



RESEARCH ARTICLE

Psychological Impact of Medical Professionals Handling COVID-19 Patients in Hospitals

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Abstract

COVID-19 pandemic became a death toll and cause of unbearable psychological pressure for all and the pandemic situation has been considered as a national disaster in India. Present study identified the mental health status of the medical professionals in different hospitals handling COVID-19 patients. We collected psychological data of medical professional using online questionnaire and identified their psychological status following three tools namely, Generalized Anxiety Disorder (GAD), Depression, Anxiety, Stress Scale (DASS) and Hospital Anxiety Depression Scale (HADS). Results indicated concerned level of anxiety, depression and stress being experienced by the respondents. Nonparametric analysis found female professionals were more anxious than males ($p = 0.052$) following GAD tool. Different working groups like doctors, nurses etc. were with equal level of ($p > 0.05$) of anxiety, depression and stress following all the three tools. Outcome of the present study was the prevalence of anxiety, stress and depression among different health care professionals. Recommendation from the present study is to monitor the mental health of medical professionals during this pandemic through observations and establish psychological interventions at preparedness, response and recovery stages of disaster management cycle.

Keywords

Anxiety, Depression, Stress, Medical professionals, COVID-19 pandemic

Introduction

On the last day of the last year, news of a viral pneumonia occurrence and spread was announced from the Wuhan, China [1]. As of 30th June, 2020 this novel coronavirus (COVID-19) has been a pandemic across

the globe, infecting more than 10,185,374 people taking life of the 5,32,187 individuals [2]. Coronaviruses are named such a way due to its outer fringe envelope proteins resemblance to the crown ('corona' in Latin) belongs to the RNA virus's family [3]. This virus is pathogenic to mammals, birds and causes mild upper respiratory tract infections in humans. Upon transmission to a larger human population it may cause severe illnesses called Severe Acute Respiratory Syndrome (SARS) and Middle-East Respiratory Syndrome (MERS) which caused an epidemic in 2003 and 2012 respectively [4]. WHO reports revealed the low (3-4%) mortality rate [2] of the present novel coronavirus. As because the novel coronavirus, COVID-19 infection is highly contagious, and has affected a large population, the number of death cases caused due to this virus has exceeded that caused by any of its predecessors.

Till date there is no prescribed vaccine to cure the disease, rather scientists from all over the world facing a big challenge to formulate if there would be any. That is why the state of lock-down has been imposed, especially in the highly devastating countries of the world including India. As of 30th June, 2020, Indian Government has registered a total of 2,20,546 active cases and 16,893 deaths due to COVID-19 infection [5]. Worldwide the lockdown has tentative major impacts on the economy because the supply chain system has totally lost its way [6]. The mass poisoning especially any infectious disease outbreak trigger a very high degree of fear, anxiety and lead to behavioral and psychological changes in many populations [7]. The COVID-19 is a new disease,

suddenly became pandemic with its devastating effects, so its emergence and spread has created so many social and mental health issues like a great confusion, anxiety, fear, hatred and stigma to the different class of people all over the world. These effects are seen in different degree depending on population's working class. Worldwide the medical practitioners are too much busy now along with their support staffs; reportedly their working environments are stressful. A very recent study on the medical workers from the coronavirus hotspot, China, assessed an alarming rate of various mental disorders, viz. 73.4% with traumatic stress, 50.7% with depression, 44.7% with general anxiety and 36.1% with insomnia of the total workers surveyed [8]. Research on the psychological impact of previous global disease outbreaks demonstrated clear links between pandemic-related anxiety and elevated symptoms of stress, anxiety, contamination concerns, health anxiety, post-traumatic stress, and suicidal tendency [9-12].

Present work ascertained, as a first report from India, the anxiety, depression and general stress level of the medical professionals including doctors and hospital support staffs in and around Kolkata, a metro city in the state of West Bengal and reportedly a coronavirus outbreak hotspot in India. The online questionnaire based survey was formulated for fast data collections as we had to maintain the social distancing.

Methodology

Data collection

The study was designed considering the medical professionals working in the state of West Bengal, India during the lockdown phase of COVID-19. The target group of respondents included doctors, nurses and other health workers from different medical colleges and hospitals. The survey was made online [13,14] with the help of structured questionnaire developed using the Google forms. The link was circulated through email and other social media to the targeted respondents after telephonic conversation about the utility of the study. The link was initially circulated among different known health workers who further circulated to their respective groups. Due to heavy work load, and as many of the organizations started gathering different types of data from the health workers it was assumed that repeated request to take part in our online survey in many cases may create annoyance for them. Therefore, to reach maximum respondents and prove the authenticity personally known health workers were requested to communicate among their groups. This was also a constraint in the present study in the phase of data collection.

The data collection was initiated in the month of April 2020. The socio-demographic variables viz. age, gender, profession, work sector etc. were recorded along with some general information on hospital management, protective measures taken, frequency of attending hos-

pital, view on lockdown etc. Multiple choice or check box questionnaire were formulated to assess the anxiety level of the health workers based on generalized anxiety disorder (GAD-7) comprising of seven questions in the tool with scores of four point Likert scale [15]. To be more specific, we applied another two set of tools to assess the depression, anxiety and stress level among the health workers. One was Depression, Anxiety and Stress Scale (DASS) containing a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each set contains four questions in the tool with five point Likert scale [16]. Another tool employed was Hospital Anxiety and Depression Scale (HADS) which contained five questions each for anxiety and depression with four point Likert scale [17].

Privacy of the participants and confidentiality of related data was maintained that was declared in the online questionnaire as per the recommendation of ethical guideline of the Indian Council of Medical Research (ICMR), Government of India. Moreover the respondents had full choice to or not to participate in the survey after prior online conversation. Filling online questionnaire was their consent for participation in the survey.

Statistical analysis

Base data were accumulated using Excel. Descriptive statistics were used to analyze the study findings where mean and standard deviation were also considered to estimate the results of the present study with the help of Excel STAT and MINITAB 14. Non parametric test were performed under univariate analysis to assess the significant association between the characteristics of the samples and the level of anxiety, depression and stress.

Results

General characteristics of respondents

The survey through online forms was conducted to assess the psychological impact of health workers in Kolkata city and outskirts in West Bengal, India. We received 79 responses of which 55.70% were below 30 years of age, 30.38% between 30 to 40 years, 7.59% were above 40 years and 6.33% were above 50 years in age. Among the respondents, 31.65% were female and 68.35% were male. 81.01% of the respondents were doctors by profession while 6.33% and 11.39% were nurse and other health workers respectively. It was also noticed that 78.48% of respondents work at government organization while 6.33% and 15.19% of the respondents were from semi-government and nongovernment organization respectively.

General responses of the respondents

We found that about 44.30% of the respondents at-

tend hospital as required or as per the roster, 40.51% attends hospital daily, 8.86% in alternate days and 6.33% of respondents do not attend the hospital during COVID-19 lockdown phase. The average daily working hours during the lockdown also varied for different respondents i.e. 12.66% reported their working hours exceeds more than 12 hours, 26.58% worked for 8-12 hours and 35.44% worked for 8 hours. In the survey few questions related to hospital management, precautions, view on the decision of lockdown etc. were asked to acquire knowledge on overall scenario of COVID-19 on their work and workplace. It was revealed from the data that experience of overall hospital management ranges from not satisfactory to moderate (65.82%) and only 6.33% was really happy to the hospital management. Similarly, to the view on the protective measures taken by the authorities for COVID-19, to the 39.24% of the respondents it was not satisfactory, and we found some percentages scored as moderate, good and very good category. 89.87% of the respondents were found to have impact on their work due to COVID-19, followed by moderate (49.37%), high (31.65%) and severe (8.86%) categories. Only 2.53% of the respondents found the lockdown as no necessity while 97.47% supported the lockdown decision of which 62.03% looked

it as wise decision, 21.52% good and 13.92% said it as satisfactory (Table 1).

Psychological impact of COVID-19 on health workers

Psychological impact of COVID-19 on health workers were assessed based on three tools: GAD-7, DASS and HADS. Mean anxiety score through GAD-7 was found to be 7.81 ± 5.82 (depicting moderate anxiety among all the respondents) where 14% of the respondents fall under severe anxiety level and 20% under moderately severe anxiety which is of concern as per GAD-7 scoring. However, 27%-39% ranges from moderate to mild anxiety level (Table 2). DASS analysis reveals depression, anxiety and stress of the respondents. Mean score for depression, anxiety and stress were found to be 7.49 ± 6.80 , 6.75 ± 3.92 and 9.21 ± 7.98 respectively, which infers moderate depression, severe anxiety and normal stress level respectively. Considering depression level 43% falls under normal while 57% suffers from depression of extreme to mild level of 11% to 19%. 91% of respondents are suffering from anxiety with extreme to mild levels which range from 19% to 25%. Similarly, 34% suffers from stress with 8% to 10% range within categories of extreme to mild (Table 2). HADS depict hospital anxiety and depression level which has three

Table 1: Respondents perception on general questions related to overall hospital management, impact of lockdown on work, view on protective measures taken and opinion on lockdown.

Question	Category percent (%)				
	Not applicable	Not satisfactory	Moderate	Good	Very good
Experience of overall hospital management during COVID 19 pandemic	2.53	29.11	36.71	25.32	6.33
Your view on protective authorities to fight COVID 19 Impact work	2.53	39.24	26.58	20.25	11.39
	No impact	Moderate	High	Severe	---
Impact of lockdown on your work	10.13	49.37	31.65	8.86	---
	Not necessary	Satisfactory	Good	Wise	---
Your opinion on lockdown till 3 rd May	2.53	13.92	21.52	62.03	---

Table 2: Psychological impact of COVID-19 on health workers (percent respondents).

GAD 7							
	Mean	SD	Mild anxiety	Moderate anxiety	Moderately severe anxiety	Severe anxiety	--
Anxiety	7.81	5.82	39.24	26.58	20.25	13.92	--
DASS12							
	Mean	SD	Normal	Mild	Moderate	Severe	Extremely severe
Depression	7.49	6.8	43.04	18.99	15.19	11.39	11.39
Anxiety	6.75	3.92	8.86	25.32	31.65	15.19	18.99
Stress	9.21	7.98	65.82	10.13	8.86	7.59	7.59
HADS							
	Mean	SD	Normal	Borderline abnormal	Abnormal (case)		
Depression	3.97	2.69	75.95	12.66	11.39		
Anxiety	6.43	2.87	37.97	21.52	40.51		

categories of normal, borderline abnormal and abnormal (case). Mean score under HADS were found to be 3.97 ± 2.69 and 6.43 ± 2.87 respectively which depicts normal depression level and borderline abnormal anxiety level respectively. Analysis shows 11% and 40% of abnormal (case) for depression and anxiety respectively while 13% and 22% were constituted by borderline abnormal category respectively (Table 2).

Impact of COVID-19 on health workers, the age factor

The age of the respondents were classified as < 30 years, 30 to 40 years, > 40 years and > 50 years. Consider-

ing GAD-7, moderate anxiety level was noticed for all the age classes (Table 3) while the severe anxiety level was 13.64% among the young professionals (age class < 30 years) and 16.67% for both 30 to 40 years and > 40 years age class while moderately severe anxiety level ranged from 20% to 23% within the age class. Moderate anxiety level were noticed among the respondents of > 40 years age class, 50% with no respondents under moderately severe anxiety level and for other age classes it ranges from 20% to 27.27%. The percent of respondents under mild anxiety level ranged from 33.33% to 60% among the age classes, > 50 years being highest in number (Table 3).

Table 3: Univariate analysis of health workers on anxiety due to COVID-19 based on age structure.

GAD7 (Anxiety)								
Age structure	Mean (SD)	Mild anxiety n (%)	Moderate anxiety n (%)	Moderately severe anxiety n (%)	Severe anxiety n (%)	Statistics	P	
< 30 years	7.90 (5.50)	16 (36.36)	12 (27.27)	10 (22.73)	6 (13.64)			
30-40 years	8.08 (5.82)	10 (41.67)	5 (20.83)	5 (20.83)	4 (16.67)	0.60	0.897	
> 40 years	7.67 (6.16)	2 (33.33)	3 (50.00)	0 (0.00)	1 (16.67)			
> 50 years	5.80 (4.78)	3 (60.00)	1 (20.00)	1 (20.00)	0 (0.00)			
DASS12 (Anxiety)								
		Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Extremely severe n (%)	Statistics	P
< 30 years	6.18 (3.49)	3 (6.82)	15 (34.09)	16 (36.36)	4 (9.09)	6 (13.64)	5.90	0.117
30-40 years	7.50 (3.92)	4 (16.67)	2 (8.33)	5 (20.83)	6 (25.00)	7 (29.17)		
> 40 years	9.33 (4.38)	0 (0.00)	1 (16.67)	1 (16.67)	2 (33.33)	2 (33.33)		
> 50 years	5.20 (2.39)	0 (0.00)	2 (40.00)	3 (60.00)	0 (0.00)	0 (0.00)		
DASS12 (Depression)								
< 30 years	7.50 (6.44)	20 (45.45)	8 (18.18)	4 (9.09)	6 (13.64)	6 (13.64)	Statistics	P
30-40 years	7.50 (6.80)	11 (45.83)	3 (12.50)	5 (20.83)	3 (12.50)	2 (8.33)	0.3	0.969
> 40 years	8.67 (7.47)	2 (33.33)	1 (16.67)	2 (33.33)	0 (0.00)	1 (16.67)		
> 50 years	6.00 (3.25)	1 (20.00)	3 (60.00)	1 (20.00)	0 (0.00)	0 (0.00)		
DASS12 (Stress)								
< 30 years	8.36 (7.39)	30 (68.18)	6 (13.64)	3 (6.82)	2 (4.55)	3 (6.82)	Statistics	P
30-40 years	10.67 (7.98)	14 (58.33)	1 (4.17)	4 (16.67)	3 (12.50)	2 (8.33)	0.94	0.816
> 40 years	11.33 (9.39)	3 (50.00)	1 (16.67)	0 (0.00)	1 (16.67)	1 (16.67)		
> 50 years	7.20 (4.33)	5 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)		
HADS (Anxiety)								
		Normal n (%)	Borderline abnormal n (%)	Abnormal (case) n (%)			Statistics	P
< 30 years	6.36 (2.91)	16 (36.36)	9 (20.45)	19 (43.18)			4.85	0.183
30-40 years	7.04 (2.87)	6 (25.00)	7 (29.17)	11 (45.83)				
> 40 years	6.16 (2.35)	3 (50.00)	1 (16.67)	2 (33.33)				
> 50 years	4.40 (2.49)	5 (100.00)	0 (0.00)	0 (0.00)				
HADS (Depression)								
< 30 years	4.15 (2.63)	33 (75.00)	6 (13.64)	5 (11.36)			Statistics	P
30-40 years	3.95 (2.69)	17 (70.83)	4 (16.67)	3 (12.50)			1.48	0.687
> 40 years	3.67 (1.87)	6 (100.00)	0 (0.00)	0 (0.00)				
> 50 years	2.80 (2.56)	4 (80.00)	0 (0.00)	1 (20.00)				

Following the DASS tool analysis, the < 30 years and 30 to 40 years age class depicted mild depression and anxiety with moderate stress level. Age class > 40 years depicted moderate level of depression, anxiety and stress while the age class > 50 years depicted mild depression and stress with normal anxiety level ([Table 3](#)). However, for age class < 30 years, 13.64% of respondents fall under extreme severe category of depression and anxiety while 7% falls under extremely severe category for stress. 13.64%, 9.09% and 4.55% of respondents fall under severe depression, anxiety and stress category respectively. 36.36% falls under moderate category for anxiety and 34.09% for mild category. Similarly, in the age class of 30 to 40 years, the percent of respondents were observed under depression, anxiety and stress were 54.16% (8.33% extremely severe, 12.50% severe and mild, 20.83% moderate), 83.33% (29.17% extremely severe, 25% severe, 20.83% moderate, 8.33% mild) and 41.67% (8.33% extremely severe, 12.50% severe, 16.67% moderate, 4.17% mild) respectively. For age class > 40 years, 66.67% (16.67% extremely severe, 33.33% moderate, 16.67% mild), 100% (16.67% each for extremely severe, severe and mild) and 50% of respondents falls under depression, anxiety and stress category respectively. For the age class > 50 years, no respondents were found under stress, 100% (40% mild, 60% moderate) of the respondents were found under anxiety and 80% (20% moderate, 60% mild) respondents were found under depression ([Table 3](#)).

When the HADS scale was considered, we found the depression and anxiety level of respondents with three categories, viz. normal, borderline abnormal and abnormal (case). Considering depression, 11.36%, 12.50% and 20% of respondents were found to be in abnormal (case) for the age class < 30 years, 30 to 40 years and > 50 years respectively with no respondents under this category for age class > 40 years. When considering the anxiety level, 43.18%, 45.83% and 33.33% respondents were observed under abnormal (case) for the age class > 30 years, 30 to 40 years and > 40 years with no respondents falling under anxiety for age class > 50 years. Borderline abnormal category revealed 13.64% (< 30 years) and 16.67% (30 to 40 years) of respondents under depression while it is 20.45% (< 30 years), 29.17% (30 to 40 years), 16.67% (> 40 years) under anxiety ([Table 3](#)).

We performed non-parametric Kurskal-Wallis test to find any dependency of the anxiety, depression and stress level among the medical professionals to their age. In the anxiety level correlation analysis following GAD-7, DASS 12 and HADS criteria we found no significant differences following age ($p = 0.897$ GAD-7, $p = 0.117$ DASS, $p = 0.183$ HADS). The fact attributed to same level anxiety among all the medical professionals irrespective of their age groups. Likewise if we consider depression among the medical workers considering DASS and HADS scale, again we found no significant

changes ($p = 0.969$ DASS 12, $p = 0.687$ HADS) of depression status following their age group. So everyone is under anxiety and depression due to COVID-19 situation. Here, age is not a confounding factor.

Impact of COVID-19 on health workers, the gender factor

According to GAD-7 scoring the experienced anxiety level (score > 9) was found to be 52% and 25.93% of female and male health workers respectively. Mild and moderate anxiety level among the females and males was recorded as 32%, 16% and 42.59%; 31.48% respectively. According to DASS, 100% female were observed under anxiety contributed as 24%, 32%, 16% and 28% for mild, moderate, severe and extremely severe levels respectively. For male respondents the percent was 87.04% (mild - 25.93%, moderate - 31.48%, severe-14.81%, extremely severe - 14.81%). Similarly according to HADS, anxiety level was observed for 64% (16% borderline abnormal, 48% abnormal case) in females and 61.11% (24.07% borderline abnormal, 37.04% abnormal case) in males ([Table 4](#)).

Depression among the respondents was recorded based upon both DASS and HADS. Considering DASS12, the depression was observed in 78% females and 50% in males. Extremely severe depression level was recorded for 20% females and 7.41% males. Mild, moderate and severe levels of depression were recorded as 28%, 8% and 16% in females and 9.26%, 9.26% and 3.70% in males respectively. According to HADS, 28% (borderline abnormal- 12%; abnormal case - 16%) of respondents was found to be under experienced depression while for male respondents it was 22.22% (borderline abnormal - 12.96%; abnormal case - 9.26%) ([Table 4](#)).

Stress level among the respondents was recorded based upon DASS where it was noticed that about 48% of females was experiencing stress under different levels (mild - 12%, moderate - 8%, severe- 16%, extremely severe - 12%). For male respondents, the stress was experienced by 27.78% (mild - 9.26%, moderate - 9.26%, severe - 3.70%, extremely severe - 5.56%) which is much lesser than females ([Table 4](#)).

We performed non parametric Kurskal-Wallis test to find any dependency of the anxiety, depression and stress level considering gender of the medical professionals. In the anxiety level correlation analysis following GAD-7 was found significant difference following gender ($p = 0.052$ GAD-). The fact attributed to different mental strength level between males and females although they are in the same profession. In the other two scoring method for anxiety level (DASS, HADS) we found no such difference. Depression among female staffs and male staffs was significantly different following the DASS score analysis. Stress level was also different among female and male staffs ($p = 0.016$).

Table 4: Univariate analysis of health workers on anxiety due to COVID-19 based on gender.

GAD7 (Anxiety)								
Gender	Mean (SD)	Mild anxiety n (%)	Moderate anxiety n (%)	Moderately severe Anxiety n (%)	Severe anxiety n (%)		Statistics	P value
Female	9.76 (5.66)	8 (32.00)	4 (16.00)	7 (28.00)	6 (24.00)		3.78	0.052
Male	6.90 (5.82)	23 (42.59)	17 (31.48)	9 (16.67)	5 (9.26)			
DASS12 (Anxiety)								
		Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Extremely severe n (%)		
Female	8.16 (3.75)	0 (0.00)	6 (24.00)	8 (32.00)	4 (16.00)	7 (28.00)	3.33	0.068
Male	6.11 (3.92)	7 (12.96)	14 (25.93)	17 (31.48)	8 (14.81)	8 (14.81)		
DASS12 (Depression)								
Female	9.92 (6.62)	7 (28.00)	7 (28.00)	2 (8.00)	4 (16.00)	5 (20.00)	4.20	0.040
Male	6.37 (6.80)	27 (50.00)	8 (14.81)	10 (18.52)	5 (9.26)	4 (7.41)		
DASS12 (Stress)								
Female	12.16 (7.72)	13 (52.00)	3 (12.00)	2 (8.00)	4 (16.00)	3 (12.00)	5.75	0.016
Male	7.85 (7.98)	39 (72.22)	5 (9.26)	5 (9.26)	2 (3.70)	3 (5.56)		
HADS (Anxiety)								
		Normal n (%)	Borderline abnormal n (%)	Abnormal (case) n (%)				
Female	6.72 (2.88)	9 (36.00)	4 (16.00)	12 (48.00)			0.54	0.464
Male	6.29 (2.87)	21 (38.89)	13 (24.07)	20 (37.04)				
HADS (Depression)								
Female	4.48 (2.67)	18 (72.00)	3 (12.00)	4 (16.00)			0.91	0.340
Male	3.74 (2.69)	42 (77.78)	7 (12.96)	5 (9.26)				

Table 5: Univariate analysis of health workers on anxiety due to COVID-19 based on profession.

GAD7 (Anxiety)								
Gender	Mean (SD)	Mild anxiety n (%)	Moderate anxiety n (%)	Moderately severe anxiety n (%)	Severe anxiety n (%)		Statistics	P value
Doctors	7.78 (5.82)	26 (39.39)	18 (27.27)	13 (19.70)	9 (13.64)		0.45	0.502
Others	7.92 (5.29)	5 (38.46)	3 (23.08)	3 (23.08)	2 (15.38)			
DASS12 (Anxiety)								
		Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Extremely severe n (%)		
Doctors	6.63 (3.92)	7 (10.60)	17 (25.75)	20 (30.30)	10 (15.15)	12 (18.18)	0.90	0.344
Others	7.38 (3.29)	0 (0.00)	3 (23.07)	5 (38.46)	2 (15.28)	3 (23.07)		
DASS12 (Depression)								
Doctors	7.42 (6.80)	30 (45.45)	10 (15.15)	10 (15.15)	8 (12.12)	8 (12.12)	0.03	0.868
Others	7.84 (6.10)	4 (30.77)	5 (38.46)	2 (15.38)	1 (7.69)	1 (7.69)		
DASS12 (Stress)								
Doctors	9.03 (7.98)	44 (66.67)	6 (9.09)	6 (9.09)	5 (7.58)	5 (7.58)	0	0.988
Others	10.15 (7.00)	8 (61.54)	2 (15.38)	1 (7.69)	1 (7.69)	1 (7.69)		
HADS (Anxiety)								
		Normal n (%)	Borderline abnormal n (%)	Abnormal (case) n (%)				
Doctors	6.46 (2.87)	24 (36.36)	16 (24.24)	26 (39.39)			1.09	0.296
Others	6.23 (2.89)	6 (46.15)	1 (7.69)	6 (46.15)				
HADS (Depression)								
Doctors	3.96 (2.69)	50 (75.76)	9 (13.64)	7 (10.61)			2.86	0.091
Others	4.00 (2.70)	10 (76.92)	1 (7.69)	2 (15.38)				

Impact of COVID-19 on health workers, the profession factor

Psychological impact of COVID-19 on health workers was also observed based on another factor, the profession. During the survey, information was received by different types of professionals and while analysis it was classified into two groups as doctors and others. According to GAD-7, 33.34% (moderately severe - 19.70%, severe - 13.64%) doctors and 38.46% (moderately severe - 23.08%, severe - 15.38%) of other health workers were experiencing anxiety levels of concern. However, according to DASS, the anxiety experienced by doctors was 89.40% (mild - 25.75%, moderate - 30.30%, severe - 15.15%, extremely severe - 18.18%) and that for others were 100% (mild - 23.07%, moderate - 38.46%, severe - 15.28%, extremely severe - 23.07%). Similarly, through HADS, the anxiety was experienced by doctors and other health workers was 63.64% (borderline abnormal - 24.24%, abnormal case - 39.39%) and 53.85% (borderline abnormal - 7.69%, abnormal case - 46.15%) (Table 5).

Depression level according to DASS was found to be 54.55% (mild - 15.15%, moderate - 15.15%, severe - 12.12%, extremely severe - 12.12%) among doctors and 69.23% among other health workers group (mild - 38.46%, moderate - 15.38%, severe - 7.69%, extremely severe - 7.69%). Similarly according to HADS, the depression was experienced by 24.24% (borderline abnormal - 13.64%, abnormal case - 10.61%) and 23.08% (borderline abnormal - 7.69%, abnormal case - 15.38%) among doctors and other health workers respectively (Table 5).

According to DASS12 the stress level was also recorded for the groups which were found to be 33.33% (9.09% for both mild and moderate stress level; 7.58% for both severe and extremely severe stress level) for doctors and 38.46% (mild - 15.38%, 7.69% for moderate, severe and extremely severe levels) for other health workers (Table 5).

We performed non-parametric Kurskal-Wallis test to find any dependency of the anxiety, depression and stress level among the medical professionals depending to their works, i.e. we calculated the level of anxiety, depression and stress among doctors and other medical professionals. In the anxiety level correlation analysis following GAD-7, DASS and HADS criteria we found no significant differences following their duties ($p = 0.502$ GAD-7, $p = 0.344$ DASS, $p = 0.296$ HADS). The fact attributed to same level anxiety among all the medical professionals irrespective of their duties. Depression level also was indifferent among all considering DASS ($p = 0.868$) and HADS ($p = 0.091$) scale. So everyone is under same level of depression as they are working forefront. We found insignificant level difference of stress level following the DASS scale ($p = 0.988$). Therefore, considering profession as one of the confounding factor

to be under stress, anxiety or depression was not that much significant, as they all were under different levels of stress, anxiety and depression as working a lot being in the forefront.

Discussion

People face several unforeseen challenges during any epidemic and pandemic situations. Besides the direct effects of the diseased situation, lack of awareness and underestimated knowledge of the situation as well as knowledge about personal health status may lead to intense danger of the overall situation. The pandemic influences the mental health and well-being of the different communities, with different degrees of anxiety, depression and stress. At this situation proper estimation or characterization of the mental health and anxiety level is of utmost need. Long distance data collection are timely for this type of study considering the current world scenario, as Rubin, et al. [18] also conducted a similar study during the swine flu outbreak in the United Kingdom considering telephonic survey over four days in the native population. As on today due to availability of upgraded technology to reach people we used Google online form to be filled in by the respondents for data collection.

Awareness and specific education are the only means to control the epidemics and pandemics which come with their unique characteristics in terms of causality, progression and needs specific control measures [19]. In the present study we found the medical professional are mostly with mild, moderate and abnormal anxiety levels following GAD-7, DASS, HADS scoring respectively. Specifically the age class 30 to 40 years found to be more anxious although they are the very young professionals. This may be attributed to the higher working hours and less professional experience of handling such kind of pandemic situations. The anxiety level was computed following three tools GAD-7, DASS, HADS and was found to be no different for different age group of the medical professionals. Following the same scoring pattern, we found significantly different anxiety level among the females and males health professionals and also when considered their duty, i.e. doctor and other health workers, which is similar to the studies made by Cao, et al. [20], Huang and Zhao, [21]. Previous study identified that health professionals often have better awareness, positive attitudes towards epidemics/pandemics and they often experience low levels of anxiety [22]. A study from Ethiopia reported [23], poor knowledge and erroneous believes of healthcare professionals, during the Ebola virus outbreak in 2015 and their recommendations were intense training to the healthcare professionals. 100% of the participants in our study were either graduate or post-graduate healthcare professionals. Expectedly, in most of the mental status scoring following different methods, we found no such significant difference of the anxiety, depression and stress

level of the medical professionals following their age, gender and specific profession (doctor and other health workers). The study participants reported frequent use of sanitizers, hand wash, wearing masks and use of PPEs became a part of their professional life. This indicates the concern of participants towards personal hygienic measures to avoid COVID-19 infection.

Conclusion

Outcome of the present study was the prevalence of anxiety, stress and depression among different health care professionals. Secondary outcomes was comparison of the anxiety, stress and depression scores following GAD-7, DASS and HADS scoring tools among the medical professionals. Age, gender and profession wise classification and variance analysis were considered following different scoring tools of ours. In most of the cases we found similar stress, anxiety and depression with a little variation in different scoring tools when the data were simulated considering age, gender and duties of the participants. So, it is clear that everyone irrespective of their age, gender and profession are under unusual mental conditions due to long duty hours and never being exposed to such medical emergency. If the pandemic persists, clinical and policy strategies are of utmost need to support the medical professionals. There are enormous scopes of follow-up studies that can identify the most intervening situation for suitable strategy adoption for the medical professionals to work for front with minimum stress, anxiety and depression.

Conflict of Interests

The authors declare no conflict of interests as the worktable was only scientific purpose.

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