

# Evaluation of Fear and Peritraumatic Distress during COVID-19 Pandemic in Brazil

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**How to cite this paper:** Abad, A., da Silva, J.A., de Paiva Teixeira, L.E.P., Antonelli-Ponti, M., Bastos, S., Mármora, C.H.C., Campos, L.A.M., Paiva, S., de Freitas, R.L. and da Silva, J.A. (2020) Evaluation of Fear and Peritraumatic Distress during COVID-19 Pandemic in Brazil. *Advances in Infectious Diseases*, 10, 184-194.

<https://doi.org/10.4236/aid.2020.103019>

**Received:** August 5, 2020

**Accepted:** September 11, 2020

**Published:** September 14, 2020

## Abstract

COVID-19 pandemic continues to spread exponentially worldwide, especially in America. At the end of August 2020, Brazil is one of the most affected countries with more than three and a half million cases and up to 114,250 deaths. This study aims to assess the fear and peri-traumatic stress during the COVID-19 pandemics in Brazil, to enhance infection control methods, appropriate interventions, and public health policies. A cross-sectional survey has been conducted from April 12<sup>th</sup> to 18<sup>th</sup> using the Peri-Traumatic Distress Scale (CPDI) and the Fear Scale (FCV-19S) aiming to measure the peri-traumatic stress and fear as psychological reactions during the COVID-19 pandemic. For that purpose, an online spreadsheet was used to send the questionnaire and scales to a sample of 1844 participants as a collecting information tool. Significant positive relationship ( $r = 0.660$ ,  $p < 0.001$ ) and internal



consistencies on CPDI and FCV-195 scales (Cronbach Alfa scores 0.90 and 0.88 respectively) were shown. Results highlight significant gender differences as in both scales women's mean scores are higher showing that it is paramount that women's voices were represented in policy spaces as socially constructed gender roles place them in a strategic position to enhance multi-level interventions (primary and secondary effects of COVID-19), equitable policies, and new approaches to control the pandemic.

## Keywords

Mental Health, Fear, Peri-Traumatic Stress, COVID-19, Pandemic, Brazil

## 1. Introduction

The coronavirus disease pandemic (COVID-19) emerged in Wuhan, China, in late 2019; by the start of 2020, it had spread to a dozen countries. Since then, the number of cases has continued to escalate exponentially worldwide. Nowadays, Brazil is one of the most affected countries, as the disease has spread to all five regions of the country—at the start of the present study (20 August 2020), there were 3,456,652 confirmed COVID-19 cases, including 111,100 deaths.

On a bioecological approach, previous research on pandemics has revealed a profound and wide range of psychosocial impacts on people during outbreaks of the infection. On a microsystem level, people are likely to experience fear of falling sick or dying themselves, feelings of helplessness, and stigma [1], health threats to oneself and loved ones, and higher chances of being afflicted by mood swings, depression, irritability, anxiety, fear, anger, insomnia, changes in appetite or subjective well-being [2].

On a mesosystem level, pandemics are further associated with severe disruptions of routines, separation from family and friends, school closure, shortages of food and medicine, wage loss, and social isolation (due to quarantine or other social distancing programs). Additionally, with fear of infection as the health care system could not cope with the COVID-19 pandemic [3] [4]. Also, on a macrosystem level, the impact on cultural, political, and socioeconomic factors should be considered, as COVID-19 pandemics has influenced education, unemployment, and quality of work. No one can predict how things will evolve in the coming months, nor when a return to some semblance of “normal” activity might resume [5].

People from different countries experience various levels of stress, fear, or anguish. As an example, fear in China during the pandemic differs from that in Iran, Italy, and Spain, indicating the need to study mental health predictors in specific countries during the COVID-19 to effectively identify, track, and assist those people most susceptible to mental health problems [1] [6] [7] [8].

Consequently, and as a result of a collaboration involving a group of Brazilian and foreign researchers interested in the effects of the impact and the varied

psychological states caused by the rapid spread of COVID-19 around the world, was created the research project “Physical, Psychological, and Cognitive reactions to COVID-19”, approved by the Research Ethics Committee (process number: 4.128.627). The project is divided into ten modules, each one aiming to assess, or measure, some particular dimension of a psychological state derived from the COVID-19 pandemics: psychological reactions to pandemics; psychological vulnerability factors; social isolation, the role of the media and the dissemination of coronavirus-19; effective ways to deal with psychological problems; and, the implications for public health policies, including appropriate interventions for risk communication.

Besides contributing to Brazilian literature about COVID-19 pandemics, this study aims to assess the fear and peri-traumatic stress during the COVID-19 contagion in Brazil, to enhance infection control methods, appropriate interventions, and public health policies.

## 2. Methods

As the first module of the research project entitled Physical, Psychological, and Cognitive reactions to COVID-19, we conducted a cross-sectional survey from April 12<sup>th</sup> to 18<sup>th</sup> aiming to measure the peri-traumatic stress and fear as psychological reactions during the COVID-19 pandemics. For that purpose, we chose the COVID-19 Fear scale (FCV-19S) and Peri-Traumatic Distress Index (CPDI) designed by a team of specialists, and based on international studies and the literature on pandemics. As a collecting information tool, we used an online spreadsheet (Google Forms) to send the questionnaire and scale to the participants (via social media and email) composed as a convenience sample.

Before answering the questionnaire, candidates read and accepted the Participant Consent Form that explained the objective and nature of the study and showed they could refuse to answer any question and withdraw at any time from the research. Originally, 1875 participants were reached, but researchers had to exclude 31 incomplete questionnaires—possibly because of internet slow-down access during the questionnaire fill-out—making the final sample of 1844 people.

Participants first answered a socio-demographic survey that included specific questions about chronic disease prevalence and social isolation levels during the COVID-19 pandemic. Then, we assessed distress by the Peri-Traumatic Distress Index (CPDI), designed as a self-report questionnaire that measures depression, anxiety, avoidance, compulsive behaviour, specific phobias, cognitive change, physical symptoms, and loss of social functioning [8].

The twenty-four questions were presented in a Likert format in five categories of responses (never, occasionally, sometimes, often, most of the time). According to the authors, scores range from 0 to 100 indicating mild to moderate distress (between 28 and 51) and severe distress ( $\geq 52$ ). CPDI content has been validated by Psychiatrists from the Shanghai Mental Health Center considering its Cronbach’s alpha 0.95 ( $p < 0.001$ ) [8].

We measured fear with the COVID-19 Fear scale (FCV-19S) presented in a Likert format in five categories of responses (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree). It consists of a seven-item unidimensional scale with robust psychometric properties (Cronbach's alpha internal consistency 0.82) reliable and valid in assessing and relieving fears of COVID-19 among individuals [9]. Scores range from 7 to 35 indicating levels of fear: normal (7 - 16); mild to moderate (17 - 26); and severe (27 - 35).

The authors authorized us to use the FCV-19S and CPDI scales in the research. We translated and adapted them to the Brazilian Portuguese language. We used descriptive statistics as data analysis method: CPDI and FCV-19S average scores, male and female frequency ranges, the coefficient correlation of the scales (Pearson's  $r$ ) and Cronbach Alpha estimates for each of the factors of the respective scales.

### 3. Results and Discussion

We first assessed the characteristics of the participants (gender, age, marital status, number of children, education level, job status, and social isolation levels during COVID-19 pandemic) as shown in **Table 1**. Out of the sample, 643 participants (34.9%) declared chronic disease prevalence, standing out suffering, or psychological disorder indicators (16.1%). This is relevant because the COVID-19 pandemic outbreak not only hurts physically but also psychologically as it disrupts lives, causes public panic, mental health distress [10], pathological anxiety, post-traumatic stress, and depression [11].

From a COVID-19 control strategy perspective, it is also highlighted the hypertension levels (10.4%) since non-communicable diseases (hypertension, diabetes, cardiovascular and chronic obstructive pulmonary illnesses) are correlated with the need for intensive care units [12] in a delicate political, economic, and social context that reflects the importance of flattening the curve of infections due to the fragility of the health systems and high contagion rates [2].

Based on **Table 1**, it is possible to build a rough profile of the participants: single (48.7%) woman (79.8%), with an average of 36.2 years of age, with up to one child (75.7%), with a college degree (complete or incomplete 89.7%), working (69.5%) with health insurance (69.4%) and in social isolation during the pandemic (87.0%). The profile is psychologically significant because, although men and women are similar in many ways, it matches the biological, behavioural, and cognitive differences between genders that influence the health care approach in terms of manifestation, epidemiology, and pathophysiology widespread diseases [13].

As gender dimensions of the pandemic are both physical and socially constructed, affecting the sexes differently [14], women are perceived as being more aware of their need for healthcare, more adherent to counselling and treatment, and likely, seeking healthcare more often than men [15] that explains the higher number of female answers of this and other surveys [16].

**Table 1.** Descriptions of the participants (n = 1844).

Variable	Count or mean	Percentage
<b>Gender</b>		
<i>Female</i>	1471	79.8%
<i>Male</i>	368	20.0%
<i>Other</i>	5	0.2%
<b>Age (years)</b>		
<i>Mean</i>	36.2	
<i>Median</i>	35	
<i>Mode</i>	22	
<b>Marital Status</b>		
<i>Single</i>	898	48.7%
<i>Married</i>	772	41.9%
<i>Others</i>	174	9.4%
<b>Number of Children</b>		
0	1036	56.2%
1	360	19.5%
2	331	18.0%
3	95	5.2%
More than 3	22	1.2%
<b>Education level</b>		
Secondary school or below	4	0.25%
Secondary school (complete)	5	0.25%
High school (incomplete)	24	1.3%
High School (complete)	157	8.5%
College degree (incomplete)	396	21.5%
College degree (complete)	1258	68.2%
<b>Chronic disease</b>		
<b>Total people*</b>	<b>643</b>	<b>34.9%</b>
Heart disease	37	2.0%
Hypertension	192	10.4%
Diabetes	71	3.8%
Low acuity or loss of vision	136	7.4%
Low acuity or hearing loss	32	1.7%
Terminal illness	1	0.05%
Tuberculosis	0	0%
Suffering or indicators of psychological disorder	298	16.1%
<b>Job status</b>		
Working	1281	69.5%
Not working	563	30.5%

## Continued

<b>Health Insurance</b>			
Yes	1279	69.4%	
No	565	30.6%	
<b>Social isolation</b>			
Yes	1605	87.0%	
No	239	13.0%	

\*Total answers (643) representing 34.9% of the sample.

Furthermore, since health services availability, governance structures, and emergency responders interactions, all have gender dimensions [14] and considering that gender roles and stigma affect adherence to counselling and treatment [15] it is possible to infer that women could be of utmost importance to control the spread of the coronavirus infection, and consequently, improving global health security [17]. In that sense, it is of utmost importance to include women's voices and knowledge in decision making, preparedness, and response to the pandemic, as there is an insufficient women's representation in global COVID-19 policy spaces [17].

**Table 2** shows gender frequency scores of the Peritraumatic Distress Scale (CPDI) and the Fear Scale (FCV-19S). In both scales, women's mean scores are higher; women's CPDI frequency scores are predominantly on the mild and severe distress frequency levels (47.3% and 27.2%) while men rely on normal and mild levels (41.6% and 48.4%). Similarly, most women's FCV-19S frequency scores are at a mild level (44.5%), while men's scores are at a normal level (68.8%). Still, women's scores are higher (15.4%) than men (4.8%) at a severe level.

Results indicated that female gender was associated with increased anxiety, depression, and stress. This finding is in line with the results of previous studies that have consistently found an association between female gender and increased psychological distress [1] [7] [8] [18]. In this regard, the "Mental Health in the UK and COVID-19" report indicated that increased depression, anxiety, and stress were associated with being younger and female during the pandemic [19].

The scores are in harmony with results of a nationwide survey of psychological distress among Chinese people in the COVID-19 where female respondents showed significantly higher psychological distress and more likely to develop post-traumatic stress disorder than their male counterparts [19]. Besides, Brazilian CPDI gender mean scores (41.1 and 33.2) in our research are higher than Chinese ones (24.87 and 21.41) [9].

Gender differences (higher levels of fear and distress among female respondents) could be interpreted as a social construction. It is possible that men, because not openly expressing their fears of the COVID-19, would not follow the preventive sanitary recommendations that the World Health Organization (WHO) uses to manage the spread of the coronavirus infection [20]: minimizing

**Table 2.** Gender frequency of Peri-Traumatic Distress Scale (CPDI) and Fear scale (FCV-19S).

	Women	Men	Sample
<b>CPDI statistics</b>			
Mean	41.1	33.2	39.6
Median	40	31	38
Mode	43	29	30
Min	4	8	4
Max	93	85	93
Standard Deviation	16.3	14.1	16.2
Standard Error	0.4	0.7	0.4
<b>CPDI Frequency of answers</b>			
Normal (0 - 28)	375 (25.5%)	153 (41.6%)	530 (28.7%)
Mild (29 - 52)	695 (47.3%)	178 (48.4%)	876 (47.5%)
Severe (53 - 100)	401 (27.2%)	37 (10%)	438 (23.8%)
<b>FCV-19S statistics</b>			
Mean	18.9	14.5	18.1
Median	18	13	17
Mode	16	12	16
Min	7	7	7
Max	35	35	35
Standard Deviation	6.6	0.3	6.7
Standard Error	0.2	5.9	0.2
<b>FCV-19S Frequency of answers</b>			
Normal (7 - 16)	590 (40.1%)	253 (68.8%)	844 (45.8%)
Mild (17 - 26)	655 (44.5%)	97 (26.4%)	756 (41%)
Severe (27 - 35)	226 (15.4%)	18 (4.8%)	244 (13.2%)

Note: The scores of CPDI range from 0 to 100; the scores of the FCV-19S range from 7 to 35.

the risk communication efforts of the authorities and media, not following hygiene practices, and social distancing—risk factors of the pandemic control.

CPDI scale shows that anxiety, exhaustion, and attention deficit were the factors with higher scores with important gender differences. Women showed higher levels of anxiety as they answered about feeling anxious during the pandemic as often (30.5%) and most of the time (23.7%). Men, on the contrary, showed lower levels of anxiety as they felt it often (21.2%) and most of the time (13.6%). A study with 2766 volunteers, [7] assessed anxiety during the pandemic. Results showed high levels as ranges varied from medium (81.3%), high (7.2%) and extremely high (11.5%) associated with young age, female gender, family members infected with COVID-19, and a history of stressful situations and medical problems [7].

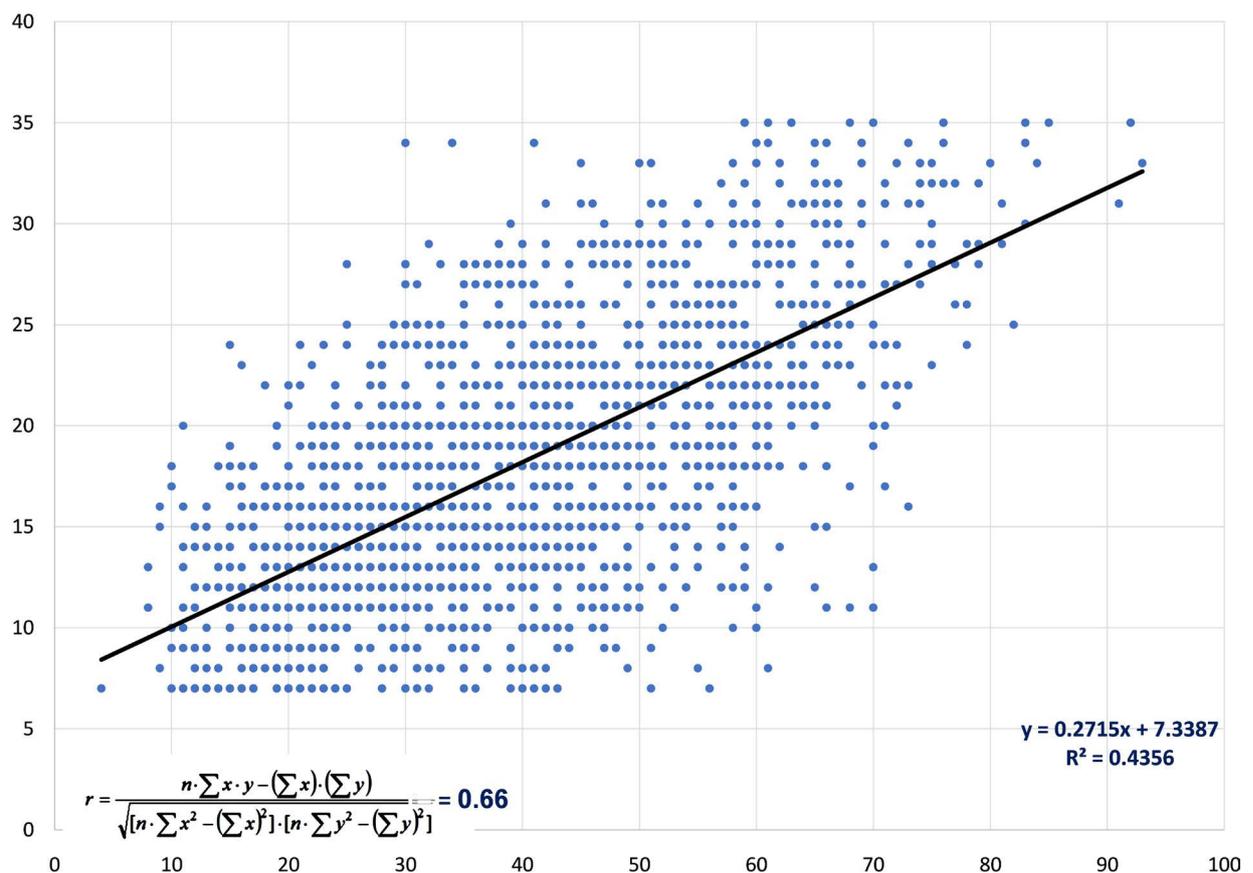
Considering that women frequently take on most of the burden and risk of Health care providers' roles at home, often with little external support [14], the

fourteenth question of the scale that measures the exhaustion factor (I feel tired or even exhausted) showed big differences between genders: men had lower scores as they never (20.7%) or occasionally (26.4%) felt tired or even exhausted during the pandemic, while women felt that way often (22.5%) and most of the time (27.9%). Moreover, schools' closure has a differential effect on women, who provide most of the informal care within families [14].

The question of the scale, measuring the attention deficit factor, showed significant differences between genders: men's scores were lower as they never (20.9%) or occasionally (29.8%) found it hard to concentrate during the social isolation, whereas women's answers were often (19.9%) and most of the time (24.8%). These results could be associated with the higher levels of exhaustion showed by women during the pandemic and the cognitive differences between genders [13].

From the FCV-19S we could highlight two questions with significant gender differences on their answers: the first (I am most afraid of coronavirus-19), 74.1% of women agreed to be most afraid of coronavirus-19, while 34.8% of men selected those answers. The second question (It makes me uncomfortable to think about coronavirus-19), 66.2% of women agreed to felt uncomfortable thinking about the coronavirus-19, while 26.1% of men opted for those answers.

**Figure 1** shows a strong, significant positive relationship between the FCV-19



**Figure 1.** Peri-traumatic Distress Scale (CPDI) and Fear scale (FCV-19S) r Pearson coefficient using scatter diagram.

**Table 3.** Cronbach's Alpha: Means and Confidence Interval CPDI and FCV-19S Scales.

	CPDI Score	FCV-19S Score
Minimum	4	7
Maximum	93	35
Median	38	17
Simple Average	39.57	18.08
Weighted Average	39.57	1.99
Confidence interval (95%)	38.83 - 40.31	17.78 - 18.39
Standard Deviation	16.24	6.69
Cronbach's Alpha	0.90	0.88

scale and IEPC scale ( $r = 0.660$ ,  $p < 0.001$ ). But the correlation between the FCV-19 scale and the S3 question of the IEPC scale (I feel terrified from imagining myself or my family being infected) shows a stronger correlation ( $r = 0.673$ ,  $p < 0.001$ ).

Internal consistencies on both scales are shown based on the Cronbach Alfa scores of CPDI and FCV-195 scales, being 0.90 and 0.88 respectively, obtained the greatest internal consistencies (**Table 3**). Additionally, the Kaiser-Meyer-Olkin (KMO) sample size suitability factor shows sample size adequacy with all CPDI values being  $\geq 0.82$  except question 21 (0.57) and all FCV-195 Scale values being  $\geq 0.84$ .

At last, it is relevant to mention that this study has some limitations. First, although the participants were people for any region of Brazil, this survey should not be taken as a national sample; secondly, as most of the respondents had an incomplete or complete college degree, it does not reflect most of the Brazilian population.

#### 4. Conclusions

CPDI and FCV-19S results show gender difference scores as a response to the pandemic. It is paramount that women's voices were represented in policy spaces as socially constructed gender roles place them in a strategic position to enhance multi-level interventions (primary and secondary effects of COVID-19), equitable policies, and new approaches to control the pandemic.

Finally, to control the viral spread in Brazil, it is of utmost importance to have a clear scientific-based pandemic control national guidelines (risk communication, hygiene, and social distance practices), the use of medications recommended by the World Health Organization (WHO) and health professionals on key positions in the Health Ministry.

#### Authors' Contribution

A. Abad, L.E.P.P. Teixeira, Juliana A. da Silva and R.L. de Freitas elaborated, analysed, and wrote sed the manuscript; José A. da Silva participated in the

created, elaborated the project and revised the manuscript; S. Paiva, S. Bastos, C.H.C. Mármora, L.A.M. Campos and M. Antonelli-Ponti, revised the manuscript.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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