

COVID-19 and Anxiety: Self-Perception and Coping Mechanism Usage in A Brazilian Sample

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ABSTRACT

Anxiety is one of COVID-19 pandemic greatest impact on people's mental health, especially considering its association with social distancing. It's one of many psychological issues currently wrongly labeled and understood by the public. Although the use of coping technics to manage anxiety has increased, how they relate to self-perception during social isolation in Brazil is still unsettled. This work aimed to investigate the accuracy the self-perception of anxiety levels and which coping strategies were most commonly used during the pandemic social isolation period. Data collection occurred through an online questionnaire with Brazilian residents over 18 years old. Those who did not fulfil social distancing or were currently living elsewhere were excluded. The survey measured anxiety symptoms through the Beck Anxiety Inventory, evaluated subjects' self-perception of anxiety and the coping strategies used. Analysis was composed by quantitative contrast of the instrument, qualitative analysis of other questions, and comparison between both. It was predominantly found low anxiety in the sample and high correlation of 34, 3% between anxiety levels and self-perceived anxiety. Significant discrepancy in the self-perception ability was observed when comparing individuals with low levels of anxiety (37%) to those with moderate (95%) and high levels (98%). Anxiety and certain coping strategies were correlated, and it was identified significant relationship between the type of techniques used and anxiety self-perception. Lastly, the impact of subjectivity and self-awareness on the choice and coping strategies' scope was evaluated, and discussed the "anxiety" term usage and its influence on self-perception.

Keywords

COVID-19, Self-perception, Coping mechanisms, Anxiety, Adults.

Introduction

The COVID-19 outbreak became an international public health crisis, reaching 201 countries and territories worldwide (United Nations Organization News, 2020). For every five people infected, one becomes severely ill and develops respiratory conditions that may lead to hospitalization (United Nations, 2020). Controlling measures, such as social distancing, use of facial masks, and

the implementation of lockdown were necessary to avoid more causalities. However, these measures can impair social and psychological aspects and induce mental health problems, such as anxiety disorders [1,2].

Anxiety is a natural and expected response to unknown situations perceived as dangerous or adverse [3]. When anxiety feelings persist for long periods, it can indicate the presence of an anxiety disorder [4]. Depending on the symptoms experienced, this condition can be associated with insecurity or maladaptation to the environment. Misdiagnose can lead to potential loss in life quality,

mental health, and cognitive processing [3,5]. During the global pandemic, the signs of anxiety and high-stress levels became more present, raising more awareness on treatments and coping mechanisms [2].

The knowledge on mental disorders in the general population is typically low, especially regarding symptoms and treatment methods, which may lead to speculation or mistreat patients [6]. The perception analysis of one's mental state depends on mental health literacy, the ability to recognize disorders, how to manage them, and their management [7]. Self-perception directly impacts the way patients deal with their symptoms and the efficiency of the coping mechanisms used [6,7]. The behavioral and cognitive coping mechanisms presented by the patient are directly related to the level of anxiety they experienced [8,9]. Those who sought strategies that consciously dealt with the anxiety perceived fewer symptoms than those who tried to reduce anxiety levels by avoiding or shielding from aversive stimuli [9].

The new coronavirus pandemic can be considered a major physiological stressor and a trigger to heighten anxiety levels. Thus, we hypothesized how well prepared was the Brazilian population to recognize anxiety symptoms and resort to effective coping strategies in social distancing. Therefore, the present study investigated how accurate the self-perception of anxiety levels in Brazil is, and which coping strategies were the most used during social distancing in the country.

Material and Methods

Participants

It was used a convenience sample of 376 individuals who had access to the research publication messages via social media. The inclusion criteria were being at least 18 years old, having internet access, practice social distancing, and living in Brazil during this period. The data collection was held in June 2020 until the targeted number of 376 respondents was reached.

In order to verify if the respondents were social distancing there was a section in the questionnaire to investigate how long they stayed in their houses, and if they left, how long it lasted, what were their motives, and how many times a week they did it so. For this research, the social distancing period was considered as home isolation, whether voluntary or not, for at least fifteen days. To be a participant in this study, the respondents could leave their home for a maximum period of one hour per day for non-essential activities and more than an hour per day for essential ones (i.e., grocery shopping, pharmacy). All essential activities should be performed while maintaining physical distance. A maximum of one hour per day was allowed for activities rated as non-essential to contemplate the subjective variation of activities considered indispensable for the participants. It was also considered the respondents' subjective evaluation regarding the characterization of social distancing and the definition of essential and non-essential activities, as there was not a consensual rule between the government and this concept might vary depending on their location during this period.

Thus, the exclusion of participants was due to them:

1. Not complying with social distancing.
2. Staying in social distancing for less than 15 days and.
3. Leaving for more than an hour a day for non-essential activities.

Data collection and analysis

A survey script was available through the Google Forms platform that included socio-demo Figure questions, the quarantine situation of every respondent, the Beck Anxiety Inventory anxiety assessment instrument, the impacts of social isolation measures on anxiety and types of coping strategies used.

To measure anxiety levels, the authors translated the Beck Anxiety Inventory to be used by a Portuguese-speaking sample. This instrument was chosen based on Wang et al. work, which showed a high correlation ($r = 0.81$) between it and other instruments used to assess anxiety during social isolation of COVID-19 in previous studies [10,11].

The data was analyzed in a descriptive and non-parametric inferential way by comparing participants during social distancing. It was used the Statistical Package for the Social Sciences (SPSS) software to perform statistical correlation, such as Pearson's Chi-Square test and Fisher's exact test for both analyses. $P < 0.05$ was an indicator of statistical significance.

The dependent variables on the questionnaire's analysis were socio-demo Figure data, the anxiety level (quantified by the Beck Anxiety Inventory items) and the coping strategies used.

Data analysis consisted of three steps. Step 1: a quantitative comparison of the Beck Anxiety Inventory results. Step 2: grouping the class of matching answers to the other questions on the form and their categorization. Step 3: crosschecking data and comparing the analysis between the survey and the Beck Anxiety Inventory instrument.

The Beck Anxiety Inventory instrument results were corrected by the sum of each item's scores and the development of a general anxiety score. The analysis depended on the general score, which can be, according to Beck and Steer, described as follows:

- 0 to 21: low anxiety. It can indicate an unrealistic assessment of the individual manifested through denial or learning to "mask" the symptoms commonly associated with anxiety. It also may show a detachment from oneself, other people, or the surrounding environment.
- From 22 to 35: moderate anxiety. It can indicate conflicting feelings manifested somatically by the body that need treatment. It also suggests the need for developing strategies to deal with anxiety.
- 36 or more: extreme anxiety. It can indicate significant psychological and physical distress.

Ethical statement

The National Commission in Research Ethics approved this study (CONEP - 4.096.640), and all participants agreed with the informed consent.

Results

Demo Figure characteristics

Demo Figure data were analyzed in a descriptive method. From 376 participants, 283 (75.26%) identified their gender as female and 93 (24.73%) as male. Individuals with ages ranging between 18 to 25 years corresponded to 93 participants (24.73%). Also, there were 61 individuals (16.22%) with ages between 26 and 35 years, 32 (8.51 in the range of 36 and 45 years, and 54 (14.36%) from 45 and 54 years. The remaining 27 participants (7.18%) had ages between from 55 to 60 years, 17 (4.52%) between 61 to 70 years, and 7 (1.86%) were 70 years old or older. The majority of the participants (30.85%) were undergraduate students. Thirty-nine participants (10.37%) had primary school education, 36 (9.57) did not finish undergraduate school, while 79 (21.01%) had concluded undergraduate program; 106 (28.19%) participants had a graduate degree.

Beck Anxiety Inventory

By employing quantitative analysis, Figure 1 exhibits the number of participants in each anxiety category of the Beck Anxiety Inventory (BAI). As presented, 63.3% of individuals had low anxiety levels, while 21.28% had moderate anxiety, and 15.43% had high anxiety levels. These results were associated with the variables of interest, as further described.

Self-perceived anxiety

Self-perceived anxiety was analyzed considering the results of BAI descriptively, qualitatively, and statistically. Figure 2 shows the overview of the qualitative correlation between self-perceived anxiety and BAI. As shown, 95% of the individuals with moderate anxiety and 98% of the sample with high anxiety believed they experienced anxiety. On the other hand, in the participants categorized in low anxiety level, 49.6% of them self-perceived experiencing anxiety, 13.4% did not know, and 37% reported not experiencing anxiety. Of those who declared they experienced anxiety, 93.62% had low levels of anxiety based on the BAI.

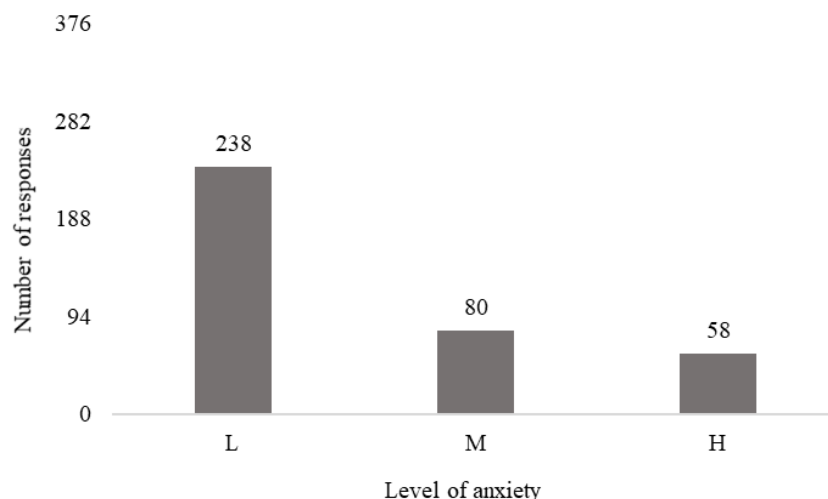


Figure 1: Anxiety levels in the total sample.

Number of responses of individuals in each anxiety category. Abbreviations: L: low anxiety; M: moderate anxiety; H: high anxiety.

In a cross-tabulation analysis, the data show a significant difference between the real count and the expected count of responses of the category “*I believe I experienced anxiety*” and “*I believe I didn’t experienced anxiety*”, for the group “Low anxiety”. The adjusted residuals of the first and second statements were -9.3 and 8.0, respectively.

The non-parametric inferential statistical analysis suggested a correlation between self-perceived anxiety and anxiety categories of BAI. Thus, it was rejected the null hypothesis of independence of the variables. It was conducted the hypothesis test in association with Fisher’s exact test to reduce Type I errors. It was also calculated the exact significance 2-sided, with $p < 0.001$, which revealed a good representativity of the correlation. Four independent degrees are needed to estimate the population values, according to the formula $DF = (r-1)(c-1)$. Hence, through the Fisher’s Exact Test, the p-value, and the symmetric measure of Cramer’s of 0.343, it was concluded that self-perceived anxiety and measured anxiety correlate with the effect size of 34.3%.

Coping strategies

It was statistically analyzed each coping strategy through a non-parametric Pearson Chi-Squared test to assess the correlation between coping strategies and anxiety levels. Table 1 summarizes the statistical analysis of the strategies listed in the questionnaire. To diminish type I error, it was considered the exact significance 2-sided value of $p < 0.05$. The following coping strategies were considered correlated to anxiety: the practice of physical exercises, breathing exercises, watch something, writing, eating, use of psychoactive substances, search for anxiety information, and psychotherapy.

The qualitative descriptive analysis allowed to understand the correlated variables’ variance in different anxiety levels. As to “Practice physical exercise”, it is possible to observe that

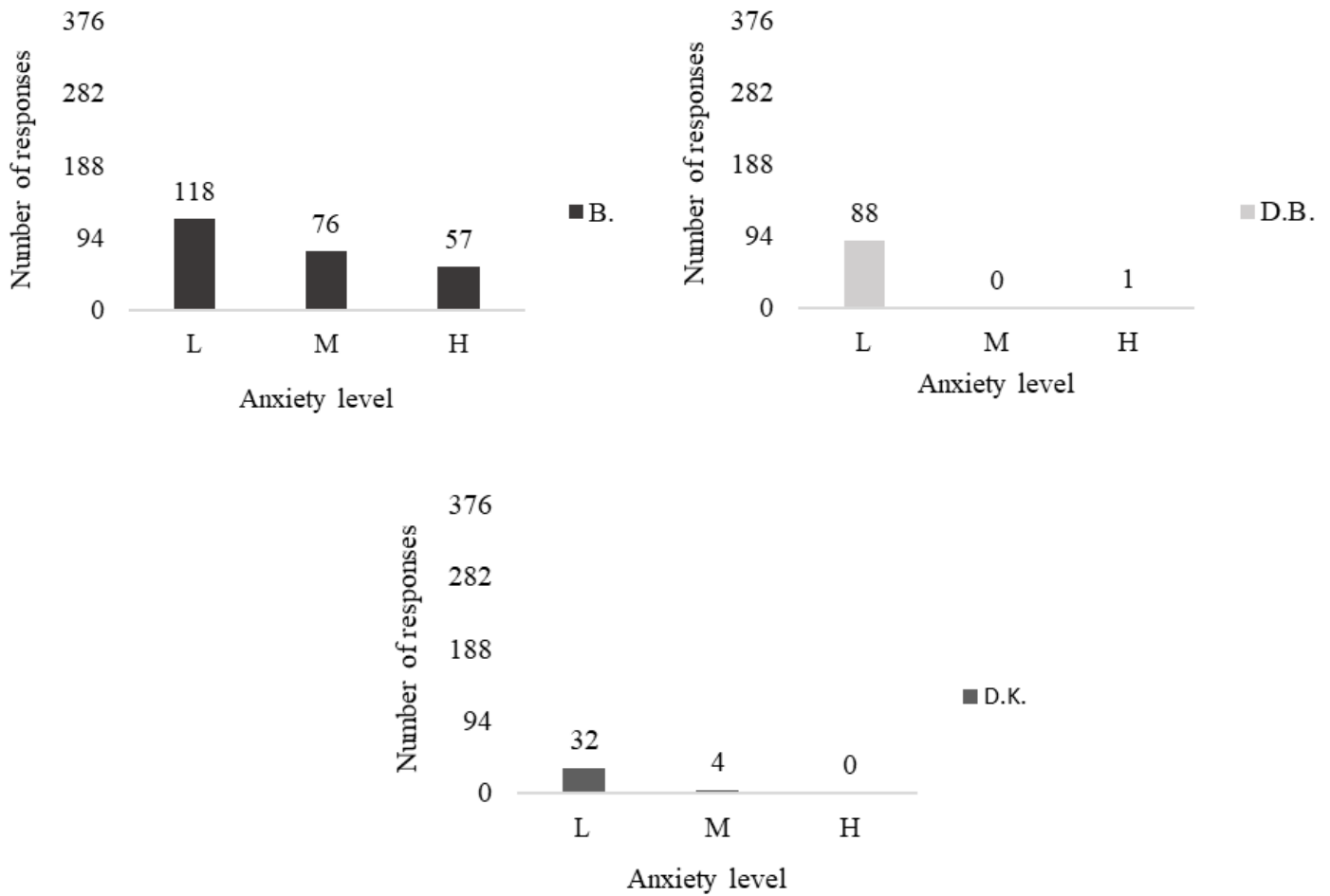


Figure 2: Self-perception assessment and anxiety levels.

Number of responses of individuals within anxiety levels in each self-perception category. Abbreviations: B.: “I believe I experienced anxiety”; D.B.: “I don’t believe I experienced anxiety”; D.K.: “I don’t know if I experienced anxiety”; L: low anxiety; M: moderate anxiety; H: high anxiety.

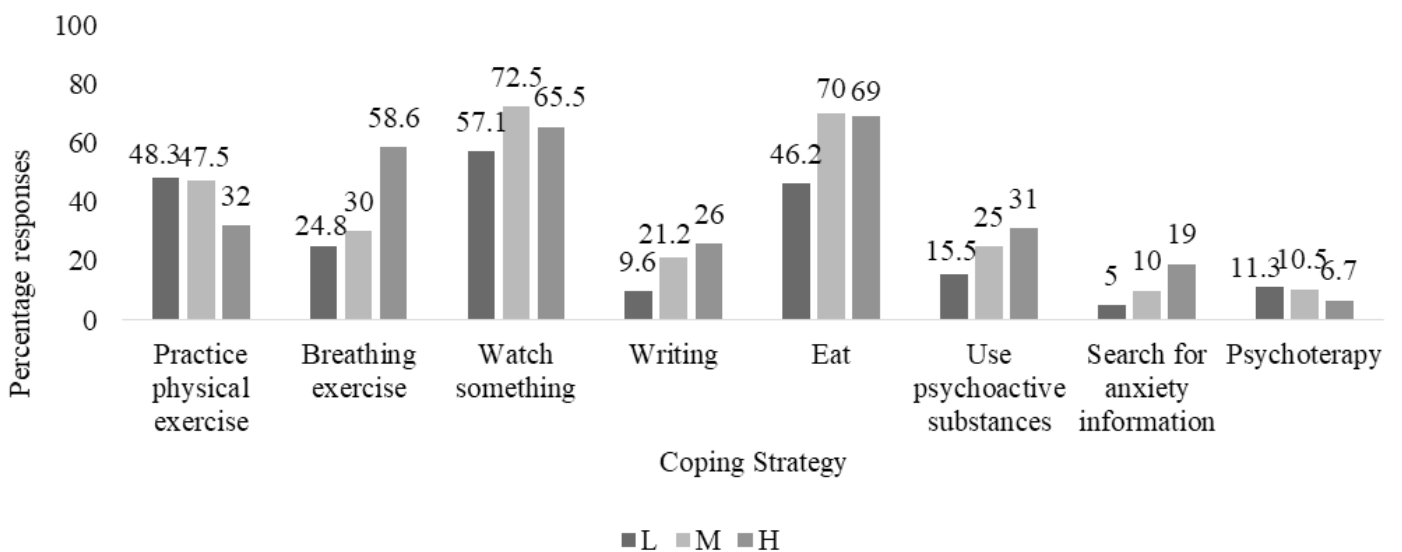


Figure 3: Coping strategies in each anxiety levels.

Percentual use of coping strategies within each anxiety level. Abbreviations: L: low anxiety; M: moderate anxiety; H: high anxiety.

participants with low and moderate anxiety were more physically active than those with high level. For “psychotherapy”, it was observed similar results. Lastly, a higher percentage of participants with moderate and high anxiety adopted other strategies (Figure 3).

Other variables did not correlate but presented considerably different percentages between different anxiety levels, namely “religious activity”, “meditate”, “play an instrument”, and “call someone.” Regarding “religious activity,” the percentage of responses was higher in respondents with low anxiety (37.4%), followed by the participants with moderate signals (28.8%). About 25.9% of the respondents using “religious activity” declared suffering from high levels of anxiety. For “meditation,” we had more responses in low and high anxiety levels (23.9% and 27.6%, respectively), while 17.5% of those experienced moderate anxiety. “Play an instrument” was relevant for individuals with high anxiety (20.7%). The percentages in low and moderate levels surveyed were 11.8% and 7.5%. “Call someone” presented similar results, since 41.38% of the sample with high anxiety used this method, while only 31,1% and 30% of those with low and moderate anxiety undertook it.

Discussion

The findings of this study indicate how limited was the self-perception of individuals with low levels of anxiety. Evaluating the high discrepancy between the expected count and the real count of anxiety suffers in this sample, it may be understandable the correlation between self-perceived anxiety and anxiety levels.

The hypothesis related to the data allows us to assess why individuals with low anxiety, different from those with moderate and high levels, had a lower self-perception of anxiety. Firstly, participants may be unrealistic about their anxiety assessment [12]. Secondly, problems with language translation can have harmed the semantic understanding of symptoms. Also, a low self-perception of mild symptoms is conceivable. Lastly, it is viable that it reflects the inability to recognize mental health symptoms, as demonstrated by Jorm et al. The difficulty in recognizing symptoms may be associated with a banalization of the term and inadequate approaches that generate misdiagnosis, probably related to the increase in the general psychological anguish worldwide [13].

In the past years, there was a perceived growth in the number of anxiety diagnoses that caused an impression of a mental health epidemic [14]. However, the overall population growth, the increased awareness of the disorder and the misuse of the term anxiety may better explain the increase in the number of diagnoses [13]. Other relevant factors are the environmental settings where participants belong. We cannot ignore the cultural context when studying mental health perception, since it is the background of one's interpretation of the diagnosis [15].

The comprehension of this phenomenon, nonetheless, is intrinsically related to coping strategies. Other reports addressed the impacts of the lack of mental health knowledge and self-

perception in coping mechanisms [6,7]. We may notice this correlation after considering that part of coping strategies was used by those with moderate and high anxiety – which are those with higher self-perception of anxiety states. As coping strategies include all forms of behavioral changes to adapt to stressful events, it seems that these actions represent attempts to reduce anxiety [7,16].

Furthermore, some coping strategies found have a well-documented association with anxiety. In this study, it was confirmed that the practice of physical exercise related to the reduction of anxiety. Indeed, it validates what other studies have proven to be a substantial correlation [17,18]. On the other hand, eating strategies may negatively impact feelings since several studies have shown an inverse relationship between food quality and anxiety symptoms [18,19].

Considering the “meditation” strategy results, it is speculated whether individuals with low and high anxiety had similar scores. According, meditation practices effectively reduced anxiety symptoms in 5 weeks in the same proportion as medication use [20]. The periodicity assessed in this research ratifies these findings. However, meditation corresponds to a habit and lifestyle developed throughout a certain period [21]. The nonexistence of a significant difference between low and high anxiety subjects is probably caused by consistent meditation practices. This may justify the low usage and decrease in the use of this strategy to diminish anxiety symptoms.

Psychotherapy was one of the least used coping strategies. Among individuals who perceived anxiety episodes, 93.62% of them had low anxiety and, within this percentage, 88.64% did not use this coping strategy. In face of these results, one may question why this self-perception didn't lead to searching for psychological help. One viable answer lies in the psychotherapy stereotypes that hold off the process's engagement [22]; examples of those include lack of time, personal or professional stress obstacle, absence of psychotherapy necessity awareness, and anxiety exposure resistance through the engagement of emotion avoidance and relieve coping strategies [9]. Other possible causes are fear of attending psychotherapy, the impossibility of finding face-to-face assistance, or not having access to the internet, especially in a developing country such as Brazil [23,24].

Conclusions

In conclusion, this study assessed the self-perception of anxiety and coping strategies used in a period of social distancing due to COVID-19 in a Brazilian sample. According to the results, individuals with moderate and high anxiety had greater self-perception levels, followed by a much bigger scope of coping strategies than those with low levels of anxiety. This is possibly due the mental health literacy in patients diagnosed with anxiety disorders that have a history of treatment, and can perpetuate more successfully coping practices [7].

Table 1: Statistical analysis of coping strategies

Coping strategies	Pearson Chi-Square Test Value	DF	P value	Cramer's V
Meditation	2,163	2	0,339	0,76
Practice physical exercise	5,787	2	0,055	0,124
Cook	4,213	2	0,122	0,106
Breathing exercise	27,193	2	<0,001	0,190
Call someone	2,529	2	0,282	0,082
Talk to someone from the same household	1,137	2	0,566	0,055
Religious activity	3,921	2	0,141	0,102
Watch something	6,398	2	0,041	0,130
Read a book	0,560	2	0,756	0,039
Study	0,707	2	0,702	0,043
Writing	13,367	2	0,001	0,189
Play an instrument	5,581	2	0,061	0,122
Eat	19,236	2	<0,001	0,226
Use psychoactive substances	8,631	2	0,013	0,152
Search for anxiety information	12,365	2	0,002	0,181
Psychotherapy	20,193	2	<0,001	0,232

Analyzed coping strategies' correlation analyses. Abbreviations: DF: degree of freedom.

The respondents classified with lower anxiety used coping strategies well known for reducing anxiety levels. However, they had worsened perception of their mental health state since 63% of them did not know if they had experienced anxiety or thought they had not. The lack of perception is probably because these participants could not recognize their anxiety symptoms or had a misrepresented view of anxiety. These individuals did not present anxiety levels that would allow more in-depth contact with the condition and its characteristics [13].

The small number of participants who searched for psychotherapy led to the interpretation that, whether for sanitary, lack of time or access reasons or resistance, there is a pattern of commitment in anxiety coping activities that lead to escape and avoid contact with symptoms. These observations expose the impact of subjectivity in the individual reaction to anxiety, along with the statement that there is a notable suffering avoidance culture in today's society. Future studies should extend data collection in the post-pandemic period and expand the number of respondents in other areas and states in Brazil, for this research had most responses in the States of Paraná, Brazil.

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