

Prevalence of Anxiety and its Severity among Different Specialities of Healthcare Professionals during COVID-19 Pandemic

MEGHNA GUPTA¹, VITULL KUMAR GUPTA², PARNEET KAUR HARI³, KASHISH GOYAL⁴, HARRY GOYAL⁵

ABSTRACT

Introduction: Coronavirus disease 2019 (COVID-19) pandemic has adversely affected people's physical and mental health necessitating a comprehensive public and mental health strategy focusing on venerable populations including Healthcare Professionals (HCPs). Anxiety is a common mental health problem and untreated anxiety may cause immediate and long-term adverse health effects. Currently, the data on the psychological impact of COVID-19 among specialities of HCPs is sparse.

Aim: To study the prevalence of anxiety and its severity among different specialities of HCPs during COVID-19 pandemic.

Materials and Methods: This cross-sectional survey was conducted among HCPs from 1st October, 2020 to 20th February, 2021 at Kishori Ram Hospital and Diabetes Care Centre, Bathinda, Punjab, India, during COVID-19 pandemic in India using e-copies and hard copies of anonymously complete voluntary survey proforma. The proforma included socio-demography variables and a validated pretested structured Generalised Anxiety Disorder Scale (GAD-7) questionnaire distributed physically and by social media platforms to Indian doctors and medical students of >18 years of age from all over India. From all responses received, 2246 were found to be valid responses from HCPs comprising of 1624 from medical specialities, 225 surgical specialities, 101 emergency/critical care specialities and 296 from students/dental speciality. No HCPs other than

doctors with valid MBBS/BDS degrees or MBBS/BDS students were included. Valid responses were analysed according to the speciality in relation to prevalence of anxiety, its severity, age and gender. Mann-Whitney U test was used to compare GAD-7 score among different specialty group.

Results: About 972 (43.3%) were in 20 to 40 years age group including 655 (67.4%) medical, 42 (4.3%) surgical, 37 (3.8%) emergency/critical care and 238 (24.5%) from students/dental speciality. Male HCPs were 1513 and female HCPs were 733. Prevalence of anxiety was 79.3% among all HCPs. According to gender groups, prevalence of anxiety was 78.1% in males and 81.6% in females. According to age groups the prevalence of anxiety was 81.3% in 20-40 years age group, 81.6% in 41-60 years and 61.5% in >60 years age group. Among specialities, prevalence of anxiety was 78% in medical speciality group, 86.7% in surgical speciality group, 92.1% in emergency/critical care group and 76.4% in students/dental speciality group. Results showed maximum mean score in emergency/critical care speciality group and minimum mean score in medical speciality group.

Conclusion: High prevalence of anxiety and its severity among HCPs across specialities highlights the adverse mental health impact of the COVID-19 pandemic underscoring the need for appropriate mental health support with multidisciplinary comprehensive mental healthcare measures.

Keywords: Coronavirus disease 2019, Generalised anxiety disorder, Mental health of doctors, Venerable population

INTRODUCTION

World Health Organisation (WHO) announced novel coronavirus infection a Public Health Emergency of International Concern under the International Health Regulation on January 30, 2020 and declared a global pandemic on March 11, 2020 [1]. Public health emergencies may adversely affect the individuals and communities causing psychological reactions, unhealthy behaviours and noncompliance of public health directives. Pandemic is not only a medical phenomenon but adversely affects psycho-social and mental health influencing the dynamics of a pandemic [2]. So during Coronavirus disease 2019 (COVID-19) pandemic a comprehensive public and mental health strategy for the population with specific focus on venerable populations including Healthcare Professionals (HCPs) is needed.

Anxiety is a common mental health problem and untreated anxiety may cause immediate and long-term adverse health effects on population including HCPs, manifesting various somatic complaints, lost productivity, development of co-morbidities, compromised self-care, interpersonal functioning, negatively affecting professional

duties, erroneous clinical decision-making, compromising COVID-19 management and burdening the resource constrained and fragile health system [3-6]. Thus, mental health problems of HCPs have become an issue of an urgent public health intervention, important for effective COVID-19 pandemic management [7].

Generalised Anxiety Disorder Questionnaire-7 (GAD-7) is a seven-item self-reporting version constituent of the Primary Care Evaluation of Mental Disorders (PRIME-MD), a diagnostic tool based on Diagnostic and Statistical Manual of Mental Disorders criteria, which has good reliability, criterion, construct, factorial and procedural validity. It is considered to be useful and effective screening tool with strong psychometric validity and reliability for assessment of prevalence of anxiety in community settings as well as for useful comparison in Indian context comparable to research in western settings [8,9].

Currently, the data on the psychological impact of COVID-19 and its severity among various specialities of HCPs is sparse, so the present survey was conducted to evaluate the prevalence of anxiety and its severity among various specialities of HCPs during COVID-19 pandemic.

MATERIALS AND METHODS

This cross-sectional survey was conducted among HCPs from 1st October, 2020 to 20th February, 2021 at Kishori Ram Hospital and Diabetes Care Centre, Bathinda, Punjab, India, during COVID-19 pandemic in India using e-copies and hard copies of anonymous complete voluntary survey proforma including socio-demography variables and a validated pretested structured GAD-7 questionnaire. The proforma were distributed physically and by social media platforms (email, whatsapp, SMS and other social media platforms) to Indian doctors and medical students of age >18 years from all over India after taking the informed consent. Approval from Institutional Ethics Committee was taken before initiation of the survey wide (letter no. 16/2021 dated 13.9.2021).

Inclusion criteria: Indian HCPs and medical students age >18 years, able to read and understand English, willing to participate. Only Indian doctors with valid MBBS/BDS degrees or MBBS/BDS students were included in the study.

Exclusion criteria: Non Indian HCPs and medical students age <18 years, unable to read and understand English, unwilling to participate.

Generalised Anxiety Disorder Questionnaire-7 (GAD-7)

The validated pretested structured GAD-7 questionnaire comprising of seven questions rated on four-point Likert scale ranging from 0 (not at all) to 3 (nearly every day) in the last two weeks was used. Grading of anxiety was done by GAD-7 score that is:

0-no anxiety,

1-5 mild anxiety,

6-10 moderate anxiety and

score of >11 was accessed as severe anxiety.

Reliability of GAD-7 scale has been excellent in clinical and nonclinical studies, with good internal consistency and inter-rater reliability along with interviewer vs. self-rated correlation ranging from 0.83 and 0.84 and test retest reliability of 0.83. Moreover, GAD-7 also has good content validity covering seven core anxiety symptoms, good construct validity, excellent discriminative validity (0.91 for detecting GAD), good established validity generalisation across multiple populations with excellent clinical and epidemiological utility as it is free to use, easy to score and brief [8,10,11].

Procedure

From all the responses received from HCPs, only the valid responses were included in the study and no specific sample size was

determined before the survey. From all responses received 2246 were found to be valid responses from HCPs, comprising of 1624 from medical specialities, 225 surgical specialities, 101 emergency/critical care specialities and 296 from students/dental speciality. Valid responses were analysed according to the HCPs speciality (medical, surgical, emergency/critical care and students/dental) in relation to prevalence of anxiety, its severity, age and gender after approval from Institutional Ethics Committee.

STATISTICAL ANALYSIS

Data was represented as frequency, percentage mean, standard deviation and median. Chi-square Test was used to compare the frequency among different sub-groups. Mann-Whitney U test was used to compare GAD-7 score among different speciality groups. The p-value <0.05 was taken as statistically significant whereas p-value <0.001 was taken as highly significant. All the analysis was done using IBM Statistical Package for the Social Sciences (SPSS) Statistics for Windows, version 23.0 (IBM Corp., Armonk, N.Y., USA).

RESULTS

Among HCPs, 2246 responses were valid for survey analysis including 1624 (72.3%) medical, 225 (10.0%) surgical, 101 (4.5%) emergency/critical care and 296 (13.2%) from students/dental speciality. About 972 (43.3%) were in 20 to 40 years age group including 655 (67.4%) medical, 42 (4.3%) surgical, 37 (3.8%) emergency/critical care and 238 (24.5%) from students/dental speciality. Age group of 41 to 60 years, had 1027 (45.7%) HCPs including 764 (74.4%) medical, 158 (15.4%) surgical, 59 (5.7%) emergency/critical care and 46 (4.5%) from students/dental speciality, whereas 247 (11.0%) HCPs were in age group of >60 years including 205 (83.0%) medical, 25 (10.1%) surgical, 5 (2.0%) emergency/critical care and 12 (4.9%) from students/dental speciality. Study population of HCPs comprised of 1513 (67.4%) males including 1154 (76.3%) medical, 146 (9.6%) surgical, 67 (4.5%) emergency/critical care and 146 (9.6%) from students/dental speciality. Female group had 733 (32.6%) HCPs including 470 (64.1%) medical, 79 (10.8%) surgical, 34 (4.6%) emergency/critical care and 150 (20.5%) students/dental speciality.

[Table/Fig-1] shows prevalence of anxiety and its severity among HCPs, speciality and gender groups. Prevalence of anxiety in study population was 79.3% including 78.1% males and 81.6% females. Overall prevalence of anxiety and severity of anxiety was significantly associated with different specialities (p-value <0.001). Similar significant association between anxiety, severity of anxiety and different

| Variables | Severity of anxiety ^s (% , n) | HCPs specialty groups | | | | Total | χ^2 value | p-value |
|------------------------|--|-----------------------|------------|-------------------------|-----------------|-------------|----------------|----------|
| | | Medical | Surgical | Emergency/Critical care | Students/Dental | | | |
| Total study population | N | 1624 | 225 | 101 | 296 | 2246 | | |
| HCPs with anxiety | Total | 78 (1266) | 86.7 (195) | 92.1 (93) | 76.4 (226) | 79.3 (1780) | 20.804 | <0.001** |
| | Mild | 42.0 (682) | 35.1 (79) | 31.7 (32) | 37.5 (111) | 40.2 (904) | 56.475 | <0.001** |
| | Moderate | 27.9 (453) | 40.4 (91) | 55.4 (56) | 30.4 (90) | 30.7 (690) | | |
| | Severe | 8.1 (131) | 11.1 (25) | 5.0 (5) | 8.4 (25) | 8.3 (186) | | |
| Males | N | 1154 | 146 | 67 | 146 | 1513 | | |
| | Total | 76.8 (886) | 84.2 (123) | 92.5 (62) | 76.0 (111) | 78.1 (1182) | 12.948 | 0.005* |
| | Mild | 43.8 (505) | 47.9 (70) | 37.3 (25) | 43.8 (64) | 43.9 (664) | 26.452 | 0.002* |
| | Moderate | 26.3 (304) | 30.8 (45) | 50.7 (34) | 25.3 (37) | 27.8 (420) | | |
| Severe | 6.7 (77) | 5.5 (8) | 4.5 (3) | 6.8 (10) | 6.5 (98) | | | |
| Females | N | 470 | 79 | 34 | 150 | 733 | | |
| | Total | 80.9 (380) | 91.1 (72) | 91.2 (31) | 76.7 (115) | 81.6 (598) | 9.465 | 0.024* |
| | Mild | 37.7 (177) | 11.4 (9) | 20.6 (7) | 31.3 (47) | 32.7 (240) | 51.878 | <0.001** |
| | Moderate | 31.7 (149) | 58.2 (46) | 64.7 (22) | 35.3 (53) | 36.8 (270) | | |
| Severe | 11.5 (54) | 21.5 (17) | 5.9 (2) | 10.0 (15) | 12.0 (88) | | | |

[Table/Fig-1]: Prevalence of anxiety and its severity according to study population and gender in different HCPs speciality groups.

^sSeverity of anxiety: GAD-7 scale: Score 0: no Anxiety, 1-5 mild anxiety, 6-10 moderate anxiety and >11 severe anxiety

p-value >0.05=Not significant (NS); *p-value <0.05=Significant; **p-value <0.001=Highly significant

specialities were found in males and females. Highest prevalence of anxiety (92.1%) was observed in emergency/critical care group of HCPs including both in male (92.5%) and female (91.2%) groups.

[Table/Fig-2] shows prevalence of anxiety and its severity among speciality groups in relation to age. Prevalence of anxiety of 81.3% was observed in age group of 20-40 years, 81.6% in 41-60 years and 61.5% in >60 years age group. Highest (100%) prevalence of anxiety was observed in age group of 20-40 years among surgical and emergency/critical care speciality group, 91.5% in age group of 41-60 years among emergency/critical care speciality group and 62.9% in >60 years among medical speciality group. Results show highly significant association of overall prevalence of anxiety with speciality groups among age groups of 20-40 years (p-value <0.001), significant association in 41-60 years age group (p-value=0.026) and no significant association in >60 years age group (p-value=0.605). Prevalence of severity of anxiety was highly significantly associated with specialities among age groups of 20-40 years and 41-60 years (p-value <0.001) and not with >60 years age group (p-value=0.061).

[Table/Fig-3] shows the results of response of HCPs study population and different specialities groups to the question about difficulties to do work, takes care of things at home, or get along with other people and need for treatment. Results show statistically significant association between the different speciality groups in relation questions about difficulty for work as well as need for treatment (p-value <0.001).

[Table/Fig-4] shows the comparison of mean values of anxiety score assessed by GAD-7 scale among different speciality groups showing maximum mean score in emergency/critical care speciality group and minimum mean score in medical speciality group. Comparing mean score of GAD-7 among different specialities using Kruskal-Wallis Test: Chi-Square value was 37.372; p-value was <0.001, highly significant. Further multiple comparison of the mean GAD-7 scores among different specialities was done using Mann-Whitney U test shown in [Table/Fig-5].

[Table/Fig-5] shows multiple comparisons of GAD-7 score among different speciality groups of HCPs using Mann-Whitney U test.

| Age groups (years) | Severity of anxiety [§] | HCPs specialty groups | | | | Total | χ ² value | p-value |
|--------------------|----------------------------------|-----------------------|------------|-------------------------|-----------------|------------|----------------------|-----------|
| | | Medical | Surgical | Emergency/Critical care | Students/Dental | | | |
| 20-40 | N | 655 | 42 | 37 | 238 | 972 | | |
| | Total | 80.5 (527) | 100.0 (42) | 100.0 (37) | 77.3 (184) | 81.3 (790) | 20.946 | <0.001** |
| | Mild | 42.0 (275) | 26.2 (11) | 48.6 (18) | 34.5 (82) | 39.7 (386) | 42.301 | <0.001** |
| | Moderate | 29.9 (196) | 50.0 (21) | 48.6 (18) | 32.4 (77) | 32.1 (312) | | |
| | Severe | 8.6 (56) | 23.8 (10) | 2.8 (1) | 10.5 (25) | 9.5 (92) | | |
| 41-60 | N | 764 | 158 | 59 | 46 | 1027 | | |
| | Total | 79.8 (610) | 87.3 (138) | 91.5 (54) | 78.3 (36) | 81.6 (838) | 9.252 | 0.026* |
| | Mild | 43.5 (332) | 34.8 (55) | 23.7 (14) | 54.3 (25) | 41.5 (426) | 49.813 | <0.001** |
| | Moderate | 28.9 (221) | 44.3 (70) | 64.4 (38) | 23.9 (11) | 33.1 (340) | | |
| | Severe | 7.5 (57) | 8.2 (13) | 3.4 (2) | 0.0 (0) | 7.0 (72) | | |
| >60 | N | 205 | 25 | 5 | 12 | 247 | | |
| | Total | 62.9 (129) | 60.0 (15) | 40.0 (2) | 50.0 (6) | 61.5 (152) | 1.847 | 0.605; NS |
| | Mild | 36.6 (75) | 52.0 (13) | 0.0 (0) | 33.3 (4) | 37.2 (92) | 16.315 | 0.061; NS |
| | Moderate | 17.6 (36) | 0.0 (0) | 0.0 (0) | 16.7 (2) | 15.4 (38) | | |
| | Severe | 8.8 (18) | 8.0 (2) | 40.0 (2) | 0.0 (0) | 8.9 (22) | | |

[Table/Fig-2]: Prevalence of anxiety and its severity according to age in different HCPs specialty groups.

§Severity of anxiety: GAD-7 scale: Score 0: no Anxiety, 1-5 mild anxiety, 6-10 moderate anxiety and >11 severe anxiety
p-value >0.05=Not significant (NS); *p-value <0.05=Significant; **p-value <0.001=Highly significant

| Questions | | HCPs specialty groups | | | | Total (2246) | χ ² value | p-value |
|---|---------------------|-----------------------|----------------|-------------------------------|-----------------------|--------------|----------------------|----------|
| | | Medical (1624) | Surgical (225) | Emergency/Critical care (101) | Students/Dental (296) | | | |
| If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people? | Not difficult | 66.6 (1082) | 45.8 (103) | 63.4 (64) | 61.5 (182) | 63.7 (1431) | 57.506 | <0.001** |
| | Somewhat difficult | 29.7 (482) | 50.2 (113) | 27.7 (28) | 35.5 (105) | 32.4 (728) | | |
| | Very difficult | 2.8 (45) | 4.0 (9) | 8.9 (9) | 2.0 (6) | 3.1 (69) | | |
| | Extremely difficult | 0.9 (15) | 0.0 (0) | 0.0 (0) | 1.0 (3) | 0.8 (18) | | |
| Whether you needed some medicine | No | 67.5 (1097) | 65.8 (148) | 44.6 (45) | 69.9 (207) | 66.7 (1497) | 40.582 | <0.001** |
| | Occasionally | 29.7 (482) | 32.4 (73) | 44.6 (45) | 28.4 (84) | 30.5 (684) | | |
| | Regularly | 2.8 (45) | 1.8 (4) | 10.9 (11) | 1.7 (5) | 2.9 (65) | | |

[Table/Fig-3]: Response to the question other than GAD-7 questionnaire about difficulties to do work, takes care of things at home, or get along with other people and need for treatment?

p-value >0.05=Not significant (NS); *p-value <0.05=Significant; **p-value <0.001=Highly significant

| HCPs specialty groups (N) | Mean score | ±SD | Median | Inter-Quartile range | Mean rank | Standard error of mean | 95% Confidence interval | | Minimum | Maximum |
|-------------------------------|------------|-------|--------|----------------------|-----------|------------------------|-------------------------|------|---------|---------|
| Medical (1624) | 4.46 | 3.938 | 4.0 | 1-7 | 1083.94 | 0.098 | 4.27 | 4.65 | 0 | 21 |
| Surgical (225) | 5.52 | 3.842 | 6.0 | 3-8 | 1276.94 | 0.256 | 5.02 | 6.03 | 0 | 16 |
| Emergency/Critical care (101) | 6.05 | 3.601 | 7.0 | 2-9 | 1398.69 | 0.358 | 5.34 | 6.76 | 0 | 12 |
| Students/ Dental (296) | 4.89 | 4.457 | 4.0 | 1-8 | 1130.03 | 0.259 | 4.38 | 5.39 | 0 | 21 |
| Total (2246) | 4.69 | 4.009 | 4.0 | 1-7 | - | 0.085 | 4.53 | 4.86 | 0 | 21 |

[Table/Fig-4]: Comparison of mean values of anxiety assessed by GAD-7 among different HCPs specialty groups.

Comparing Mean score of GAD-7 among different specialities using Kruskal-Wallis Test: Chi-square value was 37.372; p-value was <0.001; Highly significant

| Comparison among HCP's speciality | Z-value | p-value |
|---|---------|-----------|
| Medical vs Surgical speciality group | 4.263 | <0.001** |
| Medical vs Emergency/Critical care speciality group | 4.753 | <0.001** |
| Medical vs Students/Dental speciality group | 1.100 | 0.272; NS |
| Surgical vs Emergency/Critical care speciality group | 1.797 | 0.072; NS |
| Surgical vs Students/Dental speciality group | 2.463 | 0.014* |
| Emergency/Critical care vs Students/Dental speciality group | 3.505 | <0.001** |

[Table/Fig-5]: Multiple comparison of GAD-7 score among different HCPs speciality groups using Mann-Whitney U test. p-value >0.05=Not significant (NS); *p-value <0.05=Significant; **p-value <0.001=Highly significant

Results show significant difference of GAD-7 score between medical and surgical speciality group as well as between medical and emergency/critical care speciality group (p-value <0.001). However, the score was not significantly different between medical and students/dental speciality group (p-value=0.272). The GAD-7 score was not significantly different between surgical and emergency/critical care speciality group (p-value=0.072), but the score was significantly different between surgical and student/dental speciality group (p-value=0.014). The GAD score was significantly different in emergency/critical care and students/dental speciality group (p-value <0.001).

DISCUSSION

Undoubtedly, COVID-19 pandemic has adversely affected the routine life of population across nations forcing unanticipated unprecedented public health emergency, severe psychological and mental health crisis among people including HCPs necessitating focus on mental healthcare as a public health issue. Planning and policy making are important for any program and data collection is essential part of policy and planning, so present survey was conducted to generate India specific data regarding prevalence of anxiety and its severity among different speciality groups of HCPs.

Prevalence of anxiety in the present survey among HCPs study population was 79.3% (MS: 4.69±4.009, IQR: 6,95% CI: 4.53-4.86), 78.0% (MS: 4.69±3.938, IQR: 6,95% CI: 4.27-4.65) in medical speciality group, 86.7% (MS: 5.52±3.842, IQR: 5,95% CI: 5.02-6.03) in surgical, 92.1% (MS: 6.05±3.601, IQR: 7,95% CI: 5.34-6.76) in emergency/critical care and 76.4% (MS: 4.89±4.457, IQR: 7,95% CI: 4.38-5.39) was observed in students/dental speciality group. A survey of 3083 HCPs showed 26.6% prevalence of anxiety disorders [12]. A meta-analysis showed 34.1% prevalence of anxiety in Indians and 35.3% pooled prevalence in five studies among HCPs [13]. Another meta-analysis of studies, among HCPs exposed to SARS/MERS/ COVID-19 from different continents documented 29.0% (95% CI: 14.2-50.3%) anxiety features [14]. Similarly, a systematic review of 53 studies using different assessment scales documented 6.3% to 87.5% point prevalence of anxiety, 31.9% (95% CI: 27.9-36.0%) pooled prevalence of anxiety, 29.0% among physicians and nurses and 28.2% among students [15].

Because of paucity of studies related to prevalence of anxiety in different speciality groups, it was difficult to compare data from present survey, but overall prevalence of anxiety in the present survey was higher as compared to above mentioned studies may be because India is having second-highest COVID-19 cases in the world posing a huge stress on unprepared and resource constrained HCPs. Moreover, variations in prevalence rates of anxiety in studies could be because of different assessment tools, scores and cut-off point. In the present study, the prevalence of anxiety according to severity score was 40.2% mild anxiety, 30.7% moderate and 8.3% severe anxiety. A study using GAD-7 scale documented 33.7%, minimal anxiety (0-4 score), 48.6% mild (5-9 score), 13.7% moderate (10-14 score) and 4.0% (>15 score) severe anxiety among HCPs and was found to be more among females [16]. Another study involving physicians using GAD-7 scale documented 28.4%

prevalence of mild anxiety (5-9 score), 39.3% moderate anxiety (10-14 score) and 22.9% had severe anxiety (15-21 score) [17]. Similarly a study among HCPs using GAD-7 scale reported 50% anxiety (score ≥5) and 29% moderate to severe anxiety (score >8) with no statistically significant relation with gender or different demographic characteristics [18]. A survey documented 38.2% prevalence of anxiety using GAD-7 scale and 23.2% mild anxiety (5-9 score), 8.6% moderate (10-14 score) and 4.4% severe anxiety (>15 score) among healthcare workers [19]. Results of the present study were comparable to the above mentioned studies with comparable GAD-7 scores. Because of paucity of studies, data of the present survey related to severity of anxiety among speciality group was not compared, but present survey data observed higher prevalence of anxiety, significant association of severity of anxiety with different speciality groups, highest among emergency/critical care speciality group may be because of extremely stressful and demanding job profile as compared to other speciality groups.

In present study, the prevalence of anxiety according to severity score among age groups was 39.7% mild anxiety, 32.1% moderate and 9.5% severe anxiety in 20-40 years age group, 41.5% mild anxiety, 33.1% moderate and 7.0% severe anxiety in 41-60 years age group and 37.2% mild anxiety, 15.4% moderate and 8.9% severe anxiety was observed in >60 years age group. A survey conducted during COVID-19 pandemic on healthcare workers in India documented 44.2% minimal anxiety (0-4), 32.5% mild anxiety (5-9), 14.2% moderate anxiety (10-14) and 9.1% severe anxiety (15-21) among <45 years age group, 56.3% minimal anxiety, 27% mild anxiety, 11.9% moderate anxiety and 4.8% severe anxiety among 45-60 years age group, 64.4% minimal anxiety, 22.2% mild anxiety, 6.7% moderate anxiety and 6.7% severe anxiety among >60 years age group [20]. Results of present survey showed more prevalence of anxiety in <60 years age group as compared to above mentioned survey.

In present study, the prevalence of severity of anxiety according to the gender was 43.9% mild anxiety, 27.8% moderate and 6.5% severe anxiety among males and 32.7% mild anxiety, 36.8% moderate and 12.0% severe anxiety among females. Similarly, a study among healthcare workers using GAD-7 scale showed 59.5% minimal anxiety, 22% mild anxiety, 11.9% moderate anxiety and 6.5% severe anxiety among males, 43.5% minimal anxiety, 35.5% mild anxiety, 13% moderate anxiety and 8% severe anxiety among females [20]. Another study among junior doctors and medical students observed 56.6% females and 43.4% males reported anxiety [21]. Results showing higher prevalence of anxiety among females in both the studies may be attributed to the factors such as workplace insecurity and added domestic responsibilities.

Increased prevalence of anxiety among HCPs documented by the present survey and other studies necessitate inclusion of mental health into national public health programme with additional multipronged psychological support for HCPs providing adequate care, emotional support and motivation promoting adaptive coping strategies, empathetic communication. Mental health issues in Indian context are much more complex because of large vulnerable population, pre-existing mental illness, insufficient mental health services, inadequate digital mental health solutions and misinformation on social media, so the interventions has to be India specific. The Ministry of Health and Family Welfare- Government of India (MOHFW- GOI), Psychiatry Society of India, National Institute of Mental Health and Neurosciences (NIMHANS), All India Institutes of Medical Sciences (AIIMS), World Health Organisation (WHO) and other organisations has supplemented existing mental health-related initiatives by introducing Behavioural Health initiative, Psycho-Social toll-free helpline-08046110007 for mental health assistance, MOHFW-GOI web portal, several videos, advisories, guidelines and resource materials on coping stress, yoga, meditation advice, online services, telemedicine services for all people. A 'Psychological intervention medical team' concept by NIMHANS is

very constructive. Initiation of Aarogya Setu mobile application by GOI is appreciable step to connect people with essential health services to fight COVID-19 pandemic [22]. Based on the results of our study and existing evidence on mental health issues, we suggest a multi-pronged multi-stakeholder strategy comprising of easy access to mental healthcare, tackling social media misinformation, financial and employment security, prevention of discrimination and stigma of HCPs by regulatory and legal provisions for HCPs and other front line workers.

Limitation(s)

Although the present study contributed to the data of mental health during COVID-19 pandemic in India, but it also has certain limitations related to generalisability, the selection and self-reporting bias of the results may not applicable to all HCPs across India. A major strength of the present study is sufficient sample size and survey was based on validated GAD-7 scale.

CONCLUSION(S)

High prevalence of anxiety and its severity among HCPs across medical specialities highlights the adverse mental health impact of the COVID-19 pandemic underscoring the need to identify vulnerable HCPs at an early stage and initiate appropriate mental health and psycho-social support with multidisciplinary comprehensive mental healthcare measures, increasing psychological resilience and alleviating their vulnerability to adverse mental health impact, because adverse effects of anxiety are not only on HCPs' personal well-being but also adversely impact the healthcare delivery system, impair decision-making ability, judgement and attention to patients. Increased mental health problems during COVID-19 pandemic necessitates a multipronged approach, holistic delivery model taking into consideration the multidimensional physical, mental, social and spiritual health of society and individual patients. The public health systems must be strengthened to incorporate mental healthcare to handle the mental health burden of COVID-19 pandemic.

REFERENCES

- [1] Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Biomed.* 2020; 91(1):157-160.
- [2] Moukaddam N, Shah A. Psychiatrists beware! The impact of COVID-19 and pandemics on mental health. *Psychiatric Times.* 2020.
- [3] Zhou X, Snoswell CL, Harding LE, Bambling M, Edirippulige, S, Bai X, et al. The role of telehealth in reducing the mental health burden from COVID-19. *Telemedicine and e-Health.* 2020;26(4):377-79.
- [4] LeBlanc VR. The effects of acute stress on performance: Implications for health professions education. *Academic Medicine.* 2009;84:S25-33.
- [5] Rutter LA, Brown TA. Psychometric properties of the Generalized Anxiety Disorder Scale-7 (GAD-7) in outpatients with anxiety and mood disorders. *J Psychopathol Behav Assess.* 2017;39(1):140-46.
- [6] Panagioti M, Geraghty K, Johnson J, Zhou A, Panagopoulou E, Chew-Graham C, et al. Association between physician burnout and patient safety, professionalism, and patient satisfaction: A systematic review and meta-analysis. *JAMA Intern Med.* 2018;178(10):1317-31.
- [7] Banerjee D. The COVID-19 outbreak: Crucial role the psychiatrists can play. *Asian J Psychiatr.* 2020;50:102014.
- [8] Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: The GAD-7. *Arch Intern Med.* 2006;166(10):1092-97.
- [9] De Man J, Absetz P, Sathish T, Desloge A, Haregu T, Oldenburg B, et al. Are the PHQ-9 and GAD-7 Suitable for Use in India? A Psychometric Analysis. *Front Psychol.* 2021;12:676398.
- [10] Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med.* 2001;16(9):606-13.
- [11] Kroenke K, Spitzer RL, Williams JB, Löwe B. The Patient Health Questionnaire Somatic, Anxiety, and Depressive Symptom Scales: A systematic review. *Gen Hosp Psychiatry.* 2010;32(4):345-59.
- [12] Parthasarathy R, Jaisurya TS, Thennarasu K, Murthy P. Mental health issues among health care workers during the COVID-19 pandemic- A study from India. *Asian J Psychiatr.* 2021;58:102626.
- [13] Singh RK, Bajpai R, Kaswan P. COVID-19 pandemic and psychological wellbeing among health care workers and general population: A systematic-review and meta-analysis of the current evidence from India. *Clin Epidemiol Glob Health.* 2021;11:100737.
- [14] Salazar de Pablo G, Vaquerizo-Serrano J, Catalan A, Arango C, Moreno C, Ferré F, et al. Impact of coronavirus syndromes on physical and mental health of health care workers: Systematic review and meta-analysis. *J Affect Disord.* 2020;275:48-57.
- [15] Wu T, Jia X, Shi H, Niu J, Yin X, Xie J, et al. Prevalence of mental health problems during the COVID-19 pandemic: A systematic review and meta-analysis. *J Affect Disord.* 2021;281:91-98.
- [16] Wilson W, Raj JP, Rao S, Ghiya M, Nedungalaparambil NM, Mundra H, et al. Prevalence and predictors of stress, anxiety, and depression among healthcare workers managing COVID-19 pandemic in India: A nationwide observational study. *Indian J Psychol Med.* 2020;42(4):353-58.
- [17] Saeed BA, Shabila NP, Aziz AJ. Stress and anxiety among physicians during the COVID-19 outbreak in the Iraqi Kurdistan Region: An online survey. *PLoS ONE.* 2021;16(6):e0253903.
- [18] Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian J Psychiatr.* 2020;51:102083.
- [19] Grover S, Sahoo S, Mehra A, Avasthi A, Tripathi A, Subramanyan A, et al. Psychological impact of COVID-19 lockdown: An online survey from India. *Indian J Psychiatry.* 2020;62(4):354-62.
- [20] Gupta B, Sharma V, Kumar N, Mahajan A. Anxiety and sleep disturbances among health care workers during the COVID-19 pandemic in India: Cross-sectional online survey. *JMIR Public Health Surveill.* 2020;6(4):e24206.
- [21] Pandey U, Corbett G, Mohan S, Reagu S, Kumar S, Farrell T, et al. Anxiety, Depression and Behavioural Changes in Junior Doctors and Medical Students Associated with the Coronavirus Pandemic: A Cross-Sectional Survey. *J Obstet Gynaecol India.* 2020;71(1):01-05.
- [22] Roy A, Singh AK, Mishra S, Chinnadurai A, Mitra A, Bakshi O. Mental health implications of COVID-19 pandemic and its response in India. *Int J Soc Psychiatry.* 2021;67(5):587-600.

PARTICULARS OF CONTRIBUTORS:

1. Postgraduate Resident, Department of Psychiatry, Maharishi Markandeshwar Medical College and Hospital, Kumarhatti, Solan, Himachal Pradesh, India.
2. Professor, Department of Medicine, Kishori Ram Hospital and Diabetes Care Centre, Bathinda, Punjab, India.
3. Intern, Government Medical College, Patiala, Punjab, India.
4. Intern, Department of DMC, DMC Ludhiana, Punjab, India.
5. Undergraduate Student, All India Institute of Medical Sciences, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Vitull Kumar Gupta,
5042, Afim Wali Gali, Bathinda, Punjab, India.
E-mail: vitullgupta2000@yahoo.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Oct 01, 2021
- Manual Googling: Nov 05, 2021
- iThenticate Software: Nov 26, 2021 (10%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. No

Date of Submission: **Sep 28, 2021**
Date of Peer Review: **Nov 06, 2021**
Date of Acceptance: **Dec 09, 2021**
Date of Publishing: **Jan 01, 2022**