Prevalence of Depression and Anxiety during the COVID-19 Pandemic among the Residents of an Urban Slum in North India

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Abstract

Objectives This study aimed to estimate the prevalence of depression and anxiety, and assess the knowledge, practice, and concerns regarding coronavirus disease 2019 (COVID-19) among the residents of an urban slum in Chandigarh, India.

Materials and Methods Participants were screened using Patient Health Questionnaire-9 and Generalized Anxiety Disorder-7 scales.

Results The mean (standard deviation) age of 200 enrolled participants was 33 (13) years with 83% (n = 166) being females. The prevalence of depression and anxiety was 3.5% (95% confidence interval [CI]: 0.95–6.05) and 2.5% (95% CI: 0.34–4.66), respectively. Of total, 46% (n = 92) knew that COVID-19 can transmit through droplets and 30.5% (n = 61) were concerned that they might get infected with disease. Half of the participants (n = 100) believed that there was unnecessary worry regarding COVID-19 and 78% (n = 156) covered mouth while coughing or sneezing.

Conclusion To cope with this critical situation, it is necessary to strengthen the awareness programs targeting the mental health issues of the people.

Keywords
► anxiety
► COVID-19
► cross sectional
► depression
► slum

What We Already Know

- Ongoing COVID-19 pandemic and its control measures have adverse psychological consequences.
- There is a limited literature related to mental health status of general public in India facing the pandemic till date, more so among slum dwellers.

What This Article Adds

- This article describes the prevalence of depression and anxiety and assesses the knowledge and concerns regarding coronavirus disease 2019 (COVID-19) among residents of an urban slum in North India.
- Level of awareness and precautionary measures followed by the residents of urban slum.

Introduction

Since the first few cases of coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), were identified in China in December 2019, the pandemic is rapidly spreading worldwide. A high attack rate and majority of the cases being of

mild symptoms along with globalization have facilitated this process.[1] The accelerating mortality trend in various age groups and absence of vaccine or structured treatment choices have added to the global panic.

Humans cannot live alone and need a social life for existence or survival. Self-isolation and quarantine measures in this growing COVID-19 pandemic have disrupted our usual activities and livelihoods leading to loneliness, anxiety, depression, insomnia, substance use disorders, and suicidal behavior.[2] Social stigma has arisen and the cases are being targeted as they are considered the source for escalation of the outbreaks. Epidemics of such large scale are almost always accompanied by spectrum of mental disorders.[3] In addition, among individuals with history of mental illness, all these conditions can exacerbate.[4]

As of March 25, 2020, globally there were 414,179 cases and 18,440 deaths and reported case fatality rates varied from 1% to more than 7%.[5,6] India reported its first case of COVID-19 on January 30th, 2020 and had a total of 220,114 active cases with 17,400 deaths as on July 1st, 2020.[7] The social distancing measures and stringent lockdown policies have affected the mental health of many nations, including India.[8,9] As research into COVID-19 continues, many myths are also prevalent in the general population regarding the prevention and management of this contagious disease. Interestingly the pandemic has highlighted another aspect in India in this era of social media—infodemic! Individuals are getting overloaded with rumors, misinformation, and near-constant stream of news reports which are not authentic and verified, fueling the already existent depression and anxiety. The World Health Organization has also conveyed its apprehension regarding this and has furnished skilled directions to public queries in coping with fear, stigma, and discrimination during COVID-19.[10]

Globally there are records of the psychological impact of COVID-19 pandemic on the general public, patients, medical staff, children, and older adults.[11-13] Preliminary evidence suggests that symptoms of anxiety and depression range from 16 to 28% and self-reported stress is around 8% during COVID-19 pandemic throughout the world.[14] However, there is a lacunae in literature related to mental health status of general public in India facing the pandemic till date, more so among the unorganized sector. More than 90% of Indian workforce and about 50% of the national product are accounted for by the unorganized sectors.[15] Extra efforts should be made to ensure connections and social support to people who are typically marginalized and isolated, including the immigrants, homeless persons, and those residing in slum areas. Hence, we aimed to estimate the prevalence of depression and anxiety and assess the knowledge, concerns, and practice regarding COVID-19 during the peak of the pandemic among the residents of an urban slum in Chandigarh, India.

Methods

Study Design and Setting

A descriptive cross-sectional study was conducted in the service area of a Public Health Dispensary (PHD), Chandigarh from June 12th to July 11th, 2020. The PHD is a primary health care facility which provides preventive, promotive, and general outpatient services for 6 days in a week. The slum area, with a population of about 25,242 (5,042 households), is earmarked into six blocks comprising of around 4,000 households and all the blocks are similar in socio-demographic and economic characteristics. In each block, there are areas where residents have been staying for more than a decade and are now registered voters with permanent houses. Majority of the men are employed as drivers, vendors, or laborers while the women work as household maids in the city. Migrants from Nepal and various Indian states like Haryana, Punjab, Uttar Pradesh, Bihar, West Bengal, and Tamil Nadu have also been living here from a long time, and so most inhabitants stayed back even after the sudden lockdown.

Study Participants

Adults (18 years and above), who were present in the house and willing to give the interview, were the respondents. If any house had more than one adult participant willing to be a respondent, then one was selected by lottery method. However, if already diagnosed with any psychiatric illness, they were excluded.

Sampling Population

Adults residing for last 1 year in the urban slum service area of the PHD were eligible to participate in the study.

Sample Size Calculation

Sample size was calculated using OpenEpi (v 3.01 updated on 2013, United States).[16] Based on a web-based survey during the outbreak in China, assuming proportion of individuals with anxiety as 0.35, relative precision of 20% and alpha error of 5%, the minimum sample size obtained was 178 households.[17] Considering a nonresponse rate of 10%, the sample size required was estimated to be 200 households.

Sampling Technique

Number of households were selected from each block based on proportion to size. A line list of all the households with their address details maintained by the PHD center staff was used for selection of households. Using systematic random sampling method, around every tenth household was approached.

Study Procedure

Data collection was started after Institutional Ethics Committee approvals (Approval Number: NK/6275/study/583). Senior and Junior residents along with Bachelor in Public Health students posted were the data collectors. They were sensitized regarding the objectives of the study, confidentiality of information, participants' rights, and informed consent and were also trained to administer the questionnaire to the subjects. After obtaining the service area map and total number of households from each block, the number of households to be selected from each of the blocks were decided and based on that the data collectors were divided. A random number was chosen

between one and ten before starting of data collection from each block and after that every tenth household was selected till the desired number achieved in each block. Then from the selected household after obtaining informed verbal consent from the eligible participant, questionnaire was administered at their own residence. Data were collected house-to-house using standard precautions and if any house was found locked or respondent was busy with household chores, then the next house was approached. The participants were contacted only once for the purpose of the study and data collection happened three times in a week.

Study Tool

Interview was conducted using a pretested structured questionnaire which had four parts. First section comprised of socio-demography, morbidity, and behavioral pattern. Second part collected details regarding knowledge, concern, and precautionary measures related to COVID-19. First two parts were originally developed in English. After translation into Hindi, the face and content validity were ensured by the assessment of the items by authors and exhaustive literature review. For the third and fourth parts, participants were screened for mental health disorders using the validated and field-tested questionnaires—patient health questionnaire (PHQ)-9 and generalized anxiety disorder (GAD)-7.[18,19] The GAD-7 is a brief self-report scale and efficient tool for screening GAD with seven items rated on a four-point Likert-scale ranging from 0 (not at all) to 3 (nearly every day) in the last 2 weeks. The PHQ-9 is a widely used instrument to measure the depression of the subjects, which includes nine questions rated on a four-point scale ranging from 0 (not at all) to 3 (nearly every day) in the last 2 weeks. Total scores of ≥10 and ≥8 are indicative of possible diagnosis of depression and GAD, respectively, and have an acceptable level of diagnostic concordance with the diagnosis made by a psychiatrist. For this study, validated Hindi versions of both the questionnaires were used.[20-22]

Statistical Analysis

Data were entered and analyzed using Microsoft Excel. Descriptive statistics such as mean with standard deviation (SD) or median with interquartile range (IQR) for continuous variables, and frequency along with their percentage for categorical variables were computed. The burden of mental health disorders was summarized in proportion with a 95% confidence interval (CI).

Results

The mean (SD) age of the 200 participants was 33 (13) years with majority being females (83%, n = 166). The median (IQR) family income per month was $137 (113–205) and of the total, 81% (n = 162) had formal education and 93% (n = 185) lived in joint families. Majority of them did not suffer from any chronic illness and did not have any kind of addiction (►Table 1).

Table 1 Socio-demographic, morbidity, and behavioral characteristics of study participants, 2020 (N = 200)

Characteristics	n	(%)
Gender		
Male	33	(16.5)
Female	166	(83.0)
Transgender	1	(0.5)
Age category (in years)		
Less than 30	106	(53.0)
30 and above	94	(47.0)
Education (years of schooling)		
No formal education	38	(19.0)
1–5	32	(16.0)
6–10	91	(45.5)
>10	39	(19.5)
Occupation category		
Unemployed	6	(3.0)
Employed	52	(26.0)
House wife	137	(68.5)
Student	5	(2.5)
Family type		
Nuclear family	15	(7.5)
Joint family	185	(92.5)
Chronic diseases		
No	189	(94.5)
Hypertension	4	(2.0)
Diabetes mellitus	3	(1.5)
Both	4	(2.0)
Tobacco consumption (in last 1 month)		
Yes	15	(7.5)
No	185	(92.5)
Alcohol consumption (in last 1 year)		
Yes	6	(3.0)
No	194	(97.0)

The prevalence of depression and anxiety were 3.5% (95% CI: 0.95–6.05) and 2.5% (95% CI: 0.34–4.66), respectively. Of the total, eight (4%) had either depression or anxiety and four (2%) had both. Less than half of the study participants have responded affirmatively that COVID-19 spreads through droplet (46%, n = 92) and direct contact (45%, n = 90).

Of total, 82% (n = 163) had confidence in the ability of their treating physician in recognizing COVID-19 and one in three (31%, n = 61) thought that they were likely to get infected with SARS-CoV-2 during this pandemic. Half of the participants believed that too much unnecessary worry was being made concerning the present pandemic (►Table 2). Nevertheless, three out of every four persons were wearing masks regardless of symptoms (74%, n = 148) and washed hands after coughing, sneezing, or rubbing the nose (75%, n = 150).

Table 2 Awareness regarding coronavirus disease 2019 (COVID-19) among study participants, 2020 (*N* = 200)

Characteristics	Yes	No	Don't know
	n(%)	*n*(%)	*n*(%)
Knowledge regarding COVID-19 spread			
Droplet transmission	92 (46.0)	12 (6.0)	96 (48.0)
Direct contact	90 (45.0)	15 (7.5)	95 (47.5)
Airborne transmission	59 (28.5)	32 (16.0)	109 (54.5)
Concerns			
Belief that will survive if develops COVID-19	116 (58.0)	23 (11.5)	61 (30.5)
Satisfied with available information	172 (86.0)	7 (3.5)	21 (10.5)
Confidence in treating physician for recognizing COVID-19	163 (81.5)	10 (5.0)	27 (13.5)
Fear of contracting infection during the pandemic	61 (30.5)	59 (29.5)	80 (40.0)
Too much unnecessary worry made out by COVID-19 pandemic	100 (50)	100 (50)	0 (0)
Precautionary measures practiced			
Cover mouth while coughing/sneezing	156 (78.0)	44 (22.0)	–
Washing hands with soap or use sanitizer frequently	151 (75.5)	49 (24.5)	–
Washing hands after coughing/sneezing/rubbing nose	150 (75)	50 (25)	–
Washing hands after touching contaminated objects	144 (72)	56 (28)	–
Wears mask irrespective of symptoms	148 (74)	52 (26)	–

Discussion

In a community-based setting in North India; we found that depression and anxiety were 3.5 and 2.5%, respectively. Majority followed precautionary measures even though half of them viewed that excessive apprehension existed regarding COVID-19 pandemic.

The prevalence of depression and anxiety among our study participants is slightly higher than the national average given by National Mental Health Survey.[23] Still, studies from other places have reported higher burden of mental health illness during the pandemic.[24-26] A study from North India had reported higher burden of mental health illness during the pandemic.[27] This study was done among migrant workers who were directly hit by the pandemic as they lost their livelihood and homes resulting in higher level of depression and anxiety. Another reason for lower prevalence can be due to the robust choice of instrument and differences in response with online surveys and real-life settings. PHD being located within 30 minutes walking distance from each house along with satisfaction with the health information made available to them has been a determining factor. Moreover, majority of the study participants were living in joint families and loneliness has significant positive correlation with severity of depression, anxiety, and somatic symptoms.[28] Our results also showed a higher percentage of depression than anxiety and this is comparable with other studies in the slum population of India.[29,30] This can be explained by the fact that depression is more common among the females, and our study population comprised majorly of females.[31] Anxiety coexists with, and commonly precedes depression.[32] Hence it is also possible to have missed these acute anxiety cases immediately after the countrywide lockdown was announced.

In a study conducted in China, the overall correct rate of knowledge about the mode of transmission of COVID-19 was 90%.[33] In the present study less than half of the participants were aware regarding this. The difference in the knowledge could be attributed to the contrasting level of education in the two settings as in the other study majority (65%) of the participants hold bachelor's degree and above and a significant difference was found between education and level of knowledge. Also, there is difference in the assessment tool and scoring systems. So, it is not possible to accurately compare the knowledge levels across these studies. Majority of the participants were also satisfied with the information provided to them through mass media. This might be the reason that in our study a considerable number of participants followed the correct practices to prevent the disease. So, the public belief toward the government policies is very much required to contain the spread of this pandemic.

Nearly half of the people think that unnecessary rhetoric has been generated regarding the COVID-19 pandemic. During the time of crisis people tend to search for essential information. Lack of availability of accurate facts can increase anxiety among the common people.[34]

Most of the people have been adhering to the recommendations given by the government of India and have a good faith in health system which can be used as an opportunity to organize community efforts in fighting this pandemic. To cope with this critical situation, it is necessary to strengthen the awareness programs targeting the mental health issues of these people. The government should provide crisis-based psychological services to the needy through mass media, maintaining the norms of physical distancing—which is difficult to be exercised in slum areas.

Even though the socio-economic characteristics of the study population are comparable to other urban slums in India, this study is limited to a particular stratum of society, so it cannot be generalized to the whole population.[35] Thus, more such studies are warranted to see the mental health status of the general population. In addition, selection bias (as females were a considerable fraction in our study group) and social desirability bias (as psychiatric disorders are still a taboo in Indian context) cannot be ruled out in this study.

Conclusion

The prevalence of depression (3.5%) and anxiety (2.5%) is low during the peak of the pandemic among urban slum residents in North India. Majority of the participants followed precautionary measures and half of the them believed that unnecessary worry has been created regarding COVID-19.

Conflict of Interest
None declared.

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