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ORIGINAL ARTICLE

Relationship between sociodemographic variables, Covid-19 pandemic behaviors, and psychological aspects

Relação entre variáveis sociodemográficas, comportamentos na pandemia Covid-19 e aspectos psicológicos

Relación entre variables sociodemográficas, conductas pandémicas de Covid-19 y aspectos psicológicos

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Abstract

The present study sought to analyze the relationship between sociodemographic variables (age, sex, number of people living together, type of residence, income, and previous psychiatric diagnosis), behaviors related to the pandemic (daily learning time about Covid-19 and agreement with measures of social distance) and psychological aspects related to general mental health (psychological well-being, mental health, loneliness, anxiety, stress, and depression). This quantitative cross-sectional study consisted of 543 adults aged 18 and 76 years (M = 37.01; SD = 12.85), mostly women. Questionnaires on isolation behaviors during the Covid-19 pandemic, WHO-5, GHQ-12, UCLA, GAD-7, PSS-10, and CES-D questionnaires were applied. Data were collected online in all Brazilian regions. We performed linear regression analysis for each dependent variable (well-being, mental health, loneliness, anxiety, stress, and depression). The results indicate that higher income, living at home, and not having a psychiatric diagnosis are associated with higher well-being scores. Furthermore, these same sociodemographic variables are negatively associated with higher loneliness, stress, anxiety, and depression scores. Agreeing with social distancing procedures is associated with better indicators of well-being and lower anxiety and stress scores. Based on the results, we can consider that social factors, such as type of residence and income, influence quality of life and directly reflect mental health. As for behavior during the pandemic, following social distancing measures can reduce anxiety and stress, improving feelings of well-being. These findings can help formulate public preventive health policies.

Keywords: Coronavirus; Pandemics; Psychological symptoms; Mental health

Resumo

O presente estudo buscou analisar a relação entre variáveis sociodemográficas (idade, sexo, número de pessoas que moram juntas, tipo de residência, renda e diagnóstico psiquiátrico prévio), comportamentos relacionados à pandemia (tempo diário de aprendizado sobre o Covid-19 e concordância com medidas de distância social) e aspectos psicológicos relacionados à saúde mental geral (bem-estar psicológico, saúde mental, solidão, ansiedade, estresse e depressão). Este estudo transversal quantitativo foi composto por 543 adultos, com idade entre 18 e 76 anos (M = 37,01; DP = 12,85), em sua maioria mulheres. Foram aplicados questionários sobre comportamentos de isolamento durante a pandemia Covid-19, questionário WHO-5, GHQ-12, UCLA, GAD-7, PSS-10 e CES-D. Os dados foram coletados online em todas as regiões brasileiras. Realizamos análise de regressão linear para cada variável dependente (bem-estar, saúde mental, solidão, ansiedade, estresse e depressão). Os resultados indicam que maior renda, morar em casa e não ter diagnóstico psiquiátrico estão associados a maiores escores de bem-estar. Além disso, essas mesmas variáveis sociodemográficas estão negativamente associadas a maiores escores de solidão, estresse, ansiedade e depressão. Concordar com procedimentos de distanciamento social está associado a melhores indicadores de bem-estar e menores escores de ansiedade e estresse. Nós podemos considerar com base nos resultados que fatores sociais, como o tipo de residência e renda, influenciam na qualidade de vida e refletem diretamente na saúde mental. Quanto ao comportamento durante a pandemia, seguir as medidas de distanciamento social pode reduzir a ansiedade e o estresse, melhorando a sensação de bem-estar. Essas descobertas podem ajudar a formular políticas públicas de saúde preventivas.

Palavras-chaves: Coronavírus; Pandemias; Sintomas psicológicos; Saúde mental

Resumen

El presente estudio buscó analizar la relación entre variables sociodemográficas (edad, sexo, número de personas que conviven, tipo de residencia, ingresos y diagnóstico psiquiátrico previo), conductas relacionadas con la pandemia (tiempo de aprendizaje diario sobre Covid-19 y concordancia con medidas de distancia social) y aspectos psicológicos relacionados con la salud mental en general (bienestar psicológico, salud mental, soledad, ansiedad, estrés y depresión). Este estudio transversal cuantitativo consistió en 543 adultos, con edades entre 18 y 76 años (M = 37.01; DT = 12.85), en su mayoría mujeres. Se aplicaron cuestionarios sobre comportamientos de aislamiento durante la pandemia Covid-19, WHO-5, GHQ-12, UCLA, GAD-7, PSS-10 y CES-D. Los datos se recopilaron en línea en todas las regiones brasileñas. Realizamos análisis de regresión lineal para cada variable dependiente (bienestar, salud mental, soledad, ansiedad, estrés y depresión). Los resultados indican que los ingresos más altos, vivir en casa y no tener un diagnóstico psiquiátrico se asocian con puntajes de bienestar más altos. Además, estas mismas variables sociodemográficas se asocian negativamente con puntuaciones más altas de soledad, estrés, ansiedad y depresión. Estar de acuerdo con los procedimientos de distanciamiento social se asocia con mejores indicadores de bienestar y menores puntuaciones de ansiedad y estrés. Con base en los resultados, podemos considerar que factores sociales, como el tipo de residencia y los ingresos, influyen

en la calidad de vida y repercuten directamente en la salud mental. En cuanto al comportamiento durante la pandemia, seguir las medidas de distanciamiento social puede reducir la ansiedad y el estrés, mejorando la sensación de bienestar. Estos hallazgos pueden ayudar a formular políticas públicas de salud preventiva.

Palabras clave: Coronavirus; Pandemias; Síntomas psicológicos; Salud mental

In December 2019, the respiratory syndrome caused by the new Coronavirus was first reported in Wuhan, China. Since then, the virus has been recorded in at least 217 territories, with 194,608,040 infected and 4,170,155 deaths [(1)]. In March 2020, the World Health Organization (WHO)[2] declared a worldwide pandemic alert, providing guidelines and updates on the situation. Currently, the countries United States, India, and Brazil lead the number of infected and deaths[1], and in Brazil, there are 19,968,663 cases of infected people and 549,924 deaths[1].

The fast spread of the Coronavirus has raised major political, economic, and health challenges. As a measure of decelerating the number of infected, several countries have adopted protective measures such as promoting the use of masks, hand hygiene, and social distance. In addition to physical care, this scenario arouses the need for attention to prevention and care for the population's mental health[3]. Previous pandemic situations, such as the Ebola outbreak, had the psychological outcome of increasing depressive, anxiety, and post-traumatic stress symptoms[4,5].

In the case of the Covid-19 pandemic, the feeling of an imminent threat, the fast contagions, and the peculiarities of preventive measures, especially social distance, constitute a high burden of negative experiences and emotions, which may enhance the development of depressive symptoms, anxiety, and stress or even a feeling of loneliness[6-9]. Therefore, a better understanding of which variables are associated with such symptoms favors the development of preventive measures and psychotherapeutic treatment. Some studies associate mental health indicators during the Covid-19 pandemic with variables like the quality of interactions during social distance[10] and personality characteristics[11], for instance. However, there is still a lack of information in Brazil and other countries on how variables like sociodemographic, agreement with social distance, and the number of hours spent reading or listening to news about the virus can affect general mental health. Besides, there are only a few studies that include the perception of loneliness in the adult population in their investigations, although this is an important variable associated with mental health[12] and we believe that the social distance situation may enhance this perception.

Previous studies have indicated that younger people may experience greater psychological impact during a pandemic[9,13,14]. For example, Wang et al.[13] observed in China that young adults tend to be more concerned with collateral impacts and feelings of threat due to the disease. Huang and Zhao[9] observed a similar result in China. They found that the age group below 35 years old had more indicators of anxiety and difficulties sleeping. Based on these findings, it is hypothesized that younger people experience higher levels of stress, anxiety, and depression. Other studies indicate that women tend to suffer greater psychological impacts during the pandemic with higher levels of stress, anxiety and depression, loneliness, and a sense of threat[13-15]. In Brazil,

Gonçalves et al.[10] found that social isolation has affected the quality of mental health, mainly increasing anxiety levels. In the present study, we expected to find similar results for the Brazilian sample.

Other variables such as monthly income, number of people living together, and type of residence have also been indicated as predictors of lower levels of general mental health during the pandemic, although still less explored. With the health crisis, the affected countries are expected to suffer from economic impacts to some extent[16,17]. Monthly income in this situation of financial instability can trigger levels of stress, anxiety, and depression, affecting people's mental health. This variable has still been poorly studied. However, some studies have found an association between higher indicators of stress and anxiety with a lower monthly income in Spain[18] and fear of losing a job or unstable financial situation in Cyprus[19].

The number of people living together, and the type of residence were also indicated as potential risk factors, although there are still inconsistencies in the findings. For example, Bu et al.[7], in a study that compared people before and during social isolation in a United Kingdom sample, found that reporting being in social isolation alone was indicated as a risk factor for increasing the feeling of loneliness when compared to being with other people. On the other hand[19], found, in a Cyprus sample, a positive association between a greater number of people living together and higher levels of anxiety and depression, while living alone was not indicative of a risk for general mental health impairment. Similarly, the physical space of the home can also be a predictor of mental health. Open-air spaces were found to be a protective factor during social distance[20]. Therefore, it is hypothesized that there would be an association between lower mental health and the number of people living together and living in apartments.

There is some disagreement in the literature about the psychological effects of agreeing to protective measures during the early stages of the pandemic. For instance, in countries as Sierra Leone and China, Betancourt et al.[4] and Wang et al.[13] found lower indicators of stress, anxiety, and depression in the participants who agreed to such measures, while Leung et al.[21] found higher levels of anxiety. We hypothesize that agreeing with the need for protective measures, especially social distance, can contribute to lower levels of anxiety, stress, and depression.

Since the beginning of the coronavirus pandemic, a great deal of information has been disseminated daily. Being exposed to information that carries emotional content, whether positive or negative, can influence, to some extent, the emotional state of the recipient[22]. Providing reliable information is essential in the process of raising awareness, disseminating protective measures, and updating the population[8]. However, when in excess, it can act as a trigger for feelings of threat[6,9] empowering people to feel apprehensive due to the current situation's uncertainties. Therefore, it is hypothesized that the number of hours that people dedicate themselves to be informed about Covid-19 is associated with greater indicators of anxiety and stress.

Some sociodemographic variables and behaviors related to the pandemic still little explored can act as risk factors for lower quality of general mental health. By understanding their associations with psychological aspects such as well-being, mental health, loneliness, anxiety, stress, and depression, it is possible to develop actions for prevention and intervention. Sociodemographic variables and behaviors related to the pandemic

have been indicated as associated with general mental health[23-25]. Thus, we aimed to analyze the relationship between sociodemographic variables (age group, sex, number of people living together, type of residence, income, and previous psychiatric diagnosis), behaviors related to the pandemic (daily hours dedicated to reading news about Covid-19 and agreement with measures of social distance) and psychological aspects related to general mental health (psychological well-being, mental health, loneliness, anxiety, stress, and depression). In summary, we observed that studies investigating those associations were conducted in different countries. Still, a limited number was conducted in Brazil, where the number of infected people and deaths is the third highest in the world in July 2021. For this matter, we focus on the Brazilian sample.

Aligned with previous findings, it is hypothesized that a lower level of general mental health will be associated with the younger age group (H1), women (H2), the number of people living together (H3), living in an apartment (H4), having been previously diagnosed with a psychiatric disorder (H5), and the number of daily hours dedicated to read and hear news about Covid-19 (H6). On the opposite, we estimate that indicators of a higher level of general mental health will be associated with monthly income (H7) and agreeing with social distance measures (H8).

Method

Participants

The Research design is a cross-sectional quantitative and exploratory study. The sample was composed of 543 Brazilian adults recruited by convenience from March 25th to April 7th, 2020. Their age ranged from 18 to 76 years (M = 37.01; SD = 12.85), 75.7% were women, and 51% lived in the Brazilian southwest region. As inclusion criteria, it was adopted to be over 18 years old. There were no exclusion criteria.

Measures

Questionnaire on Isolation behaviors during the Covid-19 pandemic

We asked participants to evaluate behaviors concerning social distancing during the Covid-19 pandemic. The questionnaire was composed of three items related to the agreement with Covid-19 social distancing procedures, belonging to one or more risk groups for Covid-19, and the number of hours dedicated to reading or hearing news about Covid-19.

Five Well-Being Index (WHO-5)

Developed by the WHO, the questionnaire evaluates the perception of psychological well-being. It contains five items with a 6-point Likert scale ranging from 0 (“Never”) to 5 (“All the time”). Higher scores indicate a good perception of well-being. The measure showed good psychometric indicators[26] and internal consistency reliability $\alpha = .92$ in the present study.

General Health Questionnaire, [GHQ-12[27]]

A 12-items scale that assesses the quality of mental health in a 4-point Likert scale, ranging from 0 ("Never") to 3 ("In many moments"). The highest scores indicate the perception of mental health suffering. The scale showed good psychometric indicators[28] and internal consistency reliability α = .90 in this study.

UCLA Loneliness Scale[29]

This scale comprises 20 items that assess how often the respondent felt alone on a 4-point Likert scale, ranging from 0 ("Never") to 3 ("Frequently"). Higher scores indicate a higher level of perceived loneliness. The psychometric indicators of UCLA are adequate[30], and internal consistency reliability α = .94 in the present study.

Generalized Anxiety Disorder 7, GAD-7[31]

The questionnaire is composed of seven items that assess the occurrence of symptoms related to anxiety using a 4-point scale, ranging from 0 ("Never") to 3 ("Almost every day"). Higher scores indicate the existence of anxiety symptoms. The instrument showed good psychometric indicators[32] and internal consistency reliability α = .92 in this study.

Perceived Stress Scale, PSS-10[33]

A 14-items scale, the PSS-10 evaluates the perceived stress using a 5-point Likert scale that ranges from 0 ("Never") to 4 ("Very frequent"). Higher scores indicate a high level of perceived stress. The PSS-10 psychometric indicators are adequate[34], and internal consistency reliability α = .88 in the present study.

Center for Epidemiological Studies – Depression, CES-D[35]

Comprised of 20 items that assess the frequency of depressive symptoms using a 4-point scale. The answer key ranges from 0 ("Rarely – less than 1 day") to 3 ("Most of the time – 5 to 7 days"), with higher scores meaning more frequent depressive symptoms. The scale presented adequate psychometric indicators[36,37] and internal consistency reliability α = .84 in the present study.

Procedure

This study follows the provisions of the Declaration of Helsinki regarding research on Human participants and has the approval of a Brazilian ethics committee (CAAE: 43311021.0.0000.5514). All participants were informed of the objectives of the study and gave their informed consent before participating. Participants were told they could withdraw from the study at any point without being penalized. Data collection only began after informed consent was obtained. We used the Google Forms platform to conduct the survey. We shared the research link on the Facebook website and via WhatsApp. Additionally, we used a snowball recruitment strategy to reach more participants in all Brazilian regions.

Data analysis

As our first step, we ran a descriptive analysis of the sample. To analyze the relationship of sociodemographic variables and behaviors related to the Covid-19 pandemic (independent variables) with the general mental health scores (dependent variables), we performed five linear regression analyses, one for each dependent variable (well-being, mental health, loneliness, anxiety, stress, and depression). For each analysis, the following predictors were selected: age, gender, monthly income, number of people residing with the participant, type of residence, psychiatric diagnosis, number of hours reading news about Covid-19, and agreement on measures of social distance. Regarding age, we divided the participants into two groups: people up to 35 years old and older than 35 years old, according to the hypothesis raised and based on a previous study[9]. The analyzes were conducted in R environment, using the base[38] and psych[39] software packages.

Results

Detailed sociodemographic characteristics and behaviors associated with the Covid-19 pandemic collected for this study are presented in Table 1.

Table 1. Participants sociodemographic characteristics and behaviors associated with the Covid-19 pandemic

Residence type		Apartment	House				
	n	278	265				
	%	51.2	48.8				
Psychiatry Diagnosis		No	Yes				
	n	398	145				
	%	73.3	26.7				
Belong to a risk group for Covid-19		None	One group	More than one group			
	n	392	116	35			
	%	72.2	21.4	6.4			
Number of people living with		0	1 or 2	3 or 4	5 or more		
	n	77	238	206	22		
	%	14.2	43.8	37.9	4.1		
Income (Brazilian minimum wage)		2 or less	2 to 4	5 to 9	10 to 20	20 or more	
	n	163	127	154	85	14	
	%	30.0	23.4	28.4	15.7	2.6	
News about Covid-19 (hours/day)		Less than 1	1 to 3	3 to 5	5 to 7	More than 7	
	n	249	213	50	13	18	
	%	45.9	39.2	9.2	2.4	3.3	
Brazil's region		Southwest	South	Middle-west	Northeast	North	Abroad
	n	277	100	87	40	11	28
	%	51.0	18.4	16.0	7.4	2.0	5.2

Table 2 shows the five regression analyses using the well-being, mental health, loneliness, anxiety, stress, and depression measures as dependent variables and the sociodemographic characteristics and behaviors

associated with the Covid-19 pandemic as independent variables. Only statistically significant variables are presented considering $p < .05$.

Table 2. Regression analysis for the five psychological variables

Well-being (WHO)	**Estimated (Std. Error)**	**t**	**p**	**R^2 (Adj.R^2)**
(Intercept)	14.54 (2.38)	6.12	.000	.18 (.17)
Age	2.50 (0.51)	4.89	.000	
Income	0.78 (0.22)	3.49	.001	
people living with	-0.82 (0.32)	-2.56	.011	
residence type	-2.03 (0.51)	-4.01	.000	
social distance agreement	3.52 (1.25)	2.81	.005	
psychiatric diagnoses	2.76 (0.53)	5.22	.000	
Mental health (GHQ-12)	**Estimated (Std. Error)**	**t**	**p**	**R^2 (Adj.R^2)**
(Intercept)	35.98 (3.36)	10.70	.000	.18 (.17)
Age	-3.12 (0.72)	-4.31	.000	
Income	-1.22 (0.32)	-3.85	.000	
residence type	1.89 (0.72)	2.64	.009	
psychiatric diagnoses	-5.10 (0.75)	-6.81	.000	
Loneliness (UCLA)	**Estimated (Std. Error)**	**t**	**p**	**R^2 (Adj.R^2)**
(Intercept)	54.32 (5.15)	10.55	.000	.13 (.11)
Age	-4.13 (1.11)	-3.73	.000	
Income	-1.43 (0.48)	-2.95	.003	
residence type	2.43 (1.10)	2.21	.027	
psychiatric diagnoses	-6.14 (1.15)	-5.35	.000	
Anxiety (GAD-7)	**Estimated (Std. Error)**	**T**	**p**	**R^2 (Adj.R^2)**
(Intercept)	17.84 (2.35)	7.59	.000	.15 (.14)
Age	-2.04 (0.51)	-4.03	.000	
Gender	1.32 (0.54)	2.45	.015	
Income	-0.56 (0.22)	-2.51	.012	
people living with	0.81 (0.32)	2.55	.011	
residence type	1.24 (0.50)	2.48	.014	
social distance agreement	-3.85 (1.24)	-3.12	.002	
psychiatric diagnoses	-2.25 (0.52)	-4.30	.000	
hours reading news	0.81 (0.25)	3.29	.001	
Stress (PSS)	**Estimated (Std. Error)**	**T**	**p**	**R^2 (Adj.R^2)**
(Intercept)	36.41 (3.40)	10.70	.000	.16 (.15)
Age	-3.33 (0.73)	-4.55	.000	
Gender	1.67 (0.78)	2.13	.033	
Income	-0.85 (0.32)	-2.65	.008	
residence type	2.27 (0.72)	3.13	.002	
social distance agreement	-3.63 (1.79)	-2.03	.043	
psychiatric diagnoses	-4.48 (0.76)	-5.90	.000	

Depression (CES-D)	Estimated (Std. Error)	T	p	R^2 (Adj.R^2)
(Intercept)	50.33 (4.70)	10.70	.000	.20 (.18)
Age	-3.76 (1.01)	-3.72	.000	
Gender	2.49 (1.08)	2.31	.021	
Income	-1.98 (0.44)	-4.48	.000	
residence type	3.01 (1.00)	3.00	.003	
psychiatric diagnoses	-7.29 (1.05)	-6.95	.000	
hours reading news	1.18 (0.49)	2.38	.018	

The results indicate that some sociodemographic variables are predictors of psychological indicators used in this study. Higher scores on well-being are associated with higher income, living in a house, and the absence of a psychiatric diagnosis. In addition, these same sociodemographic variables are negatively associated with higher scores in measures of impairment in mental health, loneliness, stress, and symptoms of anxiety and depression. Women and people up to 35 years old tended to score higher in anxiety, stress, and depression measures. Agreeing with social distance procedures is associated with better indicators of well-being and lower scores on measures of anxiety and stress. The number of people living together was positively related to anxiety and negatively to well-being. Finally, the number of hours devoted to reading and hearing information about Covid-19 is positively associated with symptoms of anxiety and depression.

Discussion

This study aimed to analyze the association of sociodemographic variables and behaviors related to the Covid-19 pandemic with general mental health indicators. Eight hypotheses have been established and were confirmed to some extent. In summary, the findings corroborate previous studies[8,9,14,23,24]. Furthermore, these findings indicate multiple factors that enhance general mental health during the pandemic period, requiring a global view when thinking about prevention and psychological intervention.

Regarding sociodemographic variables, we observed that young adults (age ≤ 35 years) had higher indicators of anxiety, stress, and depression symptoms, confirming H1 and corroborating previous studies from other countries like China[9,14]. As indicated by[13], this age group may have more significant concerns about the economic impacts and fear in relation to the disease. In the same direction, women had lower levels of psychological well-being and higher indicators of anxiety, depression, perception of loneliness, stress, and impaired mental health. These findings confirm H2 and are similar to others found in samples from several countries[13-15]. It is essential to highlight that future studies should investigate this specific finding, aiming to analyze the contextual and cultural association with psychological overwhelming in women during the pandemic crisis. For instance, in narrative research, Aldossari and Chaudhry[40] indicated the possibility of women been suffering from burnout due to gender inequality. Also, according to the International Labor Organization (ILO) analysis, young adults and women have suffered more significant immediate economic impact due to the

Covid-19 pandemic, had their working hours reduced, or even lost their jobs[41]. This event may be associated with the observed findings in our studies.

Other sociodemographic variables were also associated with general mental health indicators, such as the number of people living in the same place and the residence type. The greater number of people living in the same space was associated with lower indicators of psychological well-being and greater symptoms of anxiety. Living in an apartment was also associated with lower indicators of psychological well-being and higher indicators of impairment in mental health, feelings of loneliness, anxiety, stress, and depression. Hypotheses to these results have a relationship with income; living in a house is more expensive than living in an apartment, so people that live in a house have a better financial situation. Both sets of results confirm hypotheses 3 and 4 and are consistent with those founds in the literature[19,20]. Future studies could investigate the quality and kind of relationship between people living together as well as assess the perception of the physical quality of their homes.

Our dependent variables were also associated with previous psychiatric disorder diagnoses (H5). This found indicates that people with a previous disorder are at a higher risk of impairing mental health in general, which confirms hypothesis 5 of this study. These results indicate the need for attention to this population in mental health intervention programs[8]. Another factor that proved to be important for general mental health during the period evaluated was the time of exposure to news about Covid-19. A greater number of hours dedicated to reading or hearing information on the subject was associated with indicators of anxiety and depression. This data confirms findings from previous studies[6,9,22] and draws attention to the amount of information on the topic consumed daily.

We also hypothesized that higher levels of general mental health would be associated with higher monthly income (H7) and agreement with social distance procedures (H8). Both hypotheses have been confirmed to some extent. Higher monthly income was associated with higher levels of psychological well-being, better indicators of mental health, and lower levels of loneliness, anxiety, stress, and depression. In the same direction, agreement with social distance procedures was positively associated with psychological well-being and negatively with anxiety and stress symptoms. This result is the same founded as previous studies[42-45].

We investigated several sociodemographic variables and behaviors related to the pandemic in association with five general mental health indicators, specifically: well-being, mental health, loneliness, anxiety, stress, and depression. In summary, we can consider social factors, such as the type of residence and income, which influence the quality of life and directly reflect on mental health. As for behavior during the pandemic, following social distancing measures can reduce anxiety and stress, improving feelings of well-being. These findings can help formulate public preventive health policies. We expected to understand and acknowledge the importance of these variables for the quality of life of people during the social distance period and to foresee possible effects in the post-pandemic period, especially in mental health care programs. A better understanding of variables that can increase or even protect people's psychological health can help political makers to seek programs that consider these characteristics.

Some limitations, however, need to be highlighted. For this study, we did not seek to deepen the investigation of each sociodemographic variable or behavior during the pandemic. Here we aimed to understand variables associated with mental health to identify where it would be more beneficial to go deeper in future studies. In this way, future studies can fill this gap, as indicated at specific during the discussion of our results.

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