Psychosocial impact of COVID-19 self-isolation on the Brazilian population: a preliminary cross-sectional analysis[1]

Impacto psicossocial do isolamento durante pandemia de covid-19 na população brasileira: análise transversal preliminar

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Abstract

This is a quantitative, descriptive, and analytical study of the Brazilian population in social isolation (SI) during the novel coronavirus pandemic whose aim was to identify predictive factors for psychosocial stress using data collected by a social media-based online questionnaire administered in April 2020. Among the 3,836 participants, most were women (2,821; 73.5%), aged from 30 to 39 years (1,101; 28.7%), with post-graduate education (2,075;54.1%), and in SI (3,447; 89.9%). We found significant differences between individuals who were in SI and those who were not regarding: feeling afraid of being infected by the coronavirus ($p<0.001$) and worried if someone had to leave the house ($p<0.001$); changes in routine after self-isolating in those who managed to adapt to the new reality compared to those who could not adapt ($p<0.001$); feeling sad and worried while doing other activities, such as physical exercise, religious practices, or recreational activities ($p<0.001$); inability to imagine a solution to this problem ($p<0.001$), and changes in sleep pattern ($p=0.006$). Our findings indicate the need for further discussions about the social determinants of health, addressing not only the disease *per se*, but also social relations, cultural manifestations, and the economy, which may impact people's mental health.
Keywords: New Coronavirus; Pandemic; Psychosocial Stress; Self-Isolating.

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Resumo

Este artigo trata de uma pesquisa quantitativa, descritiva e analítica da população brasileira em isolamento social (IS) durante pandemia do novo coronavírus, com o objetivo de identificar preditores de estresse psicossocial com dados recolhidos por questionário on-line nas redes sociais em abril de 2020. Do total de 3.836 pessoas participantes, prevaleceram: mulheres (2.821; 73,5%); faixa etária de 30 a 39 anos (1.101; 28,7%); com pós-graduação (2075;54,1%); estando em IS (3.447; 89,9%). Houve diferença significativa pelo fato de as pessoas estarem em IS: sentir medo de serem infectadas pelo coronavírus (p<0,001); preocupação se alguém precisava sair de casa (p<0,001); rotina modificada após o IS, destacando "entretanto conseguiram se adaptar à nova realidade", comparado aos que "tiveram a rotina alterada sem conseguir se adaptar" (p<0,001); tristeza ou preocupação, fazendo outras atividades como exercício físico, práticas religiosas, atividades lúdicas (p<0,001); e não pensaram numa solução para esse problema (p<0,001); além de mudança no padrão de sono (p=0,006). Os achados revelam a necessidade de discussão ampliada dos determinantes sociais da saúde, que devem envolver não só a doença, mas levar em consideração as relações sociais, as manifestações culturais e a economia, que podem impactar a saúde mental das pessoas.

Palavras-chave: Novo Coronavírus; Pandemia; Estresse Psicossocial; Isolamento Social.

Introduction

In less than twenty years, the world is now facing the third coronavirus crisis. SARS-CoV (2002), the first of them, caused the outbreak of Severe Acute Respiratory Syndrome; the second, MERS-CoV (2012), originated the Middle East Respiratory Syndrome. SARS-CoV-2 emerged in Wuhan, China, at the end of 2019 – a novel coronavirus whose disease (COVID-19) has posed a major challenge for the global public health (Wang, D. et al., 2020).

Since then, the disease spread through 34 Chinese regions, showing high transmissibility. At the end of January 2020, the World Health Organization (WHO) declared that the outbreak of COVID-19 constituted a public health emergency of international concern (Mahase, 2020).

SARS-CoV-2 is a betacoronavirus transmitted to humans by intermediate hosts, such as bats (*Chiroptera – mus caecus*) (Paules; Marston; Fauci, 2020). Human-to-human transmission occurs through contaminated respiratory droplets in contact with the conjunctiva, nasal mucosa, mouth, or feces (Li, Q. et al., 2020). This explains the increasing number of people who were not exposed to vectors and still contracted the disease, as well as cases of health professionals contaminated when in direct contact with infected patients (Huang et al., 2020). Based on its reproduction number, COVID-19 transmissibility was estimated at 4.08 (Cao et al., 2020), suggesting that each case led to up to four new cases on average, possibly involving asymptomatic transmission (Rothe et al., 2020).

Ever since the outbreak, local authorities are suggesting social isolation (SI) as a fundamental public health means to control the disease spread (Adalja; Toner; Inglesby, 2020). Although a highly efficient measure, distancing may exert direct and indirect social and psychological influences now and in the long run, deserving attention from health authorities (Holmes et al., 2020).

Social distancing changes the dynamics of living conditions in working environments and family *loci*, arousing feelings of loneliness, fear, and generalized anxiety, along with the fear caused by the virus high transmission

rate due to COVID-19 speed, invisibility, and morbidity and mortality. It also poses other psychosocial challenges, including stigma and discrimination against infected people (Lin, 2020, Pappas et al., 2009), despite nourishing a dehumanization (Huang; Zhao, 2020). Considering that, we must foster a timely understanding of the urgent necessity of maintaining mental health (Xiang et al., 2020).

Many studies conducted during the SARS outbreak investigated the psychological impact on the non-infected community, revealing significant psychiatric morbidities associated with younger age. Moreover, the closure of schools and business worsened negative emotions experienced by individuals (Wang, C. et al., 2020).

A study conducted with the Chinese population in the first two weeks of the COVID-19 outbreak found 53.8% of respondents to classify its psychological impact as moderate or severe; 28.8% reported moderate to severe anxiety symptoms, and 8.1% reported moderate to severe stress levels (Wang, C. et al., 2020).

This evidence reveals the negative psychological effects of social distancing during previous pandemics, stressing the need for synthesizing information on COVID-19 epidemiological and psychological impact in different populations to enable the development of appropriate public policies addressing the problem in each context. Thus, this study aimed to characterize the profile of the Brazilian population in SI, identifying predictive factors of psychosocial stress.

Material and method

This is a quantitative, descriptive and analytical study. Data were collected online through WhatsApp and Instagram in a period of 72 hours (in the 10th, 11th, and 12th of April 2020), using an online questionnaire with open-ended and multiple-choice questions developed on Google® Forms. The instrument included questions on sociodemographic data (age, gender, marital status, place of residence, education level, household income and decrease in household income after social isolation, employment, and the number of people living in the household) and issues related to the psychosocial impact of social distancing, approaching: fear of contamination; concern if one has to leave the house; social isolation influence on the daily routine; how they managed feelings of sadness or concern – sought for professional help, did other activities, thought of a solution; changes in sleeping patterns; physical symptoms affecting daily routine; lack of concentration or "mind going blank" during isolation.

Inclusion criteria were: Brazilian residents aged 18 years or older who completed the questionnaire. Given its public research nature, this study followed the ethical principles established by resolutions CNS/MS No. 466/2012 and 510/2016, in force at the period of data collection, thus exempted from review by the Ethics and Research Committee (CEP/Conep). Even so, data was manipulated following the ethical principles of scientific research determined by the National Health Council (Brasil, 2016).

The data were analyzed using SPSS ® software version 24.0, calculating the absolute and relative frequencies of all study variables. Association between variables was verified using the chi-square test, considering a 5% significance level for inferential procedures.

Results

Among the 3,836 respondents from 24 states of the five Brazilian regions, most were women (2,821;73.5%), aged from 30 to 39 years (1,101; 28.7%), married or in a stable union (2,080; 54.2%), with post-graduate education (2,075; 54.1%). (Table 1).

Table 1 – Sociodemographic characteristics of the sample

Variables	N	%
Age group		
18 to 29 years	807	21
30 to 39 years	1.101	28.7
40 to 49 years	776	20.2
50 to 59 years	660	17.2
60 to 69 years	362	9,4
70 to 74 years	79	2.1
75 years or more	51	1.3

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Table 1 – Continuation

Variables	N	%
Gender		
Male	1,015	26.5
Female	2,821	73.5
What is your education level?		
No education	4	0.1
Complete or incomplete primary education	51	1.3
Complete or incomplete secondary education	403	10.5
Complete or incomplete tertiary education	1,303	34
Complete or incomplete further degree	2,075	54.1
What is your marital status?		
Single	1,322	34.5
Married/In a stable union	2,080	54,2
Divorced	356	9.3
Widowed	78	2
Have you lost your job or had your income reduced as a result of COVID-19?		
Yes	1,259	32.8
No	2,577	67.2
How many people live in your household (including you)?		
I live alone	305	8
2 to 4 people	3.022	78.8
5 to 8 people	502	13.1
More than 9 people	7	0.2

Regarding questions specifically addressing the psychosocial impact of social isolation (SI) due to the COVID-19 pandemic, 89.9% (3,447) of the respondents are in SI - 89.6% (3,090) of these for over 14 days. Most of them reported being afraid of contamination and concerned if someone had to leave the house (3.351; 87,4%); 2,945 (76.8%) reported that SI changed their routine, but they managed to adapt to the new reality; 3,097 (80.7%) reported feeling sad and worried as a result of the pandemic, of whom 2,180 (70.4%) were performing other activities, but 924 (29.8%) had not yet thought of a solution to this problem.

After the SI, 2,432 (63.4%) respondents reported changes in their sleep pattern; 2,363 (61.6%) felt restless, tense, or nervous; 952 (58.6%) faced difficulties in performing daily activities; and 1,758 (45.8%) found it difficult to concentrate on daily activities, with a feeling of "mind going blank" (Table 2).

Table 2 – Factors associated with psychosocial stress during the COVID-19 pandemic

Variables	N	%
Are you afraid of being infected by COVID-19?		
Yes	3,351	87.4
No	485	12.6
Do you feel preoccupied if someone in your household or you need to leave home?		
Yes	3,352	87.4
No	484	12.6
Did social isolation interfere with your routine?		
No	128	3.3
It changed my routine, but I managed to adapt	2,945	76.8
It changed my routine, and I did not manage to adapt	763	19,9
Whenever you feel worried or sad, how do you deal with the situation? (n = 3,097)*		
I seek professional/ psychological help	200	6.5
I have been taking medicines	258	8.3
I have been doing other activities	2,180	70.4
I have not thought of a solution to this problem yet	924	29.8

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Table 2 – Continuation

Variables	N	%
After the onset of social isolation, did your sleep pattern change?		
Yes	2,432	63.4
No	1,404	36.6
During isolation, have you felt any physical symptoms for no apparent reason?		
Yes	1,624	42.3
No	2,212	57.7
If your previous answer was positive, have these symptoms hindered your performance in daily activities? (n=1624)		
Yes	952	58.6
No	669	41.2
Not informed	3	0.2
During social isolation, have you faced difficulties concentrating on daily activities or had a feeling of "mind going blank"?		
Yes	1,758	45.8
No	2.078	54,2

*: many answers are possible.

Table 3 shows the bivariate analysis results for participants in social isolation and participants that are not in social isolation.

We found statistically significant differences between respondents who were and those who were not in social isolation for the following variables: people who are in SI were more afraid of being infected by SARS-Cov-2 (p<0.001) and expressed greater concern if someone needs to leave the house (p<0.001). Changes within the routine after SI also showed a significant difference between the variables "managed to adapt to the new reality" and "did not manage to adapt" (p<0.001). Among people who reported feeling sad or worried about the pandemic during SI, 65.5% are doing other activities - such as physical exercise, religious practices, recreational activities (p<0.001) - and 26.7% have not yet thought of a solution to this problem (p<0.001). In total, 64.1% of people in SI reported changes in their sleep pattern (p=0.006).

Table 3 – Comparison between people who are or are not in social isolation during the COVID-19 pandemic

Variables	In social isolation		Not in social isolation		PR	p-value
	n	%	n	%	(95%CI)	
Are you afraid of being infected by COVID-19?						<0.001
Yes	3,037	90.6	314	9,4	1.07 (1.03-1.12)	
No	410	84.5	75	15.5	1	
Do you feel preoccupied if someone in your household or you need to leave home?						<0.001
Yes	3,036	90.6	316	9,4	1.07 (1.03-1.11)	
No	411	84.9	73	15.1	1	
Did social isolation interfere with your routine?						<0.001
No	79	61.7	49	38.3	1	
It changed my routine, but I managed to adapt	2,679	91	266	9	1.47 (1.29-1.69)	
It changed my routine, and I did not manage to adapt	689	90.3	74	9.7	1.46 (1.27-1.68)	
I seek professional/psychological help						0.121
Yes	160	86.5	25	13.5	1	
No	2,622	90	290	10	1.04 (0.98-1.1)	

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Table 3 – Continuation

Variables	In social isolation		Not in social isolation		PR	p-value
	n	%	n	%	(95%CI)	
I have been taking medicines						0,968
Yes	219	89.8	25	10.2	1 (0.96-1.04)	
No	2,563	89.8	290	10.2	1	
I have been doing other activities						"0.001
Yes	1,821	92.1	157	7.9	1.07 (1.04-1.1)	
No	961	85.9	158	14.1	1	
I have not thought of a solution to this problem yet						<0.001
Yes	742	86.2	119	13.8	1	
No	2,040	91.2	196	8.8	1.06 (1.03-1.09)	
After the onset of social isolation, did your sleep pattern change?						0.006
Yes	2,210	90.9	222	9.1	1.03 (1.01-1.06)	
No	1,237	88.1	167	11.9	1	
If your previous answer was positive, have these symptoms hindered your performance in daily activities?						0.157
Yes	846	88.9	106	11.1	1	
No	609	91	60	9	1.02 (0.99-1.06)	
During social isolation, have you faced difficulties concentrating on daily activities or had a feeling of "mind going blank"?						0.47
Yes	1,573	89.5	185	10.5	1	
No	1,874	90.2	204	9.8	1.01 (0.99-1.03)	

Chi-square test.

Discussion

Well into the 21st century, when the world is driven by technological speed and oriented towards curing health problems focused on chronic non-communicable diseases, an unexpected problem arises: a pandemic caused by an infectious disease, the COVID-19 (Velavan; Meyer, 2020).

Global strategies were adopted in an attempt to reduce COVD-19 spread, including self-isolation, restrictions on gatherings, cancellation of social events, and closure of public transport systems (Usher; Bhullar; Jackson, 2020).

Our study group mostly comprised female respondents, stressing their active participation in research, explained by the fact that women are more likely to report health-related problems than men (WHO, 2009). The prevalence of the age group from 30 to 39 years and the marital status of married or in a stable union (2,080; 54.2%) living with two to four people (3,022; 78.8%) corroborates the studies conducted by Zhang and Ma (2020) - where respondents' mean age was 37.7 years and 160 (60.8%) reported being married - and Xiao et al. (2020) - where mean age was 37.784.12 and 110 (64.7%) were married.

In a study with similar data collection method than ours, Huang and Zhao (2020) found that people with a mean age of 35.35.6 are more likely to develop anxiety and depressive symptoms during

the COVID-19 outbreak than older participants. This finding may justify this public predilection in participating in research with this theme, despite their familiarity with the research methodology.

Most respondents had complete or incomplete higher education, which may explain why this group experienced no reduction in income as a result of the pandemic (67.2%), as well as their high engagement in the survey. This finding corroborates an Indian study where 90% of the participants had higher education (undergraduate and graduate), reinforcing the fact that individuals with higher education are fonder of this search format. Despite the lower financial impact, the authors stress that the very context of the disease is sufficient to cause psychological problems (Roy et al., 2020).

By reporting restlessness, tension, or nervousness, the respondents faced difficulties in performing daily activities (61.6%) and concentrating (58.6%), or even the feeling of "mind going blank" (45.8%) - findings supported by scientific research.

Roemer and Orsillo (2016) emphasized that generalized anxiety disorder (GAD) may entail other associated symptoms, such as irritability, difficulty in concentrating or mind going blank, muscle tension, fatigue, and sleep disturbance. However, GAD primary symptom is excessive worry, or constantly thinking about the worst-case scenarios of something bad that may happen.

According to Wang, C. et al. (2020), most participants (84.7%) self-isolated from 20 to 24 hours a day, reported no physical symptoms (60.81%), and showed good health (68.3%). Although 70% of respondents reported concern about the possibility of their family members contracting COVID-19, they also believed they would survive if infected. These findings are similar to those found in our study, as 42.3% (1,624) of our respondents felt physical symptoms for no apparent reason.

Considering the serious clinical and social implications of the COVID-19 pandemic, further research approaching its psychological impact on society are required to substantiate public policies targeting the promotion, prevention, and recovery of the emotional balance of communities. It is authoritative for people to remain calm at this time, but aware of the risk of contamination (Qiu et al., 2020).

In total, 89.9% (3,447) of the respondents reported being in social isolation and were afraid of being infected by Sars-Cov-2 ($p<0.001$). Social distancing fosters numerous mental health sequelae, even among people who had good mental health, including acute disorders such as irritability, insomnia, emotional distress, mood disorders, depressive symptoms, fear and panic, anxiety and stress owing to financial worries, frustration and boredom, loneliness, lack of supplies and medications, restriction of daily activities, and even lack of communication (Brooks et al., 2020).

Our findings on people in SI who expressed greater concern about leaving the house (either themselves or family members - $p<0.001$) shows that, although required, the imposed isolation is an unknown and unpleasant experience, separating individuals from their family and friends, as well as from their daily routines, and changing their daily life aspects. For many people, daily life changes dramatically, and "usual" ways of life (demands of modern society) are suspended indefinitely (Usher; Bhullar; Jackson, 2020).

Changed routines after SI, for people who either managed to adapt or not ($p<0.001$), denote that the longer a person is confined, the greater the consequences on mental health, whereby symptoms of post-traumatic stress disorder, seclusion, and anger may be observed (Brooks et al., 2020).

Among participants who reported sadness and concern about the pandemic during the SI, 65.5% are doing other activities - such as physical exercise, religious practices, and recreational activities ($p<0.001$). These findings corroborate those reported by Zhang and Ma (2020) in a study that sought to dispel apparent symptoms of sadness and concern during SI. The authors found that people presented lower stress rates when enjoying the pandemic onset to do activities that promoted rest and relaxation, as well as physical exercises, even in a period of such a delicate health situation. Those who responded to stress by doing religious practices also reported lower tension, better mood, and more positive emotions (Li, S. et al., 2020).

Given the magnitude of the COVID-19 pandemic, data on the psychological impact and mental health of people during its peak are still incipient. However, previous research found a wide and deep range of psychosocial consequences at both individual and community levels during infection outbreaks. At the individual level, people are likely to experience fear of getting sick or dying, helplessness, and stigma (Hall; Hall; Chapman, 2008). During an influenza pandemic, about 10% to 30% of the general public were very or overly concerned with the possibility of infection (Rubin; Potts; Michie, 2010), entailing intolerance of uncertainty, feeling of vulnerability to disease, excessive worry, and anxiety (Taylor, 2019).

In view of the significant statistic (p=0.006) regarding changes in the sleep patterns of those in SI, it is worth mentioning that sleep quality can affect immunity, increasing the risk of infection (Xiao et al., 2020). This is an alarming fact when 88.1% of individuals in SI reported being afraid of contracting the disease while 63.4% of them had their sleep pattern changed by SI.

Sleep disorders resulting from imposed circumstances, such as preventing COVID-19 contagion, may raise another question about the extent to which isolation may be causing other health problems, given that insomnia-anxiety and insomnia-depression are bidirectional relationships (Bjorøy et al., 2020).

Our study contains a methodological bias regarding the sampling process, as the questionnaire was mostly administered through social media, which may have influenced the sociodemographic profile of the population participating in the study.

Our aim was not to diagnose specific mental disorders, but rather to identify warning signs and symptoms, such as difficulty in concentrating or feeling of "mind going blank," irritability, muscle tension, and sleep disturbance. These symptoms are used as diagnostic criteria for the various conditions listed in the DSM-5, such as anxiety, bipolar, and major depressive disorders (Vahia, 2013), indicating, to some degree, some level of psychological distress. We also did not investigate whether participants had pre-existing mental disorders.

Final considerations

Our findings reveal an urgent need for the academy, together with all public and private sectors, to consider and spark a discussion of the social determinants of health, regarding not only illness in the health-disease process, but also social relations, cultural manifestations, the economy, and the new way of experiencing mourning – without saying goodbye.

Individuals in social isolation reported: feeling afraid of being infected by the virus, worried about leaving the house, changes within their routine regarding sleep pattern, and some even reported feeling sad and worried and thus doing other activities to mitigate and deal with the pandemic situation.

This research sought to cast a reflection on the impact of a pandemic in a globalized world, considering the high COVID-19 spread speed, which caused public-health systems to collapse around the world.

Several studies are still required to better elucidate the relationship between the COVID-19 pandemic and factors associated with its resulting psychosocial stress experienced by the world population.

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Authors' contribution

Saintrain set the theme, outlined the research, and performed the article critical review. Bezerra and Santos reviewed the data collection instrument, coordinated data collection, elaborated the statistical analyses, and reviewed all sections of the article. Lima, Brito, Pontes, and Braga developed the data collection instrument and the discussion, formatted the references, and revised the final version of the manuscript, which was approved by all authors.

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