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Estimating the Prevalence of Anxiety Disorder in COVID 19 Patients-A Cross Sectional Study

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ABSTRACT

Previous studies have shown a broad range of mental disorders including Anxiety and PTSD during SARS epidemic in 2003 and MERS epidemic in 2015. However, recently published researches on psychological impact of COVID-19 mainly focus on the healthcare workers and general public. Very few studies have established effect of COVID-19 epidemic on mental health of the hospitalized patients with COVID-19. In the present study, we aimed to evaluate mental health outcomes among patients with COVID-19 by quantifying the magnitude of symptoms of anxiety and by analyzing potential risk factors associated with these symptoms. This study may assist doctors to provide more appropriate treatment and psychological interventions to improve mental and physical health of patients during the campaign to contain COVID-19 pandemic.

Key words: SARS, Covid-19, Epidemic, Anxiety, Healthcare

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INTRODUCTION

In December 2019, Wuhan mega polis, China became center of outbreak of novel Corona Virus Disease 19(COVID 19), caused by the Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) [1]. On January 30, 2020 World Health Organization Director- General declared COVID-19 a Public Health Emergency of International Concern [2]. Since then this COVID 19 pandemic has crossed regional and international borders causing marked morbidity and mortality. In this study, we will refer to the disease, COVID-19.

Till date (August 1, 2020) over 17,396,943 cases have been confirmed and 675,060 deaths have been attributed to this disease across 216 countries [3]. By the same time, India has 284,036 confirmed cases and 8498 deaths [4].

Besides huge mortality, this pandemic has caused public panic, mental health stress and anxiety [5,6]. Fear of becoming infected, uncertain outcome of disease, absence of vaccine, lack of specific drug, widespread media coverage and misinformation-spreading rapidly through social media platforms have contributed to anxious state. While trying to contain the pandemic, inevitable mental health challenges posed by it cannot be ignored.

Previous studies have shown a broad range of mental disorders including Anxiety and PTSD during SARS epidemic in 2003 [7-13] and

MERS epidemic in 2015 [14]. However, recently published researches on psychological impact of COVID-19 mainly focus on the healthcare workers [5,6] and public [15]. Very few studies have established effect of COVID-19 epidemic on mental health of the hospitalized patients with COVID-19.

Considering that patients after diagnosis of COVID-19 were more likely to have psychological concerns such as fear of progression of their illness or premature death. It is vital to investigate the prevalence and related factors of anxiety in patients infected with COVID-19.

In the present study, we aimed to evaluate mental health outcomes among patients with COVID-19 by quantifying the magnitude of symptoms of anxiety and by analyzing potential risk factors associated with these symptoms. This study may assist doctors to provide more appropriate treatment and psychological interventions to improve mental and physical health of patients during the campaign to contain COVID-19 pandemic.

MATERIALS AND METHODS

Participants

This descriptive, hospital based, cross sectional study was done in Maharshi Vashishtha Autonomous State Medical College and associated OPEC Kailly hospital, Basti, Uttar Pradesh, India. It included 118 COVID 19 patients admitted in same hospital over a period from 20th April 2020 to 20th July 2020. COVID 19 infection was confirmed through Reverse transcriptase polymerase chain reaction (RT PCR) of nasal and throat swab sample. Patients who were either unwilling or on ventilator support were excluded from the study. Verbal informed consent was taken from all the subjects before commencement of study. All participants were interviewed during hospital stay after ensuring adequate physical distance. Data was collected as predesigned questionnaire which included basic demographic information and Hamilton Anxiety Rating scale items. The inquiry of demographic background included gender, age, marital status, and educational status. Furthermore, age was classified into four groups: 18–25 years, 26-40 years, 41-55 years and 56 and more years old. Educational status was divided into five groups: Illiterate, primary, lower secondary, higher secondary and graduate or higher level.

Hamilton Rating Scale for Anxiety (HAM-A)

The Hamilton Rating Scale for Anxiety (HAM-A) is most widely used clinician administered Anxiety assessment scale [16]. The original version has 14 items, each define by series of symptoms of anxiety. The degree of anxiety is rated by the accumulated scores on 14-items. Items measure both psychic anxiety and somatic anxiety. Each item is scored on a scale of 0(not present) to 4 (severe), with a total score range of 0-56. Scores of 0–13 are considered as being normal; 14–17 suggest mild anxiety, 18–24 moderate anxiety, 25-30 severe anxiety and scores over 30 are indicative of very severe anxiety.

Statistical analysis

Statistical package for Social Science software (SPSS) software, version 20.0 (IBM Corp) was used for statistical analysis. Differences between groups were significant when the P-value was <0.05. Median and inter-quartile range (IQR) of the data were calculated. Continuous variables were analyzed using Mann-Whitney and Kruskal-Wallis test. Chi-square test was performed to figure out significant association between categorical variables.

RESULT

Demographic characteristics

A total of 118 participants, 73(61.9 %) male and 45 (31.8 %) female were included in this study. The age of participants ranged from 18 to 90 years. Median age (IQR) of participants was 39(23) years. Among the participants 16.1 % and 6.8% were illiterate and educated up to graduate or above level, respectively. Most participants were educated up to senior secondary level. Among the participants 95 (80.5%) were married. None of the participants was divorced or widowed. Demographic characteristics are listed in (Table 1).

Psychological characteristic of participants

A considerable proportion of participants had symptoms of anxiety 25 (21.2 %). Median (IQR) HAM-A score was 10.0 (8-12.25). Among participants 19 (16.1%) and 6 (5.1%) patients presented with mild and moderate anxiety, respectively.

Median (IQR) HAM-A score among male vs. female participants was 10(7.5-12.5) vs. 10(9-13.5); (p=0.317). Among married vs. unmarried participants median (IQR) HAM-A score was

11(9-14) vs. 7.5(5-9); (p=0.000). Median (IQR) HAM-A scores in age groups 18-25,26-40, 41-55 and ≥56 years were 7.0(5-9), 9.0(7-10), 11.0(10-13.7) and 14(12-17), respectively; (p=0.000). Median(IQR) HAM-A scores in educational status groups illiterate, primary, lower secondary, upper secondary and graduate or higher group were 16.0 (13-17), 12.0 (10-15), 9 (7-11), 9 (5-10) and 10 (6.75-10), respectively; (p=0.000) (Table 2).

Chi square test showed significantly greater HAM-A score among married, old age and lower educational status groups; p=0.026, 0.00 and 0.00, respectively (Table 3).

DISCUSSION

The psychological response of infected person, health care personnel and quarantined people to an infective epidemic has been documented as mental stress, anxiety, depression, and post-traumatic stress disorder in previous studies. Sources of anxiety include concerns about health of self and family members, feelings of vulnerability, unemployment, economic downturn, and being isolated [17].

Absence of vaccine or cure, novelty of virus, predictable shortages of supplies of testing, treatment and household items, information overload through social media, imposition of unfamiliar public health measures that infringe on personal freedoms and increasing influx of suspected and actual cases of COVID-19 adds up to anxious state [18,19].

Table 1: Baseline demographic characteristic of participants.

Demographic groups	N	%
Gender		
Male	73	61.9
Female	45	38.1
Age (years)		
≤25	24	20.3
26-40	43	36.4
41-55	28	23.7
≥56	23	19.5
Marital status		
Married	96	81.2
Single	22	18.8
Education Status		
Illiterate	19	16.1
Primary	24	20.3
Lower secondary	29	24.6
Upper secondary	38	32.2
Graduate and above	8	6.8

Table 2: Median (Inter-quartile range) of HAM-A score among demographic groups.

Demographic groups	Median (IQR)	p value
Sex		
Male	10 (7.5-12.5)	0.317
Female	10 (9-13.5)	
Marital status		
Married	11 (9-14)	0
Unmarried	7.5 (5-9)	
Age group		
≤25	7 (5-9)	0
26-40	9 (6-10)	
41-55	11 (10-13.7)	
≥56	14 (12-17)	
Educational status		
Illiterate	16 (13-17)	0
Primary	12 (10-15)	
Lower secondary	9 (7-11)	
Upper secondary	9 (5-10)	
University/master/	10 (6.75-10)	

Table 3: Severity of Anxiety in demographic groups.

		Mild Anxiety	Moderate Anxiety	p value
Sex	Male	10 (13.7%)	4 (5.5%)	0.656
	Female	9 (20%)	2 (4.4%)	
Marital Status	Married	19 (19.8%)	6 (6.2%)	0.026
	Unmarried	0 (%)	0 (0%)	
Age group	≤ 25	0 (0%)	0 (0%)	0
	26-40	3 (7%)	1 (2.3%)	
	41-55	6 (21.4%)	1 (3.6%)	
	≥ 56	10 (43.5%)	4 (17.4%)	
Educational status	Illiterate	9 (47.4%)	4 (21.1%)	0
	Primary	8 (33.3%)	1 (4.2%)	
	Lower secondary	1 (3.4%)	1 (3.4%)	
	Upper secondary	1 (2.6%)	0 (0%)	
	University/master	0 (0%)	0 (0%)	

In a previous study done in Beijing, China during 2003 SARS outbreak, Wu P et al. reported that 10 % of health workers experienced high severity of post-traumatic stress [20]. In another study done during same epidemic in Hong Kong, Chua SE et al. reported 89 % of health care worker who were in high risk situation presented with psychological distress [10]. In one study done in South Korea during 2015 Middle East Respiratory syndrome (MERS) epidemic in 2015, Jeong H et al. reported that 47.2% and 7.6 % of MERS patients and quarantined person respectively showed anxiety symptoms [14]. Maunder et al. had evaluated the immediate psychological impact of SARS in Canada, and reported that patients diagnosed with SARS reported fear, loneliness, boredom, and anger [7].

In present COVID 19 epidemics in mainland China, Lai J et al. reported 44.6% and 71.5 % health care workers respectively presented with anxiety and psychological distress [21]. In a study done in early part of epidemic in Wuhan, China, Kong X et al. reported symptoms of anxiety in 34.72% patients admitted with COVID 19 infection [22]. In this study mild, moderate, and severe anxiety was found respectively in 17.36%, 12.5% and 4.86% of patients. But to our knowledge, till now only few studies focused on COVID 19 infected patients, most studied psychological impact on health care worker.

Our study enrolled 118 COVID 19 infected participants in India, and it revealed high prevalence of anxiety. Overall, 21.2 % participants reported symptoms of anxiety. Mild and moderate anxiety is found in 16.1% and 5.1% of patients. Our study was done in later part of epidemic, by that time greater awareness and improved levels of government preparedness have alleviated anxiety symptoms in our study when compared to study done in early part of epidemic in China.

Our study indicated that being married, older age group and lesser educational qualification were independent risk factor associated with experiencing greater severity of anxiety. Among married participants huge worry regarding health and economic wellbeing of spouse and children would have resulted into greater level of stress and anxiety. Lai J et al. also reported marriage and lesser educational status was associated with experiencing greater severity of anxiety [21]. Higher Level of awareness, educational attainment and reasoning ability increases ability to cope with stress and manage anxiety. Illiterate and lesser educated patients being more vulnerable will require more psychological support. Recent research has revealed that older patients are at increased risk of more severe COVID-19 symptoms and death [23]. Higher severity of disease is associated with greater level of anxiety. More psychological care and health attention needs to be given to more vulnerable elderly group.

Strength of our study is use of Hamilton anxiety rating scale which was administered by skilled physician by one to one interview with patient. Most other studies used self-rated questionnaires which were administered through online survey and telephonic conversation. Strength of our study is that it is conducted on COVID 19 infected patients while most studies focus on mental health impact of health care workers and isolated person. Only few studies have done in India till now which focus on this mental aspect of epidemic. Strength of this study is the

relatively thorough examination factors such as age, marital status and educational attainment which increase vulnerability of patients for adverse psychological outcome.

This study is limited by its cross-sectional nature. We could not do a follow up of the patients to see persistence of these symptoms in their later life as the pandemic is still ongoing. The study did not consider the economic background of the cases and control, which maybe a confounding factor for anxiety. Due to shortage of time we did not consider detailed preexisting psychiatric or substance use problems in COVID 19 patients.

However, the findings do provide valuable information for policy makers and mental health professionals worldwide regarding the psychological impact of an infectious disease outbreak, which may assist them in planning effective responses to mental health challenge during possible future outbreaks of infectious disease.

CONCLUSION

Patients hospitalized with COVID-19 experienced features of anxiety. This difficult time posed by pandemic offers the opportunity to bolster our mental health system which can provide prevention focused mental health care. It also opens up opportunity to study the long term mental and behavioral impact of pandemics.

ABBREVIATIONS

COVID 19: Corona virus disease 19.

IQR: Inter quartile range.

DECLARAATION

Author(s) have no conflict of interest.

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