



Prevalence of Anxiety, Depression and Self-Care Behavior during the COVID-19 Pandemic in the General Population

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ABSTRACT

SARS-CoV-2 has affected not only physical health but also devastated mental wellbeing. The government of India ordered a nationwide lockdown limiting movement of the entire 1.3 billion populations. The impact of the pandemic on depression, anxiety, and self-care behavior among the general population was investigated.

An online cross-sectional survey was carried out with an anonymous questionnaire using validated instruments. Multivariable linear regression analysis was carried out to find the role of each variable in determining the relevant scores. The mean age of the 1052 participants was 30.52 (SD ± 13.42) years. The mean score of depression and anxiety was 5.96 and 5.27 respectively. Moderate to severe depression was noted among 18.68% and moderate to severe anxiety was noted among 16.1% of the respondents. Gender was a significant predictor of all three scores, while the civil status predicted both depression and anxiety scores and age predicted only the depression score.

Keywords: Mental health, Coping, Psychological problems, Generalized Anxiety Disorder-7, Patient Health Questionnaire 9

INTRODUCTION

An acute respiratory disease, caused by a new strain of Coronavirus called SARS-CoV-2 was first identified in December 2019 in the Wuhan city of China [1]. India reported its first case of COVID-19 on 30th January 2020 [2]. Soon, it was declared as a global pandemic by the World Health Organization in March 2020 [3]. Given the magnitude of the pandemic, as most countries adopted lockdown as a containment strategy, the Government of India ordered a nationwide lockdown in four phases (25 March-31 May 2020), limiting movement of the entire 1.3 billion populations [2]. This has affected all sections of society irrespective of their age, gender, economic status, and profession affecting not only the physical health but also devastating mental wellbeing due to unpredictability, uncertainty, social isolation, loss of income, loneliness, and limited access to basic services [4-11]. Differential levels of psychological distress have been reported in patients who experienced COVID-19 infection, individuals under quarantine, and the general public [12]. This pandemic has also jeopardized the academic world by putting the career of students at stake and pushing their future and expectations into darkness. The children and students were forced to stay confined in their homes as a result of which they were under serious mental pressure [6,8]. There was an increasing trend of stress, anxiety, depression among the frontline warriors as they were unable to meet their families with the fear of spreading the deadly virus to them [5]. Verma, et al. have reported depression, anxiety, and stress among the general Indian public with their associated socio-demographic correlates [13].

Since the identification of individuals with psychological distress in the early stages makes intervention strategies more effective, our study aimed to investigate the impact of the COVID-19 pandemic on mental health (depression and anxiety) and self-care behavior among the general population [14].

METHODS

A cross-sectional study was carried out using snowball sampling. Through an online survey, data were collected from 12th to 25th September 2020 using a google form, which was circulated through social platforms among the general population. Those who agreed to participate were included, while participants with a known history of psychiatric illnesses were excluded from the study. The anonymous questionnaire contained 4 sections: demographic data, PHQ9 (Patient Health Questionnaire) questionnaire, GAD7 (Generalized Anxiety Disorder) questionnaire, and a section that dealt with the questions related to self-care behaviour and coping strategies.

Demographic data included age in completed years, gender, marital status, occupation (front line workers, employee/self-employed, unemployed/retired, homemaker, students), history of chronic illness, history of any psychiatric illness, and COVID Status.

PHQ9 developed by K. Kroenke, et al., is a validated questionnaire having 9 criteria, based on the diagnosis of DSM-IV depressive disorders with the dual purpose of establishing the diagnosis of depressive disorder as well as grading the severity of depressive symptoms [15]. Each of the 9 criteria was provided with 4 choices. Each choice was assigned with a particular score (Not at all-0, Some days-1, More than half the days-2, Nearly Every day-3) and the final score of all the 9-questions was summed up that ranged from 0-27 to determine the severity of depression (No Depression-0 to 4, Mild Depression-5 to 9, Moderate Depression-10 to 14, Moderately Severe Depression-15 to 19 and Severe Depression-20 to 27).

We used GAD-7, a validated scale developed by Spitzer, et al. to assess anxiety symptoms [16]. There were 7 questions with each having 4 choices (Not at all-0, Some days-1, More than half the days-2, Nearly Every day-3) and the final score of all the 7-questions was summed to that ranged from 0-21 to determine the severity of anxiety (Minimal or no anxiety-0 to 4, Mild anxiety-5 to 9, Moderate anxiety-10 to 14 and Severe anxiety-15 to 21).

Self-care behaviour was assessed by VAS (Visual Analog Scale), where 0 referred to “I don’t follow the recommendation”; while 10 referred to “I strongly follow the recommendation all the time”. To assess the coping strategies of the participants, 7 questions were asked with each response having 4 options (Not at all, Some days, More than half the days, Nearly Every day) [7].

Data Analysis

The data were analysed using SPSS v20. Continuous variables were expressed as mean and standard deviation of the mean and categorical variables were expressed as percentages. The normality of variables was checked by the Kolmogorov-Smirnov goodness of fit test. Association between the categorical variables was analysed using the chi-square test. Spearman’s rho correlation was used to test the association between continuous variables. Multivariable step-wise linear regression analysis was carried out to find the role of each significant variable in determining the relevant scores. A p-value of less than 0.5 was considered statistically significant.

RESULTS

A total of 1052 participants responded to the questionnaire. Psychiatric illness was self-reported by 3.8% (n=40) of the respondents, and they were excluded from the analysis. The mean age of the remaining participants (n=1012) was 30.52 (SD ± 13.42) years with a minimum age of 13 years and a maximum of 85 years. Females constituted 50.49% (n=511) of the respondents. The majority of the respondents were single (64.42%), most of the respondents were students (51.38%), and 74.90% were not tested for COVID at the time of the survey. No chronic disease was reported by 85.57% of the respondents.

The mean score of depression among the respondents was 5.96 and the mean anxiety score was 5.27. Moderate to severe depression was noted among 18.68% (n=189) and moderate to severe anxiety was noted among 16.1% (n=163) of the respondents. Univariate analysis revealed that male respondents, married individuals, employed persons, and home-makers had a significantly lower level of anxiety or depression (p<0.0001). Age was negatively correlated with depression (r= -0.336) and anxiety (r= -0.264) score (p<0.0001). Having any chronic illness or COVID status was not associated with depression or anxiety (Table 1 and Table 2).

Table 1 Association of socio-demographic variables with symptoms of depression (n=1012)

	Depression_PHQ9						p-value
	None	Mild	Moderate	Moderately Severe	Severe	Total	
Gender							
Male	270 (53.9)	154 (30.7)	51 (10.2)	21 (4.2)	5 (1.0)	501	p<0.0001
Female	196 (38.4)	203 (39.7)	75 (14.7)	24 (4.7)	13 (2.5)	511	
Civil status							
Single	229 (35.1)	257 (39.4)	107 (16.4)	43 (6.6)	16 (2.5)	652	p<0.0001
Married	234 (66.5)	96 (27.3)	18 (5.1)	2 (0.6)	2 (0.6)	352	
Widow/Separated/divorced	3 (37.5)	4 (50.0)	1 (12.5)	0 (0.0)	0 (0.0)	8	
Occupation							
Frontline worker	29 (46.0)	28 (44.4)	4 (6.3)	1 (1.6)	1 (1.6)	63	p<0.0001
Employee/Self-employed	218 (64.7)	84 (24.9)	28 (8.3)	6 (1.8)	1 (0.3)	337	
Unemployed/Retired	18 (50.0)	12 (33.3)	3 (8.3)	2 (5.6)	1 (2.8)	36	
Homemaker	31 (55.4)	19 (33.9)	4 (7.1)	0 (0.0)	2 (3.6)	56	
Student	170 (32.7)	214 (41.2)	87 (16.7)	36 (6.9)	13 (2.5)	520	
Chronic illness							
No	402 (46.4)	303 (35.0)	103 (11.9)	41 (4.7)	17 (2.0)	866	p<0.395
Any Chronic illness	64 (43.8)	54 (37.0)	23 (15.8)	4 (2.7)	1 (0.7)	146	
COVID status							
Not tested	331 (43.7)	282 (37.2)	97 (12.8)	37 (4.9)	11 (1.5)	758	p<0.165
Negative	125 (53.4)	70 (29.9)	24 (10.3)	8 (3.4)	7 (3.0)	234	
Positive in the past	9 (50.0)	5 (27.8)	4 (22.2)	0 (0.0)	0 (0.0)	18	
Currently positive	1 (50.0)	0 (0.0)	1 (50.0)	0 (0.0)	0 (0.0)	2	
Total	466 (46.0)	357 (35.3)	126 (12.5)	45 (4.4)	18 (1.8)	1012	

Table 2 Association of socio-demographic variables with symptoms of anxiety (n=1012)

	Anxiety_GAD7					p-value
	No or Minimal	Mild	Moderate	Severe	Total	
Gender						
Male	310 (61.9)	130 (25.9)	40 (8.0)	21 (4.2)	501	p<0.0001
Female	211 (41.3)	198 (38.7)	69 (13.5)	33 (6.5)	511	
Civil status						
Single	281 (43.1)	231 (35.4)	92 (14.1)	48 (7.4)	652	p<0.0001
Married	238 (67.6)	92 (26.1)	16 (4.5)	6 (1.7)	352	
Widow/Separated/divorced	2 (25.0)	5 (62.5)	1 (12.5)	0 (0.0)	8	
Occupation						
Frontline worker	33 (52.4)	24 (38.1)	4 (6.3)	2 (3.2)	63	p<0.0001
Employee/Self-employed	220 (65.3)	96 (28.5)	12 (3.6)	9 (2.7)	337	
Unemployed/Retired	21 (58.3)	7 (19.4)	7 (19.4)	1 (2.8)	36	
Homemaker	31 (55.4)	14 (25.0)	9 (16.1)	2 (3.6)	56	
Student	216 (41.5)	187 (36.0)	77 (14.8)	40 (7.7)	520	

Chronic illness						p<0.704
No	442 (51.0)	286 (33.0)	91 (10.5)	47 (5.4)	866	
Any Chronic illness	79 (54.1)	42 (28.8)	18 (12.3)	7 (4.8)	146	
COVID status						p<0.418
Not tested	378 (49.9)	256 (33.8)	88 (11.6)	36 (4.7)	758	
Negative	134 (57.3)	65 (27.8)	19 (8.1)	16 (6.8)	234	
Positive in the past	8 (44.4)	6 (33.3)	2 (11.1)	2 (11.1)	18	
Currently positive	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	2	
Total	521 (51.5)	328 (32.4)	109 (10.8)	54 (5.3)	1012	

Self-care behaviour practices revealed that adherence to the recommendations was good with 67.2% of the respondents avoided attending social gatherings, 78.4% of the respondents washed or disinfected hands frequently, 64.7% of the respondents maintained a social distance of at least 6 ft away from other people and 72.3% preferred to stay at home.

A review of the coping strategies (Table 3) revealed that about 84% of the respondents were either not worried at all or worried on a few days about getting sick of COVID-19. Only about 14% of the respondents were continually analysing and interpreting bodily sensations as symptoms of the disease. Just about less than a third (28%) of the respondents expressed frustration by the effects of COVID-19, while more than two-thirds (68%) of the participants made a list of daily activities and tried to keep themselves busy. Less than 15% of the respondents used past stress experience strategies to reduce fear. Close to 85% of the respondents maintained an optimistic and objective attitude towards the situation. More than two-thirds (77%) of the respondents expressed that they had support networks to talk about the problems.

Table 3 Coping and self-care behaviour among the respondents about the symptoms of depression and anxiety (n=1012)

	Not at all	Some days	More than half of the days	Nearly every day
How often do you worry about getting COVID-19?	370 (36.6)	482 (47.6)	66 (6.5)	94 (9.3)
Are you continually analysing and interpreting your bodily sensations as symptoms of illness?	493 (48.7)	379 (37.5)	63 (6.2)	77 (7.6)
Are you frustrated by the effects COVID-19 has had on your life?	330 (32.6)	399 (39.4)	115 (11.4)	168 (16.6)
When you are afraid, do you rely on the experiences you have had in similar situations to reduce fear?	408 (40.3)	455 (45.0)	81 (8.0)	68 (6.7)
Make a list of daily activities and try to keep yourself busy?	317 (31.3)	271 (26.8)	141 (13.9)	283 (28.0)
Maintain an optimistic and objective attitude towards the situation?	157 (15.5)	293 (29.0)	182 (18.0)	380 (37.5)
Have someone you can lean on or can talk about your problems with?	232 (22.9)	326 (32.2)	124 (12.3)	330 (32.6)

Multivariable linear regression showed (Table 4) that gender was a significant predictor of all the three (depression, anxiety, and coping) scores, while the civil status predicted both depression and anxiety scores and age predicted only the depression score. The variables that were used in the regression model explained only 12.8% of depression, 10.3% of anxiety, and 2.3% of stress.

Table 4 Multivariable linear regression analysis of the association of depression (PHQ-9), Anxiety (GAD-7), and Coping scores with socio-demographic among respondents

		B	SE	Standardized Beta	t	p-value	95.0% CI of B		R	R ²
Depression (PHQ9) score	(Constant)	6.852	0.920		7.451	0.000	5.047	8.656	0.358	0.128
	Gender	1.158	0.285	0.123	4.062	0.000	0.599	1.717		
	Age	-0.048	0.019	-0.137	-2.512	0.012	-0.085	-0.010		
	Civil status	-1.422	0.527	-0.151	-2.699	0.007	-2.457	-0.388		
	Occupation	0.211	0.124	0.068	1.703	0.089	-0.032	0.454		
Anxiety (GAD7) score	(Constant)	4.693	0.893		5.256	0.000	2.941	6.445	0.321	0.103
	Gender	1.580	0.277	0.176	5.708	0.000	1.037	2.123		
	Age	-0.023	0.019	-0.067	-1.218	0.223	-0.059	0.014		
	Civil status	-1.322	0.512	-0.146	-2.584	0.010	-2.326	-0.318		
	Occupation	0.192	0.120	0.065	1.597	0.111	-0.044	0.428		
Coping score	(Constant)	5.909	0.800		7.385	0.000	4.339	7.480	0.150	0.023
	Gender	0.993	0.248	0.129	4.004	0.000	0.506	1.480		
	Age	0.008	0.017	0.028	0.488	0.625	-0.024	0.041		
	Civil status	-0.045	0.459	-0.006	-0.098	0.922	-0.945	0.855		
	Occupation	0.182	0.108	0.072	1.69	0.091	-0.029	0.393		

DISCUSSION

In the past, psychological health has been affected by several outbreaks resulting in significant psychiatric morbidities, negative emotions, poor coping responses, and consistent worry about contracting the disease [10]. COVID-19 pandemic has once again reiterated the despair in an unprecedented manner. Apart from the high mortality, populations across the globe have also been suffering from agonizing psychological outcomes [6]. The only method to contain the spread of COVID-19 is through adequate self-care behaviour and adhering to the lockdown guidelines imposed by the Government. This study was conducted to estimate the prevalence of anxiety and depressive symptoms and self-care behaviour among the Indian population, at a time when the country saw its highest peak of cases, adding 41% of cases and 34% of deaths as reported by the Times of India [17].

We observed that a considerable proportion of the surveyed population in our study have manifested depressive and anxiety symptoms. However, a systematic review has shown a much higher proportion of depression (32.9%), and anxiety (35.3%) in the Asian subcontinent, and China (Depression, 34.7%; Anxiety, 19.6%) [12,14]. Similarly, a study in the Spanish population has reported higher depression (27.5%) and anxiety (20.8%). Verma, et al., have also reported a higher prevalence of depression (25%) and anxiety (28%) in the general population, though using a different study instrument [13]. Compared to the findings of the other studies in India, the lower prevalence of anxiety and depression could also be attributed to the timeline of the data collection towards the latter part of the pandemic [18].

In our study, females were found to be associated with higher depression, anxiety, and poor coping skills at a significant level, which is consistent with the findings from the National mental health survey of India 2015-16 and a systematic review [14,19]. This may be because they are generally more sensitive and tend to ruminate about life stressors, which may increase depression and anxiety [18]. Though a higher age is a risk factor for COVID-19 mortality, our study showed reduced levels of depression and anxiety scores as the age advanced. A statistically significant association between age and depression scores was especially observed in the regression analysis. The younger age with higher depression scores could be attributed to the uncertainty of the future and the economic challenges combined with infodemic due to overwhelming news headlines through social media [7,11,14]. The respondents, who were unmarried or single due to being widowed/separated/divorced had relatively higher scores of depression and anxiety. This finding

is in sync with what has been noted by other researchers, though being married per se may not always be protective, rather the quality of the relationship and mutual support is more important [18,20].

Self-care and coping strategies by the surveyed population were most encouraging as compared to other studies [7]. Literature suggests coping is a learned pattern of behavior that develops over a while [10]. The public when engaged with a greater perception of threat, responds with a higher level of coping behavior [21].

CONCLUSION

In conclusion, psychological problems in the general population during such pandemics as COVID-19 are common. The need to understand the same and institute appropriate measures is a challenge to the public health system.

Limitations

Being a cross-sectional study it is difficult to establish the causality. The data was collected through electronic mode by convenience sampling which has limited generalisability. Reporting bias cannot be ruled out because of the self-administered nature of the questionnaire; however anonymous data collection method might have reduced the reporting bias.

DECLARATIONS

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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