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Psychological distress in people facing financial hardship due to the COVID-19 pandemic in Northeastern Brazil

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***Abstract*—** *This cross-sectional study aimed to identify negative psychological symptoms related to loss of jobs and income in the beginning of the COVID-19 pandemic in 2,983 people aged 18 and over living in the state of Ceará, Northeastern Brazil. Google® Forms was used to deliver an online questionnaire containing open- and closed-ended questions about sociodemographic characteristics and psychological symptoms. Absolute and relative frequencies were calculated for all the study variables. The Chi-squared test was used to check for association between the variables with a significance threshold of 5%. Psychological symptoms were observed in people who had lost their jobs or had their pay cut during the pandemic. Regarding the interference of social isolation with routine, 67.1% (658) of those who had lost their jobs or had their pay cut said their routine changed but they were able to adjust to the new reality ($p<0.001$). In addition, 67.7% (663) showed a feeling of concern in view of the difficulties arising from the pandemic ($p<0.001$), 57.9% (567) felt irritated by the situation they were experiencing ($p<0.001$), 74.2% (727) reported changes in sleep pattern ($p<0.001$) and 71.8% (704) reported feelings of restlessness, tension or nervousness ($p<0.001$). Furthermore, 50.3% (493) of the respondents reported physical symptoms without any apparent causes, whereas 41.4% (830) did not report such symptoms ($p<0.001$). Additionally, 52.9% (518) reported difficulty concentrating on daily activities or "blanking" while 44% (882) did not report such symptoms ($p<0.001$). After summing the negative feelings reported during the pandemic, we found a gradual increase in the percentage of symptoms in people who had lost their jobs or had their pay cut ($p<0.001$). Our findings allow an understanding of the psychosocial impact of financial losses caused by measures taken to tackle the COVID-19 pandemic and can contribute to the development of strategies to minimize such impact.*

I. INTRODUCTION

The new coronavirus (SARS-CoV-2) has undoubtedly captured the world's attention and the COVID-19 pandemic is now a major public health concern. In addition to that, the world is experiencing an accelerated economic downturn with important consequences in the second decade of the 21st century (Mckee & Stuckler, 2020).

The COVID-19 pandemic has brought not only the risk of death from viral infection but also unbearable psychological pressure for people around the world (Xiao, 2020; Duan & Zhu, 2020).

In order to stop transmission of SARS-CoV-2, Brazil has introduced sanitary control and prevention measures, such as social distancing. This measure has been adopted by several countries who have required people to stay at home to reduce the impact of the disease and to flatten the virus transmission curve and thus prevent the collapse of health systems (Bezerra, Silva, Soares, & Silva, 2020; Silva & Muniz, 2020).

In the state of Ceará, in Northeastern Brazil, the first social distancing measures were introduced by a state decree on March 20, 2020, when there were already 55 confirmed cases and community transmission in the country. The decree provided for the closing of places that could have massive gatherings, mandatory quarantine for people with confirmed and/or suspected COVID-19 and the closing of borders in an attempt to slow down the spread of the disease (DOU, 2020; Brazil, 2020).

Despite these measures, the number of cases of COVID-19 continued to growin the state of Ceará, which ranked third in total number of cases, behind São Paulo and Rio de Janeiro only (Silva & Muniz, 2020).

However, some scientists have said that restrictions imposed by governments are controversial and not adequately based on evidence and that there may be psychological consequences for the population as the collateral damage from restrictions could lead to more deaths than the virus itself (Kar et al., 2020; Zhang et al., 2020).

The restrictions imposed may have negative clinical, behavioral and psychological effects on the population and hence worsen other existing pathological conditions, such as overweight due to lack of physical exercise, increased consumption of alcohol, tobacco and other drugs, decreased exposure to the sun, increased domestic violence, worsening of psychiatric illnesses, loss of jobs and pay cuts (Signorelli, Scognamiglio, & Odone, 2020; Boccia, Ricciardi, & Ioannidis, 2020).

Strong restrictive measures also have a substantial effect on the global economy, including an increase in the unemployment rate (Inter-Agency Standing Committee, 2020) and social distancing has been associated with psychological distress, symptoms of post-traumatic stress disorder, depression and higher levels of stress (Brooks et al., 2020).

Like the economic outcome of World War II, the outbreak of COVID-19 has had a damaging effect on global health systems with a cascading effect on all aspects of human life (Nicola et al., 2020). In response to the need to "flatten the curve", the recommendations to close borders, restrict travels, and quarantine announced an economic crisis even in the countries with the world's largest economies (Burkert & Loeb, 2020; Aljazeera, 2020; Buck, Arnold, Chazan, & Cookson, 2020).

The high transmissibility of SARS-CoV-2 potentializes the instability of economies worldwide, especially in Brazil, which can be observed in the fluctuations in the prices of financial assets and commodities and in exchange rates. The COVID-19 pandemic has generated a decrease in production and an increase in interest and unemployment rates and public debt. The pandemic has impacted communities, companies and organizations worldwide by affecting the global economy. In addition to being a public health concern, the pandemic is now major economic concern that is worse than the 2008 crisis and the great depression of 1930 (Ferreira & Santa Rita, 2020; Nicola et al., 2020). In China, for example, travel restrictions resulted in a significant decrease in the supply of products by Chinese factories, while consumption and use of products and services decreased due to quarantine and self-isolation policies (Yap, 2020).

The current scenario has put public managers in a difficult position where they should choose between saving people's lives or saving the local economy. The extension of social distancing measures and the closing of borders can halve the circulation of money in 2020 in the worst scenario for the SARS-CoV-2 pandemic (Silva & Muniz, 2020; OCDE, 2020).

In view of the considerations outlined above, the present study aimed to identify negative psychological symptoms related to loss of jobs and income in the beginning of the COVID-19 pandemic in people living in the state of Ceará, Northeastern Brazil.

II. MATERIAL AND METODS

This quantitative cross-sectional study was conducted with data collected via Whatsapp and Instagram over a period of 72 hours (10th, 11th and 12th of April 2020).We used

Google® Forms to deliver an online questionnaire containing open- and closed-ended questions about sociodemographic characteristics (age, gender, marital status, level of education, household income, employment status and number of people living in the household) and psychological symptoms, including fear of being infected with SARS-CoV-2, concern when someone has to leave the house, interference of social distancing with daily routine, feeling of sadness or worry, feeling of restlessness, tension or nervousness, physical symptoms without apparent cause, change in sleep pattern, difficulty concentrating or "blanking", and difficulty focusing on activities.

Inclusion criteria were age 18 or over, living in Ceará, and completing the questionnaire. The present study did not need approval by a research ethics committee as described in Resolution 510/2016 of the National Health Council. However, the study procedures were conducted following the ethical principles of Resolution 466/12 of the National Health Council (BRASIL, 2016).

Data were analyzed using SPSS® version 24.0. Absolute and relative frequencies were calculated for all the study variables. The Chi-squared test was used to check for association between the variables with a significance threshold of 5%.

III. RESULTS

A total of 2,983 people living in the state of Ceará completed the online questionnaire. In all, 88.2% (2,630) of them were aged 18-59 years, 74.4% (2,218) were women, 52.6% (1,569) were graduate students, and 52.1% (1,551) were either married or in a common-law marriage. As for employment status, 29.2% (870) were civil servants, 23.6% (704) were self-employed and 26% (776) were employees with a formal contract. With regard to household income, there was a higher rate of people with income ranging 2-5 minimum wages [28.6% (853)] and more than 8 minimum wages [27.5% (819)]. A total of 32.9% (980) of the respondents had lost their jobs or experienced pay cuts during the COVID-19 pandemic and 77.9% (2323) reported 2-4 people living in the same household (Table 1).

Table 2 shows the profile of people who lost their jobs or had their pay cut. Most of them were aged 18-59 years ($p<0.001$), had a graduate degree ($p<0.001$), were self-employed ($p<0.001$) and had an income of 2-5 minimum wages ($p<0.001$).

Psychological symptoms were observed in people who had lost their jobs or had their pay cut during the pandemic. In all, 86.3% (846) of the respondents reported fear of getting COVID-19 ($p=0.008$) and 87.1% (854) showed concern in case someone needed to leave home ($p=0.04$).

Regarding the interference of social isolation with routine, 67.1% (658) of those who had lost their jobs or had their pay cut said their routine changed but they were able to adjust to the new reality ($p<0.001$). In addition, 67.7% (663) showed a feeling of concern in view of the difficulties arising from the pandemic ($p<0.001$), 57.9% (567) felt irritated by the situation they were experiencing ($p<0.001$), 74.2% (727) reported changes in sleep pattern ($p<0.001$) and 71.8% (704) reported feelings of restlessness, tension or nervousness ($p<0.001$).

Furthermore, 50.3% (493) of the respondents reported physical symptoms without any apparent causes, whereas 41.4% (830) did not report such symptoms ($p<0.001$). Additionally, 52.9% (518) reported difficulty concentrating on daily activities or "blanking" while 44% (882) did not report such symptoms ($p<0.001$).

Finally, after summing the negative feelings reported during the pandemic, we found a gradual increase in the percentage of symptoms in people who had lost their jobs or had their pay cut ($p<0.001$) (Table 3).

IV. DISCUSSION

The economic effects felt in the first months of the COVID-19 pandemic signaled that there will be serious consequences for the world health and economy that have not yet exactly been measured. The impact on different sectors of society in the short, medium and long term will depend on the response given to this public health problem by managers and civil society.

In our study, 101 (3.4%) of the respondents confirmed having contracted COVID-19. This rate is higher than the official figure published by the Ceará State Health Department on April 1, 2020. The difficult access to tests, which were initially performed only in private laboratories due to political and economic setbacks to acquire rapid testing kits, associated with milder symptoms of the disease may also have contributed to underreporting during this period.

The epidemiological bulletin published on April 14, 2020 – two days after data collection – showed 1,844,863 cases of COVID-19 and 117,021 COVID-19-related deaths worldwide, with a lethality rate of 6.3%. In Brazil, there were 23,430 cases and 1,328 deaths, with a lethality rate of 5.7%. In the state of Ceará, there were 1,989 cases (0.02% of the state's population) and 111 deaths, with a lethality rate of 5.6% (SES, 2020).

In the present study, most of the respondents who had lost their jobs or had their pay cut were younger people,

women, people with higher levels of education and self-employed people. On the other hand, older adults, people with graduate degrees, those with a formal work contract, public servants, and those who reported earning 5-8 minimum wages did not report major financial consequences, perhaps because they experienced greater job security. This finding is supported by Bezerra et al. (2020) who found that the main impact perceived by those earning 5-8 minimum wages (45.5%) and more than 8 minimum wages (52%) was related to the lack of social interaction compared to family stress resulting from the financial difficulties that arose due to the pandemic. In addition, social distancing contributed significantly to the relationship between perception of the impact on income and family stress, which were also more pronounced among people who earned two minimum wages. The same study revealed that more than 90% of the people with an income of up to two minimum wages experienced a greater loss of financial resources compared to those with higher levels of income.

The population can experience loss of income in several ways. They can be directly affected by a government decree closing their workplace or by an infected co-worker or business losses. Although working from home may be an alternative for some people, for others it may not be possible – especially in the public sector and in industries where jobs are precarious and poorly paid (Mckee, Reeves, Clair, & Stuckler, 2017).

Most of the respondents in our study who had lost their jobs or income during the pandemic reported fear of contracting the disease. In addition to the stress associated with the fear of contracting the disease, other factors have also been found to increase psychological vulnerability, namely financial hardship and risk of unemployment, which are associated with worsening of mental health conditions (Strandh, Winefield, Nilsson, & Hammarstrom, 2014; Benzeval et al., 2014).

Thus, it is important to recognize that the COVID-19 pandemic has exposed and exacerbated the existing inequalities in the labor market. People with precarious jobs can be affected by stress and uncertainty and hence be at risk of mental and physical illnesses (Blustein, 2019). In our study, job loss and pay cut were associated with negative psychological symptoms. The respondents who experienced this situation reported feeling more irritated ($p<0.001$), physical symptoms for no apparent reason ($p<0.001$), changes in sleep pattern ($p<0.001$) and "blanking" ($p<0.001$), probably due to the absence of the occupation that was once usual and has been modified.

These changes represent risk factors for mental disorders and worsen the effects of the COVID-19 pandemic crisis. Thus, the COVID-19 pandemic is undoubtedly causing the most serious economic crisis after the great depression of the 1930s (Chang, Stuckler, Yip, & Gunnell,2020).

Job loss, debt and financial hardship are associated with an increased risk of mental illness (Fitch, Hamilton, Bassett, & Davey, 2011; Haw, Hawton, Gunnell, & Platt,2015). Studies have shown that during periods of economic recession the number of people affected by these problems and the rates of depression rise (Chang et al., 2020; Corcoran, Griffin, Arensman, Fitzgerald, & Perry, 2015). Therefore, interventions to mitigate the effect of job loss on mental health are important for an adequate response to periods of recession. It should be noted, however, that although people may enjoy good wages or job security, the severity of the disease itself can affect psychological aspects in the general population.

In addition to the direct burden of COVID-19, the response by the various sectors of society to the pandemic is already causing negative effects such as those described above. These effects are disproportionately felt by people who already have fewer resources and worse health. Therefore, prolonged social problems or more restrictive measures of social distancing can increase health inequalities in the short and long term (Douglas, Katikireddi, Taulbut, Mckee, & Mccartney,2020). Health inequalities and their effect on people's health are more likely to be worse in low- and middle-income countries without social safety nets compared to wealthier countries (Roy, 2020).

It is true that unemployment has devastating effects on the psychological, economic and social well-being of communities (Blustein, 2019). This period of global unemployment is causally and temporally linked to a considerable loss of lives and to diseases, which are generating an intense level of sadness and trauma for many people. This can be confirmed by the negative feelings reported andthe symptoms related to sadness and anxiety during the pandemic, when there was a gradual increase in the percentage of these symptoms in people who had lost their jobs or had their pay cut ($p<0.001$).

V. TABLES

Table 1. Descriptive analysis of the characteristics of the study population.

Variables	n	%
Age		
18-59 years	2630	88.2
60+ years	353	11.8
Gender		
Men	765	25.6
Women	2218	74.4
Level of education		
Complete or incomplete primary education	46	1.5
Complete or incomplete secondary education	324	10.9
Complete or incomplete undergraduate education	1044	35.0
Complete or incomplete graduate education	1569	52.6
Marital status		
Single	1100	36.9
Married/Common-law marriage	1553	52.1
Divorced	274	9.2
Widowed	56	1.9
Employment status		
Employed with a formal contract	776	26.0
Civil servant	870	29.2
Self-employed	704	23.6
Unemployed	407	13.6
Retired/Pensioner	226	7.6
Current household income		
Less than 1 minimum wage	204	6.8
1-2 minimum wages	594	19.9
2-5 minimum wages	853	28.6
5-8 minimum wages	513	17.2
More than 8 minimum wages	819	27.5
Number of people living in the same household (including the respondent)		
Only the respondent	227	7.6
2-4 people	2323	77.9
5-8 people	433	14.5
Job loss or pay cut due to the COVID-19 pandemic		
Yes	980	32.9
No	2003	67.1

Table 2. Characteristics of the population who experienced financial hardship due to social distancing during the COVID-19 pandemic.

Variables	Total	Job loss or pay cut due to the COVID-19 pandemic				p value
		Yes		No		
		N	%	n	%	
Age						**<0.001**
18-59 years	2630	917	93.6	1713	85.5	
60+ years	353	63	6.4	290	14.5	
Gender						0.258
Men	765	264	26.9	501	25.0	
Women	2218	716	73.1	1502	75.0	
Level of education						**<0.001**
Incomplete or complete primary education	46	18	1.8	28	1.4	
Incomplete or complete secondary education	324	150	15.3	174	8.7	
Incomplete or complete undergraduate education	1044	384	39.2	660	33.0	
Incomplete or complete graduate education	1569	428	43.7	1141	57.0	
Marital status						0.101
Single	1100	376	38.4	724	36.1	
Married/Common-lawmarriage	1553	513	52.3	1040	51.9	
Divorced	274	79	8.1	195	9.7	
Widowed	56	12	1.2	44	2.2	
Employment status						**<0.001**
Employed with a formal contract	776	166	16.9	610	30.5	
Civil servant	870	89	9.1	781	39.0	
Self-employed	704	541	55.2	163	8.1	
Unemployed	407	150	15.3	257	12.8	
Retired/Pensioner	226	34	3.5	192	9.6	
Current household income						**<0.001**
Lessthan 1 minimum wage	204	137	14.0	67	3.3	
1-2 minimum wages	594	241	24.6	353	17.6	
2-5 minimum wages	853	254	25.9	599	29.9	
5-8 minimum wages	513	121	12.3	392	19.6	
More than 8 minimum wages	819	227	23.2	592	29.6	
Number of people living in the same household (including the respondent)						0.325
Only the respondent	227	68	6.9	159	7.9	
2-4 people	2323	779	79.5	1544	77.1	
5-8 people	433	133	13.6	300	15.0	

Table 3. Psychological distress in the respondents who experienced financial hardship due to social distancing during the COVID-19 pandemic.

Variables	Total	Job loss or pay cut due to the COVID-19 pandemic				p value
		Yes		No		
		n	%	n	%	
Fear of contracting COVID-19						**0.008**
Yes	2641	846	86.3	1795	89.6	
No	342	134	13.7	208	10.4	
Concern when someone needs to leave the house						**0.040**
Yes	2650	854	87.1	1796	89.7	
No	333	126	12.9	207	10.3	
Social distancing interfered with routine						**<0.001**
No	91	16	1.6	75	3.7	
Interfered with routine but managed to adjust	2268	658	67.1	1610	80.4	
Interfered with routine but could not adjust	624	306	31.2	318	15.9	
Feelings about the COVID-19 pandemic						**<0.001**
Feeling calm despite understanding the severity of the problem	540	135	13.8	405	20.2	
Concerned about the difficulties arising	2129	663	67.7	1466	73.2	
Sad because of the consequences experienced so far	314	182	18.6	132	6.6	
Feeling irritated						**<0.001**
Yes	1486	567	57.9	919	45.9	
No	1479	410	41.8	1069	53.4	
Changes in sleep pattern after social distancing						**<0.001**
Yes	1944	727	74.2	1217	60.8	
No	1039	253	25.8	786	39.2	
Restlessness, tension, or nervousness after social distancing						**<0.001**
Yes	1875	704	71.8	1171	58.5	
No	1108	276	28.2	832	41.5	
Physical symptoms with no apparent cause after social distancing						**<0.001**
Yes	1323	493	50.3	830	41.4	
No	1660	487	49.7	1173	58.6	
Difficulty concentrating while performing daily activities or "blanking" after social distancing						**<0.001**
Yes	1400	518	52.9	882	44.0	
No	1583	462	47.1	1121	56.0	
Number of negative feelings						**<0.001**
0-1	46	8	0.8	38	1.9	
2-3	303	71	7.2	232	11.6	

VI. CONCLUSION

The findings of the present study show the need for further studies to assess the economic impact of the COVID-19 pandemic on the mental health of the population as health is defined as a state of complete biopsychosocial well-being. Moreover, it is important to highlight that the present study was not intended to carry out a clinical diagnosis of any specific mental disorder, but rather identify symptoms that may be related to some level of psychological distress.

Finally, it should be noted that the cross-sectional design of the study does not allow to establish a temporal

relationship between events and determine, with a degree of certainty, whether the relationship between them is causal or not. Also, the online form used to collect data may have contributed to homogeneity in terms of level of educational and socioeconomic status since studies using this tool may exclude people who do not have access to them or are not literate. However, despite these limitations, the results of this study allow an understanding of the psychosocial impact of financial losses caused by measures taken to tackle the COVID-19 pandemic and can contribute to the development of strategies to minimize such impact. Further longitudinal studies should be conducted to assess the extent of these disorders in the near future.

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