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Original Research Article

Anxiety, obsession and fear from coronavirus in Indian population: a web-based study using COVID-19 specific scales

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ABSTRACT

Background: The mental health and well-being have been severely impacted by the COVID-19 crisis. People are distressed due to the immediate impacts as well as the consequences of physical isolation, which could have lasting effect on overall well-being. The study aimed to assess the psychological effect of the pandemic on the general population of India using COVID-19 specific scales.
Method: An online, cross-sectional study was conducted from 20th June 2020 to 4th July 2020 on persons of both sexes and aged 18 years or more. A convenient sampling method was used for recruiting participants. An online Google form was designed and distributed using social media platforms. The psychological effect of the pandemic was assessed using validated scales of coronavirus anxiety scale, obsession with COVID-19 scale, and fear of COVID-19 scale respectively.
Result: The study received responses from 2004 participants from 31 states and union territories of India. The overall prevalence of psychological disorder due to COVID-19 was 53.3% (n=1068). The prevalence of anxiety was found to be 3.29% (n=66), obsession 13.47% (270) and fear 46.9% (1045). Around 2.8% (55) of the participants suffered from all three psychological disorders. Pearson correlation test showed a significant positive correlation between all the three psychological morbidities.
Conclusions: The study findings showed high prevalence of mental health problems among Indian population during the COVID-19 outbreak with a positive correlation between them.

Keywords: COVID-19, Pandemic, Psychological effect, Anxiety from COVID-19, Obsession with COVID-19, Fear of COVID-19

INTRODUCTION

The coronavirus (CoV) pandemic is the defining global health crisis of our time and the greatest challenge we have faced since world war two.[1] The outbreak of coronavirus disease (COVID-19) started in China in December 2019 followed by an encroachment to newer territories in Europe, America, Asia and is still widening its burden of disease.[2] The world health organization (WHO) declared COVID-19 to be an international public health emergency on January 30, 2020 and as on June 20, 2020 (when this study was undertaken), 8,708,008 cases were confirmed and 461,715 deaths reported globally. In India, cases of COVID-19 started to rise by the 2nd week of March 2020, and by June 20, 2020, more than four lakh cases were reported.[3]

This unpredictable, fast spreading infectious disease has been causing universal awareness, anxiety and distress, all of which according to WHO are natural psychological responses to the randomly changing condition.[4] Adverse psychosomatic outcomes among common people are nevertheless expected to increase significantly due to the pandemic itself and also due to constant flow of readily available information and reinforced messaging obtained via online social networking services of just about all forms.[2] The COVID-19 doesn't just seize the body; it imprisons the mind as well. The presentations are myriad, and include emotional difficulties like anxiety, depression, biological effects like sleep, appetite disturbances also as severe mental diseases and substance misuse. For most, these symptoms are mild and transitory, but a minority may develop severe mental health issues that require additional mental health support.[5]

Added to the fear of contracting COVID-19 are the significant changes to our daily lives by the quarantine imposed in the support of efforts to contain and slow down the spread of the virus. It is well known that quarantine/isolation for any cause and in the context of a pandemic (severe acute respiratory distress syndrome /SARS, 2003) had been reported to be associated with significant mental health problems in the immediate few days of isolation and later had symptoms of post-traumatic stress disorder even after 3-4 weeks of discharge.[6] Another important aspect is stigmatization and societal rejection regarding the quarantined cordon.[4] Apart from these the pooling up of challenges imposed by quarantine such as working from home, temporary unemployment, home-schooling of children, living with limited resources and lack of physical contact with other family members, friends and colleagues, have had its own share of mental pressure which could potentially be even more detrimental in the long run than the virus itself.[2]

Previous research has revealed a profound and broad spectrum of psychological impact that such global pandemics can inflict on people.[7] Studies post-SARS pandemic or post-Ebola indicate that even after recovering physically from the disease, individuals suffered from social and psychological problems and similar could be the impact with this pandemic.[8] Therefore, it is imperative to assess the unprecedented mental health challenge created by COVID-19 pandemic for the entire world. Considering these in the background, this study was conducted with aim to assess the psychological effect of COVID-19 pandemic on the general population using validates scales for anxiety, obsession and fear.

METHODS

Study setting

This was an online observational, cross-sectional study conducted from 20th June 2020 to 4th July 2020 to assess the psychological effects of COVID-19 in the general population of India. Persons of both the sexes, aged 18 years or above who understand the contents of the questionnaire and willing to participate in the study were included in this study.

Study procedure

Due to lockdown restrictions, it was not feasible to do a community-based survey, and we decided to collect the data using the online google form. A convenient sampling method was used for recruiting participants. An online data collection tool was designed and executed using google forms (docs.google.com/forms). A link of the google survey was distributed widely using social media platforms like WhatsApp, Facebook, etc. The data from google form were automatically stored in a spreadsheet on google drive. The data was accessed after completion of the study. Only the investigators concerned with the study had access to these data. No incentives were offered to any volunteers participating in the survey.

The study was approved by the institutional ethical committee of regional research institute for homoeopathy, Imphal. The development and reporting of the survey followed the checklist for reporting results of internet e-survey (CHERRIES) guidelines.[9]

Study instruments

The google form created for the purpose of the survey had three sections. The first section informed the participants about the background, objectives of the study and confidentiality of identity. Participants who consented to willingly participate in the survey would click the 'Continue' button and would then be directed to complete the online questionnaire which implied that they gave their consent for participation. It was disclosed to all the participants that their identity will be kept confidential and the results will be used only for research purposes. The brief introduction was followed by questions on respondents' socio-demographic characteristics. The second section consisted questions related to anxiety and obsession with COVID-19 while the third section recorded response related to fear of COVID-19.

The following three COVID-19 specific validated scales were kept in the questionnaire:

The coronavirus anxiety scale: It is a brief self-reported mental health screener to identify probable cases of dysfunctional anxiety associated with the COVID-19 crisis with 90% sensitivity and 85% specificity. Coronavirus anxiety scale (CAS) is a reliable instrument with solid factorial and construct validity. It consisted of five questions and each item is rated on a 5-point scale, from 0 (not at all) to 4 (nearly every day), based on experiences over the past two weeks. A total score ≥ 9 indicates probable dysfunctional CoV related anxiety.[10]

Obsession with COVID-19 scale: It is a self-report mental health screener of persistent and disturbed thinking about COVID-19. It is a reliable instrument with

solid factorial and construct validity. The diagnostic properties of the obsession with COVID-19 scale (OCS) (81 to 93% sensitivity and 73 to 76% specificity) are comparable to related screening instruments. OCS consisted of four questions rated on a 5-point scale, from 0 (not at all) to 4 (nearly every day), based on experiences over the past two weeks. An OCS total score ≥7 indicates probable dysfunctional thinking about COVID-19.[11]

Fear of COVID 19 scale

It is a reliable and valid self-reported tool to assess fear of COVID-19. It has seven items and the participants indicated their level of agreement with the statements using a five-item Likert type scale (strongly disagree=1 to strongly agree=5). A total score could be calculated by adding up each item score (ranged from 7 to 35). The higher the score, the greater the fear of COVID-19.[12]

Statistical analysis

Fully completed questionnaires were extracted from google forms and exported to a Microsoft excel 2016 for cleaning and coding. The cleaned data was exported to SYSTAT 13 for analyses. Frequency and percentage were calculated and tabulated for socio-demographic variables. The independent sample t-test and analysis of variance (ANOVA) test was used as appropriate for inferential statistics. A p value of<0.05 was considered statistically significant. Pearson correlation test was performed to find the relation between anxiety, obsession and fear.

RESULTS

Response from 2017 individuals were received in this study. Thirteen respondents did not complete the questionnaire and they were excluded from the final analysis. The final dataset consists of responses from 2004 individuals. The demographic characteristics of the study sample are given in (Table 1). The mean age of the sample was 37 years. Among them 57.2 % (n=1146) were males and 42.8% (858) were females. Respondents from 31 States and union territories of India participated in this study with maximum responses from Uttar Pradesh (n=968; 48.3%) followed by Maharashtra (239; 11.9%) and Manipur (233; 11.6%).

Majority of the respondents were married (1347; 67.2%) and resided in urban localities (1584; 79%). About 88.5% (1773) of the respondents were highly educated (graduation and above) and were in some kind of job (government job 29.5%, private job 24.1%) with healthcare workers accounting for 24.4% (489) of the respondents. Only 10.2% (205) of the respondents suffered from any chronic illness. 48.9% (981) of the population did not took any prophylactic medicine while 36.5% (732) of people took homoeopathic medicine as a prophylactic measure against COVID-19.

Table 1: Socio-demographic characteristics of the participants (n=2004).

Demographic variable	N	%
Age (year) (mean age 37)		
18-30	722	36.03
31-45	893	44.56
46-60	287	14.32
Above 60	102	5.09
Gender		
Male	1146	57.19
Female	858	42.81
State/UT		
UP	968	48.30
Maharashtra	239	11.93
Manipur	233	11.63
Madhya Pradesh	198	9.88
Delhi	93	4.64
Others (26 States/UTs)	273	13.62
Type of area		
Rural	257	12.82
Urban	1584	79.04
Semi-urban	163	8.13
Marital status		
Married	1347	67.22
Unmarried	657	32.78
Education		
Illiterate and Up to class VIII	40	2.00
Intermediate	191	9.53
Graduate	915	45.66
Post graduate and above	858	42.81
Occupation		
Govt. job	591	29.49
Health care worker	489	24.40
Business	147	7.34
Retired	53	2.64
Pvt. job	483	24.10
Unemployed	241	12.03
Chronic illness		
Yes	205	10.23
No	1799	89.77
Prophylactic medicine		
Allopathic medicine	55	2.74
Ayurvedic medicine	109	5.44
Unani medicine	4	0.20
Siddha medicine	0	0
Homoeopathic medicine	732	36.53
Medicine from multiple system	123	6.14
Did not took any medicine	981	48.95
Source of information on COVID-19		
International Health Organization	68	3.39
Government sites	205	10.23
Social Media	177	8.83
News Media	368	18.36
Journals/Magazines	15	0.75
Multiple Sources	1151	57.44
Others	20	1.00

Table 2: Anxiety, obsession and fear from COVID-19 on study participants.

Variables	N (%)	Mean (±confidence interval)	t	P value
Anxiety from COVID-19	66 (3.29)	1.094 (±0.116)	133.119	0.000
Obsession with COVID-19	270 (13.47)	2.147 (±0.155)	61.699	0.000
Fear of COVID-19	1045 (46.96)	17.103 (±0.283)	0.714	0.475

N= Number, t= T test, P value<0.05.

Table 3: Comparison of mean scores of anxiety, obsession and fear from COVID-19 across demographic variables.

Demographic variable	Anxiety (N=66)				Obsession (N=270)				Fear (N=1045)			
	N (%)	Mean (±95% CI)	t* or F#	P value	N (%)	Mean (±95% CI)	t or F	P value	N (%)	Mean (±95% CI)	t or F	P value
Age (year)												
18-30	23 (34.85)	0.957 (±0.195)	13.601	0.000	66 (24.44)	1.751 (±0.227)	9.961	0.000	374 (35.79)	16.914 (±0.44)	5.886	0.001
31-45	17 (25.76)	0.908 (±0.144)			120 (44.44)	2.119 (±0.222)			449 (42.97)	16.725 (±0.414)		
46-60	15 (22.73)	1.547 (±0.367)			62 (22.96)	3.00 (±0.487)			169 (16.17)	18.286 (±0.86)		
Above 60	11 (16.67)	2.422 (±0.78)			22 (8.15)	2.794 (±0.951)			53 (5.07)	18.431 (±1.527)		
Gender												
Male	42 (63.64)	1.108 (±0.161)	0.270	0.787	139 (51.48)	1.958 (±0.197)	2.775	0.006	538 (51.48)	16.379 (±0.38)	5.837	0.000
Female	24 (36.36)	1.076 (±0.166)			131 (48.52)	2.399 (±0.246)			507 (48.52)	18.071 (±0.418)		
Marital status												
Married	45 (68.18)	1.163 (±0.142)	1.647	0.100	210(77.78)	2.372 (±0.197)	4.116	0.000	722 (69.09)	17.305 (±0.355)	1.999	0.046
Unmarried	21 (31.82)	0.954 (±0.205)			60 (22.22)	1.685 (±0.237)			323 (30.91)	16.689 (±0.468)		
Chronic disease												
Yes	14 (21.21)	1.898 (±0.444)	4.589	0.000	60 (22.22)	3.898 (±0.626)	7.620	0.000	123 (11.77)	19.405 (±1.024)	5.409	0.000
No	52 (78.79)	1.003 (±0.119)			210 77.78)	1.947 (±0.154)			922 (88.23)	16.841 (±0.292)		
Residential area												
Rural	11 (16.67)	1.163 (±0.382)	0.125	0.883	27 (10)	1.681 (±0.399)	4.171	0.016	145 (13.88)	17.451 (±0.765)	0.445	0.641
Urban	51 (77.27)	1.080 (±0.126)			232 (85.93)	2.263 (±0.178)			805 (77.03)	17.042 (±0.325)		
Semi-urban	4 (6.06)	1.129 (±0.451)			11 (4.07)	1.748 (±0.46)			95 (9.09)	17.147 (±0.847)		
Education												
Illiterate, Upto class VIII	1 (1.52)	1.75 (±0.895)	2.804	0.038	2 (0.74)	0.850 (±0.689)	1.881	0.131	14 (1.34)	14.825 (±1.946)	2.706	0.044
Intermediate	13 (19.7)	1.492 (±0.508)			27 (10)	2.173 (±0.542)			99 (9.47)	17.440 (±1.005)		
Graduate	26 (39.39)	1.093 (±0.170)			133 (49.26)	2.199 (±0.240)			471 (45.07)	17.360 (±0.427)		
Post graduate and above	26 (39.39)	0.977 (±0.164)			108 (40)	2.146 (±0.222)			461 (44.12)	16.861 (±0.417)		
Occupation												
Govt job	11 (16.67)	0.800 (±0.172)	11.338	0.000	53 (19.63)	1.711 (±0.242)	8.015	0.000	299 (28.61)	16.861 (±0.489)	8.561	0.000
Health care worker	12 (18.18)	0.859 (±0.217)			47 (17.41)	1.761 (±0.282)			221 (21.15)	15.791 (±0.536)		
Business	9 (13.64)	1.769 (±0.533)			25 (9.26)	2.952 (±0.661)			85 (8.14)	18.401 (±1.229)		
Retired	7 (10.61)	2.736 (±1.24)			17 (6.30)	3.547 (±1.491)			30 (2.87)	19.34 (±2.248)		
Privet job	12 (18.18)	0.99 (±0.229)			89 (32.96)	2.598 (±0.335)			269 (25.74)	17.555 (±0.571)		
Unemployed	15 (22.73)	1.73 (±0.402)			39 (14.44)	2.295 (±0.484)			141 (13.49)	18.170 (±0.872)		

N=Number, CI=Confidence interval, *T-test, #analysis of variance (ANOVA), P value< 0.05.

The overall prevalence of psychological disorder due to COVID-19 in the study sample was 53.3% (1068). The prevalence of anxiety from COVID-19 in the study sample (Table 2) was found to be 3.29% (n=66; score≥9), obsession with COVID-19 was 13.47% (270; Score≥7) and fear of COVID-19 was 46.9% (1045; Mean=7.103±0.283). 11.48% (230) of participants reported both fear and obsession, 0.60% (12) reported both fear and anxiety and 0.25% (5) reported both anxiety and obsession with COVID-19. Around 2.8% (55) of the participants suffered from all three psychological disorders namely anxiety, obsession and fear of COVID-19.

Anxiety, obsession and fear scores were significant based on age categories ($p<0.05$) with higher age group significantly associated with higher psychological morbidity. There was no significant difference in anxiety scores according to gender and marital status. Female gender has significantly higher obsession score (p=0.006) and fear score (p=0.000) compared to their male counterparts. Similarly, married persons were found to be more obsessed with COVID-19 (p=0.000) compared to unmarried individuals. Persons who were already having any co-morbidity like hypertension, diabetes mellitus etc recorded significantly higher scores on anxiety (p=0.000), obsession (p=0.000) and fear scales (p=0.000). Respondents residing in urban areas were found to be more obsessed with COVID-19 (p=0.016). Respondents with lower education level were more anxious from COVID-19 (p=0.038) while there was no significant difference in obsession score based on education level. Apart from retired persons, who happens to be senior citizens and had higher psychological impact, businessmen also had higher level of anxiety, obsession and fear. Among the respondents who were found suffering from the three psychological morbidities, the healthcare workers accounted for 18.18% (12) of anxiety cases, 17.41% (47) of obsession cases and 21.15% (221) of fear cases (Table 3).

There was a significant positive correlation between all the three psychological morbidities (Table 4). The positive correlation was moderate between fear and obsession (r=0.63; p=0.000) followed by anxiety and obsession (r=0.62; p=0.000). A somewhat weaker positive correlation existed between anxiety and fear (r=0.47; p=0.000).

Table 4: Correlation between score of anxiety, obsession and fear from COVID-19.

Variables	R	P value
Anxiety-obsession	0.61488833	0.000
Anxiety-fear	0.470085951	0.000
Obsession-fear	0.627433732	0.000

R=Pearson correlation coefficient; P value< 0.05

DISCUSSION

Mental health is one of the most neglected areas of health. The documented connection between viral epidemics and their psychological effects dates back more than 100 years ago when a classic article by Menninger on the association of influenza and psychoses was published. People's emotional responses during massive infectious disease outbreaks are likely to include feelings of extreme fear and uncertainty that, along with the separation from loved ones and the limitations of freedom, may eventually lead to dramatic mental health burden.[13] Hence, a first of its kind study using three validated COVID-19 specific scales to investigate the psychological effect of this ongoing pandemic on Indian population was conducted.

The findings of this study indicate that 53.3% of the general population from 31 states and union territories of India currently perceives some form of psychological effect due to COVID 19. Varshney et al reported that COVID-19 resulted in significant psychological impact in 33.2% people in India.[14] A study in West Bengal showed that 71.8% and 24.7% of the respondents felt more worried and depressed respectively.[15]

Similar findings were reported in studies from China where psychological impact from COVID-19 was reported as 53.8 and 48.3% respectively.[16,17] A study in Spanish University by also confirms a total of 50.43% respondents presenting moderate to severe impact of this outbreak.[18] Studies from Egypt and Italy indicates that 41.4 and 38% of the respective general population currently perceives a form of psychological distress due to COVID-19.[19,20]

Isolation, social distancing and quarantine in a pandemic can impact people emotionally and psychologically, resulting in higher rates of loneliness, fear etc.[13] Mass fear of COVID-19, rightly termed as “corona phobia”, is likely due to the uncertain character and unpredictable course of the disease.[21] This study shows relatively high rates of fear (46.96%) prevailing in the Indian population. Almost similar findings were reported from China (52.1%) and Egypt (53.9%).[19,22] Two other Indian study showed that 79 and 61.9% of the participants respectively were worried about their family and friends due to the fear of COVID-19.[23,24] This fear eventually lead to suicides in India first case of which was reported on February 12th, 2020 shortly followed by two such more incidents. A study reported that 72 suicide cases took place in India from March to May 24, 2020 and fear of COVID-19 infection was the most common cause.[25]

Fear is associated with the stigmatization of citizens who are perceived as the source of the disease, with the risk of civil conflicts. The data analyzed indicated that women show increased fear compared to men which correspond with the findings of recent studies as women display a higher vulnerability to stress.[26,27] The presence of chronic illness was associated with higher fear of the pandemic.[28]

Older age was significantly associated with higher score on fear scale which was interestingly opposite to a findings of Vietnam study.[29]

Health anxiety during an epidemic of communicable disease can become excessive. The prevalence of anxiety from COVID-19 in our study was 3.29%. National mental health survey (NMHS) also reported the prevalence of anxiety disorders to be 3.6% among the various states of India.[30] Similar prevalence of 3.6, 3.8 and 6.16% was also found in three Chinese studies respectively.[31-33] Slightly higher prevalence of anxiety disorder was documented from Nepal (9.9%), United Kingdom (11%), Hong Kong (14%) and a multinational study (15.7%).[34,35] A systematic review found the overall prevalence of anxiety as 23.21%.[36]

In the present study, middle aged and senior citizens are significantly affected from anxiety which is in confirmation with the findings of NMHS.[30] Although, in a study from China anxiety was found higher in participants younger than 35 years. The same study and the present study too found no statistically significant difference in the prevalence of anxiety by gender which was different from previous research that women were more likely to have anxiety than men.[37–39] Physical co-morbidities as a predictor for higher psychological impact in response to the outbreak in this study was similar to the findings of existing research.[40]

Poor mental health during the COVID-19 can also be related to contradictory information about COVID-19 from different authorities and mass media. Obsession with COVID-19 in our study was assessed to be 13.5%. Not much evidence is available in public domain on obsession levels. Half of the respondents (52.1%) in a study from West Bengal were preoccupied with the idea of contracting COVID-19 and 21.1% were repeatedly thinking of getting themselves tested for the presence of COVID-19 despite having no symptoms.[15]

Though the quality of evidence in the available literature is relatively low, it still contains numerous valuable observations and suggestions for all professionals working in this field. There are some limitations of this study. First, the study was conducted online so understanding of English language, internet access and computer literacy of respondents might have affected the response to the questionnaire. Secondly, this was a cross-sectional study so change in psychological status could not be studied. Third, data were collected using a non-clinical sample and the results may not be generalized for clinical samples. Fourth, the outcomes were self-reported which carries a risk of source bias and recall bias. Online surveys have been found as an effective way to assess the psychological impact because of its convenience and low cost. Despite the limitations, this study provides data on psychological impact such as anxiety, obsession and fear from COVID-19 in Indian population.

CONCLUSION

The use of three validated scales in this study may give an assessment of the psychological impacts of COVID-19 on individuals. The long-term mental health impact of COVID-19 may take considerable time to become fully apparent and managing this impact requires concerted effort. Early detection of high-risk persons for mental health disorder will help in providing them timely and efficient support. It is imperative to integrate mental health into the broad framework of COVID-19 health care response with measure like counseling, behavioral strategies and social support. Systematic and longitudinal assessment of psychological need of the population will help in the formulation of future research and interventions.

Key message

It is a web-based study in India with participation from 31 states and union territories. Three COVID-19 specific validated scales, namely, Coronavirus Anxiety Scale, Obsession with COVID-19 and Fear of COVID-19 scale were used to assess psychological impact. More than half of the respondents were found to have a psychological morbidity.

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