

Evaluation of perceived stress and coronavirus-specific anxiety among hospitalized COVID-19 patients – A cross-sectional study



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ABSTRACT

Background: COVID-19 pandemic enmeshed all people across the globe in myriad of problems and adversely affected their physical and mental health. Among all, patients who had been infected with COVID-19 might be at higher risk of psychological distress for obvious reasons. **Aims and Objectives:** The aim of the study was to find out the prevalence and level of perceived stress and coronavirus-specific anxiety in patients affected by COVID-19. **Materials and Methods:** This cross-sectional study was conducted on in-patients of a COVID-19 designated hospital who were about to get discharged. After screening the eligible patients with GHQ-12, patients who gave consent were interviewed with perceived stress scale (PSS)-4 and coronavirus anxiety scale. **Results:** Mean age of the study population was 41 years and majority (54.4%) belonged to 40–60 years of age. Slight preponderance of females (54.1%) noted and 17.4% lost their source of income and encountered acute financial crisis. Mean duration of stay in the hospital was 10.2 (± 4.4) days. Mean perceived stress and coronavirus-specific anxiety were 9.6 (± 2.2) and 10.39 (± 3.1), respectively. Loss of a family member due to COVID-19 infection, active COVID-19 infection in any family member, poor social support, and financial crisis were the factors correlated with higher PSS scores. **Conclusion:** Psychosocial factors contributed significantly for the higher level of perceived stress in COVID-19 patients in our study.

Key words: Anxiety; COVID-19; Perceived stress

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INTRODUCTION

Coronavirus is a single-stranded RNA virus discovered in the 1960s and belongs to Coronaviridae family in the Nidovirales order.¹ It affects both animals and humans, and in humans, it causes respiratory illness ranging from common cold to life-threatening pneumonia. Human-to-human transmission occurs by droplet infection when the infected person coughs or sneezes. The common symptoms are cough, fever, and difficulty in breathing and the usual incubation period is between 5 and 6 days.² The novel coronavirus which was a mutant and started as an epidemic mainly limited to China was declared as a pandemic on March 11, 2020, by the WHO.³ Preventive

measures in the form of social distancing, mask use, and sanitation were advocated and in addition lockdown were imposed by almost all states to curb the movement of people and to cut the chain of transmission.⁴

Mental health issues in the context of COVID-19 gained attention and Mukherjee et al., in their review of the 136 studies in this respect could find only three articles focused on mental health of COVID-19 patients.⁵ In general population, higher level of stress was noted mainly due to the fear of contracting the illness.⁶ In some countries, involuntary quarantine was imposed and people experienced higher level of stress, anxiety, and depression.⁷ Studies done in India showed higher

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level of anxiety among the general population and in health care workers.^{8,9} In their meta-analysis, Salari et al., found exacerbated depressive symptoms in the general population.¹⁰ Paucity of data about anxiety attributed to coronavirus alone was lacking though studies came up with different explanations.^{11,12}

With respect to stigma and negative impact of social media, creating awareness among public has gained popularity to reduce the stress among those affected by COVID-19 pandemic.¹³ Specific interventions for the COVID-19 patients were not well studied.¹⁴ It could be due to the fact that most studies assumed a diagnostic concept, such as post-traumatic stress disorder, well before studying the patients' perspective.^{9,11} Another issue was method of survey and online mode was adopted by many, raising doubts about the validity and reliability of the outcomes.¹⁵ Few studies had assessed mental health of COVID-19 patients without any assumptions of psychiatric disorders and explored anxiety specific to coronavirus through direct interview. Hence, we aimed to study the perceived stress of COVID-19 patients and also the anxiety specifically related to coronavirus using validated scales.

Aims and objectives

The primary aim of the study was to assess the level of perceived stress and anxiety specific to Coronavirus among COVID-19 patients who were treated in the hospital set-up. Secondary objectives were to find out the correlates of distress and to explore these factors from the socio-cultural aspects.

MATERIALS AND METHODS

This study was approved by the Institutional Ethics Committee (No. 345/IEC/32/PP-25/2021). This cross-sectional study was carried out for a period of 3 months in a "COVID-19 designated hospital" in South India from the month of May 2021 to July 2021. An informed, written consent was obtained from each participant before their recruitment in the study. Convenience sampling method was used as the target population was spatially defined. Clinically stable in-patients, above 18 years of age, who tested positive for COVID-19 based on reverse transcriptase polymerase chain reaction were first screened using the Tamil version of General Health Questionnaire 12 (GHQ-12) on the day of discharge. Those who scored 3 and above were interviewed further with a semi-structured proforma, perceived stress scale (PSS)-4, and Coronavirus Anxiety Scale (CAS) in vernacular language.

The semi-structured proforma used in the study consisted of information regarding family milieu, COVID-19 status of family members apart from sociodemographic data based on latest modification of Kuppaswamy socioeconomic scale.¹⁶ The Tamil version of GHQ-12 had been validated for screening in our region with a Cronbach's alpha 0.86.^{17,18} Out of many versions of PSS, we used the short version containing four items, namely, PSS-4; scoring 0–16 on a 5-point Likert scale. The reliability and validity of this shorter version was tested already.¹⁹ A 5-item CAS, developed by Lee (2020), was administered to assess anxiety specific for coronavirus.²⁰ Scoring was done using 0–4-point Likert scale and total score ranged from 0 to 20, with 9 as the cutoff and Cronbach's alpha for the scale was reliable ($\alpha=0.92$).²¹

Statistical analysis

The data were analyzed using the Statistical Package for the Social Sciences 22.0 (IBM® SPSS® Statistics, New York, United States). The categorical values were described in percentages and frequency whereas continuous variables as mean and standard deviation. Mann–Whitney U-test was used to investigate the effects of discrete predictor variables and Pearson correlation was used for continuous predictor variables. $P<0.05$ is considered statistically significant.

RESULTS

Out of 178 patients who were screened with GHQ-12, 106 patients scored 3 and above and 96 of them gave consent to participate in the study. Mean age of the study participants was 41 years and majority (54.4%) were 40–60 years of age. In our study, females were predominant ($n=52$; 54.1%) and 72.3% of them were home makers. The sociodemographic profile showed that 2.4% were illiterate (66.7% completed secondary level education and 17.5% were graduates); 36.4% were daily wages workers or small-scale shop vendors while 14.8% were in a permanent job with steady income; 17.4% lost their source of income and encountered acute financial crisis; and 7.3% were found to be living alone (the rest were either married or living with parents/off springs). About 21.4% were admitted in high dependency unit for at least 1 day during their stay in the hospital for worsening of symptoms, necessitating oxygen support, and ancillary measures.

The mean duration of stay in the hospital was 10.2 (± 4.4) days. Pre-existing diabetes and hypertension were noted in 18.6% and 12.9% of patients, respectively (9.5% both). About 1.6% of patients were already diagnosed with a mental disorder. Death of at least one family member due to COVID-19 was found in 2.3% of patients and 41.6% of study participants had at least one of their family members

tested positive for COVID-19 during their stay in hospital. The mean scores of PSS-4 and CAS with respect to the variables were presented in Table 1. High CAS score (≥ 9) was noted in 43.75% and correlation between this subset of population and PSS-4 was depicted in Figure 1.

DISCUSSION

To the best of our knowledge, there were around seven Indian studies which assessed mental health of COVID-19 patients and sociodemographic data were more or less similar to us. Age distribution was fairly in concordance with other similar studies in India.²²⁻²⁸ Most studies observed either equal gender distribution or female predominance like us except Kumar *et al.*²⁴ Although Somani *et al.*, did not find

any association between distress with respect to age, gender, marital status, education, or occupation among general population; the scenario was different among COVID-19 patients.²⁹

The level of perceived stress was more in females but no gender difference noted for coronavirus-specific anxiety in our study. This might be explained by the fact that females had to bear more responsibilities such as child rearing and taking care of family.^{22-27,30} Those living alone and with poor social support were found to be more distressed and positive correlation had been shown by several investigators with size of family indicating the necessity of family structure and support.^{25,29,31} Interestingly, it could explain why those who had lost their family members experienced more stress and anxiety as in our study and elsewhere.^{22,26}

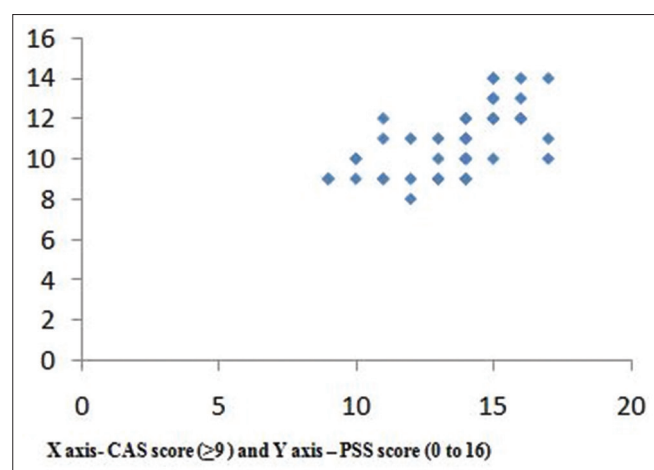


Figure 1: Scatter diagram showing linear relationship between perceived stress scale and coronavirus anxiety scale

Loss of source of income was one of the major concerns during the pandemic coupled with lockdown and 17.4% of our study participants encountered acute financial crisis and unable to meet the basic needs.⁴ Chakrabarti too observed 10% of their study participants lost their job during the COVID-19 pandemic.²⁵ Significantly higher level of perceived stress and coronavirus specific anxiety in this subset of participants could be explained due to the additional financial burden. We had lesser number patients with pre-existing chronic physical ailments such as diabetes and hypertension compared to other studies in this region.²² Patients with physical and psychiatric comorbidities were found to be more anxious in other studies but we did not find significant difference of perceived stress and coronavirus-specific anxiety level compared with those without these ailments.^{23,25}

Table 1: Mean scores of PSS-4 and CAS				
Independent predictor variable	PSS-4	P value	CAS	P value
Total	9.6 (±2.2)		10.39 (±3.1)	
Gender difference	Males: 7.7 Females: 11.5	<0.05*	Males: 9.8 Females: 10.98	0.18
Family milieu	Living alone: 10.3 With family: 8.9	0.241	Living alone: 11.6 With family: 9.18	0.092
Economic crisis (loss of job/income)	Yes: 13.1 No: 6.1	<0.001**	Yes: 12.4 No: 8.38	<0.05*
Ward or HDU	Ward: 6.4 HDU: 12.8	<0.05	Ward: 8.98 HDU: 11.8	0.085
Duration of stay	<14 days: 9.8 >14 days: 9.4	0.342	<14 days: 10.28 >14 days: 10.5	0.916
Pre-existing medical problems	Yes: 10.2 No: 9	0.951	Yes: 10.4 No: 10.38	0.804
Pre-existing psychiatric problems	Yes: 10.5 No: 8.7	0.861	Yes: 10.68 No: 10.1	0.748
Death of family member due to COVID-19	Yes: 13.4 No: 5.8	<0.001**	Yes: 14.2 No: 6.58	<0.001**
COVID-19 infection in family member	Yes: 13.2 No: 6	<0.001**	Yes: 14.8 No: 5.98	<0.001**

*P<0.05 and **P<0.001. PSS-4: Perceived stress scale-4, CAS: Coronavirus anxiety scale, HDU: High dependency unit

Prolonged hospital stay was associated with the higher level of distress and mean duration of hospital stay in our study was 10.2 (± 4.4) days, shorter compared to similar studies.^{22,26} The course of illness during hospital stay would be the more relevant predictor, as patients treated in high dependency units were more anxious and distressed than those who stayed in general ward throughout their course in the hospital.³² Pragmatically, these set of patients might have faced more complications due to COVID-19 and distressed more as our findings suggest.

Infection rate of family members in our study was similar but death rate of family members was less than Pingali et al.²² Those who lost their kith and kin tend to experience negative emotions even after their recovery as evidenced by our findings.¹² Guilt, hopelessness, and helplessness could be the psychological underpinnings of the distress among this subset of patients and they would be more vulnerable for depression.³³ Needless to say that this group of patients requires long-term follow-up and timely intervention in case of any crisis.³⁴

Limitations of the study

We interviewed the patients face-to-face, thus making our findings more valid and reliable. However, ours was a snapshot; capturing patients who recovered well and on the verge of discharge and at that time the stress and anxiety could have been eased out. Follow-up studies might help us to understand the psychological impact posed by COVID-19 and unravel the confounding effects of socioeconomic effects on mental health of the patients.

CONCLUSION

The current study showed higher level of perceived stress and anxiety specific to coronavirus in COVID-19 patients who had psychosocial stressors such as loss of source of income and loss of family member due to COVID-19.

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AVP- Concept and design of the study, collection of data, and revision of manuscript; **AP**- Interpretation of the results and review the literature; **SP**- Statistical analysis of data and preparation of manuscript

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