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Original Research Article

Psychological distress and its predictors among hospital admitted COVID-19 patients in India

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ABSTRACT

Background: Limited evidence is available on the psychological distress among patients hospitalized with COVID - 19. We assessed the incidence of psychological distress, posttraumatic symptoms and substance use among patients hospitalized with COVID-19; and perceived stress, coping, and social support experienced by distressed and non-distressed patients and the predictors of psychological distress.
Methods: Ours was a hospital-based cross-sectional study, conducted in a Union Territory of India. Patients were assessed (August – September, 2020) at the time of admission (within two days) with standardized instruments (N=250).
Results: More than 19 percent of respondents had experienced significant psychological distress (probable cases) and nearly 9% reported post-traumatic stress symptoms. The cases and non-cases differ in terms of active coping (5.51±0.87 versus 5.06±1.06; t=3.10, p<0.01), emotional support (5.21±0.87 versus 4.86±0.79; t=2.57, p<0.01), behavioural disengagement (5.18±0.92 versus 4.55±1.15; t=3.56, p<0.001), venting (5.42±0.96 versus 4.80±1.24; t=3.30, p<0.01), acceptance (5.75±1.24 versus 5.29±1.50; t=2.23, p<0.05), religion (5.43±1.41 versus 6.06±1.46; t=-2.76, p<0.01) and self-blame (5.65±1.00 versus 4.82±1.39; t=3.95, p<0.001). Symptoms of post-traumatic stress (OR: 2.058; 95% CI: 1.49-2.84) was the only significant predictor of the psychological distress.
Conclusions: Nearly one in five hospitalized patients with COVID-19 experience psychological distress. Screening and treatment for trauma and psychological distress should be an integral component of care for patients with COVID-19.

Keywords: COVID-19, Psychological distress, PTSD, Substance use, Stress, Social support, Hospitalized patients

INTRODUCTION

The World Health Organization (WHO) declared the coronavirus disease-19 (COVID-19) as pandemic in the March 2020. Deadly pandemic created havoc in almost all the countries across the globe before WHO declared that it longer qualifies as a global emergency in the year 2023.[1]

The first case of COVID-19 in India was reported in the state of Kerala on 30 January 2020.[2] World Health Organization (WHO) reports that 449.98 trillion patients were infected with COVID-19, and deaths due to COVID-19 has reached 5.32 trillion in India.[3] Most people infected with the COVID-19 virus experienced mild to moderate respiratory illness and recovered without requiring special treatment.[4]

However, confirmed or suspected cases of COVID-19 do suffered from serious health-related problems apart from mental health issues when there are underlying medical

problems like cardiovascular disease, diabetes, chronic respiratory disease and cancer.[4,5]

Majority of the available studies on the mental health consequences of COVID 19 are done on the general population, with a few focusing on health care workers and vulnerable groups like children and geriatric population. WHO in its report on mental health pronounces that patients with COVID-19 are prone to wide range of mental disorders such as anxiety and depression.[6] Loneliness, boredom, denial, harmful substance use, PTSD, anxiety and depression were reported by suspected and/or confirmed COVID-19 quarantined persons.[7-10]

Fever, hypoxia and cough along with adverse effects of prescribed medications (e.g. corticosteroids) are shown to increase anxiety and mental distress.[7] Two hospital-based studies from China found the incidence of anxiety and depressive symptoms among COVID-19 patients with one study reporting 18.6% and 13.4% and the other as 34% and 28% respectively.[11,12]

During the SARS period, in a survey from Hong Kong conducted at a convalescent hospital, around half (50%) of recovered SARS patients reported anxiety, and approximately 20% were fearful, including panic attacks, feelings of depression, or stigmatization.[13] In yet another study from Torondo, Canada, patients with SARS reported fear, loneliness, boredom and anger, and worries about the effects of quarantine and contagion on family members and friends.[14] Post-SARS pandemic or post-Ebola, social and psychological issues were present among physically recovered patients even after a substantial period.[15]

Attending to the physical, biological and medical needs of the patients should receive attention of the health professionals and policy makers. The psyche of the patients, especially those who are either home quarantined or admitted in the hospitals are seldom looked into. Common mental health problems and at times disorders found among hospital admitted patients in a pandemic situation are often neglected and on the contrary the physical needs of the patients are usually well attended. In other words, the patients are deprived of essential mental health services which are equally important along with routine medical care. To bring mental health needs to the mainstream attention, it's important to determine the incidence of mental health problems. Such knowledge would be helpful to device evidence-driven strategies to reduce adverse psychosocial impacts and psychiatric symptoms. Thus, the current study was undertaken with the primary objective to determine the incidence and course of psychological distress, posttraumatic symptoms and substance use among subjects recently diagnosed with COVID-19. The secondary objectives were to assess the level of stress, coping and social support experienced by distressed and non-distressed patients and understand the predictors of psychological distress admitted at the hospital with COVID 19.

METHODS

Study setting and design

The data is from a longitudinal study among admitted COVID-19 patients recruited from the Sri Dhanwantry Ayurveda College and Hospital located at Sector 46B, Chandigarh, a National Accreditation Board for Hospitals and Healthcare Providers (NABH) accredited Medical College and Hospital under Indian Systems of Medicine. As per the instruction of Chandigarh Union Territory Administration, this hospital has marked 50 beds for COVID -19 patients in an exclusive ward. COVID diagnosed patients, asymptomatic or with mild to moderate symptoms who do not have home isolation facility were referred from Post Graduate Institute of Medical Education and research (PGIMER), Chandigarh, Government Medical College and Hospital (GMCH), Chandigarh and Government Multi-Speciality Hospital (GMSH) to this hospital for treatment and care. Apart from the in-house Bachelor of Ayurvedic Medicine and Surgery (BAMS) doctors, a Bachelor of Medicine, Bachelor of Surgery (MBBS) Doctor or an MD (Doctor of Medicine) Resident doctor from GMCH, Sector 32, Chandigarh was made available for the basic medication management and care in accordance with Government of India guidelines. Patients stay for a maximum period of 10 days at the hospital; asymptomatic patients with stable vitals are discharged subsequently to stipulated quarantine facilities of the UT Administration. Follow-up of the patient were done physically or telephonically on the completion of four weeks. The study was done in months of August - September, 2020.

Study population

Assuming that 20% of the subjects in the population have the factor of interest, the study required a sample size of 246 for estimating the expected proportion with 5% absolute precision and 95% confidence. A total of 250 patients were recruited for the final study.

Measurements

The socio-demographic data and the clinical variables were collected with the help of a schedule prepared for the study. The psychological distress was measured using self-reporting questionnaire - cut-off of 5 for males and 6 for females was considered as a case; post-traumatic stress using trauma screening questionnaire (2) – cut-off score: 5; severity of substance use using ASSIST - alcohol, smoking and substance involvement screening test; degree of stress using perceived stress scale; coping strategies using brief-COPE inventory and perceived social support using social support scale.[16-21] Patients admitted with the confirmed diagnosis of COVID-19, either asymptomatic or have mild to moderate COVID-19, between 18-75 years from either sex, cooperative and well versed in either English, Hindi or Punjabi were included for the study. Those excluded were patients with severe COVID-19,

below the age of 18 years or more than 75 years and were unwilling to participate in the study.

Ethical aspects

Institutional ethical clearance, assurance of confidentiality and written informed consent was done before data collection. To minimize the risk of infection, data was collected both in online and offline mode as per the convenience of the patients. Patients with Android mobiles completed data collection of the self-administered instruments through excel sheets. WhatsApp video calls were done by the co-investigators from study hospital to clear the doubts of the respondents as well as to collect the interview administered instruments. In the offline mode, the study instruments (hard copies) were made available to them by PPE attired on-duty staff members in the ward. Scanned copies of the completed instruments were whatsapped back to the investigators and the original questionnaire was kept in the safe custody with lock and keys within the ward accessible only to the investigators or staff members with permission.

Statistical analysis

The baseline data collected was analysed using IBM statistical package for the social sciences (SPSS) statistics version 26. Descriptive statistics were adopted for socio-demographic and clinical variables. Categorical variables were presented in frequency and percentages. Association of psychological distress with independent variables were determined by 't' test or Chi square test. To determine the predictors of the psychological distress, binary logistic regression was carried out with the variables significant in the univariate analysis.

RESULTS

Demographic and clinical profile of the patients

The total participants who completed the baseline assessments were 250. Among them, 201 (80.4%) participants were found to be non-cases and 49 (19.6%) participants were probable cases (persons experiencing psychological distress). The mean age of the participants was 47.92 (±13.96) years. The mean years of education of the participants were 14.71 (±1.58) years. Males constituted 52% of the participants and the differences in the proportion of males versus females falling in the non-case and case categories were significant (χ^2=9.22, p<0.01). Educational qualification of the majority of the participants (81.2%) ranged between high school and graduation. Married participants were 81.2% and a little more than half of the participants (53.6%) were in some form of remunerative job. Hindu religion (85.2%), middle socio-economic status (81.9%) and nuclear family (77.6%) were the predominant categories among the participants. Majority (82%) of the participants were from urban locality and there were significant differences (χ^2=8.86, p<0.01) in the proportion of the urban versus rural participants falling under non-case and case categories. None of the patients required oxygen therapy nor were referred to any higher treatment facilities. The COVID-19 severity was reported as mild by 84.8% participants. Co-morbidities were seen more among non-cases and there was a significant difference (χ^2=15.85, p<0.001) in the co-morbid/underlying medical conditions between the participants belonging to non-case and case categories. The prevalence of substance was very low with the mean scores for tobacco, alcohol and cannabis was seen as 1.14 (±5.14), 1.96 (±6.69) and 0.10 (±1.07) respectively on ASSIST (Table 1).

Table 1: Demographic and clinical profile of patients.

Variables	Total patients (N=250)	Non-case (N=201)	Case (N=49)	T test/Chi-square test (p value)
	Mean (SD)(range)/frequency (%)			
Age (years)	47.92 (13.96) [18-41]	38.59±15.54	42.08±16.47	t=-1.39 (0.16)
Educational qualification	14.71 (1.58) [10-17]	14.66±1.5 7	14.92±1.61	t=-1.04 (0.30)
Sex				
Female	130 (52)	106 (52.7)	14 (28.6)	χ^2=9.22 (0.01)**
Male	120 (48)	95 (47.3)	35 (71.4)	
Educational qualification				
High school to graduation	203 (81.2)	166 (82.6)	37 (75.5.2)	χ^2=1.29 (0.25)
Above graduation	47 (18.8)	35 (17.4)	12 (24.5)	
Marital status				
Married	203 (81.2)	161 (80.1)	42 (85.7)	χ^2=0.81 (0.36)
Single	47 (18.8)	40 (19.9)	7 (14.3)	
Occupation				
In a remunerative employment	134 (53.6)	108 (53.7)	26 (53.1)	χ^2=0.007 (0.93)
Not in a remunerative employment	116 (46.4)	93 (46.3)	23 (46.3)	
Religion				
Hindu	213 (85.2)	175 (87.1)	38 (77.6)	χ^2=2.82 (0.09)
Others	37 (14.8)	26 (12.9)	11 (22.4)	

Continued.

Variables	Total patients (N=250)	Non-case (N=201)	Case (N=49)	T test/Chi-square test (p value)
	Mean (SD)(range)/frequency (%)			
Socio-economic status				
Lower	21 (8.4)	17 (8.5)	4 (8.2)	χ^2=3.89 (0.14)
Middle	210 (84.0)	172 (85.6)	38 (77.6)	
Upper	19 (7.6)	12 (6.0)	7 (14.3)	
Family type				
Nuclear	194 (77.6)	158 (78.6)	36 (73.5)	χ^2=0.59 (0.44)
Joint	56 (22.4)	43 (21.4)	13 (26.5)	
Domicile				
Rural	45 (18)	29 (14.4)	16 (32.7)	χ^2=8.86 (0.01)**
Urban	205 (82)	172 (85.6)	33 (67.3)	
Severity of COVID 19				
Mild	212 (84.8)	28 (13.9)	10 (20.4)	χ^2=1.28 (0.26)
Moderate	38 (15.2)	17.3 (86.1)	39 (79.6)	
Co-morbid / underlying medical conditions				
Yes	30 (12)	16 (8.0)	14 (28.6)	χ^2=15.85 (0.001)***
No	220 (88)	185 (92.0)	35 (71.4)	
Prevalence of substance use				
Tobacco	1.14 (±5.14)	0.92 (±4.51)	2.04 (±7.16)	t=-1.05 (0.29)
Alcohol	1.96 (±6.69)	1.96 (±6.62)	2.00 (±7.01)	t=-0.04 (0.96)
Cannabis	0.10 (±1.07)	0.05 (±0.77)	0.27 (±1.85)	t=-0.77 (0.44)

Table 2: Comparison of the trauma, stress, coping and social support.

Variables	Non-case (N=201)	Case (N=49)	T test/Chi-square test (p value)
	Mean (SD)(range)/frequency (%)		
PTSD symptoms	0.79 (±1.37)	4.27 (±2.37)	t=-9.88 (0.001) ***
Perceived stress	4.80 (±6.49)	16.22 (±7.94)	t=-9.34 (0.001) ***
Coping strategies			
Self-distraction	4.95 (±0.75)	4.73 (±0.90)	t=1.502 (0.13)
Active coping	5.51 (±0.87)	5.06 (±1.06)	t=3.10 (0.01) **
Denial	5.07 (±1.08)	4.88 (±1.31)	t=0.97 (0.33)
Substance use	2.33 (±0.97)	2.29 (±1.00)	t=0.27 (0.79)
Emotional support	5.21 (±0.87)	4.86 (±0.79)	t=2.57 (0.01) **
Instrumental support	5.48 (±1.08)	5.18 (±0.99)	t=1.72 (0.08)
Behavioural disengagement	5.18 (±0.92)	4.55 (±1.15)	t=3.56 (0.001) ***
Venting	5.42 (±0.96)	4.80 (±1.24)	t=3.30 (0.01) **
Positive reframing	5.12 (±1.01)	4.86 (±1.24)	t=1.58 (0.11)
Planning	5.35 (±1.13)	5.27 (±1.51)	t=0.38 (0.70)
Humour	2.45 (±1.06)	2.57 (1.13)	t=-0.69 (0.49)
Acceptance	5.75 (±1.24)	5.29 (±1.50)	t=2.23 (0.02) *
Religion	5.43 (±1.41)	6.06 (±1.46)	t=-2.76 (0.01) **
Self-blame	5.65 (±1.00)	4.82 (±1.39)	t=3.95 (0.001) ***
Social support			
Total score	68.53 (±7.24)	68.80 (±5.58)	t=-0.24 (0.81)
Family subscale	20.05 (±2.35)	20.29 (±1.72)	t=-0.66 (0.50)
Friend subscale	20.15 (±2.27)	19.69 (±3.50)	t=0.88 (0.38)
Others subscale	20.10 (±2.21)	20.46 (±2.05)	t=-1.04 (0.30)

Trauma, stress, coping and social support

The incidence of post traumatic symptoms among the respondents was 8.8%. There was a significant difference (t=-9.88, p<0.001) in the mean PTSD score of the non-case participants (0.79±1.37) from those who are probable cases (4.27±2.37). Similarly, there was also a significant difference (t=-9.34, p<0.001) in the mean perceived stress score among non-cases (4.80±6.49) and probable cases (16.22±7.94). Among the non-cases and probable cases, significant differences were also observed in the subscales of the coping like active coping (5.51±0.87 versus

5.06±1.06; t=3.10, p<0.01), emotional support (5.21±0.87 versus 4.86±0.79; t=2.57, p<0.01), behavioural disengagement (5.18±0.92 versus 4.55±1.15; t=3.56, p<0.001), venting (5.42±0.96 versus 4.80±1.24; t=3.30, p<0.01), acceptance (5.75±1.24 versus 5.29±1.50; t=2.23, p<0.05), religion (5.43±1.41 versus 6.06±1.46; t=-2.76, p<0.01) and self-blame (5.65±1.00 versus 4.82±1.39; t=3.95, p<0.001). The social support perceived by the patients from family (t=-0.66, p>0.05), friends (t=0.88, p>0.05) and significant others (t=-1.04, p>0.05) were similar in nature in both "non-case" and "case" categories (Table 2).

Psychological distress and its correlates

The socio-demographic and clinical variables significant in the univariate analysis were entered in the logistic regression model to find-out the independent predictors of psychological distress. Only PTSD was found to have more than two times higher odds of causing psychological distress among the participants (p<0.0001; OR: 2.058; 95% CI: 1.49-2.84). The variance (Nagelkerke R^2) explained by this model was 62.4% (Table 3).

Table 3: Predictors of the psychological distress among COVID-19 patients.

Predictors	β	S.E.β	Wald's χ^2	df	'P' value	Eβ (odds ratio)	95% CI for β
Constant	2.191	2.436	0.809	1	0.368	8.941	
Sex (1)	-0.801	0.524	2.337	1	0.126	0.449	0.161 - 1.254
Domicile (1)	-0.160	0.691	0.054	1	0.817	0.852	0.220 - 3.301
Comorbid status (1)	-0.290	0.699	0.172	1	0.678	0.748	0.190 - 2.945
Trauma	0.720	0.164	19.210	1	0.000	2.055	1.489 - 2.836
Perceived stress	0.053	0.037	2.014	1	0.156	1.054	0.980 - 1.134
Active coping	0.188	0.292	0.417	1	0.519	1.207	0.682 - 2.138
Emotional support	-0.560	0.297	3.544	1	0.060	0.571	0.319 - 1.023
Beh_dis	-0.320	0.311	1.054	1	0.305	0.726	0.394 - 1.337
Venting	-0.151	0.270	0.315	1	0.575	0.859	0.506 - 1.459
Acceptance	-0.180	0.253	0.506	1	0.477	0.835	0.509 - 1.371
Religion	0.307	0.201	2.347	1	0.125	1.360	0.918 - 2.015
Self-blame	-0.305	0.259	1.393	1	0.238	0.737	0.444 - 1.224

DISCUSSION

In India, COVID-19 has adversely impacted the economy, jobs, and health infrastructure.[22] After a dip in the number of cases, there is again a surge in COIVD-19 cases; mental health of the patients is a concern. Using standardized instruments, this cross-sectional study is perhaps the first study from India done among the hospitalized COVID-19 patients to assess the psychological distress experienced by them.

Around 20% of hospitalized patients with COVID-19 reported psychological distress. Psychological distress among hospitalized patients is reported by researchers and apart from PTSD, excessive pre-occupation about pandemic and confinement to a closed space without any opportunity to move out and interact with familiar people could be contributing to the same.[23,24] Psychosocial interventions are recommended by experts to such distressed patients admitted in the hospitals. Information and accessibility to tele-interventions through dedicated psychosocial and mental health helplines or those run by mental health professional bodies or availability of mental health professionals within the hospital for undertaking tele-video mental health interventions is important. Evidences of some interventions which could be applied with hospital admitted patients include psychological–behavioral intervention (PBI) program comprising psychological support and breathing exercises; brief crisis intervention; music therapy; progressive muscle relaxation training; Yoga – meditation and mindfulness; mobile phone-based individual counseling; internet-based self-help intervention and multimedia psycho educational intervention.[24-30,33]

Males (71.4%) were found to be having more psychological distress than females. This could be due to their bread winner status in the family and their concerns for the other family members as COVID-19 has resulted in more death among males than females across the World, though in India the scenario was opposite.[31] Caseness (psychological distress) was significantly more among urban population (67.3%). Similar finding was reported in a post COVID-19 research from Turkey where they have found urban residents experiencing depression and anxiety more than those from rural areas.[32] Strict quarantine within the limited spaces/houses, stress resulting from the difficulty to maintain social distancing due to population density and a general high prevalence of COVID cases in the cities are cited as few probable reasons.[33] Contrary to the known findings, in the present study patients without any co-morbid conditions were having significantly more distress than those with co-morbid conditions.[34,35] Hospitalization, attention and care, food and safety measures, regular monitoring of the vitals by the health professionals and psychosocial counseling support made

available from the day of admission to such vulnerable patients could be the possible reasons.

Mean trauma and perceived stress scores of patients under 'case' category was significantly more than those belonging to 'non- case' category. Trauma, stress and psychological distress go hand in hand and this had been reported in various studies across the globe.[36-38] The probable reasons for high trauma and perceived stress leading to high psychological distress could be infective nature of illness, reports of deaths and other medical complications arising or triggered due to COVID, lack of proven drugs or specific treatment, fear of isolation by the community members due to stigma and misinformation, overloading of information at times conflicting and fake ones in social media, impact of negative news report, worries about the non-affected family members, livelihood issues and financial worries.[4,38]

Looking at the coping strategies, it was seen that in spite of resorting to dysfunctional coping strategies such as behavioural disengagement, venting and self-blame, patients in the non-case category were showing significant "acceptance" to the situation. It's culturally not uncommon among people to resort to self-blame, venting and behavioural disengagement to cope with difficult situations in India and that perhaps would have reduced the psychological distress. The lesser distress level among patients in 'non-case' category also could be due to their better perceived emotional support and active coping strategy. Patients in 'case' category were reposing their faith in God (religion) significantly more than those under 'non-case' category which is again well within the religious - spiritual cultural background of the country where people resort to god for resolution of their physical and psychological problems. Both the category of patients was receiving fairly equal support from family, friends and significant others.

PTSD (trauma) was the only variable found to be a significant predictor of the psychological distress. PTSD is widely reported in literature in the aftermath of various types of disasters such as nuclear accidents, floods, earthquake, tsunami, war and pandemic outbreaks such as SARS.[39-44] Earlier studies also have found a similar relationship between PTSD and psychological distress.[7,39]

Our study had the following limitations: we have included only hospitalized patients and patients with moderate COVID-19; therefore, our study results may not be generalizable to the other groups of patients; this study was from a single center and from an Union Territory of India; the city stands at first position in human development index in the country and has a relatively better health infrastructure (GMSH, GHCH and PGIMER) and per-capita income (4th position in the country) than many other states and union territories of the country; therefore, the results of our study may not be extrapolated to other states; we did not use any diagnostic instruments, and therefore could not comment on the incidence of a particular psychiatric diagnosis; and this cross-sectional study could not inform us about the course of severe psychological distress.[45]

CONCLUSION

The current study showed that around 20% hospitalized patients with COVID-19 had mild to moderate category was experiencing psychological distress. The presence of post-traumatic stress symptoms was a predictor of psychological distress. Though there were variations in the coping strategies adopted by the patients, "acceptance" was associated with less psychological distress. Our study showed that screening and treatment for psychological distress should be made an integral part of care for patients with COVID-19. Use of digital technology appears to be one of the most viable options as it minimizes the chances of infection to the service provider. COVID-19 is going to stay long and hence, it is important for all the in-patient treatment centers to ensure the services of mental health professionals are available within the setting.

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