CCI JOURNAL CRITICAL CARE INNOVATIONS

ORIGINAL ARTICLE

Crit. Care Innov. 2021; 4(1):1-10

Incidence of depression, anxiety and sleep disorders in healthcare personal after the onset of Covid 19 pandemic - a survey based study.

ISSN 2545-2533
Received: 24.12.2020
Accepted: 17.02.2021
Published: 31.03.2021

Tejaswi Pasam [1] - A,B,C,E,F,G,H,I,K,L,M,N,O. ORCID www.orcid.org/0000-0002-7044-0760
Chetana Pasam [1] - B,C,E,F,H,K,L,M,N,O. ORCID www.orcid.org/0000-0002-6373-666X
Rajesh Dake [1] - B,C,E,F,H,K,L,M,N,O. ORCID www.orcid.org/0000-0001-8342-7664
Dillip Kumar Soren [2] - B,G,J,O. ORCID www.orcid.org/0000-0001-6033-6751

[1] *Apollo Hospitals, Kakinada, India*
[2] *Surya Global Hospitals,Kakinada, India*

Address for correspondence:
Tejaswi Pasam, MD - Apollo Hospitals, Kakinada, India Address:3-186/5 Gangarajnagar, Kakinada, AP-533005, India; Ph: +1 469-831-4035; E-mail: drtejaswipasam@gmail.com

Author Contributions (CRediT Taxonomy):

Conceptualization - **A**
Data Curation - **B**
Formal Analysis - **C**
Funding Acquisition - **D**
Investigation - **E**
Methodology - **F**
Project Administration - **G**
Resources - **H**
Software - **I**
Supervision - **J**
Validation - **K**
Visualization - **L**
Writing (Draft Preparation) - **M**
Writing (Review & Editing) – **N**
Approved the final version - **O**

ABSTRACT

INTRODUCTION: Coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China in December 2019. It was declared a global pandemic by WHO. There are 77.8 million reported cases of and 1.7 million deaths due to COVID-19 in the world at the time of writing this article. The main symptoms of COVID-19 are fever, cough, fatigue, dyspnea, sore throat, headache and gastrointestinal disturbances. It has caused increased psychological impact to the society, particularly in healthcare personnel (HCPs). We aimed to assess the incidence of depression, anxiety and insomnia in healthcare personnel after the onset of COVID-19 Pandemic.

MATERIAL AND METHODS: This was a survey-based study. A questionnaire was shared through emails and social media. The study instruments used were PHQ9 for depression, GAD7 for anxiety and Insomnia Severity Index for Insomnia. Data was collected from April 2020 to October 2020.

RESULTS: The data was analyzed using IBM SPSS software version 26.0. The sample size was 312. A total of 26 (39.25%) respondents were single, 169 (52.64%) were male, 158 (49.2%) were between 20 and 29 years of age, 151 (47.04%) of respondents were doctors and 22 (6.8%) were nurses. Psychological impact was significantly more in paramedics and nurses. Severe psychological impact was seen in 24 (7.34%) of healthcare personnel. The study showed severe depression mostly in paramedics and surgical sub specialties while mild and moderate depression was more commonly reported by anesthesiologists, dentists and pathologists. The study also showed that people who had previous histories of depression, reported an increase in the severity of their symptoms as compared to those with no previous histories.

CONCLUSIONS: COVID-19 pandemic has created fear and uncertainty. The health care workers and other front line workers who are at a greater risk of exposure and contraction of COVID-19 are subject to extensive physical and psychological trauma. The purpose of this study is to highlight the intensity and incidence of depression, anxiety and insomnia in health care personnel and to emphasize the need to support the mental health of these front line workers.

KEY WORDS: Healthcare Personnel, COVID-19, Depression, Anxiety, Insomnia, Wuhan.

 doi: 10.32114/CCI.2021.4.1.1.10

INTRODUCTION

A healthy job is likely to be one where the pressures on employees are appropriate in relation to their abilities and resources, to the amount of control they have over their work and to the support they receive from people who matter to them. As health is not merely the absence of disease or infirmity but a positive state of complete physical, mental and social well-being (WHO, 1986), a healthy working environment is one in which there is not only an absence of harmful conditions but an abundance of health promoting ones. These may include continuous assessment of risks to health, the provision of appropriate information and training on health issues and the availability of health promoting organizational support practices and structures. Occupational stress was identified during the 1980s as one of the top ten occupational health problems in the United States. Sauter, Murphy, and Hurrell [1] began developing a prevention agenda for addressing what some called an epidemic of stress. The relationship between stress and the work environment has been a topic of study for the last century [2]. Corona virus disease 2019 (COVID-19) is a mild-to-severe respiratory illness that is caused by a corona virus (genus: Betacoronavirus). It belongs to the same family as SARS-CoV and Middle East respiratory syndrome corona virus. It is transmitted chiefly by contact with infectious material (such as respiratory droplets), and is characterized, especially, by fever, cough, and shortness of breath and may progress to pneumonia and respiratory failure.

Corona virus disease (COVID-19) is a new strain that was first discovered in 2019 in Wuhan, China, and has not been previously identified in humans [3, 4]. It is distinct from SARS, MERS, and influenza [5, 6].The WHO declared COVID-19 a pandemic on March 11, 2020. In addition to the community members, healthcare providers are also at risk of higher psychological distress due to longer working hours and high risk of exposure to the virus. This may also lead to stress, anxiety, burnout, depressive symptoms, and the need for sick or stress leave, which would harm the capacity of the health system to provide services during the crisis . Even though the psychological impact of the corona virus disease (COVID19) pandemic must be recognized alongside the physical symptoms, the global response is a public health strategy addressing only the physical symptoms of the virus, such as hand washing, quarantine, and social distancing [7, 8]. If left untreated, these psychological symptoms may have long-term health effects health workers. Authors aimed to assess the incidence of depression, anxiety and insomnia in healthcare personnel after the onset of COVID-19 Pandemic.

MATERIAL AND METHODS

Research instrument: The research instrument that is used in this study is questionnaire. A well structured e-questionnaire was developed and shared through emails and social media. The study instruments used were PHQ9 questionnaire for depression, GAD7 questionnaire for anxiety and Insomnia severity index for Insomnia. Data was collected from April 2020 to October 2020. **Inclusion Criteria:** Healthcare personal with registered Medical qualification. The health care workers were defined and classified using the International Standard Classification of Occupations (ISCO, 2008 revision). There are a total of 53 million health care workers in the world. The sample size for this study was 312.

 doi: 10.32114/CCI.2021.4.1.1.10

Exclusion Criteria: AYUSH doctors and Medical students who were doing internship were excluded. **Statistical analysis:** The data was analyzed using IBM SPSS software version 26.0. The margin of error was 5.55% with a 95% confidence interval for a sample size of 312 representing a total population of 5 million. The population included a 52.65% of male population &49.42% of females. The study had a predominance of Asian Indian population with a 63.86% while Whites and African Americans were close seconds with 20.87% and 3.43% respectively. Descriptive statistics was used to summarize tables and figures, and statistical summary measures were used. The association of Psychological impact related variables and demographic characteristics were analyzed using chi-square and binary logistic regression with odds ratio and 95% CI in the uni variate analysis. Multivariate logistic regression analysis was carried out to find the association of each independent variable with the outcome variable. The model was checked for fitness with the R-squared value, where an R-squared value greater than 50% was considered as good.

RESULTS

Authors obtained data from 321 Health care personals. Demographics are as shown in table 1. Among the respondents (n = 321) the majority of participants were males (n = 169, 52.64%), 31-40 years age group (n = 158, 49.22%) married (n= 177, 55.14%) exposed to COVID-19 (n = 232, 72.27 %) and those who tested negative for COVID-19 (n= 282, 87.85%) (figure 1 - A,B,C).

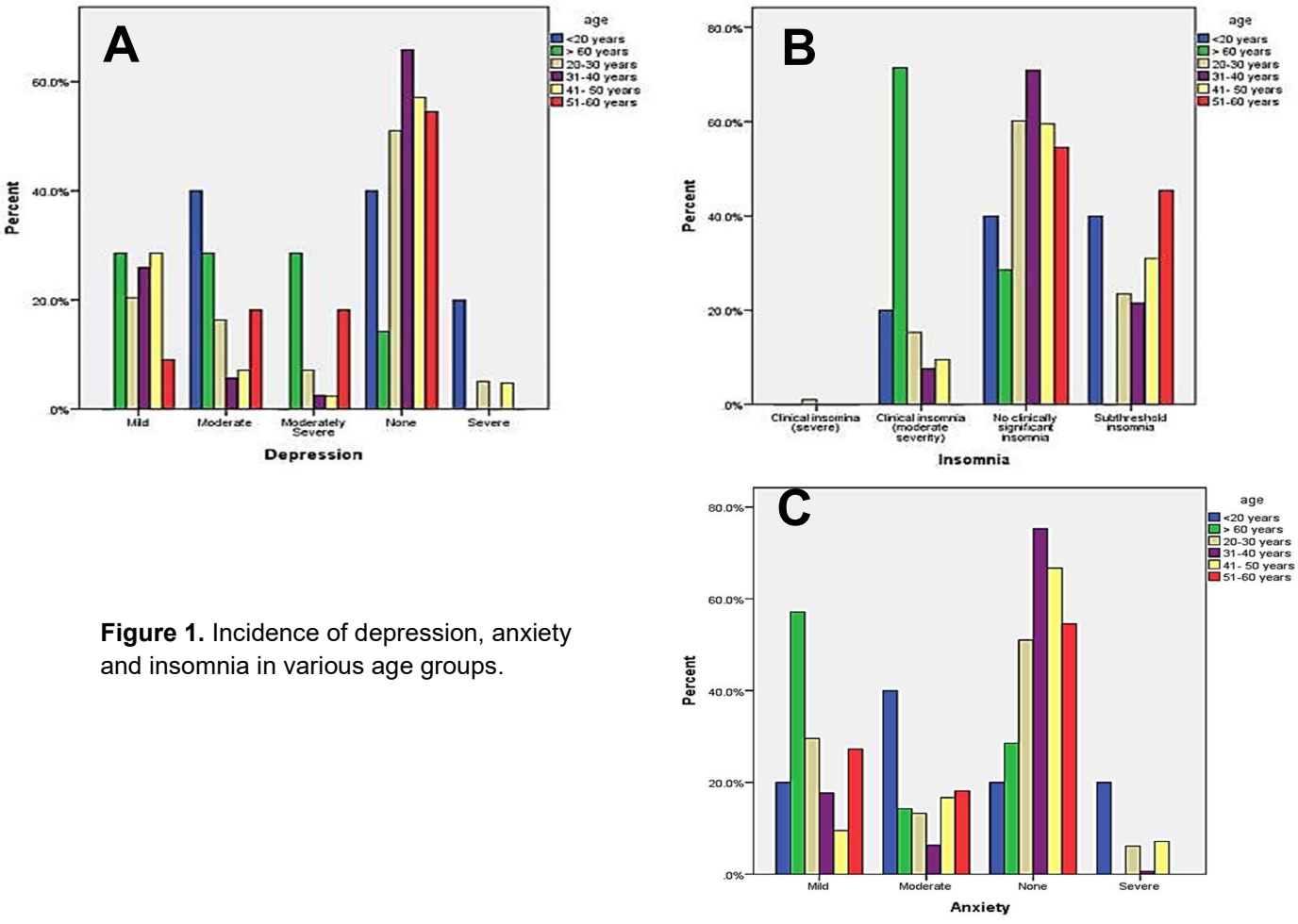


Figure 1. Incidence of depression, anxiety and insomnia in various age groups.

Table 1. Demographics characteristics of Participants.

VARIABLE	*FREQUENCY*	*PERCENTAGE*
AGE OF THE PARTICIPANT	**(n)**	**(%)**
<20	5	1.56
20-30	98	30.53
31-40	158	49.22
41-50	42	13.08
51-60	11	3.43
>60	7	2.18
GENDER		
FEMALE	149	46.42
MALE	169	52.65
NOT SPECIFIED	3	0.93
COVID TEST		
NEGATIVE	282	87.85
POSITIVE	38	11.84
COVID EXPOSURE		
COVID CONTACT	232	72.2
NO EXPOSURE	89	27.7
RELATIONSHIP		
MARRIED	177	55.14
UNMARRIED	126	39.25
SEPERATED	15	4.67
NOT SPECIFIED	3	0.94
COUNTRY OF RESIDENCE		
AFRICAN ARAB	1	0.31
ALASKA NATIVE	2	0.62
ASIAN INDIAN	205	63.86
AMERICAN- ASIAN INDIAN	2	0.62
CHINEESE ASIAN INDIAN	1	0.31
ASSYRIAN	1	0.31
AUSTRALIAN	1	0.31
AFRICAN AMERICAN	11	3.43
CHINEESE	4	1.25
FILIPINO	1	0.31
HISPANIC	8	2.49
JAPANESE	1	0.31
OTHER ASIAN	11	3.43
WHITE	67	20.87
KOREAN	3	0.94
NOT SPECIFIED	2	0.62

 doi: **10.32114/CCI.2021.4.1.1.10**

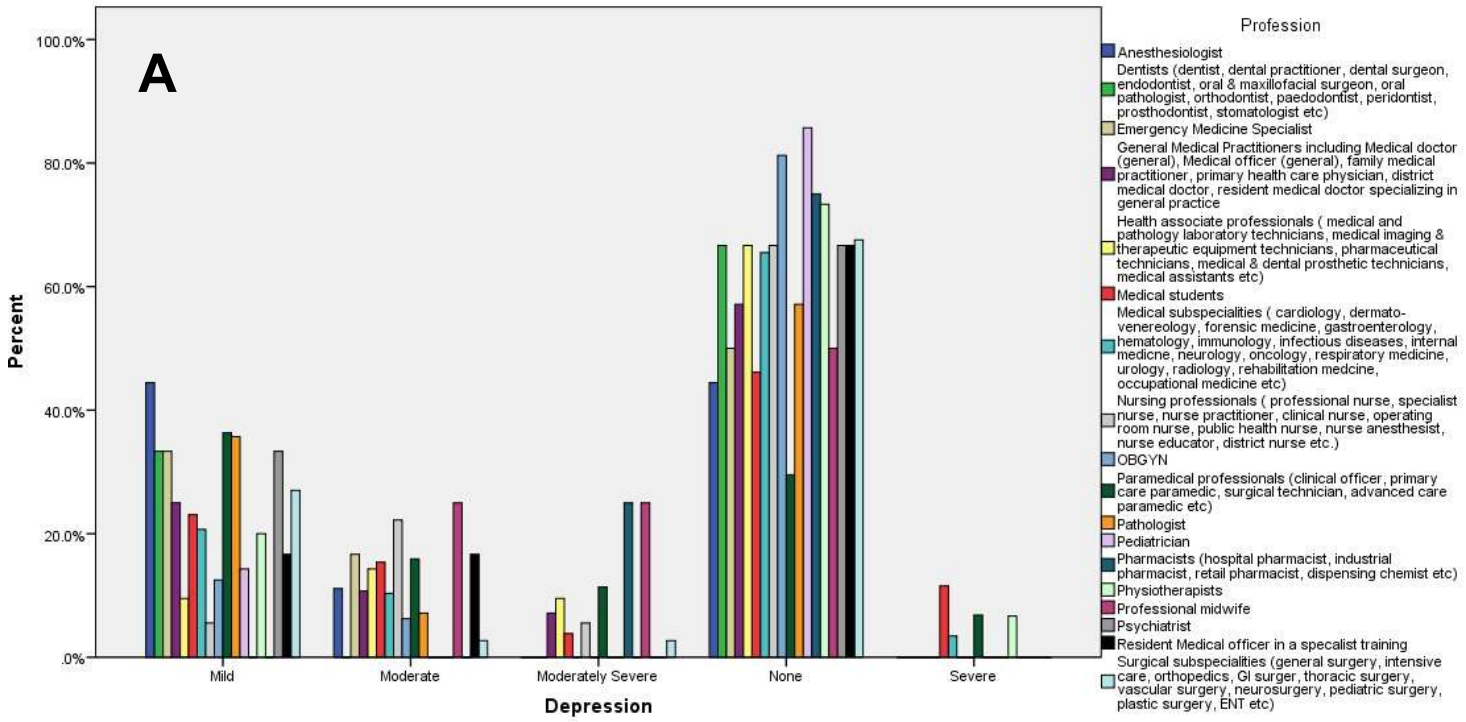


Figure 2 A. Comparative incidence of depression across various healthcare professions.

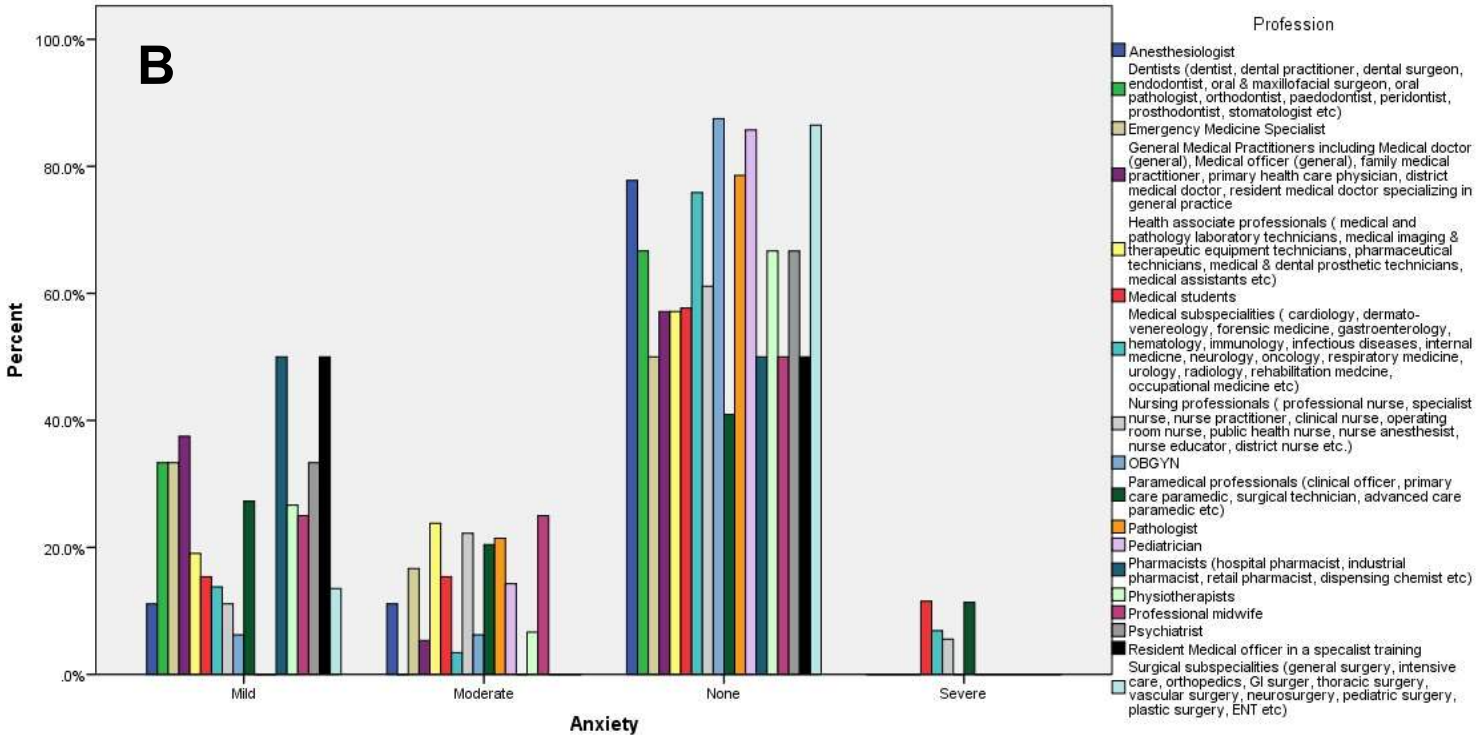


Figure 2 B. Comparative incidence of anxiety across various healthcare professions

 doi: **10.32114/CCI.2021.4.1.1.10**

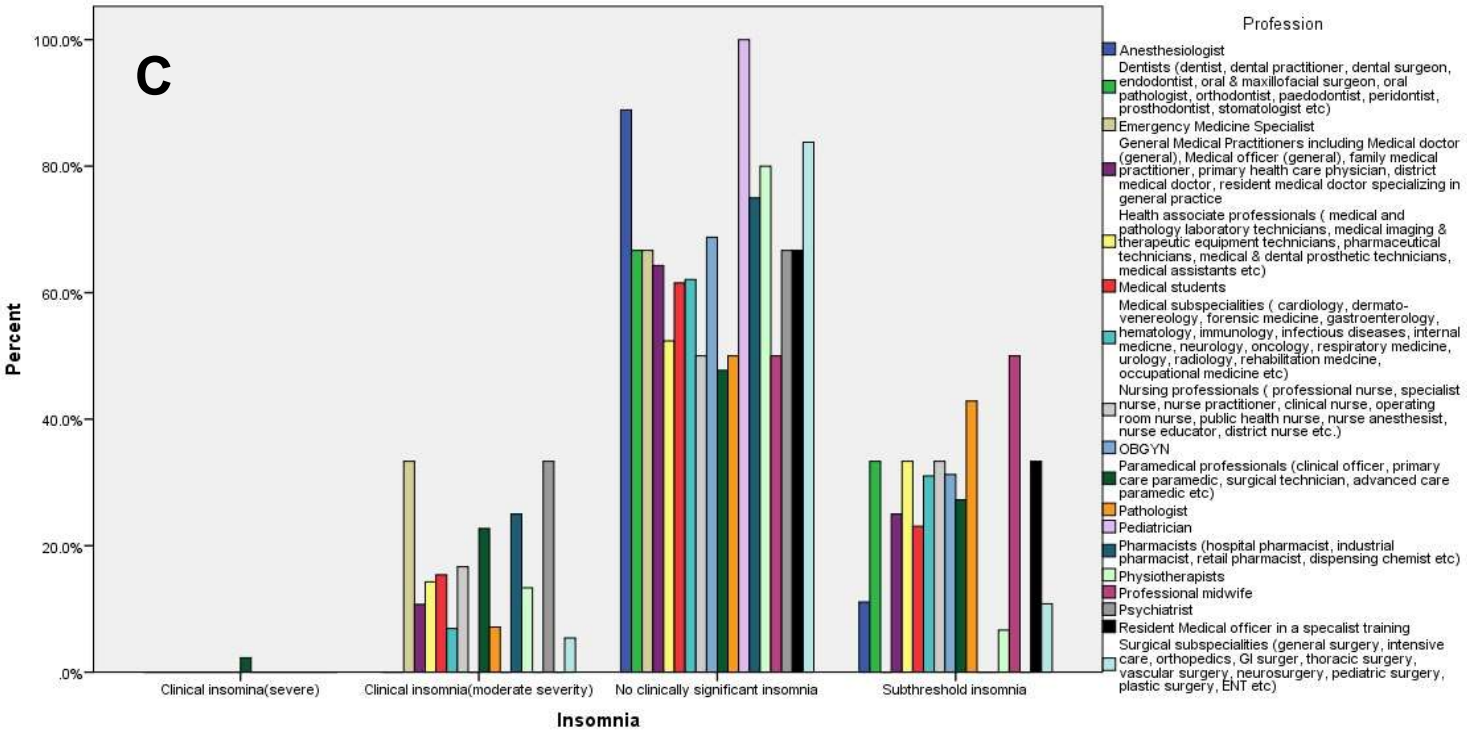
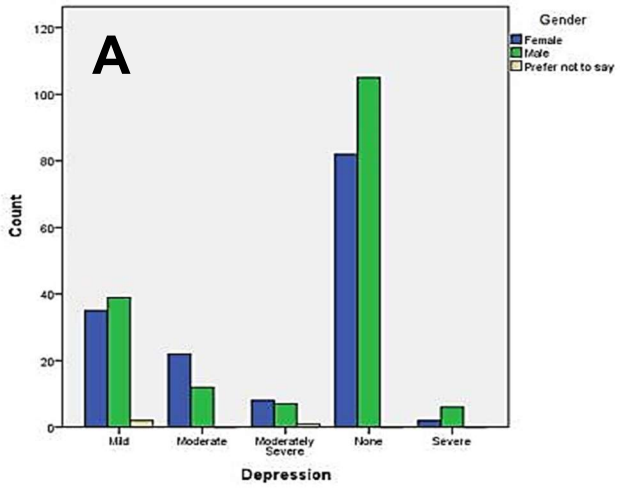
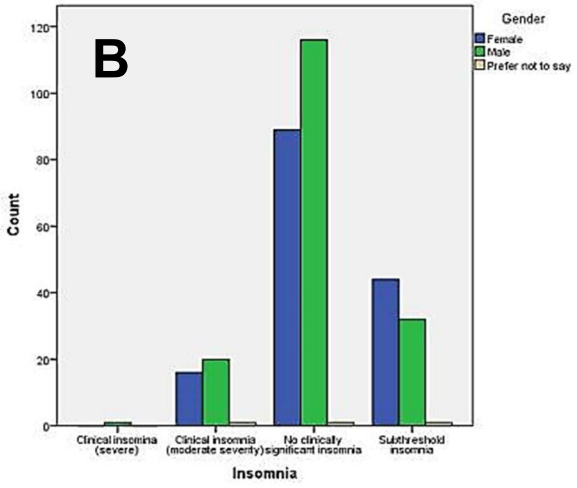


Figure 2 C. Comparative incidence of insomnia across various healthcare professions.





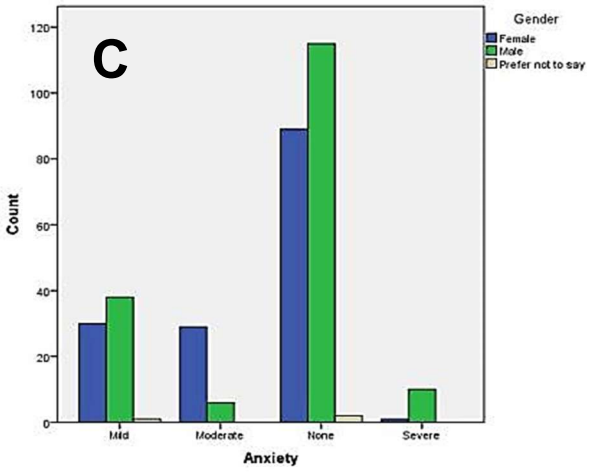


Figure 3. Incidence of depression, anxiety and insomnia in males vs females.

 doi: **10.32114/CCI.2021.4.1.1.10**

The majority of the participants were doctors (n=154, 47.04 %) followed by Paramedics (n =44, 13.7%) and nurses (n =22, 6.85%). We evaluated depression, anxiety and Insomnia score among healthcare personnel using completed PHQ 9 questionnaire, Insomnia severity score and GAD 7 questionnaire. Psychological impact was noted to be highest among paramedics (Avg Score=8.48) when followed by medical students (Avg Score=6.81), health associates (Avg Score=6.14), nurses (Avg Score=5.72),pharmacist (Avg Score = 5) and doctors (Avg Score = 4.32) (figure 2 – A,B,C).

Psychological impact was higher in females (Avg Score = 5.64) than in males (5.04) (figure 3 – A,B,C). The average score was 9.22 in separated families while it was 6.02 in unmarried and 4.45 in married. Mild to moderate depression and anxiety and clinically significant insomnia were noticed in those exposed to COVID-19 positive patients (figure 4 – A,B,C). Not much difference was noted in the incidence of depression, anxiety or insomnia in those tested positive for COVID-19 vs those who never contracted COVID-19 (figure 5 – A,B,C). The graphical analysis of various parameters are as follows.

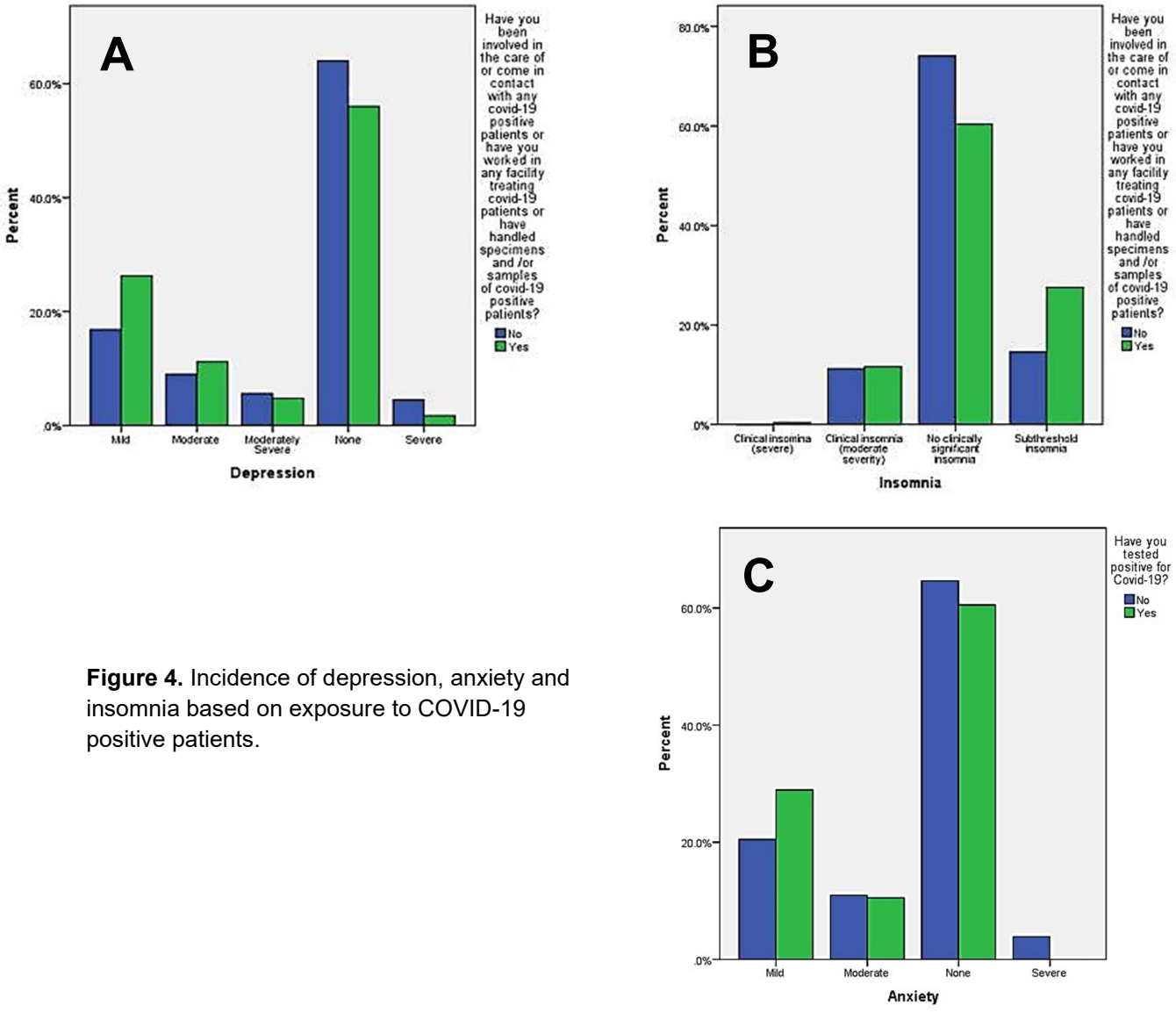


Figure 4. Incidence of depression, anxiety and insomnia based on exposure to COVID-19 positive patients.

 doi: **10.32114/CCI.2021.4.1.1.10**

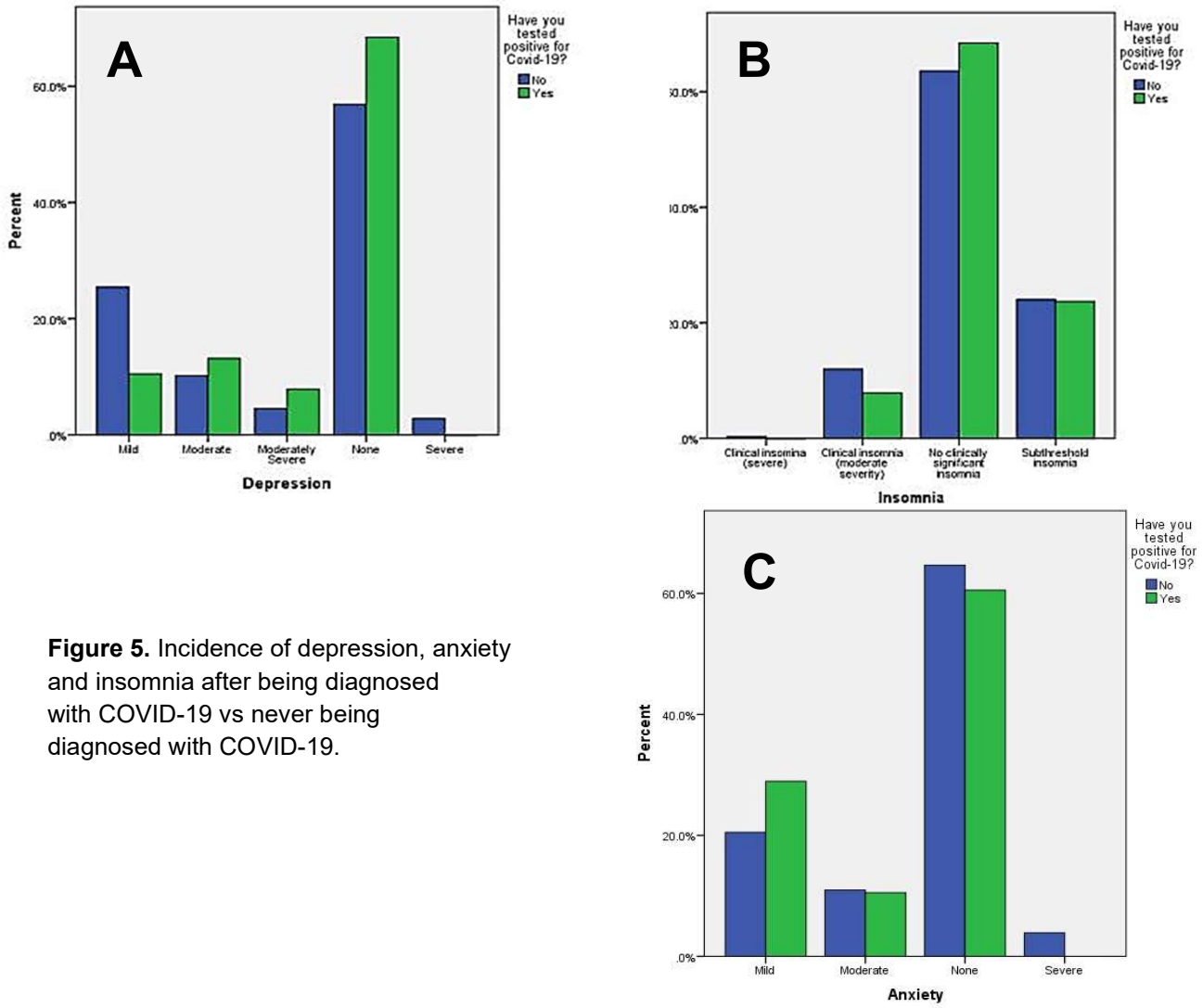


Figure 5. Incidence of depression, anxiety and insomnia after being diagnosed with COVID-19 vs never being diagnosed with COVID-19.

DISCUSSION

A healthcare worker is one who delivers care and services to the sick and ailing either directly as doctors and nurses or indirectly as aides, helpers, laboratory technicians, or even medical waste handlers. There are approximately 53 million healthcare workers worldwide. Challenges faced by health care workers are multiplied during times of a pandemic. Increased work load, unpredictable hours, fear of infecting their families, getting accustomed to the new and changing protocols, wearing PPEs for long duration, witnessing the deteriorating conditions and deaths of their patients, watching their colleagues contracting the disease, the fear of contracting the deadly disease themselves and being in the front line of all these risky and uncertain conditions, instills great fear and psychological burden on these individuals. With the resources being limited during such outbreaks, they are burdened with the need to triage the resources. The guilt of not denying resources to some patients while trying to save the others, takes a toll on the mental health of the health care workers. Family and friends are not be able to visit the patients, there is no opportunity to view the body in case of a death, the normal process of delivering medical news to the family in person is now

being done over video calling or phone, thus eliminating the scope for providing emotional comfort . All these, instill feelings of guilt and remorse in the staff.

Depression is diagnosed when the patient presents with anhedonia along with any five of the following: sleep disturbance, loss on interest, guilt, loss of concentration, changes in appetite, psychomotor retardation, suicidal ideation for more than two weeks. About 17.3 million adults in the US have had at least one major depressive episode in their lifetime. Many case of depression go unnoticed and under addressed due to lack of awareness. The PHQ-2 has similar sensitivity to the more comprehensive PHQ-9 but specificity of the PHQ-9 is higher at 91% to 94%, compared with 78% to 92% for the PHQ-2. A score of 0-4 is considered normal, 5-9 is mild, 10-14 is moderate, 15-19 is moderately severe and more than 19 is considered as severe depression [9]. Generalized anxiety disorder is diagnosed when there is excessive anxiety or worry about multiple things most days for at least 6 months. Symptoms include feeling restless, wound-up or on the edge, being easily fatigued, having difficulty concentrating, being irritable, having muscle tension, difficulty controlling feelings of worry, having sleep problems such as difficulty falling or staying asleep, restlessness or unsatisfying sleep. GAD-7 questionnaire is used to screen anxiety [10]. A score less than or equal to 5 is considered normal, 6-10 is mild, 11-15 is moderate and more than 15 is severe anxiety. Insomnia severity index score less than or equal to 7 is graded as no clinically significant insomnia, 8-14 is sub threshold insomnia, 15-21 as clinical insomnia of moderate severity and more than 21 is considered as severe insomnia.

Addressing the disorders of mental health and providing proper support is as important as treating the physical symptoms of corona virus. Regular sessions with a psychologist/ psychiatrist, creating awareness about the symptoms and encouraging to seek help at an early stage are some helpful interventions. An observation at a hospital in Toronto during the SARS outbreak was that psychological drop-in sessions were more effective when they were offered in comfortable surroundings [11].

CONCLUSIONS

This study revealed that COVID-19 had some degree of psychological impact on more than half of healthcare providers. Supporting the mental health of these individuals is a critical part of the public health response. We want to stress on the importance of addressing the mental health problems along with the physical symptoms brought about into the people due to the COVID-19 pandemic.

SUPPLEMENTARY INFORMATION

Funding: *This research received no external funding.*
Institutional Review Statement: *The study was conducted according to the guidelines of the Declaration of Helsinki.*
Informed Consent Statement: *Informed consent was obtained from all subjects involved in the study.*
Data Availability Statement: *The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.*
Conflicts of Interest: *The authors declare no conflicts of interest.*

REFERENCES

[1] Sauter SL, Murphy LR, Hurrell JJ. Prevention of work-related psychological disorders: A national strategy proposed by the National Institute for Occupational Safety and Health (NIOSH). Am Psychol. 1990; 45(10): 1146–1158.
doi: https://doi.org/10.1037//0003-066x.45.10.1146

[2] Bliese PD, Edwards JR, Sonnentag S. Stress and well-being at work: a century of empirical trends reflecting theoretical and societal influences. J Appl Psychol. 2017;102(3): 389–402.
doi: https://doi.org/10.1037/apl0000109

[3] Zhu Z, Xu S, Wang H, Liu Z, Wu J, Li G, et al. COVID-19 in Wuhan: Immediate Psychological Impact on 5062 Health Workers. MedRxiv, 2020.
doi: https://doi.org/10.1016/j.eclinm.2020.100443

[4] Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARSCoV-2) and coronavirus disease-2019 (COVID-19): the epidemic and the challenges. Int J Antimicrob Agents . 2020; 55(3): 105924.
doi: https://doi.org/10.1016/j.ijantimicag.2020.105924

[5] Huang IC, Bailey CC, Weyer JL, Radoshitzky SR, Becker MM, Chiang JJ, et al. Distinct patterns of IFITM-mediated restriction of filoviruses, SARS coronavirus, and influenza A virus. PLoS Pathog. 2011; 7(1): e1001258.
doi: https://doi.org/10.1371/journal.ppat.1001258

[6] Liu N, Zhang F, Wei C, Jia Y, Shang Z, Sun L, et al. Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: gender differences matter. Psychiatry Res. 2020; 287: 112921.
doi: https://doi.org/10.1016/j.psychres.2020.112921

[7] Gilbert M, Pullano G, Pinotti F, Valdano E, Poletto C, Boëlle PY, et al. Preparedness and vulnerability of African countries against importations of COVID-19: a modelling study. Lancet 2020; 395(10227): 871-877.
doi: https://doi.org/10.1016/S0140-6736(20)30411-6

[8] Thienemann F, Pinto F, Grobbee DE, Boehm M, Bazargani B, Ge J, et al. World heart federation briefing on prevention: coronavirus disease 2019 (COVID-19) in low-income countries. Glob Heart. 2020; 15(1): 31.
doi: https://doi.org/10.5334/gh.778

[9] Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001; 16(9): 606-613.
doi: https://doi.org/10.1046/j.1525-1497.2001.016009606.x

[10] Löwe B, Decker O, Müller S, Brähler E, Schellberg D, Herzog W, et al. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. Med Care. 2008; 46(3): 266-274.
doi: https://doi.org/10.1097/MLR.0b013e318160d093

[11] Walton M, Murray E, Christian MD. Mental health care for medical staff and affiliated healthcare workers during the COVID-19 pandemic. Eur Heart J Acute Cardiovasc Care. 2020; 9(3): 241-247.
doi: https://doi.org/10.1177/2048872620922795