

# A Study to Assess the Impact of Covid-19 on Stress and Coping Responses among General Population

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## ABSTRACT

**Background:** The COVID-19 pandemic and control measures taken by countries around the world cause stress and anxiety. The outbreak of coronavirus not only has a major impact on the physical health of the community, but also has a foremost effect on the mental health of the public. Investigating the coping strategies to deal with this unique crisis is essential. **Objective:** The aim of this study was to assess the impact of covid-19 on stress and coping responses among general population. **Methods:** A descriptive cross-sectional study is adapted among 100 general populations. A convenient sampling technique was applied. The demographic data were collected using a structured questionnaire via interview method. The level of stress was measured by the perceived stress scale (PSS) and coping responses was evaluated by the brief cope scale. **Result:** The study outcomes display that 53 (53%) had moderate stress, 28 (28%) had mild stress and 19 (19%) had severe stress during Covid-19. In respect to level of coping strategies among general population, 96% of the participants used planning coping strategy, 93% of them used religion coping strategy followed by 92% used self-distraction coping strategy. **Conclusion:** In our study, general population presented a moderate level of stress, in addition avoidance coping strategies was mostly used. Aiding the mental health care needs of public during these difficult times (pandemic) should be the top priority so adequate measures must be taken to promote the mental health of general public.

**Keywords:** COVID-19, Stress, Coping responses, General population.

## 1. Introduction

COVID19 disease is a highly contagious disease caused by a newly discovered (new) coronavirus <sup>[1] [2] [3]</sup>. It is a disease caused by COVID19 or SARSCoV2, and its genes are similar to the SARS coronavirus (severe acute respiratory syndrome) <sup>[4]</sup>. It spreads mainly through the respiratory tract through droplets (coughing, sneezing), respiratory secretions, and direct contact <sup>[2]</sup>. People acquire COVID-19 by touching COVID 19-contaminated bodies or surfaces and then touching their eyes, nose, or mouth <sup>[5]</sup>. The incubation period of COVID19 infection is 114 days, most of which are 37 days. 97.5% of patients developed symptoms within 11.5 days <sup>[6] [7]</sup>. The coronavirus pandemic has been affecting people's body and mind. Many people have experienced stress, anxiety and depression reactions <sup>[8]</sup>. Stress during an infectious disease outbreak may include fears and worries about one's health, chronic health problems and deterioration of mental health, and increased use of alcohol and tobacco <sup>[9]</sup>.

The 14-item self-reported perceived stress scale is widely used to assess the degree to which a person's life situation is assessed as stress. As a measure of global stress, the PSS project is general in nature, not event-specific, and assesses the degree to which people believe that their lives are "unpredictable, uncontrollable, and overloaded" <sup>[10]</sup>. The outbreak of coronavirus disease is causing health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear on a global scale. Pandemics and control measures, such as self-isolation, social distancing can also have an adverse effect on mental health. Increased loneliness and decreased social interaction are risk factors for many mental disorders <sup>[11] [12]</sup>. COVID 19 and other pandemics affect mental health for many reasons: indecision, poor prognosis, economic loss, uncertainty, confusion, emotional isolation, stigma, school/work closures, insufficient medical response resources, and uneven distribution of supplies. Therefore,

people experience many emotional disorders, such as stress, insomnia, depression, and irritability, which can lead to mental disorders such as depression, anxiety, behaviour changes (drug abuse), and later PTSD<sup>[13]</sup>. Post-traumatic stress disorder (PTSD) is an acute and disabling mental disorder that develops after exposure to a traumatic event<sup>[14]</sup> and is accompanied by symptoms, such as re-experiencing the trauma and avoiding thoughts, emotions and interactions that remind you of the trauma, Negative changes in cognition, Emotions and difficulty falling asleep, irritable, easily frightened, and difficulty concentrating<sup>[15]</sup>. The relationship between stress and coping strategies has been the subject of previous research, because in critical situations, stress affects many people, but individual responses vary with different coping strategies<sup>[16]</sup>.

Therefore, to simplify the prevention and control of the COVID19 outbreak, it is urgent to understand the level of perceived stress and the type of coping strategies for COVID19 at this most critical time, especially those who are most susceptible, due to the long-term physical and psychological effects of COVID19. Therefore, this study aims to investigate the levels of perceived stress and the types of coping strategies associated with COVID19 in the general population<sup>[17]</sup>.

## **2. Methods and Materials**

A quantitative approach with descriptive cross sectional research design was adopted to conduct the study. A total of 100 participants were chosen using convenient sampling techniques. The criteria for selecting the study participants is the general population that is >18 years old, willing to participate in the study, is in a state of confinement and lives in the city of Chennai. Exclusion criteria were the general population that had previously been affected by COVID-19, who could not speak, write, or understand Tamil and English, and patients with mental illness were excluded. The data collection procedure was initiated after obtaining prior permission from the head of the Tamil Nadu Housing board complex, old washermenpet, Chennai followed by ethical clearance was obtained from the institutional ethical committee of (SIMATS). The purpose of the study was explained to the participants and their written informed consent was acquired. Use of structured questionnaires to collect demographic data through interviews, the stress and coping responses was assessed using perceived stress scale (PSS). It consists of 10 and uses a 5-point Likert-type rating scale from 0 (never) to 4 (very often) to measure stress levels and brief cope scale contains 28 coping strategies. Each item is rated using a 4-point Likert-type rating scale, from 1 (I have not been doing this at all) to 4 (I have been doing this a lot).

The Brief COPE has 14 subscales covering common coping strategies, divided into two main strategies: avoidance coping and focus coping. Sample characteristics are described using frequency and percentage. Karl Pearson correlation test to understand the relationship between stress and coping responses. Chi-square is used to associate the stress and the coping responses with the selected demographic variables.

## **3. Results and Discussions**

### **3.1. Sample Characteristics**

The present study shows that, among the general population 48 (48%), the majority are between 18 and 29 years old, Also, a study conducted by Altuntaş & Tekeci (2020), According to their results, there were higher mean levels

of stress in the 18–30 year age stage [13], 59 (59%) are women, 69 (69%) are Hindu and 57 (57%) are graduates, 37 (37%) are self-employed and unemployed, 40 (40%) have an income of 10,000, 44 (44%) are married and single, 65 (65%) are nuclear families and 66 (66%) of participants live in urban areas.

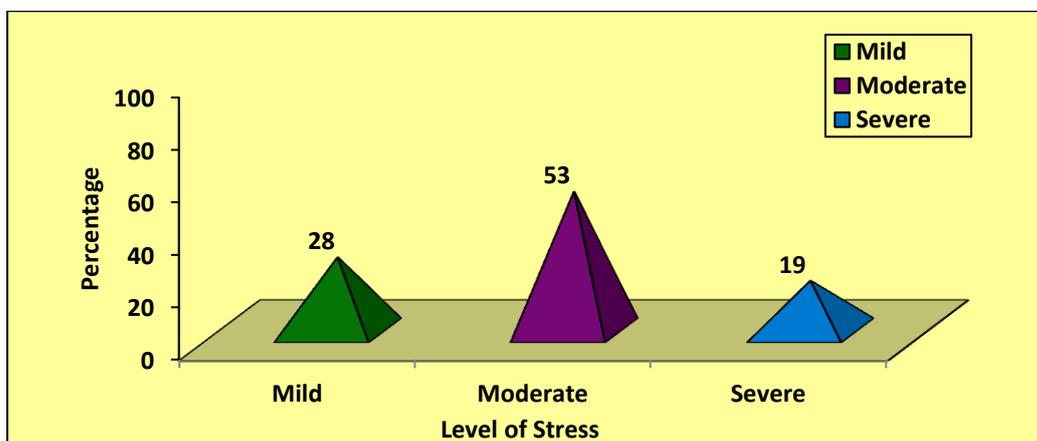
### 3.2. Health Related Characteristics

Health-related characteristics among the general population, 79 (79%) have not been in contact with Covid-19 infected patients and 84 (84%) were not infected with Covid-19 and were not quarantined, 63 (63%) had no relatives infected with Covid19, 68 (68%) were unemployed during the shutdown, 63 (63%) had experienced a financial crisis, 61 (61%) had no history of chronic diseases, 73 (73%) had other habits and 48 (48%) have TV/radio sources of information about Covid-19.

### 3.3. COVID-19 related Stress and Coping Responses of General Population

The major findings of the study showed that during Covid19, the stress level of the general population, 53 people (53%) had moderate stress, 28 people (28%) had mild stress, and 19 people (19%) had severe stress (Figure 1). Regarding the coping response of the general population, during Covid19, 70 (70%) people had a medium coping level and 30 (30%) people had a low coping level (Table 2).

Deepika Sheroun et al., (2020) reported a similar finding and conducted a study to assess perceived stress and coping strategies among bachelor's degrees. Nursing students during the lockdown of COVID19 pandemic found the majority of the participants, 82.67% of the participants experienced moderate perceived stress and 76.58% had a moderate score in the coping strategy <sup>[17]</sup>.



**Fig.1.** Percentage distribution of level of stress during Covid-19 among general population

Similarly, Abel Girma et al., (2021) aims to determine the stress and coping strategies associated with COVID19 in adult patients with chronic diseases. The result of the study was that the majority (68.4%) of respondents reported moderate stress levels, 17.8% reported low stress levels, and 13.9% reported severe COVID19-related levels of perceived stress <sup>[18]</sup>. This finding is similar to the results of Altuntaş & Tekeci (2020) showed that 60.3% of participants had moderate stress during the pandemic <sup>[16]</sup>. But it is higher than the prevalence of perceived stress found in the study of chronic diseases (22.8%) <sup>[19]</sup>, health workers (51.6%) <sup>[20]</sup>, in the study of Health science college students 121 (35.9%) reported high perceived stress <sup>[21]</sup> and China, this shows that 8.1% of the general

population suffers from moderate to severe stress <sup>[22]</sup>. These differences may be due to differences in the study population and differences in the availability of first-hand medical information on outbreaks, disease characteristics, and prevention mechanisms by health workers.

**Table 1.** Frequency and % distribution of usage of coping strategies during Covid-19 in general population

Coping Type	Used		Not Used	
	No.	%	No.	%
Self-distraction	92	92.0	8	8.0
Active coping	88	88.0	12	12.0
Denial	36	36.0	64	64.0
Substance use	27	27.0	73	73.0
Emotional support	72	72.0	28	28.0
Use of informational support	68	68.0	32	32.0
Behavioural engagement	59	59.0	41	41.0
Venting	60	60.0	40	40.0
Positive reframing	88	88.0	12	12.0
Planning	96	96.0	4	4.0
Humor	34	34.0	66	66.0
Acceptance	66	66.0	34	34.0
Religion	93	93.0	7	7.0
Self-blame	37	37.0	63	63.0

Table 1 displays that in our study among coping subscales used by general population, majority of the participants 96% used planning coping strategy, 93% of the participants used religion coping strategy and 92% of them used self-distraction coping strategy. The least used coping strategy was substance use by 27% participants. Approach coping was most frequently used followed by avoidance coping.

This finding is consistent with the research conducted by Abel Girma et al. (2021) found that during the outbreak of this pandemic, almost 76.3% of participants used religious coping strategies to cope the perceived stress related with Covid-19 <sup>[22]</sup>.

This is also constant with the research of undergraduates among the coping subscale, religion as a means of coping with stress has the highest average score, followed by planning and acceptance <sup>[1]</sup>. Similarly, a study of medical students in Qatar stated that religion, planning, and acceptance are the three most common ways to cope with stress

<sup>[23]</sup>. The results of other studies show that among the Malaysian population, 56% have planned coping strategies, 36% of self-distractions, and 20% of religious prevalence <sup>[24]</sup>. According to our research, the type of coping strategies for substance use is the least used coping type. This finding is similar to previous studies in chronic diseases and disabilities, which are rarely used is substance use type responses <sup>[25]</sup>. In addition, research in Qatar supports our finding that substance use is the least common way to cope with stress <sup>[23]</sup>.

**Table 2.** Relationship between COVID-19 related level of stress and coping responses among general population

Variables	Mean	S.D	Karl Pearson's Correlation Value
Stress	24.28	6.53	<b>r = -0.414</b> <b>p = 0.0001, S****</b>
Coping	59.46	15.26	

\*\*\*p<0.001, S – Significant

Table 2 reveals that the mean score of stress was 24.28±6.53, and the mean coping score is 59.46±15.26. The calculated Karl Pearson correlation value of r = -0.414 showed a moderate negative correlation between stress and coping, and was found to be statistically significant at the level of p<0.001 level. This obviously refers to the fact that when the stress of the general population during Covid-19 increases their coping response.

**Table 3.** Association of level of stress during Covid-19 among general population with their selected health characteristics variables (N = 100)

Health Characteristics	Low		Moderate		High		Chi-Square Value
	No.	%	No.	%	No.	%	
<b>Did you have any contact with covid-19 infected patients?</b>							<b>χ<sup>2</sup>=8.416</b> <b>d.f=2</b> <b>p = 0.015</b> <b>S*</b>
Yes	2	2.0	17	17.0	2	2.0	
No	26	26.0	36	36.0	17	17.0	
<b>Does any of your family member/relative suffered from covid19?</b>							<b>χ<sup>2</sup>=7.148</b> <b>d.f=2</b> <b>p = 0.028</b> <b>S*</b>
Yes	22	22.0	27	27.0	14	14.0	
No	6	6.0	26	26.0	5	5.0	

The table 3 shows that the health characteristics variables such as did you have any contact with covid-19 infected patients and if any of their family members /relatives suffer from covid19 had shown statistically significant association with level of stress during Covid-19 among general population at p<0.05 level and other variables of

health characteristics in the general population did not show a statistically significant association with level of stress during Covid-19.

#### **4. Conclusion**

Significant number of general population were suffered from moderate level of stress and used approach and avoidant coping method to overcome the stress on Covid 19. Coping strategies are important predictors of mental health measures. In order to compare these different situations, it may be useful to extend this study to the vulnerable population such as health workers involved in the post-epidemic period and college students who have psychological impact during the pandemic.

In addition, future research must address the broad psychosocial consequences of COVID19. Education about positive thinking, positive response, and social support can help cope with the deterioration in mental health caused by the COVID19 pandemic.

#### **Declarations**

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##### ***Competing Interests Statement***

*The authors declare no competing financial, professional and personal interests.*

##### ***Ethical Approval***

*Ethical clearance was obtained from the institutional ethical committee of SIMATS.*

##### ***Consent for publication***

*Authors declare that he/she consented for the publication of this research work.*

##### ***Availability of data and material***

*Data collection process was initiated after obtaining prior permission from the head of the Tamil Nadu Housing Board Complex, Old Washermenpet, Chennai. Authors are willing to share the related data and material according to the relevant needs.*

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