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Meta-worry, anxiety, and depression in the coronavirus 2019 (COVID-19) pandemic: Brazil, June 2020

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ABSTRACT

Introduction. Threats to mental health and psychological well-being have been considered among the most challenging dimensions to deal with the COVID-19 pandemic. **Objective.** To track the occurrence of significant anxiety and depression symptoms and the level of worry among residents in Brazil in June 2020. **Method.** The final sample totaled 4,805 participants from all Brazilian states. A sociodemographic and health questionnaire (with questions related to COVID-19), the translated versions of the Meta-Worry Questionnaire, and the 4-item Patient Health Questionnaire (PHQ-4) were used. Inferential analyses were computed using the Multinomial Logistic Regression (backward stepwise) in which the PHQ-4 findings were stratified into four categories: no symptoms, only anxiety symptoms, only depression symptoms, and both symptoms. **Results.** Research findings have shown that there are characteristics that predict greater exposure to significant symptoms of anxiety and depression (gender, age, and level of worry), with level of worry being the variable with the greatest impact on the model. **Discussion and conclusion.** These data found during the COVID-19 pandemic intra-crisis period allow for early prediction of the negative outcomes associated with the pandemic, such as common mental disorders, and allocating interventions to help people to rationally deal with the stress related to this moment, regulating their emotions, and improving their overall mental health.

Keywords: Meta-worry, common mental disorders, COVID-19, pandemics, mental health.

RESUMEN

Introducción. Las amenazas a la salud mental y el bienestar psicológico se han considerado entre las dimensiones más desafiantes de abordar en la pandemia de COVID-19. **Objetivo.** Rastrear la ocurrencia de síntomas significativos de ansiedad y depresión y el nivel de preocupación entre los residentes en Brasil en junio de 2020. **Método.** La muestra final totalizó 4,805 participantes de todos los estados brasileños. Se utilizó un cuestionario sociodemográfico y de salud (con preguntas relacionadas con el COVID-19), las versiones traducidas del Cuestionario Meta-Preocupación y el Cuestionario de Salud del Paciente de 4 ítems (PHQ-4). Los análisis inferenciales se calcularon utilizando la regresión logística multinomial (*backward stepwise*) en la que los hallazgos de PHQ-4 se estratificaron en cuatro categorías: sin síntomas, solo síntomas de ansiedad, solo síntomas de depresión y ambos síntomas. **Resultados.** Los hallazgos de la investigación han demostrado que existían características que predecían una mayor exposición a síntomas significativos de ansiedad y depresión (género, edad y nivel de preocupación), siendo el nivel de preocupación la variable de mayor impacto en el modelo. **Discusión y conclusión.** Los datos finales permiten la predicción temprana de los resultados negativos asociados con la pandemia, como los trastornos mentales comunes, y la asignación de intervenciones para ayudar a las personas a enfrentar racionalmente el estrés relacionado con este momento mediante una regulación de sus emociones y un mejoramiento de su salud mental.

Palabras clave: Metapreocupación, trastornos mentales comunes, COVID-19, pandemias, salud mental.

INTRODUCTION

By mid-May 2020, Brazil became the epicenter of the new coronavirus pandemic, having accumulated 241,080 cases (approximately 113 cases per 100,000 inhabitants) of the COVID-19 (2019 coronavirus disease) since late February 2020 (Ministério da Saúde, 2020a). Globally, at that time, Brazil was the fourth country in the number of accumulated cases (Barrucho, 2020) and the sixth in the number of deaths, having accumulated 16,188 deaths by then (mortality of 76.2 cases per one million inhabitants; Ministério da Saúde, 2020a).

At that time, the National Health Council (CNS) of Brazil recommended the implementation of more restrictive social distancing measures (lockdown) in the municipalities with an accelerated occurrence of new cases of COVID-19 and with service occupancy rates reaching critical levels (Conselho Nacional de Saúde, 2020). Until late June 2020, Brazil had, cumulatively, 1,313,667 cases (incidence of 625.1 per 100,000 inhabitants) and 57,070 deaths (mortality of 27.2 per 100,000 inhabitants; Ministério da Saúde, 2020b). Between the end of June and the end of July, 1,080,846 new cases were diagnosed, and Brazil reached 2,394,513 cases (incidence of 1,139.4 per 100,000 inhabitants) and 86,449 deaths (mortality of 41.1 per 100,000 inhabitants) in late July, which evidenced a significant expansion of COVID-19 in Brazil at that period (Ministério da Saúde, 2020c). In December 2020, there was a cumulative total of 7,465,806 cases (incidence of 3,552.7 cases per 100,000 inhabitants) and 190,795 deaths (mortality of 90.8 per 100,000 inhabitants; Ministério da Saúde, 2020d).

In addition to the substantial impacts on public health and the economy, COVID-19 has caused considerable routine changes for the general population, with restrictive measures and reduced mobility, added to the need for care and disease control practices. Worldwide, studies carried out during the early stages of the COVID-19 outbreak have pointed to an increase in the occurrence of Common Mental Disorders (CMD), particularly anxiety and depression (Ettman et al., 2020; Rodríguez-Rey, Garrido-Hernansaiz, & Collado, 2020; Xiong et al., 2020). In Brazil, evidence has also shown that the COVID-19 pandemic is associated with highly significant levels of psychological distress following the progressive increase in CMD occurrence worldwide (Pereira et al., 2020; Xiong et al., 2020).

Symptoms related to CMD are frequently observed in stressful situations of this type and it is common for people to have worries related to uncertainties about the future, in addition to intense fear about risks of contagion and death (Brooks et al., 2020; Faro et al., 2020). Worries, which are processes that guide important cognitive activities, are commonly associated with psychological disorders and can be enhanced by external factors (Di-

nis & Gouveia, 2011). Previous studies on public health crises similar to COVID-19 had already shown that the psychosocial and economic impacts caused by these situations have an impact on the population's mental health, causing negative psychological outcomes (Brooks et al., 2020; Jiloha, 2020) and long-term psychological sequelae (Lam et al., 2009). In January 2021, when the pandemic's second wave in Brazil was expected to start, the country had accumulated 9,176,975 cases (incidence of 4,333.8 per 100,000 inhabitants) in COVID-19 since late February 2020 (Ministério da Saúde, 2021), which would maintain and possibly aggravate the risk scenario for individual and collective psychological well-being.

Studies seeking to predict the impact size of crises like this on the mental health of Brazilians in the long-term, including possible psychological sequelae in different population groups, are extremely important and reflect on the construction of effective prevention and mental health promotion strategies for the most vulnerable groups. This can be seen as even more important, considering that Brazil achieved the status of the new epicenter of the pandemic in June 2020 (Barrucho, 2020), just four months after the diagnosis of the first case in the country. Thus, the main hypothesis of this study is that the pandemic in Brazil is a severe stressor on people's psychological adjustment, which motivates the triggering or increasing of the population's self-reported anxious and depressive symptoms.

The main objective of this study was to track the occurrence of anxiety and depression symptoms in residents of Brazil in June 2020. As a specific objective, we also aimed to map the influence of variables related to sociodemographic profiles, health status in relation to COVID-19, and the level of meta-worry in a predictive model of depression and anxiety disorders in the general population.

METHOD

Participants

The initial sample consisted of 4,970 individuals of both sexes. Due to the low representativeness of the East Asian people, Brazilian native population and other racial classification specifiers ($n = 165$; $< 1\%$ of the initial sample), a decision was made on excluding these subgroups for inferential analyses. Thus, the final sample totaled 4,805 participants and there were participants from all Brazilian states, with responses recorded from 887 cities. Ages ranged between 18 and 84 years (*Mean* [M] = 31.4; *Standard deviation* [SD] = 11.91). About half of the sample stated living in the Brazilian Northeastern region (51.9%; $n = 2495$), 30.3% ($n = 1454$) in the Southeastern, 8.3% ($n = 398$) in the Southern, 5.6 % ($n = 269$) in the Central-western, and 3.9% ($n = 189$) in the Northern ones.

Instruments

Sociodemographic and health questionnaire. Information on sex (male or female), age (in years), racial classification specifiers/self-declared skin color (white, black, mixed, East Asian people, Brazilian native population and other), education (up to high school or higher), regular income (with or without regular income), municipality, country state of residence and country region. In relation to health and COVID-19, the following questions were asked: “Have you ever been infected with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)?,” “Do you know someone who has been admitted to a hospital because of COVID-19?,” and “Do you know anyone who has passed away due to COVID-19?.” All answered yes or no.

Meta-Worry Questionnaire [MWQ] (Wells, 2005). It is a scale consisting of seven items in the form of questions and with answers on a Likert-type scale of frequency (4 points), ranging from “never” (1) to “always” (4). The questions separately assess the frequency of metacognitions about the worry and the degree of adherence to beliefs related to them. In the current research, we only used the questions on the worry’s frequency. A final score above 12 shows dysfunctional levels of worry and it is obtained by adding the responses of all items, which indicates that the greater the frequency of worries, the greater the higher of them being dysfunctional. For the inferential statistical analysis, we stratified the total score at three levels: with (0) low worry (between 0 and 12), (1) moderate worry (between 12.1 and 18), and (2) high worry (from 18.1). The MWQ has shown a high degree of reliability (Cronbach’s alpha [α] = .94).

Patient Health Questionnaire [PHQ-4] (Kroenke, Spitzer, Williams, & Löwe, 2009). The PHQ-4 is a brief screening questionnaire derived from the merger of two items of the instruments, PHQ-9 and GAD-7, that assesses the frequency of symptoms of anxiety and/or depression over the previous two weeks, with four categories of response in Likert-type format, ranging from “not once” (1) to “almost every day” (4). The total score is obtained through the separate sum of the responses of the items referring to symptoms of anxiety (“Feeling nervous, anxious or very tense” and “Not being able to prevent or control worries”) and depression (“Feeling down, depressed or hopeless” and “Having little interest or little pleasure in doing things”). The final score for tracking disorders equal to or above three indicates significant signs of anxiety and/or depression disorders (Kroenke et al., 2009). PHQ-4 showed satisfactory internal consistency in this research (α = .86).

Procedure

Data collection took place between June 2 and 10, 2020, with an online questionnaire made available through social media of the Health Psychology’s Laboratory of the Federal Uni-

versity of Sergipe (Instagram, Facebook, and Twitter) and also WhatsApp. The average response time was ten minutes, according to the platform automatic registration used for data collection. A Free and Informed Consent Term was located on the initial screen of the questionnaire, which could only be completed if the individual agreed to participate.

Data analysis

Data adjustment and analysis procedures were conducted on the SPSS (v. 25). The final scores of the instruments used were generated through exploratory and descriptive analyses (absolute and percentage frequency, mean and standard deviation). It is worth noting that we stratified the age variable into five groups (quintiles): 18 to 21 years old, 22 to 25 years old, 26 to 31 years old, 32 to 41 years old, and from 42 years old on.

Inferential analyses were computed using the Multinomial Logistic Regression (backward stepwise). The PHQ-4 findings were stratified into four categories, according to the respective scores, namely: [0] without symptoms (< 3 in the anxiety and depression subscales), [1] only with significant anxiety symptoms (≥ 3 in the anxiety subscale), (2) only with significant depression symptoms (≥ 3 in the depression subscale) and (3) with both symptoms (≥ 3 in both subscales). The stratum without symptoms was the reference group for the dependent variable in the regression. The independent variables included in the model were sociodemographic data (sex, age, education, skin color, and regular income), variables related to health status and COVID-19, and the level of worry in the MWQ (low, moderate and high).

The parameters used to assess the model adjustment were the Chi-squared test value, the Goodness of Fit of a statistical model (Pearson’s chi-squared test, expected not to be significant), the -2 log-likelihood (-2ll; expected to be significant), the explained variance (Nagelkerke pseudo R-squared), Odds Ratio (OR), and the model predictive power (with expected values above 50%). A p-value of less than .05 was adopted for all the stages of the regression analysis.

Ethical considerations

The research was approved by CONEP (Brazilian Government Research Ethics Commission; Registry: number 30485420.6.0000.0008).

RESULTS

Sample profile

The sample was mostly composed by female individuals (87.0%; n = 4180), between 18 and 21 years old (22.0%;

Table 1
Sociodemographic profile of participants

Variable	Category	%	n
Gender	Female	87.0	4180
	Male	13.0	625
Age (years old)	18-21	22.1	1060
	22-25	21.2	1018
	26-31	17.4	834
	32-41	20.3	975
	From 42	19.1	918
Skin color	White	52.2	2510
	Brown	36.2	1739
	Black	11.6	556
Education	Higher education in progress or complete	76.4	3670
	Until high school	23.6	1135
Income	No regular	55.8	2683
	Regular	44.2	2122
Infection by COVID-19	No	95.6	4593
	Yes	4.4	212
To knew someone who had been hospitalized by COVID-19	No	53.0	2545
	Yes	47.0	2260
To knew someone who had died by COVID-19	No	59.9	2879
	Yes	40.1	1926
Level of Worry	Low	37.8	1817
	Moderate	29.7	1425
	High	32.5	1563

Notes: % = relative frequency; n = quantity of subjects.

n = 1060), who self-reported being white (52.2%; n = 2510), with complete or ongoing higher education (76.4%; n = 3670), with no regular income (55.8%; n = 2683), who had never been infected by COVID-19 (95.6%; n = 4593), and did not know anyone who has been hospitalized (53.0%; n = 2545) or died by COVID-19 (59.9%; n = 2879). On the level of worry, they scored 15.5 (SD = 6.34) on average, ranking mostly in the low worry group (Table 1).

Participants scored, on average, 3.5 (SD = 1.91) in the anxiety symptoms. When stratified, 60.1% (n = 2887) of participants were classified as belonging to the group with significant anxiety symptomatology. In the subscale related to depression, the mean score was 3.3 (SD = 2.00), with 57.1% (n = 2746) of participants categorized with significant depressive symptoms. In the classification of PHQ-4 in four strata, 29.1% (n = 1398) of the participants had no significant symptoms for both disorders, 13.8% (n = 661) had only significant anxiety symptoms, 10.8% (n = 520) had only depression symptoms, and 46.3% (n = 2226) had both significant symptomatology (Table 2).

Multinomial Logistic Regression

The final model (Table 3) obtained an acceptable solution ($p < .001$), with approximately 50% of explained variance (Nagelkerke pseudo R-squared = .462) and presented a satisfactory total correct predictive power of 63.4%. The variables education, racial classification specifiers, and those related to COVID-19 had no explanatory power on any of the outcomes ($p > .05$).

In the model, younger people were more likely to have anxiety symptoms, with a growing and statistically significant proportion between being younger and the highest OR, ranging from 40% to 65% more likely compared to the older ones (from 42 years old). People with a fixed income were more likely than those with no regular income (OR = 1.3). In the strata related to meta-worry, those with high worry were

Table 2
Descriptive Statistics of PHQ-4 Subscales in Relation to Significant Symptoms for the Screening of Anxiety and Depression Disorders in the COVID-19 Pandemic (Brazil, 2020)

PHQ-4 item/subscale M (SD)	General	No symptoms	Only anxiety symptoms	Only depression symptoms	Both symptoms
1. Feeling nervous, anxious or very tense	1.8 (1.01)	.8 (.45)	2.2 (.73)	.9 (.31)	2.6 (.65)
2. Not being able to prevent or control worries	1.7 (1.03)	.7 (.48)	1.9 (.77)	.9 (.32)	2.4 (.71)
3. Having little interest or little pleasure in doing things	1.6 (1.06)	.6 (.51)	.8 (.43)	2.2 (.76)	2.4 (.76)
4. Feeling "down", depressed or hopeless	1.7 (1.08)	.6 (.50)	.9 (.41)	2.1 (.79)	2.5 (.65)
GAD-2	3.5 (1.91)	1.4 (.81)	4.1 (1.08)	1.8 (.50)	5.0 (1.11)
PHQ-2	3.3 (1.99)	1.2 (.85)	1.7 (.64)	4.3 (1.12)	4.9 (1.12)
PHQ-4	6.8 (3.51)	2.6 (1.42)	5.7 (1.29)	6.0 (1.22)	9.9 (1.77)

Notes: M = mean of the total score; SD = Standard Deviation; GAD-2 = Generalized Anxiety Disorder 2-item; PHQ-2 = Patient Health Questionnaire 2-item; PHQ-4 = Patient Health Questionnaire 4-item.

Table 3
Multinomial logistic regression for the Screening Diagnosis of Anxiety and Depression in the COVID-19 pandemic (Brazil, June 2020)

<i>Categorized PHQ-4</i>	<i>Variables</i>	<i>F (%)</i>	<i>OR</i>	<i>1/OR</i>	<i>p</i>
Only with anxiety symptoms	Age (years old)	18 to 21 (22.1)	1.6	—	.004
		22 to 25 (21.2)	1.3	—	.070
		26 to 31 (17.4)	1.4	—	.024
		32 to 41 (20.3)	1.1	—	.414
		From 42 (19.1)	1	—	—
	Regular Income	Yes (44.2)	1.3	—	.042
		No (55.8)	1	—	—
	Level of worry	Low (37.8)	.2	5.0	< .001
		High (32.5)	3.8	—	< .001
		Moderate (29.7)	1	—	—
Only with depression symptoms	Age (years old)	18 to 21 (22.1)	5.3	—	< .001
		22 to 25 (21.2)	3.8	—	< .001
		26 to 31 (17.4)	2.4	—	< .001
		32 to 41 (20.3)	1.4	—	.043
		From 42 (19.1)	1	—	—
	Level of worry	Low (37.8)	.4	2.5	< .001
		High (32.5)	2.6	—	< .001
		Moderate (29.7)	1	—	—
With both symptoms	Sex	Female (87.0)	1.4	—	.004
		Male (13.0)	1	—	—
	Age (years old)	18 to 21 (22.1)	5.2	—	< .001
		22 to 25 (21.2)	3.8	—	< .001
		26 to 31 (17.4)	2.4	—	< .001
		32 to 41 (20.3)	1.5	—	.002
		From 42 (19.1)	1	—	—
	Regular Income	Yes (44.2)	1.7	—	< .001
		No (55.8)	1	—	—
	Level of worry	Low (37.8)	.1	10.0	< .001
		High (32.5)	15.2	—	< .001
		Moderate (29.7)	1	—	—

Notes: * Reference group: no significant symptoms. ** Variables with no statistical significance in each model were excluded from the table. 1. Nagelkerke pseudo R-squared = .462 (46.2%). Percentage of total cases correctly predicted = 63.4%. Goodness of Fit was not significant ($p = .484$). Initial -2 log-likelihood = 9102.425, final -2 log-likelihood = 6462.433 and $\Delta-2\text{ll} = 2639.992$.

approximately four times more likely to be in the group with only significant anxiety symptoms ($OR = 3.8$) compared to those with medium worry. On the other hand, those with medium worry were five times more likely ($1/OR = 5.0$) compared to the group with low worry.

In the outcome only significant depression symptoms, the age variable was significant for all age groups and, as in the anxiety outcome, with an increasing and statistically significant proportion between being younger and the highest OR (ranged from 45% to about five times more likely

compared to people aged 42 or older). High worry increased the likelihood of being in the group with significant depression symptoms compared to those who had medium worry ($OR = 2.6$), and medium worry increased the likelihood in relation to those who had low worry ($1/OR = 2.5$).

In the outcome related to having both symptoms, women ($1/OR = 1.5$) showed that they were 50% more likely to be in this group. The age variable showed an increasing and statistically significant proportion between being younger and having the highest OR, as in previous outcomes. People

with regular income were more likely to have both symptomatology (OR = 1.7). Having high worry also increased the likelihood of showing both symptoms at a significant level in relation to those who had medium worry (OR = 15.2), and medium worry increased the likelihood compared to those who had low worry (1/OR = 10.0).

DISCUSSION AND CONCLUSION

This research aimed to track the occurrence of anxiety and depression symptoms in residents of Brazil, in June 2020. In addition, we have sought to map the influence of the sociodemographic profile, health status regarding COVID-19, and meta-worry in a predictive model for these symptoms.

Initially, it is noteworthy that the mean score on the meta-worry scale for those with high worry (23 points), because it was about two and a half times higher than the mean of those with low worry (9 points). Also considering that the minimum and maximum possible scores on the MWQ would be 7 and 28, respectively, it has been noted that the mean score of the group with low worry approached the minimum possible value, whereas the high worry group was at five points of the highest possible value. In other words, the discrepancy in the mean scores by strata brought an interesting discrimination of groups within the worry variable. Another important observation about the meta-worry is that, in this research, carried out in the pandemic intra-crisis period, there was an increase of three points in the general score of the variable in relation to the previous study carried out in the pre-crisis period, also with the MWQ, in March 2020 (Faro, Silva-Santos, Silva, & Vasconcelos, 2021).

The diagnostic screening indices for anxiety and depression in this study reached about 60%. Such rates were considered high compared to studies from other countries in a similar period of the pandemic, such as China, the first epicenter of the world pandemic (Choi, Hui, & Wan, 2020; Li et al., 2020), and Ecuador (Paz et al., 2020). These findings suggest a scenario of concerns regarding the psychological adjustment and mental health of the Brazilian population.

In comparison to data from March 2020, also in Brazil, the anxiety and depression scores increased almost 30% in the current study. Anxiety symptoms went from 36.2% in the previous survey to 60.1% in the current study, depression symptoms went from 24.8% in the previous one to 57.1%, and those with both symptoms were 18.2% and, in this research, they reached 46.3% (Faro et al., 2021). In short, all rates have risen since the beginning of the pandemic, which was expected, given what happened in other countries (such as China, Italy, and the United States), which reiterates a decrease in the levels of the population's mental health as 2020 months go by (Salari et al., 2020; Wang et al., 2020). The pandemic context itself, the need

for more preventive behaviors, daily living with news related to deaths, and an increase in the number of cases are contributing factors to this situation (Zhao & Zhou, 2020).

The profile found to be most vulnerable for the onset of symptoms was that of women, young people, and those with a high level of worry. This profile does not differ from studies carried out before the COVID-19 pandemic, in which these groups were already more vulnerable to the appearance of CMD symptoms, such as the gender variable (Jia et al., 2020a; Riecher-Rössler, 2017; Wells, 2010). With the pandemic outbreak, it becomes clear that they remained the most vulnerable in the pandemic (Pan et al., 2021; Salari et al., 2020). In addition, from the three variables that made up the profile, age can receive an additional comment, since although more vulnerable to mental illness in this study, young people are not considered a risk group for COVID-19 (Adams, Park, Schaub, Brindis, & Irwin Jr., 2020). For this reason, we believe that the relationship between being younger and worse mental health indicators may be based on uncertainty about the future, which has been shown to be related to significant symptoms of depression, anxiety and stress (Seco Ferreira, Oliveira, Delabrida, Faro, & Cerqueira-Santos, 2020).

A specific finding of this research drew the most attention: having a regular income—which is largely an equivalent condition to being employed in Brazil—was a predictive factor for the presence of anxious or depressive symptoms. This finding differs from similar investigations in the pandemic of COVID-19 (Hou et al., 2021; Shah, Mohammad, Qureshi, Abbas, & Aleem, 2021), which indicate that unemployment is a risk factor in mental health, mainly because of the uncertainty about getting a job and having a regular income. In this research, we believe that given the high rate of layoffs that occurred during the pandemic (International Labour Organization, 2020), having a regular income has also been reflected in insecurity and uncertainty in relation to maintaining employability in the future (Wilson et al., 2020), which also was related to the presence of anxiety or both symptoms.

Regarding meta-worry, a proportionally direct relationship was found and the higher the level of worry, the greater the exposure to the presence of mental health symptoms, regardless of the regression outcome. The highest degree of vulnerability was related to the outcome in both symptoms, in which those who had a high level of meta-worry were about 15 times more likely to be in this outcome, this being compared to those who had an average level of meta-worry. In the same direction, compared to low worry, those who exhibited moderate level were ten times more likely to be in the group with both symptoms. Such findings suggest a tendency towards an increase in vulnerability to symptoms of anxiety and depression as worry increases, which complies with findings in the United Kingdom, also obtained during the pandemic (Jia et al., 2020b).

We understand that the findings regarding the high impact of meta-worry are due, at least in part, to the mode and amount of information that part of the population had access to during the pandemic, which may have amplified the seriousness inherent to the health crisis. It is known that the pandemic has been receiving journalistic coverage and, above all, it is commented on social media, in an almost ubiquitous way since the beginning of 2020, with information of the most diverse types and degrees of veracity (Garcia & Duarte, 2020), which helps explain the way in which people perceive and react to the crisis situation. If communication is distorted or biased, it tends to harm those who receive the information, impacting the way of facing the pandemic (Pan American Health Organization [PAHO], 2020). On the other hand, communication, when done properly—that is, based on reality and without exaggeration for both protection and exposure to the disease—tends to favor coping with the pandemic scenario (Caetano et al., 2020). However, the information overload also influences the way of dealing with adversities, which should be emphasized because, during 2020, a flood of true and false news regarding COVID-19 was observed (Galhardi, Freire, Minayo, & Fagundes, 2020; PAHO, 2020).

Despite the valuable findings, this research has some limitations. First, the study had a possible participation bias, in which it is unlikely that people with no level of worry about the pandemic or even those who denied the existence of the pandemic itself would have been interested in responding the survey. That is, even people with low worry showed some concern in relation to COVID-19, which may have led them to participate in our research, given the sampling by convenience. On the other hand, the absence of this feeling of worry or even denial may not have aroused interest in collaborating with the study, which suggests some bias in the sample. Another limitation is that, considering the type of sampling, even though there has been a large number of people participating in several locations in Brazil, there is also the difficulty of generalizing the findings to the general population, since men, people with low schooling, and older subjects (elderly, especially) were less represented in the sample. Therefore, caution is needed in extrapolating the results of this study. It should be noted that the current investigation was carried out right at the beginning of the first peak of the COVID-19 cases and deaths in Brazil, a specific moment in relation to the impact of the pandemic on the country.

Variables such as having had COVID-19, having known or lived with people who were infected or who died of COVID-19, although they had been part of this research, did not show any impact on the outcomes. It is worth highlighting that investigating these variables in another period of the pandemic can be a relevant topic, as this was a cross-sectional study and does not reflect the influence of other moments of the crisis within and throughout the pan-

demic itself. We also believe that future studies may focus on other periods of the pandemic, in which there is a variation in the number of cases and deaths, seeking to compare the mental health status. Thus, it would be possible to assess the negative outcomes associated with COVID-19 and ways of combating it, starting with a knowledge of CMD symptomatology in the Brazilian population.

Finally, the conclusions of this research suggest that the occurrence of anxious and depressive symptoms in the Brazilian population in June 2020 can be considered high, when compared to studies from other locations, in a period similar to our data collection. Besides, the findings showed that there are characteristics that predict greater exposure to significant symptoms of anxiety and depression (sex, age, and level of worry), and that worry was the variable with the greatest impact.

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Conflicts of interest

The authors declare they have no conflicts of interest.

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