing in a marginal population of North Lima. It is a quantitative study, with a descriptive-cross-sectional and correlational design, with a population of 360 heads of household residents in 4 human settlements in North Lima, where two instruments were used to find the psychological impact and fear regarding COVID-19. In the results, the normality of the distribution of the results of the variables and their dimensions was determined through the Kolmogorov-Smirnov normality test. The results identified that the results of the variables and their components have a non-normal distribution ($p < 0.05$), therefore, non-parametric tests will be used to find relationships between them or with the characteristics of the sample, also it indicates that the female sex shows a close correlation in both applied instruments. In conclusion, strategies for the promotion and prevention of mental health should be sought, so that the population can have the necessary knowledge to develop strategies to protect their mental health.

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1. Introduction

The new SARS-CoV-2 coronavirus, responsible for the COVID-19 disease, continues to advance uncontrollably, leaving 209477327 infected and 43995239 deaths worldwide. In the Americas region, the number of infected is 81226913, and the reported deaths total 2065148 (PAHO, 2021).

In the month of August of this year, the Ministerio de Salud (MINSA) reports that in our country the pandemic has left a balance of 2133812 infected and 1997393 deaths, with a fatality rate of 9.25%, is considered high at the level of global.

Therefore, the impact caused by COVID-19 is one of the highest causes of emotional burdens in the population (Bäuerle et al., 2020), where preventive measures of isolation, biosecurity, and changes in their lifestyles, make mental health more compromised (Werner et al., 2020; Thorsteinsson et al., 2014).

An investigation in Bahrain reported that there were 1115 participants (1081 Bahrainis and 33 non-Bahrainis), 30% had depressive symptoms, 18.2% had anxiety symptoms and 30.8% reported stress symptoms, the values being depression and anxiety higher in women than men, with no gender differences in stress symptoms. The younger age group showed more distress across the board and symptoms were reported to decrease with age. Students were also found to be the group reporting the highest symptoms, along with those with the lowest income (AlSalman et al., 2020).

In India, a study was conducted where they indicated that 422 people from 23 states of India participated and the majority were women with 60.4% ($n=255$), also, it was found that the median (IQR) of the DASS-21 item scale was 16 (4-32). The percentage of respondents who reported stress was 35.5% ($n=149$), anxiety 32% ($n=135$), and depression 34.7% ($n=146$). Most of the respondents practiced hygiene and social distancing, but were unaware of their exposure and were more likely to have depression (Hazarika et al., 2021).

Virto-Farfan et al. (2021) carried out a study on stress, anxiety, and depression in the initial stage of social isolation by COVID-19, Cusco-Peru, whose research design is cross-sectional analytical, 1089 responses were collected through an online survey,

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starting with university students and teachers. In relation to the results, in the first days of quarantine, they found stress (15%), depression (18.1%), and anxiety (20.7%) in Peru. The associated factors were confidence in the Peruvian government to face COVID-19, and finally coping behaviors. The chronic disease with the highest prevalence was asthma (5.7%) with a positive relationship with stress and anxiety; social networks were related to higher levels of stress.

On the Asian continent, a report was made that includes seven countries (China, Iran, Malaysia, Pakistan, the Philippines, Thailand, and Vietnam), where it mentioned that Thailand had the highest scores for stress, anxiety, and depression, while Vietnam had the lowest scores. Adverse risk factors for mental health during the COVID-19 pandemic included age < 30 years old (Meneses-Claudio and Roman-Gonzalez, 2018), higher education history, single and separated marital status, discrimination from other countries, and contact with people with COVID-19 ($p < 0.05$) (Wang et al., 2021).

A study reported in Brazil where there were 3000 participants from 26 states, indicates that the pandemic has been impacting the mental health of the Brazilian population, half of the participants expressed symptoms of depression (46.4%), anxiety (39.7%), and stress (42.2%). The impact was greatest in women, people without children, students, people with chronic diseases, and individuals who had contact with other people diagnosed with COVID-19 (Serafim et al., 2021).

Another study also carried out in Brazil where there were 924 participants indicates that the women in the sample showed a greater probability of having stress, anxiety, and depression scores above the median, also adding that the scenario of intolerance and uncertainty plays a relevant role in the mental health of the participants during the initial phase of the COVID-19 pandemic, this is related to the presence of depression, anxiety and stress (Seco Ferreira et al., 2020).

Although in addition to the factors that influence the psychological impact on the person, fear is one of the predictors that respond to an imminent danger that puts our health at risk, which is why the COVID-19 pandemic (Mertens et al., 2020), has generated a high index of fear in the population (Andrade et al., 2022), and that this considerably affects the mental health of the population since the threat is so latent that it harms the well-being of each person (Servidio et al., 2021).

Huarcaya-Victoria (2020) analyzed the impact of the coronavirus disease (COVID 19) on the general population and health personnel who experienced psychological problems, such as anxiety, depression, and stress. For this reason, it conducted a narrative review, based on a search in PubMed of all the articles published from December 1st, 2019, to March 24th, 2020. In the search for various research papers, the author considered 37 articles of the 65 articles found, discarding for not having a direct relationship with the topic, lack of access, and not being in the

English or Spanish language. These articles contained information related to the psychiatric, psychological, and mental health effects of COVID-19 written in English or Spanish. The author states that the following mental health problems will arise during the pandemic: 1) Health anxiety, depression, and reactions to stress in the general population. 2) At the same time, health personnel is being subjected to pressure due to an elevated risk of infection, job demands, frustration, fatigue, and lack of contact with family members, which could cause depression, anxiety, and symptoms like post-traumatic stress disorder (PTSD). 3) In another Chinese study conducted on 52,730 people during the initial phase of the pandemic, it was found that 35% of the participants experienced psychological stress, with higher levels in women. In addition, people between the ages of 18 and 30 years old, and those over 60, had higher levels of psychological stress. Higher scores in the 18-30 age group could be due to their use of social media as their primary source of information, which can easily trigger stress. The author concludes that in any health emergency, mental health problems are common and can be barriers to medical and mental health interventions. In this sense, the author concludes that during the initial phase of the COVID-19 pandemic, the presence of anxiety, depression, and reaction to stress was common in the general population and health personnel. In addition, the author mentions that to control the COVID-19 pandemic in Peru, adequate and comprehensive management of mental health care is required.

In Peru, it is evidenced that groups of women (51.2%), stable workers, unemployed, and those who have completed a job education are more likely to show elevated levels of fear of COVID-19. As expected, the groups that had a relative infected with COVID-19 or a relative who died from it had the highest levels of fear of the virus (59.24%) (Sotomayor-Beltran et al., 2021; Meneses-Claudio et al., 2019).

In Peru, they found, through a study involving 832 Peruvian people, which resulted in an optimal level of internal consistency ($\omega > 0.89$ and $\alpha > 0.83$). Likewise, it was found that the version translated into Spanish of the FCV-19S presented good psychometric properties, validity, and reliability (Huarcaya-Victoria et al., 2022).

2. Methodology

The present study has a quantitative approach, and descriptive-cross-sectional and correlational design (Hernández et al., 2014).

There was a population of 360 heads of household (women and men) residing in 4 Human Settlements in the Carabayllo district, in North Lima. Table 1 shows sociodemographic aspects of the study.

The technique used was the digital survey, which was conducted through the Google form, to put the data collection instruments Depression Anxiety

Stress Scale (DASS-21) and The Fear of COVID-19 Scale (FCV-19S) which the objective is to measure the psychological impact of the COVID-19 pandemic on heads of households residing in a marginal population of North Lima.

Table 1: Sociodemographic aspects of the study

	n	%
Age		
Young [from 18 to 29]	117	32.5
Adult [30 to 59]	196	54.4
Elderly [60 and over]	47	13.1
Gender		
Female	209	58.1
Male	151	41.9
Degree of instruction		
No instruction	19	5.3
Complete primary	23	6.4
Incomplete primary	13	3.6
Complete secondary	126	35.0
Incomplete secondary	53	14.7
Complete superior	87	24.2
Incomplete superior	39	10.8
Marital status		
Single	143	39.7
Married	83	23.1
Cohabiting	108	30.0
Widowed	26	7.2
Occupancy condition		
Has stable job	51	14.2
Has temporary job	212	58.9
Does not work	97	26.9
Type of Family		
Nuclear	51	14.2
Single parent	80	22.2
Extended	67	18.6
Expanded	57	15.8
Reconstituted	56	15.6
Family equivalent	4	1.1
Single person	45	12.5

The depression, anxiety, and stress scale (DASS-21), each of the three DASS scales contain 14 items, divided into subscales of 2 to 5 items with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-loathing, lack of interest or participation, anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and the subjective experience of anxious affect. The stress scale is sensitive to levels of non-specific chronic arousal. It evaluates the difficulty to relax, nervous excitement and discomfort, agitation, or irritation, over-reactivity, and impatience. It consists of 4 response alternatives, 0 "not at all," 1 "sometimes," 2 "most of the time" and 3 "most of the time" that serve to rate the degree to which they have experienced each state during the last week (Tran et al., 2013).

The validity of the instrument was determined based on the exploratory factor analysis technique with Varimax rotation. Preliminary tests of sample adequacy and sphericity obtained favorable results. The Kaiser-Mayer-Olkin measure of suitability for sampling obtained a coefficient of 0.710 (KMO>0.8) and the Bartlett test of sphericity obtained a significance coefficient of 0.000 (Approx. $X^2=3226.308$; $gl=210$; $Sig.<0.05$).

The reliability of the instrument was calculated based on Cronbach's Alpha statistical test. The internal consistency coefficient was 0.776 ($\alpha>0.7$), which is why it is determined that the instrument has statistically significant reliability.

The scale of fear of COVID-19 (FCV-19S) comprises 7 items in which it has a one-dimensional dimension, in which it is valued with a Likert-type scale with 5 response options: "1=Totally disagree," "2=disagree," "3=neither agree nor disagree," "4=agree" and "5=Totally agree," obtaining a total score by adding all the items, so that their score would range from 7 to 35 points, the higher the score, the greater the effect of fear about COVID-19 (Huarcaya-Victoria et al., 2022; Ahorsu et al., 2022).

The validity of the instrument was determined based on the exploratory factor analysis technique with Varimax rotation. Preliminary tests of sample adequacy and sphericity obtained favorable results. The Kaiser-Mayer-Olkin measure of suitability for sampling obtained a coefficient of 0.531 (KMO>0.5) and the Bartlett test of sphericity obtained a significance coefficient of 0.000 (Approx. $X^2=347.264$; $gl=21$; $Sig.<0.05$).

The reliability of the instrument was calculated based on Cronbach's Alpha statistical test. The internal consistency coefficient was 0.567 ($\alpha<0.7$), so it could not be determined that the instrument has statistically significant reliability.

The data collection was conducted in the months of January, February, and March of this year, through home visits, in each situation the care and health protocols indicated by the government authorities were considered to avoid contagion in the participants and personnel who conducted the surveys. The measurement instruments were prepared digitally, specifically in the google form, each interviewer used a Smartphone that was shared with the participants, thus facilitating the process of filling in the data sheets. Participants who presented difficulties in digitally filling in the data received the necessary support to complete the required data. On average, it took each participant about 10-15 minutes to complete the online survey and informed consent.

3. Results

Table 2 shows the results of the psychological impact and its dimensions in relation to the heads of household, where in the main variable psychological impact, 0.6% of the heads of household have a normal psychological impact, 7.2% have a mild psychological impact, 39.2% moderate psychological impact, 41.7% severe psychological impact, and 11.4% extremely severe psychological impact.

Regarding its dimensions, in the depression dimension, 5.3% of the heads of household present normal depression, 10.3% mild depression, 42.2% moderate depression, 29.4% severe depression, and 12.8 % extremely severe depression, in the anxiety dimension, 8.9% heads of household have normal anxiety, 12.5% mild anxiety, 24.2% moderate

anxiety, 28.4% severe anxiety and 25% extremely severe anxiety and in the stress dimension, 5.3% of the heads of household have normal stress, 7.2%

mild stress, 31.7% moderate stress, 44.2% severe stress and 11.7% extremely severe stress.

Table 2: Psychological impact and its dimensions in relation to heads of household residents in a marginal population of North Lima

	n	%
DASS-21 [Psychological impact]		
Media: 30.742 \pm 7.642; Min. -Max. = 11 - 63.		
Normal [0 - 14]	2	0.6
Mild [15 - 20]	26	7.2
Moderate [21 - 29]	141	39.2
Severe [30 - 38]	150	41.7
Extremely severe [39 - 63]	41	11.4
Depression		
Mean: 9.858 \pm 3.333; Min. -Max. = 2-21.		
Normal [0 - 4]	19	5.3
Mild [5 - 6]	37	10.3
Moderate [7 - 10]	152	42.2
Severe [11 - 13]	106	29.4
Extremely severe [14 - 21]	46	12.8
Anxiety		
Mean: 7.950 \pm 3.292; Min. -Max. = 1-21.		
Normal [0 - 3]	32	8.9
Mild [4 - 5]	45	12.5
Moderate [6 - 7]	87	24.2
Severe [8 - 9]	106	29.4
Extremely severe [10 - 21]	90	25.0
Stress		
Mean: 12.933 \pm 3.107; Min. -Max. = 4-21.		
Normal [0 - 7]	19	5.3
Mild [8 - 9]	26	7.2
Moderate [10 - 12]	114	31.7
Severe [13 - 16]	159	44.2
Extremely severe [17 - 21]	42	11.7

In Table 3, we can observe the results of fear of COVID-19 and its dimensions in relation to heads of household, where in the main variable fear of COVID-19, 18.9% below the average fear of COVID-19, 62.5% on average fear of COVID-19 and 18.6% are above average fear of COVID-19.

Regarding its dimensions, in the dimension reactions to emotional fear, 24.4% under the average fear of COVID-19, 55.6% of average fear of COVID-19, and 20% are above the average fear of COVID-19; and in its dimension somatic expressions of fear, 33.1% are below the average fear of COVID-19, 49.7% are on average fear of COVID-19 and 17.2% are above the average fear of COVID-19.

Table 3: Fear of COVID-19 and its dimensions in relation to the residents' heads of household of a marginal population of North Lima

	n	%
Fear of COVID-19		
Mean: 10.078 \pm 3.185; Min. -Max. = 2-21.		
Below average [0 - 7]	68	18.9
On average [8 - 12]	225	62.5
Above average [13 - 35]	67	18.6
Reactions to emotional fear		
Mean: 5.961 \pm 2.214; Min. -Max. = 1-12.		
Below average [0 - 4]	88	24.4
On average [5 - 7]	200	55.6
Above average [8 - 20]	72	20.0
Somatic expressions of fear		
Mean: 4.117 \pm 1.604; Min. -Max. = 0-9.		
Below average [0 - 3]	119	33.1
On average [4 - 5]	179	49.7
Above average [6 - 15]	62	17.2

The normality of the distribution of the results of the variables and their dimensions was determined through the Kolmogorov-Smirnov normality test (Table 4). The results identified that the results of the variables and their components have a non-normal distribution ($p < 0.05$), therefore, non-parametric tests will be used to find relationships between them or with the characteristics of the sample.

Table 4: Normality test between the variables of psychological impact and fear of COVID-19

	Kolmogorov-Smirnov		
	Estad.	gl	Sig.
DASS-21 [Psychological impact]	0.080	360	0.000
Depression	0.099	360	0.000
Anxiety	0.125	360	0.000
Stress	0.081	360	0.000
Fear of COVID-19	0.119	360	0.000
Reactions to emotional fear	0.119	360	0.000
Somatic expressions of fear	0.140	360	0.000

To determine the relationship between the variables and their components, the Spearman (Rho) correlation test was used.

Considering the methodology of a quantitative investigation, we can identify the following: 0.00 "There is no correlation between the variables," 0.10 "Very weak positive correlation," 0.25 "Weak positive correlation," 0.50 "Medium positive correlation," 0.75 "Correlation considerable positive," 0.90 "Very strong correlation" and 1.00 "Perfect correlation."

The results identified a statistically significant directly proportional relationship between psychological impact and fear of COVID-19. It also

indicates that in some cases its meaningful relationship is weak or medium, as well as how 2.1 is shown in relation to 1.1 and 2.1 (Table 5).

Table 5: Bivariate correlation between psychological impact and fear of COVID-19

		1	1.1	1.2	1.3	2	2.1
1	DASS-21 [Psychological impact]	1					
1.1	Depression	0.795**	1				
1.2	Anxiety	0.612**	0.236**	1			
1.3	Stress	0.797**	0.546**	0.249**	1		
2	Fear of COVID-19	0.773**	0.665**	0.462**	0.609**	1	
2.1	Reactions to emotional fear	0.689**	0.719**	0.248**	0.571**	0.849**	1
2.2	Somatic expressions of fear	0.532**	0.311**	0.533**	0.427**	0.735**	0.316**

** The correlation is significant at 0.01

In relation to Table 6, we can observe the correlations between the main variables and the sociodemographic aspects, where, we can observe in the sociodemographic aspect, the age of young people between 18 to 29 years old are correlatively related to the variable fear of COVID-19 0.011 ($p < 0.05$), regarding gender, we observe that female sex is correlatively related to the variable of psychological impact 0.000 ($p < 0.05$) and fear of COVID-19 0.000 ($p < 0.05$), regarding the degree, we can see that those who do not have education are

correlatively related to the variable fear of COVID-19 0.025 ($p < 0.05$), in terms of marital status it is observed that singles are correlatively related to the variable fear of COVID-19 0.042 ($p < 0.05$), in the occupation condition we observe that those with full-time job are correlatively related to the variable psychological impact 0.008 ($p < 0.05$) and in the type of family we can observe that nuclear family are correlatively related to the variable fear of COVID-19 0.003 ($p < 0.05$).

Table 6: Correlations of the main variables and sociodemographic aspects

	DASS-21 [Psychological impact]		Fear of COVID-19	
	Average	Sig.	Average	Sig.
Age				
Young [from 18 to 29]	30.026 \pm 6.737	0.485 ^A	10.009 \pm 6.737	0.011 ^A
Adult [30 to 59]	31.189 \pm 7.786		10.398 \pm 3.153	
Elderly [60 and over]	30.660 \pm 9.066		8.915 \pm 3.810	
Gender				
Female	32.273 \pm 8.031	0.000 ^B	10.584 \pm 3.199	0.000 ^B
Male	28.623 \pm 6.523		9.378 \pm 3.039	
Degree of instruction				
No instruction	32.842 \pm 7.002	0.275 ^A	11.737 \pm 3.331	0.025 ^A
Complete primary	33.130 \pm 8.725		11.217 \pm 3.190	
Incomplete primary	30.539 \pm 11.709		8.231 \pm 4.585	
Complete secondary	30.294 \pm 7.394		10.000 \pm 2.862	
Incomplete secondary	29.566 \pm 9.518		9.566 \pm 3.603	
Complete superior	31.264 \pm 5.927		10.138 \pm 2.950	
Incomplete superior	30.256 \pm 6.976		10.026 \pm 3.150	
Marital status				
Single	29.650 \pm 6.951	0.073 ^A	9.594 \pm 3.172	0.042 ^A
Married	31.795 \pm 7.535		10.590 \pm 2.914	
Cohabiting	30.685 \pm 8.205		10.590 \pm 2.914	
Widowed	33.615 \pm 8.410		10.808 \pm 3.007	
Occupancy condition				
Has stable job	30.333 \pm 6.572	0.008 ^A	10.039 \pm 2.391	0.052 ^A
Has temporary job	31.486 \pm 7.835		10.278 \pm 3.184	
Does not work	29.330 \pm 7.594		9.660 \pm 3.523	
Type of Family				
Nuclear	32.137 \pm 9.117	0.250 ^A	10.529 \pm 3.068	0.003 ^A
Single parent	30.675 \pm 6.362		9.838 \pm 2.592	
Extended	30.731 \pm 9.348		10.388 \pm 3.486	
Expanded	30.000 \pm 5.428		9.737 \pm 2.567	
Reconstituted	31.982 \pm 8.738		11.232 \pm 3.804	
Family equivalent	26.250 \pm 0.957		9.000 \pm 0.817	
Single person	29.089 \pm 5.977		8.622 \pm 3.263	

^A Kruskal-Wallis H Test; ^B Mann-Whitney U test

4. Discussion

In this research study, emphasis is placed on mental and public health around the population, which seeks to develop strategies that allow the population to face risk situations that compromise

their health, and this may allow them to improve their skills around their health, and this can balance their mental health during the COVID-19 pandemic.

In the results, the psychological impact was reflected in that it is severely compromised in the population, this is due to the fact that in the

population the ways of coping with their way of living during the COVID-19 pandemic have unbalanced the mental health of each one, where the factors that become more notorious such as depression, anxiety, stress, panic, and fear, are factors that increase the emotional load on the person, and in addition to being in quarantine for a long time and not performing activities that were done before the pandemic, influences the person and cannot face the situation in an appropriate way. In Werner et al. (2020), they argued that emotional stability in people during the pandemic has been sharply unbalanced, and symptoms of depression, anxiety, and stress, are indications that the person is not mentally balanced to be able to face and make correct decisions, therefore, the risk of contracting COVID-19 is becoming higher since their mental health is in a lapse that does not allow them to make correct decisions to protect their health, both for themselves and for his family.

In the results of fear of COVID-19, we observe that the population on average is afraid of COVID-19, this is because the variants of COVID-19 that were presented in our country have shocked the entire country, where the sensation of fear and panic has been seen considerably, notoriously affecting their mental health, and factors such as the increase and deaths from COVID-19 due to the new variants, puts the mental health of the population at risk since they are not prepared to face situations that put their health at high risk. In Mertens et al. (2020), they argued that the fear of COVID-19 in the population has generated a very high mental burden, where worry, anguish, and despair commit people to have a negative impact that will not only affect their mental health but also that in addition to the fact that they will not be able to make decisions and adapt to a new lifestyle while the COVID-19 pandemic continues in the world.

In the variables of psychological impact and fear of COVID-19, it is observed that both variables are correlated with each other because the emotional burden on people during the COVID-19 pandemic triggers factors that compromise their mental health whereas depression, anxiety, stress, and fear are factors where they will be present in the person during the pandemic since their lifestyle has been drastically modified during the time that COVID-19 is present, and all of this has generated changes emotional, cognitive and social in the person, where the development or improvement of their abilities has been one of the qualities of the person to be able to maintain stable physical health, although mental health is compromised until now. In Bäuerle et al. (2020), they argued that factors such as depression, anxiety, stress, and fear are related to each other, since, during the COVID-19 pandemic, they have been much more relevant and noticeable in the population, and this has generated a decrease in their regulation at an emotional level, committing them to not be resilient, to reduce their ability to make decisions and to be optimistic in order to cope with the disease.

5. Conclusion

It is concluded that strategies for the promotion and prevention of mental health should be sought so that the population can have the necessary knowledge to develop strategies to protect their mental health. Thus, the strategies to improve the mental health of people should be conducted, since it will allow evaluating the mental load that each one of them presents, and thus provide adequate attention for each conflict that may present.

The limitation in the research work is the few studies that are conducted in the country, especially in rural places where mental vulnerability is increasing, and this should be prioritized since, over time, people can present mental sequelae for COVID-19.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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