
**“PSYCHO-SOCIAL EFFECT OF COVID-19
PANDEMIC ON HEALTH CARE PROVIDERS -
A CROSS SECTIONAL STUDY”**

**Submitted by
(REG. NO. BD0120004)**

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LIST OF ABBREVIATIONS USED

Sl. No.	Abbreviation	Expansion of the Abbreviation
1	SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
2	HCW	Health Care Worker
3	PPE	Personal Protective Equipment
4	ANM	Auxiliary Nurse Midwife
5	ASHA	Accredited Social Health Activist
6	AWW	Anganwadi Worker
7	CHO	Community Health Officer
8	MHW	Male Health Worker
9	HCP	Health Care Professional
10	IES-R	Impact of Event Scale - Revised
11	DASS-21	Depression Anxiety Stress Scale-21
12	NIMHANS	National Institute of Mental Health and Neurosciences
13	PHCs	Primary Health Centers
14	COVID-19	Coronavirus disease
15	PTSD	Post-Traumatic Stress Disorder

16	CI	Confidence Interval
17	PSS	Perceived Stress Scale
18	QOL	Quality of Life
19	CPI	Consumer Price Index
20	INR	Indian Rupee
21	BMI	Body Mass Index
22	RT-PCR	Reverse Transcription- Polymerase Chain Reaction
23	COPD	Chronic Obstructive Pulmonary Disease
24	JNMC	Jawaharlal Nehru Medical College, Belagavi
25	KAHER	KLE Academy of Higher Education and Research
26	KLES	Karnataka Lingayat Education Society
27	LHV	Lady Health Visitor
28	PG	Post-Graduation
29	SES	Socio-economic Status
30	SPSS	Statistical Package for Social Sciences
31	UHC	Urban Health Centre
32	WHO	World Health Organization
33	χ^2	Chi - square

ABSTRACT

TITLE: “PSYCHO-SOCIAL EFFECT OF COVID-19 PANDEMIC ON HEALTH CARE PROVIDERS - A CROSS SECTIONAL STUDY”

Introduction:

SARS-CoV-2 virus is responsible for causing an infectious disease Coronavirus disease (COVID-19). People infected with COVID-19 experience mild to moderate illness. Older persons and those with comorbidities will likely develop serious illness. The disease has had a significant influence on both public health and society since the outbreak was first discovered in Wuhan, China, in December 2019. Healthcare workers (HCWs), who are at the center of the extraordinary COVID-19 problem, must face challenges when caring for patients who have the illness, such as preventing the spread of infection, coming up with workable short-term methods, and formulating long-term plans. Healthcare workers (HCWs) must also continue to effectively treat non-COVID patients and fulfil their other duties, such as taking care of their families and themselves. The psychological burden and overall wellness of HCWs have come into focus as a result of the high incidence of burnout and psychological stress.

Health care providers are particularly susceptible to emotional distress in the current pandemic because of their risk of contracting the virus, anxiety about spreading it to and caring for their loved ones, lack of personal protective equipment (PPE), longer work hours, and involvement in emotionally and ethically difficult resource-allocation decisions. Initiatives for preventive including mental health problem screening, psychoeducation, and psychosocial support should concentrate on these and other groups at risk for adverse psychosocial consequences. In light of this, the current study seeks to present baseline data and to evaluate the psychosocial

impact of COVID-19 pandemic among healthcare providers in four primary health care centers (PHCs) of Belagavi.

Objective:

To assess a psychosocial impact of the Coronavirus disease 2019 (COVID-19) on health care providers.

Materials and methods:

A facility based cross-sectional study was conducted among community health care providers under four primary health centers of Belagavi Taluka over a period of one year from 1st January 2021 to 31st December 2021 (12 months). Universal sampling method was adopted and 385 workers were interviewed by the investigator using a pre-designed pre-tested questionnaire regarding socio-demographic details and structured validated questionnaire for Depression, Anxiety and Stress Scale - 21 Items (DASS-21) was used after obtaining their consent.

Results:

Out of 385 participants, majority of the participants was belonging to 31-40 years and 93.5% participants were females. More than 2/4th (67%) was residing in rural areas. Among the participants, 71.4% had either 10th-12th or Diploma education, most of the workers were ASHA 30.1% and 55.3% were anganwadi workers.

In our study, the participants diagnosed with COVID was around 20.8% and people quarantined/ isolated were 28.3%. Among household members of study participants infected with COVID was 29.9%. Nearly, 80.3% of participants had reported that they had direct contact with COVID-19 patients and 59.5% of participants was involved in care of COVID-19 patients. Our study had 45.5% of

healthcare workers working beyond 8 hours during the COVID-19 pandemic. PPE was provided to 22.1% of healthcare workers and out of 85 HCW's provided with PPE, 96.5% reported they felt safe with provided PPE. Among the study participants, (28.8%) of the study participants stated that they were assigned duties in places other than their jurisdiction.

The prevalence of depression, anxiety and stress among community health care providers was 22.9%, 27.8% and 20.5% respectively. Our study shows significant association between HCW's diagnosed with COVID, quarantined/isolated, household members of HCW's infected with COVID, direct contact with COVID-19 patients, care of COVID-19 confirmed individuals with depression, anxiety and stress. In the current study, participants who have assigned more than duty hours, worked other than their place of jurisdiction and not provided with PPE was found to be significantly associated with depression, anxiety and stress.

Conclusion:

Our study findings indicate that we need to identify community health care providers at risk at an early stage and provide appropriate psychological resilience at timely intervals. The important mitigation measures have to be taken into account during the pandemic would be limitation of work hours, provide adequate Personal Protective Equipment (PPE) and mental health support by counsellors. Additionally proper measures had to be undertaken to alleviate mental health problems among the healthcare personnel in the future epidemic/pandemic scenarios in the country.

Keywords: community health care providers, COVID-19, depression, anxiety, stress, psychosocial impact

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INTRODUCTION

SARS-CoV-2 virus is responsible for causing an infectious disease Coronavirus disease (COVID-19). People who are infected will suffer from mild to moderate respiratory disease and recover without the need for special care. Older persons and those with comorbidities are more susceptible to serious illness. By taking precautions including social isolation, mask use, frequent hand washing, and alcohol-based rub use, infection can be avoided. When an infected individual coughs, sneezes, or speaks, the virus is transmitted through the mouth or nose.¹

Since the outbreak was initially identified in Wuhan, China, in December 2019, the illness had a tremendous impact on both public health and society. It has an effect on every country and people on the globe, either directly or indirectly.

Problem statement in World: As of November 14, 2022, there were 631,935,687 confirmed cases and 6,588,850 death cases of COVID-19 worldwide.²

Problem statement in India- First case of COVID-19 infection was reported in Kerala, India.³ In India 44,666,924 confirmed cases and 530,532 deaths due to COVID-19.² Because middle-aged and older persons are more likely to contract COVID-19 than people in high-income countries, there is a greater burden of the disease in poor nations. This is also due to the fact that people in these nations have less access to quality healthcare.⁴

Public health emergencies may have an impact on people's health, safety, and wellbeing, as well as communities, by causing things like insecurity, disorientation, emotional isolation, and stigma (owing to economic loss, work and school closures, inadequate resources for medical response, and deficient distribution of necessities).

Every major catastrophe has had a profoundly negative effect on people, including depression, Post Traumatic Stress Disorder (PTSD), substance misuse, behavioral problems, spousal violence, and child abuse.⁵ According to comprehensive studies on mental health, emotional pain is ubiquitous in affected people, a fact that will surely be validated in communities affected by the COVID-19 pandemic.

A Health Care Worker (HCWs) 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.⁶ Some of the most hazardous working conditions are found in the healthcare industry. Employees in this industry are frequently exposed to a variety of health and safety issues during the course of their employment. Risks can include exposure to various chemicals as well as biological exposure to diseases like HIV and TB.

HCWs must overcome challenges while treating patients who have the disease, including minimizing the spread of infection, developing successful short-term tactics, and developing long-term plans. HCWs are at the center of the extraordinary COVID-19 crisis. HCWs also need to continue successful treatment for non-COVID patients and carrying out other duties, like taking care of their families and themselves. Attention has been focused on the psychological burden and overall wellness of HCWs as a result of the high incidence of burnout, psychological stress, and suicide.⁷

Health care providers are particularly vulnerable to emotional distress in the current pandemic due to their risk of contracting the virus, worry about infecting and caring for their loved ones, lack of personal protective equipment (PPE), longer work hours, and involvement in emotionally and ethically challenging resource-allocation

decisions.⁸ The above group and other groups at risk should focus on prevention initiatives such as mental health screening, psychoeducation, and psychosocial support.

Healthcare personnel may become overburdened by COVID's special characteristics, inadequate diagnoses, limited treatment options, a lack of PPE and other medical supplies, increased workloads, and other emerging issues.

Learning about the illness and its risks, monitoring one's own stress reactions, and receiving the appropriate assistance with one's obligations and worries in both one's personal and professional life, including, if necessary, professional mental health intervention, are all parts of self-care for healthcare professionals, including those who provide mental health care. The absence of social support, poor sleep, separation from family and friends, worry about spreading the sickness to their loved ones and co-workers, and direct patient contact are a few of the variables that contribute to increased psychological problems among HCWs. Additionally, when working, HCWs must wear protective gear that slows down their movement and operations and causes respiratory pain and difficulty, both of which aggravate HCWs' psychological issues.⁹⁻¹¹

Age, marital status, and place of employment are sociodemographic factors that significantly impacted the emotional and psychological health of HCWs during the COVID-19 crisis. The prevalence of dread, depression, and anxiety was found to be considerably higher in HCWs who lost patients as a result of COVID-19.¹²

Asking about COVID-19-related stressors, such as exposure to contaminated sources, infected family members, loss of loved ones, and physical distance, as well as secondary hardships, such as economic loss, and psychosocial effects, such as

depression, anxiety, psychosomatic preoccupations, insomnia, increased substance use, and domestic violence, as well as indicators of vulnerability, are all a part of psychosocial assessment and monitoring in the context of COVID-19 (such as preexisting physical or psychological conditions).¹³

The National Institute of Mental Health and Neurosciences (NIMHANS) and the Ministry of Health and Family Welfare of the Government of India have collaborated to establish several guidelines as part of the Ministry's response to the COVID-19 mental health concerns.¹⁴ The recommendations seek to strengthen vulnerable groups' resistance to mental health problems. The Ministry of Health and Family Welfare has also established helpline for behavioral and psychosocial help.¹⁵

Psychological and social effects of COVID-19 pandemic in health care providers is now an emerging concern and there is paucity of published information available on this subject, especially pertaining to India.¹⁶ Keeping this in mind, the present study aims to provide baseline data and to assess the psychosocial effect of COVID-19 pandemic among health care providers in four primary health care centers (PHCs) of Belagavi. The current study also aims to test the impact of perceived threat of COVID-19 on health care providers.

OBJECTIVE OF THE STUDY

1. To assess the psychosocial effect of COVID-19 pandemic on health care providers.

REVIEW OF LITERATURE

Anxiety is prevalent overall, according to a meta-analysis of 44 research conducted in China in 2021 to assess the psychological impact of the COVID-19 pandemic on healthcare personnel. Among 39 studies, the calculated prevalence of depression, and the combined prevalence was 36% (95% CI 0.31–0.41, I² = 99.6%). The prevalence of insomnia was reported in 10 research studies, with an overall prevalence of 32% (95% CI 0.23–0.42, I² = 99.5%). The subgroup analysis revealed that women and frontline HCWs had greater rates of anxiety and depression than men and non-frontline HCWs, respectively.¹⁷

The prevalence of insomnia was 23.87%, depression 15.97%, anxiety 15.15%, and PTSD 21.94%, according to a systematic review and meta-analysis done in Canada in 2021 to estimate the pooled prevalence of depression, anxiety, insomnia, PTSD, and psychological distress (PD) related to COVID-19 among affected populations.¹⁸

The prevalence of insomnia among HCWs during the COVID-19 crisis (January 2020 to the end of January 2021) was documented by an umbrella review of meta-analysis carried out in Iran in 2021. The prevalence of insomnia among HCWs during the COVID-19 pandemic was 36.36% (95% CI: 33.36-39.36, I² = 59.6%, p = 0.006), according to the results of the comprehensive analysis of meta-analyses.¹⁹

In a systematic review, a study carried out in the United Kingdom in 2020 examined the evidence already in existence on the prevalence of depression, anxiety, and insomnia among health care workers (HCWs) during the Covid-19 outbreak. The

prevalence of anxiety was 23.2%, and depression 22.8%. Finally, 38.9% of people reported having insomnia.²⁰

In 2020, a study was conducted to compare the psychological discomfort, depression, anxiety, and stress that hospital staff in Singapore who were medically and non-medically trained faced during the outbreak. Of the 500 invited health care professionals, 470 (94%) took part in the survey; 68 (14.5%) showed signs of anxiety, 42 (8.9%) of depression, 31 (6.6%) of stress, and 36 (7.7%) of PTSD clinical concern. After adjusting for age, sex, ethnicity, marital status, survey completion date, and the presence of comorbid conditions, the prevalence of anxiety was higher among non-medical health care workers than among medical staff (20.7% versus 10.8%; adjusted prevalence ratio, 1.85 [95% CI, 1.15 to 2.99]; $P = 0.011$). Similar to medical health care workers, non-medical health care workers had higher mean DASS-21 anxiety and stress subscale scores as well as higher IES-R total and subscale scores.²¹

A study, carried out in Bihar, India in 2020, examined the psychological effects of the COVID-19 situation on both working professionals in the healthcare and non-healthcare sectors. Between healthcare and non-healthcare professional workers, depression, insomnia, and anxiety showed significant P values of 0.05, 0.03, and 0.02, respectively.²²

A study on 906 healthcare professionals from five major hospitals who cared for COVID-19 patients was undertaken in 2020 in India and Singapore with the aim of examining the relationship between psychological outcomes and physical symptoms in this population. According to the study's findings, moderate to very-severe depression affected 48 (5.3%) people, moderate to extremely-severe anxiety affected 79 (8.7%), moderate to extremely-severe stress affected 20 (2.2%) people,

and moderate to severe psychological distress affected 34 (3.8%) people. Headache was the most frequently reported symptom (32.3%), and many participants (33.4%).²³

According to a cross-sectional study on the COVID-19 pandemic's psychological effects on 313 clinical and nonclinical HCWs done in India, 7.3% of HCWs had moderate insomnia, 3.8% had severe insomnia, and 20.8% had subthreshold insomnia. About 7% of respondents reported having very severe anxiety or depression. Approximately 8%, 32.3%, and 6.4% of the respondents, respectively, reported moderate or mild anxiety-depression as well as high perceived stress. Furthermore, moderate stress was experienced by 47.6 and mild stress by 46.0% of the respondents. Between clinical and nonclinical HCWs, there was a statistically significant difference in the prevalence of severe insomnia, but not in the prevalence of anxiety, depression, or stress.²⁴

Another cross-sectional study conducted in India in 2021 evaluated how the COVID-19 epidemic affected the mental and emotional wellbeing of healthcare workers (HCWs). According to the study, there were 41.4%, 48.0%, and 31.3% cases of clinically severe anxiety, depression, and sleeplessness, respectively. Lack of social or emotional support for HCWs was independently correlated with anxiety (odds ratio (OR), 3.81 (2.84-3.90), depression (OR, 6.29 (4.50-8.79), and insomnia (OR, 3.79 (2.81-5.110) on bivariate logistic regression. Self-COVID-19 and female gender were both independent risk factors for anxiety and depression, with odds ratios of 3.71 (1.53-9.03) and 1.71 (1.23-2.38), respectively. Frontrunners had an independent relationship with insomnia (OR, 1.68, range, 1.23-2.29).²⁵

In a tertiary care hospital in India, during the early stages of the Coronavirus disease-2019 (COVID-19) outbreak, 140 healthcare professionals were the subject of

a cross-sectional study in 2021 that looked at mental anguish. Researchers found that among healthcare professionals, doctors experienced the highest levels of anxiety. More irritation was perceived by doctors and nurses than by the other HCWs. Other HCWs were more likely to have sleeplessness than physicians and nurses. Greater anxiety perception was linked to lower age, higher education, feminine gender, and urban environment. The most important predictors of irritation were older age, being quarantined, and single marital status. The perception of hopelessness was influenced by the female gender, single marital status, and greater number of medical conditions.²⁶

In a cross-sectional study conducted in 2022 to assess the levels of burnout and risk factors for psychological distress among healthcare workers (HCW) managing COVID 19 from 12 cities in 10 Indian states, it was found that 52.9% of the participants were at risk for psychological distress and required further evaluation. Longer work hours (> 8 hours per day), COVID-19 patient screening, contact tracing, high emotional exhaustion score, and high depersonalization score all significantly increased the risk of psychological discomfort. 4.7% of HCWs were overworked, 6.5% were disengaged, and 9.7% of HCWs displayed burnout symptoms (high on all three dimensions).²⁷

A study carried out in 2020 sought to assess the variables influencing the psychological outcomes among frontline HCPs in India during the COVID-19 pandemic. Nearly 50% (49.8%) of HCPs exhibited at least one of the harmful psychological conditions of depression, anxiety, stress, or somatoform symptoms in their screening results. Approximately 35.4% of HCPs reported having anxiety symptoms, compared to 27.4%, 23%, and 14% who reported having somatoform

disorders, depression, and stress, respectively. Comparing nurses to doctors, it was shown that nurses were more likely to experience anxiety (36.4 vs 28%; $p = 0.02$) and somatoform symptoms (28.1 vs 18.2%; $p = 0.01$).²⁸

A cross-sectional, online survey of HCPs was conducted in April 2020 to assess the prevalence and predictors of stress, depressive, and anxiety symptoms among HCPs in India. The results showed that 3.7% (2.2–6.2%) of HCPs reported high levels of stress, while 11.4% (8.3, 15.2) and 17.7% (13.9, 22.1%) reported depressive symptoms that required treatment and anxiety symptoms that required further assessment. Women were twice as likely to have moderate or high levels of stress, depressive symptoms that needed treatment, and anxiety symptoms that needed further investigation. In a similar vein, women who slept in a hostel or other temporary housing had a twofold greater risk of experiencing symptoms of anxiety or depression.²⁹

An online cross-sectional study to assess and gauge the impact of the Covid-19 epidemic on the level of anxiety and sleep efficiency among Indian healthcare professionals 7.3% (27/368) of the medical staff reported having severe anxiety, while 12.5% (46/368), 29.3% (108/368), and 50.8% (187/368) of the staff reported moderate, mild, and low anxiety, respectively. Furthermore, 31.5% (116/368) of the healthcare professionals reported poor to fair sleep quality (i.e., scores below 6).³⁰

According to a survey of 3083 health care workers (HCWs) in Karnataka, India, in 2021, anxiety disorders and depression were most prevalent among those with frontline COVID-19 responsibilities (anxiety disorders: 26.6%, depression: 23.8%). Anxiety disorders were more common (23.9% vs. 15.5%) and depression was

more common (20.0% vs. 14.2%) among individuals with clinical responsibilities compared to those with supportive tasks.³¹

A study conducted in 2021 included 473 (76%) randomly chosen responders (doctors and nurses) to a WhatsApp request message examined how the psychological health of health care professionals (HCP) in India who were serving on COVID duty differed from those who were not in direct contact. Stress, anxiety, and depression were all rather common in HCP at 33.8%, 38.9%, and 43.6%, respectively.³²

A study conducted in 2020 examined the psychological effects of the COVID 19 crisis on 2,355 practicing and in-training ophthalmologists while India was under lockdown. 768 people (32.6%) reported psychological effects, with mild depression in 504 people (21.4%), moderate depression in 163 people (6.9%), and severe depression in 101 people (4.3%). According to a multivariable analysis, depression was significantly more prevalent in younger age groups. With every additional year of age, the likelihood of depression decreased³³

The objective of a systematic review undertaken in 2021 was to evaluate and synthesize the available data on the effect of COVID-19 on the psychological well-being of healthcare professionals in India. In their review, it was noted that the prevalence of depression was discovered to be present in 41.90% of 5796 participants in five studies, and the prevalence of anxiety was discovered to be present in 42.87% of 10 studies with a total sample size of 3059 individuals. Stress was also discovered to be prevalent (58.04%) in 12 studies with 4209 participants.³⁴

A review about the mental health issues in India (2020) experienced by healthcare professionals (HCP) during the COVID-19 pandemic revealed that a number of sociodemographic factors, including gender, profession, age, place of employment, department of employment, and self-efficacy, were linked to higher levels of stress, anxiety, depressive symptoms, and insomnia in HCW. The study found mounting evidence that COVID-19 may function as a stand-alone risk factor for stress in HCW.³⁵

In 2021, research was carried out in India to evaluate the psychological harm that the COVID-19 epidemic had caused to 302 healthcare professionals from a few tertiary care facilities in India. On the Perceived Stress Scale, 101 (33.44%) people reported low levels of stress, 185 (61.26%) moderate levels, and 16 (5.30%) high levels. On the DASS 21, depression was reported by 56 (18.54%) participants, anxiety by 60 (19.87%) participants, and stress by 50 (16.56%) participants. The depression, anxiety, and stress scores on the DASS 21 were substantially linked with the perceived stress score on the Perceived Stress Scale (PSS).³⁶

A cross-sectional online survey of 1131 nurses across the Indian subcontinent revealed considerable rates of depression (41.3%), anxiety (49.1%), and stress (29.5%). Nurses who had not been posted to care for proven or suspected COVID-19 cases had decreased probabilities of suffering from depression, anxiety, and stress. Similar to this, female nurses had greater odds of both depression and anxiety (OR 4.361; $p=0.02$ and OR 5.498; $p=0.01$, respectively) than did male nurses.³⁷

An online study of 373 hospital employees in India looked at their levels of stress, anxiety, depressive symptoms, and quality of life as they worked in general and mental health facilities during the COVID-19 pandemic. The findings indicated that

hospital staff members experienced 2.4% of depression, 6.3% of anxiety, and 5.9% of stress. The tension, anxiety, and depression levels were higher in the medical personnel, lab technicians, and nursing staff. The results also showed that the hospital employees had poor levels of Quality of Life (QOL) in the following areas: 4.3% physical, 16.6% psychological, 65.4% social, and 21.7% environmental health.³⁸

A Google-based online survey of 100 HCPs in India who were managing COVID-positive patients revealed that 72% of participants were at risk of infection to themselves and their families, 20% lacked adequate knowledge and training about COVID, and 16% reported constant anxiety, 11% constant fear, and 12% constant stress while caring for COVID patients.³⁹

A study in 2020 evaluated the mental health and quality of life (QoL) of Indian HCPs by having 197 HCPs complete an online survey. With 43% caring for more than 10 patients per day, 87% of respondents offered direct COVID-19 care. A sizable percentage (92, 47%), (98, 50%), and (89, 45%) of participants had symptoms of low QoL. The likelihood of having both depression and anxiety together was 2.37 times higher in single HCPs than in married ones. Workplace stresses were linked to an elevated incidence of combination sadness and anxiety by 46%. Separate studies linked increased likelihood of low QoL with moderate to severe depression and anxiety.⁴⁰

In 303 health care workers (HCW) during the COVID-19 epidemic in India, a survey conducted online looked at psychological problems. Being a woman, having been placed under quarantine, being directly responsible for the treatment of COVID-19 patients, and being younger (30 years) were all linked to higher levels of anxiety and sadness. Being a doctor was linked to a higher prevalence of depression and

anxiety disorder in younger (30 years) age groups (compared to paramedics). Furthermore, individuals who had a direct hand in the treatment of patients with COVID-19 infection showed a higher frequency of depression.⁴¹

In 2020, a web-based survey called FRONT-LINE COVID was done to assess the mental health outcomes and professional quality of life of healthcare workers in Rajasthan, India, during the COVID-19 pandemic. In general, female doctors ($P=0.02$) and nurses ($P=>0.001$) who worked in an emergency unit ($P= 0.001$) were more likely to experience psychological discomfort. Working in the COVID-19 unit was related with a lower scale of resilience ($p=0.009$), in contrast to middle-aged (31–40 years old) individuals who had a greater level of resilience ($p=0.02$).⁴²

In a study conducted in 2020, 200 HCWs in India were examined to determine the overall impact of the COVID-19 outbreak on their levels of anxiety, sadness, insomnia, and psychological distress. The findings indicated that nurses had a higher prevalence of distress than doctors. When compared to those who weren't seeing any patients, there was a substantial difference in the depression levels of healthcare professionals. Depression was adversely connected with higher levels of perceived social support among health care professionals.⁴³

In a cross-sectional online survey conducted in 2021, it was found that 12.1% of the 354 nurses who actively participated in COVID-19 tasks at government tertiary health care institutions in India experienced anxiety, while 14.7% had depression. Physical, psychological, social, and environmental domains' respective mean scores were 14.75 1.86, 14.92 2.46, 15.21 3.01, and 14.48 2.38. Anxiety was significantly predicted by nurses' educational background. The categorization of nurses contributes to depression in a similar way.⁴⁴

During the COVID-19 pandemic, armed forces doctors in India were studied in 2020 to determine the incidence of anxiety and depressed symptoms as well as the causes of these symptoms. 35.2% of the doctors reported having anxiety symptoms, while 28.2% reported having depressed symptoms. Significant correlations between age, gender, years of service, and clinical versus non-clinical specializations were found in doctors who reported having anxiety symptoms. Significant correlations between age, clinical versus non-clinical specialty, length of service, and doctoral degree was found in doctors who reported depressed symptoms.⁴⁵

A study done in 2020 investigated the psychological effects of the COVID-19 epidemic among Indian dentists by having 405 practitioners complete an online web-based survey. The stated levels of anxiousness were considerable. The majority of dentists were concerned about being in a dangerous line of work and spreading the illness to others. On a scale from 1 to 10, almost all of the questions received responses with a score of >5, indicating high levels of anxiety.⁴⁶

METHODOLOGY

A) Source of Data:

The community health care providers in the field practice areas of four primary health centres, namely UHC Ashok Nagar, UHC Rukmini Nagar, PHC Vantamuri (rural) and PHC Kinaye (rural), which are under the administrative control of Department of Community Medicine, J.N. Medical College, KAHER, Belagavi, Karnataka state, India were enrolled in the study.

B) Study Design:

Community based cross-sectional study.

C) Study Period:

1st January 2021 to 31st December 2021.

D) Sample Size:

The total number of community health care providers from all four health centers that come under the administrative control of KAHER's J.N. Medical College were **385** according to the data collected. The following number of community health care providers under the four health care centers were included in the study (as per the information collected from the respective medical officers and employee registry of respective health centers).

PHC	Medical officer	ASHA	Anganwadi worker	ANM	*Other staff	Total
PHC Kinaye	1	60	80	5	27	164
PHC Vantamuri	1	34	55	3	13	97
UHC Ashok Nagar	1	0	4	2	6	31
UHC Rukmini Nagar	1	22	54	2	22	93
TOTAL	4	116	213	12	68	385

*Other staff includes Lady Health Visitor (LHV), Nurse, Pharmacist, Lab technician, Class IV worker, Community Health Officer, Male Health Worker, Clerk, and Ambulance Driver

- **Universal sampling method-** was adopted and all the community health care providers who provided consent were included in the study and were interviewed with a standard questionnaire to assess their depression, anxiety and stress.

E. Inclusion criteria:

All community health care providers employed for more than one year under UHCs and PHCs that come under the administrative control of KAHER's J.N. Medical College in the Belagavi Taluka.

F. Exclusion criteria:

Health care providers who were previously diagnosed with some psychiatric disorders and on medications were excluded from the study.

G. Method of data collection:

Using a pre-designed and pre-tested questionnaire, information regarding socio-demographic details were collected. Multidimensional Scale of Perceived Social Support (MSPSS) was used to find out social support among healthcare workers and perceived threat among health care workers was identified.

The Depression, Anxiety and Stress Scale - 21 Items (DASS-21)⁴⁷ is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales.

Scores on the DASS-21 will need to be multiplied by 2 to calculate the final score.

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

Scoring for MSPSS⁴⁸ -

To calculate mean scores:

Significant Other Subscale: Sum across items 1, 2, 5, and 10, then divide by 4.

Family Subscale: Sum across items 3, 4, 8, and 11, then divide by 4.

Friends Subscale: Sum across items 6, 7, 9, and 12, then divide by 4.

Total Scale: Sum across all 12 items, then divide by 12.

In this approach any mean scale score ranging from 1 to 2.9- low support;

Score of 3 to 5- moderate support;

Score from 5.1 to 7- high support.

The actual score ranging from 1 to 2.9 and 3 to 7 was considered low and high social support respectively.

Visits were made by the investigator to all the four health centers. If any health care provider was not available at the time of survey, two more attempts were made to collect the data by the investigator.

The participants were given free chance to discontinue from the study at any given point of time for any privacy or confidential issues or work-related issues. Care was taken to make sure that the participants did not have any hindrance in their work.

H. Ethical clearance: was obtained from the Institutional Ethics Committee for Human Subjects' Research of the Medical College dated 25/01/2021 vide under letter MDC/DOME/72 (ANNEXURE –I). Written informed consent was obtained from all the study participants before the data collection (ANNEXURE – III).

I. Informed consent – Written informed consent was taken from each participant prior to the study. Participants were informed in detail about the purpose of the study and their rights, possible benefits and risks.

J. STATISTICAL ANALYSIS:

The data collected was entered into the Microsoft Excel sheet and master chart was prepared. Coding was done to encrypt the data for each option in the questionnaire. Data was analyzed using SPSS software (Trial version 23). Frequency and percentage were used for describing categorical variables. Chi square test was used to find the association between two categorical variables and P value of < 0.05 was considered as statistically significant.

K. Operational definition:

A Health Care Worker (HCWs) 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.⁶ All community health care providers employed for more than one year under UHCs and PHCs that come under the administrative control of KAHER's J.N. Medical College in the Belagavi Taluka.

Proforma Variables:

Whenever possible, standard definitions were used to determine the definitions of the terminologies in the study.

Socio-demographic Variables:

Age: Age of the participant in years as completed on his/her last birthday.

Address: Study participant's place of present stay was collected. It was grouped as urban among those who stayed within the area covered under study area of urban primary health centers i.e., Ashok Nagar and Rukmini Nagar, and rural among those who stayed within the area covered under study area of rural primary health centers i.e., Kinaye and Vantamuri.

Religion: An organized system of beliefs, ceremonies, and rules used to worship a God or groups or Gods. For examples Hindu, Muslims and Christian.

Education: Every study subject was asked about his/her educational qualification. It was classified as follows:

1. **Illiterate** – A person who cannot read and write any language.
2. **Read and write** – A person who can read and write.
3. **Standard 1-4th** – Participant who had attended schooling between first and fourth standard.
4. **Standard 5-8th** – Participant who had attended schooling between fifth and eighth standard.
5. **10- 12th / Diploma** – Participant had studied up to PUC (between 11th and 12th) or Diploma.
6. **Graduate/PG** – A person who had completed any graduation degree course or any under-graduation course and person who had completed any post-graduation course.

Total family income – Combined income of all earning members of the family.

Family size – Total number of members in the family.

Socio Economic Status (SES) Class⁴⁹

Information regarding per capita income (in INR/ month) was collected and SES was classified using Modified B.G. Prasad's classification for the study period (2020).

The B.G. Prasad's scale was introduced in 1961 considering the base of

Consumer Price Index (CPI) for 1960 as 100.

Consumer Price Index for January 2020 was 330

Multiplication factor = Current index value (330) = 3.3

Base index value in 2001 (100)

The new income value is calculated using the following equation:

= multiplication factor $\times$ old income value $\times$ 4.63 $\times$ 4.93.

Here 4.63 and 4.93 are the linking factors given by the Labour Bureau of India. So, after substituting the values, the new scale is

Modified BG Prasad Socio-economic Classification, Updated – 2020

Socio-Economic class	B. G. Prasad's classification of 1961 (monthly income in rupees)	Revised B. G. Prasad's classification for 2020 (Monthly income in rupees)
I	100 and above	7533 and above
II	50-99	3766-7532
III	30-49	2260-3765
IV	15-29	1130-2259
V	Below 15	1129 below

Marital Status: Data regarding marital status was obtained and categorized as married, unmarried, widow, widower and divorcee.

Overcrowding⁵⁰ – “is expressed as the number of persons divided by the number of rooms. It is called overcrowding if these standards are exceeded”.

“Criteria for overcrowding – persons per room”

“1 room – 2 persons”

“2 rooms – 3 persons”

“3 rooms – 5 persons”

“4 rooms – 7 persons”

“5 or more rooms – 10 persons”

Diagnosis of COVID-19:

1. Rapid antigen testing
2. Reverse Transcription- Polymerase Chain Reaction (RT-PCR).

Isolation⁵⁰:

Defined as “separation, for the period of communicability of infected persons or animals from others in such places and under such conditions, as to prevent or limit the direct or indirect transmission of the infectious agent from those infected to those who are susceptible, or who may spread the agent to others”.

Quarantine⁵⁰:

Defined as “the limitation of freedom of movement of such well persons or domestic animals exposed to communicable disease for a period of time not longer than the longest usual incubation period of the disease, in such manner as to prevent effective contact with those not so exposed”.

Overtime work:

Urban and Rural health centers working time is 8 hours (9AM- 5PM). Any persons working more than 8 hours and apart from their usual time of work is taken into account as working overtime.

Personal Protective Equipment (PPE):

Includes head cover, goggles, N95 mask, face shield, gloves, gown and shoe cover.

Sleep:

Normal sleep- On average, adults between 26 and 64 years of age need 7 to 9 continuous hours of sleep per day.

Disturbed sleep- Sleep less than 7 hours per day taken into account as disturbed sleep.

Tobacco use⁵¹: “For the assessment of history of use of tobacco in any form (smoking/smokeless) period of recall was considered for the past one year”.

Smoking tobacco:

Smokers: “Subjects those who had smoked in the past or smoking at present were considered as smokers”.

Non-Smokers: “Subjects who had never smoked any form of tobacco (Cigarettes/Beedi) were considered as non-smokers”.

Smokeless tobacco use:

Smokeless tobacco user: “Subjects those who had used smokeless tobacco in the past or using at present were considered as smokeless tobacco user”.

Non user of smokeless tobacco: “Subjects who had never used smokeless tobacco in any form were considered as non-users”.

Alcohol consumption⁵²: “For the assessment of alcohol consumption, period of recall was considered for the past one year”.

Alcoholic: A person who has been taking alcohol at least 30 ml per day for at least six months preceding the survey.

Non-Alcoholic: “Subject who had never consumed alcohol were considered and kept in the category of Non-Alcoholic”.

Body Mass Index (BMI)⁵⁰ – According to the guidelines recommended by WHO, persons with BMI values of less than 18.5 were classified as “Underweight”, 18.5 to 24.9 were classified as “Normal weight”, 25 to 29.99 were classified as “over-weight” and 30 and above were classified as “Obese”.

Body Mass Index was calculated as

$$\text{BMI} = \frac{\text{Weight in kgs}}{(\text{Height in Meter})^2}$$

Classification	BMI
Normal range	18.50-24.99
Overweight	≥25.00
Pre-obese	25.00-29.99
Obese class I	30.00-34.99
Obese class II	35.00-39.99
Obese class III	≥40.00

HEIGHT MEASUREMENT⁵³ – “The subject stood straight without footwear, with heels, buttocks and back touching the wall and arms hanging by side. The height was measured from heel to heel. The coinciding reading was measured to the nearest 0.1 cm using a measuring tape”.

WEIGHT MEASUREMENT⁵³ – “Body weight was measured without any foot wear and minimal clothing to the nearest 0.1 kilogram using a standard portable weighing machine, which was standardized periodically during the study. The scale was adjusted to zero before each session and weight was recorded in kilogram”.

RESULTS

Table 1. Distribution of study participants based on age (n=385)		
Age (in years)	Frequency	Percentage
21-30	62	16.1
31-40	166	43.1
41-50	131	34.0
51-60	26	6.8
Total	385	100.0

Among the 385 study participants, 62 (16.1%) participants belonged to the age group of 21-30 years, 166 (43.1%) belonged to 31-40 years, 131 (34%) to 41-50 years and 26 (6.8%) to 51-60 years.

Figure 1. Distribution of study participants based on age (n=385)

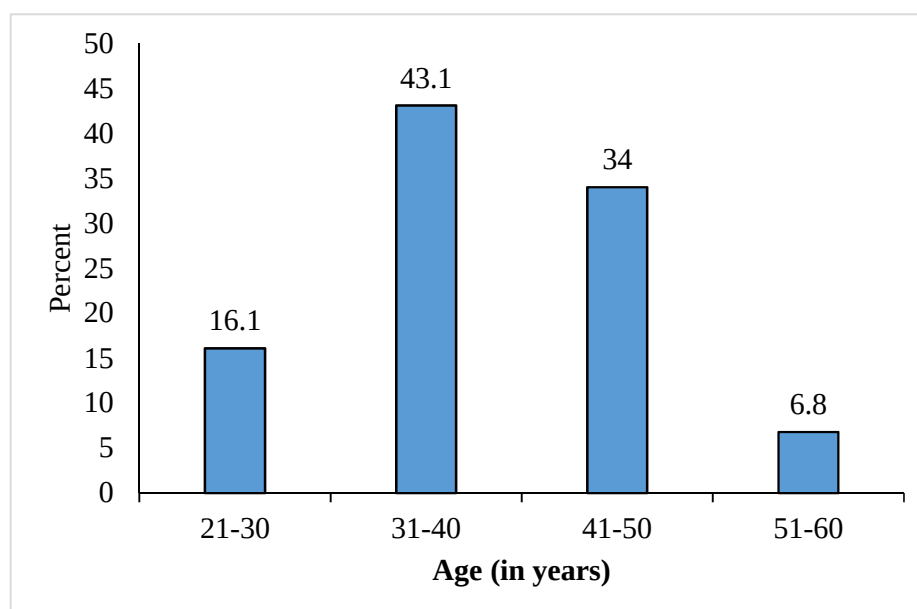


Table 2. Distribution of study participants based on gender (n=385)		
Gender	Frequency	Percentage
Male	25	6.5
Female	360	93.5
Total	385	100.0

Of 385 study participants, 360 (93.5%) participants were females and 25 (6.5%) were males.

Figure 2. Distribution of study participants based on gender (n=385)

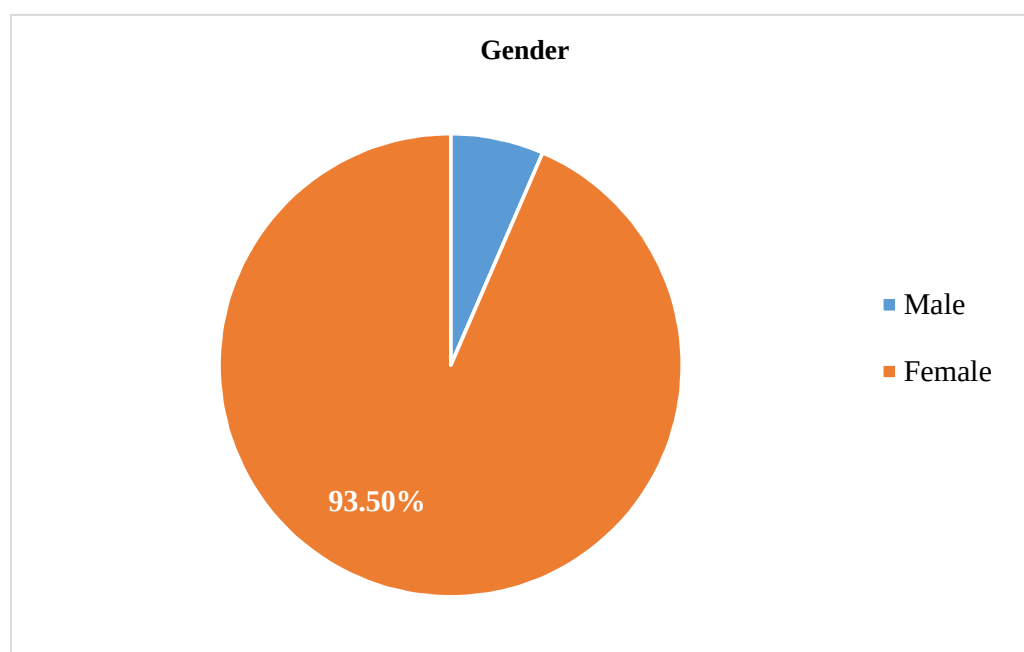


Table 3. Distribution of study participants based on residence (n=385)		
Residence	Frequency	Percentage
Urban	127	33.0
Rural	258	67.0
Total	385	100.0

Out of 385 study participants, 258 (67%) resided in rural areas and 127 (33%) in urban areas.

Figure 3. Distribution of study participants based on residence (n=385)

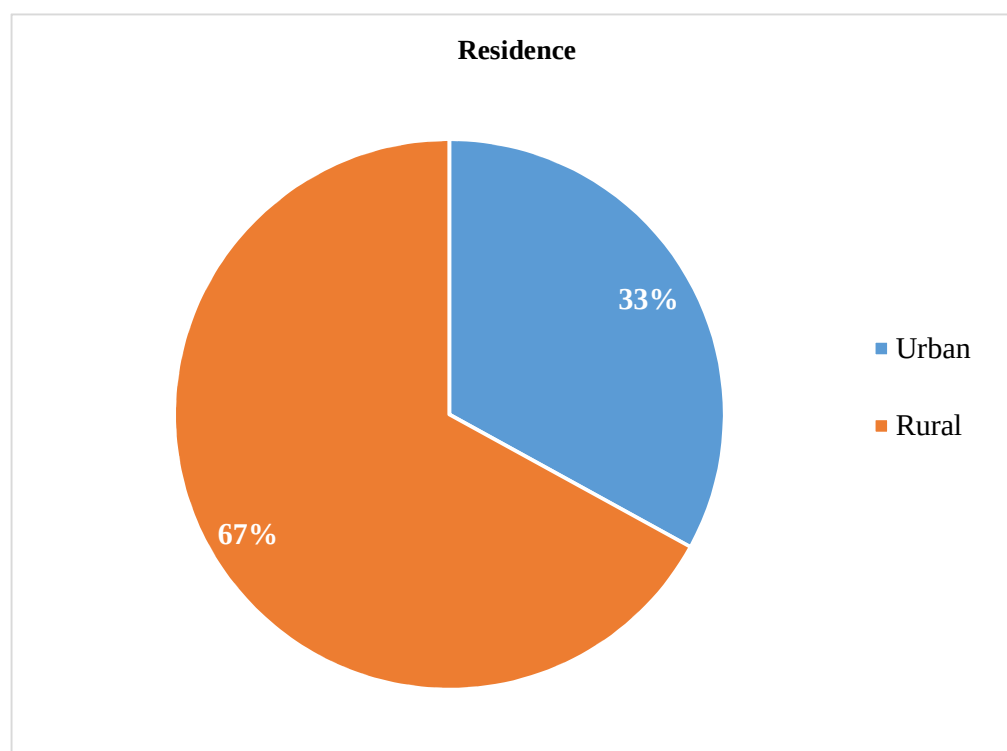


Table 4. Distribution of study participants based on religion (n=385)		
Religion	Frequency	Percentage
Hindu	318	82.6
Muslim	32	8.3
Christian	9	2.3
Jain	20	5.2
Others	6	1.6
Total	385	100.0

Out of 385 study participants, majority of the study participants followed Hinduism 318 (82.6%), Muslim 32 (8.3), Christian 9 (2.3%), Jain 20 (5.2%), and others 6 (1.6%).

Figure 4. Distribution of study participants based on religion (n=385)

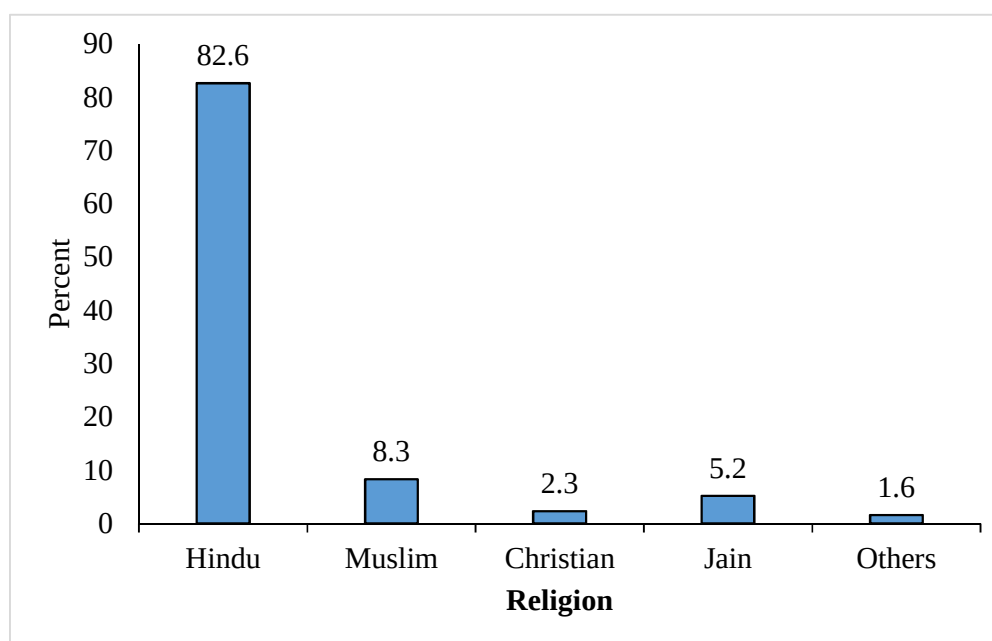


Table 5. Distribution of study participants based on education status (n=385)		
Education Status	Frequency	Percentage
Illiterate	1	0.3
Standard 5-8	75	19.5
10-12/ Diploma	275	71.4
Degree/ postgraduate	34	8.8
Total	385	100.0

In the present study, 1 (0.3%) participant were illiterate, 75 (19.5%) had education up to standard 5th -8th, 275 (71.4%) had either 10th-12th or Diploma education and 34 (8.8%) had either degree or postgraduate education.

Figure 5. Distribution of study participants based on education status (n=385)

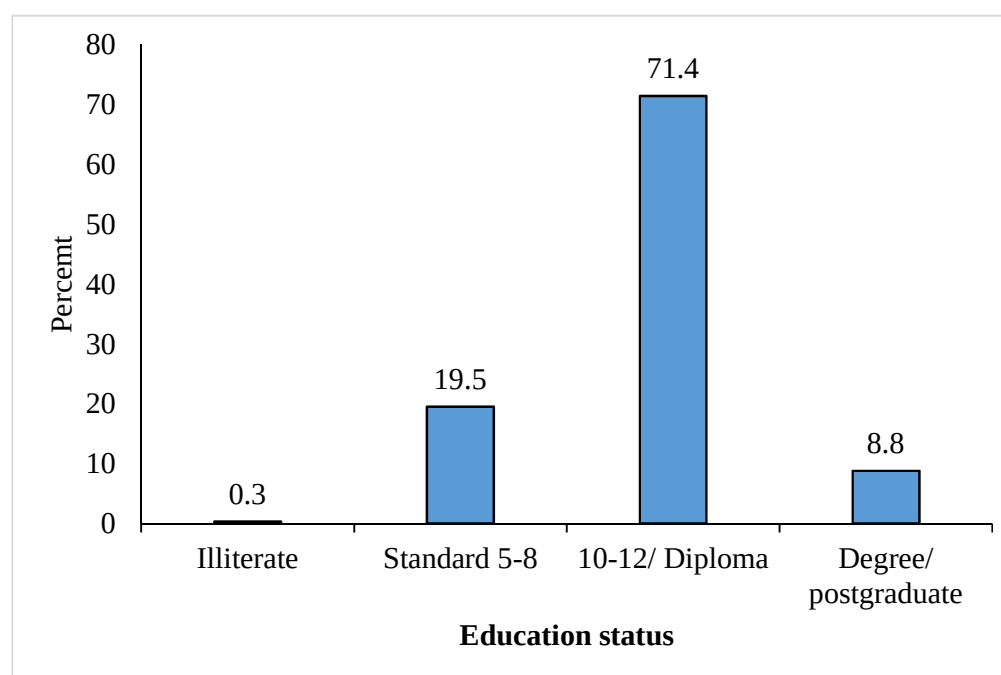


Table 6. Distribution of study participants based on HCW category (n=385)		
HCW category	Frequency	Percentage
Medical Officers	4	1.0
ASHA	116	30.1
Anganwadi Worker	213	55.3
Auxiliary Nurse Midwife (ANM)	12	3.1
Lady health visitor (LHV)	2	0.5
Nurse	6	1.6
Pharmacist	3	0.8
Lab Technician	4	1.0
Class IV worker	6	1.6
Community Health Officer	1	0.3
Male Health Worker	13	3.4
Clerk	3	0.8
Ambulance Driver	2	0.5
Total	385	100.0

Of 385 study participants, 4 (1%) were medical officers, 116 (30.1%) were ASHA, 213 (55.3) were anganwadi worker, 12 (3.1) were ANM, 2 (0.5%) were LHV, 6 (1.6%) were nurse, 3 (0.8%) were pharmacist, 4 (1%) were lab technician, 6 (1.6%) were class-IV worker, 1 (0.3%) were Community health worker, 13 (3.4%) were Male health worker, 3 (0.8%) were Clerk and 2 (0.5%) were ambulance driver.

Figure 6. Distribution of study participants based on HCW category (n=385)

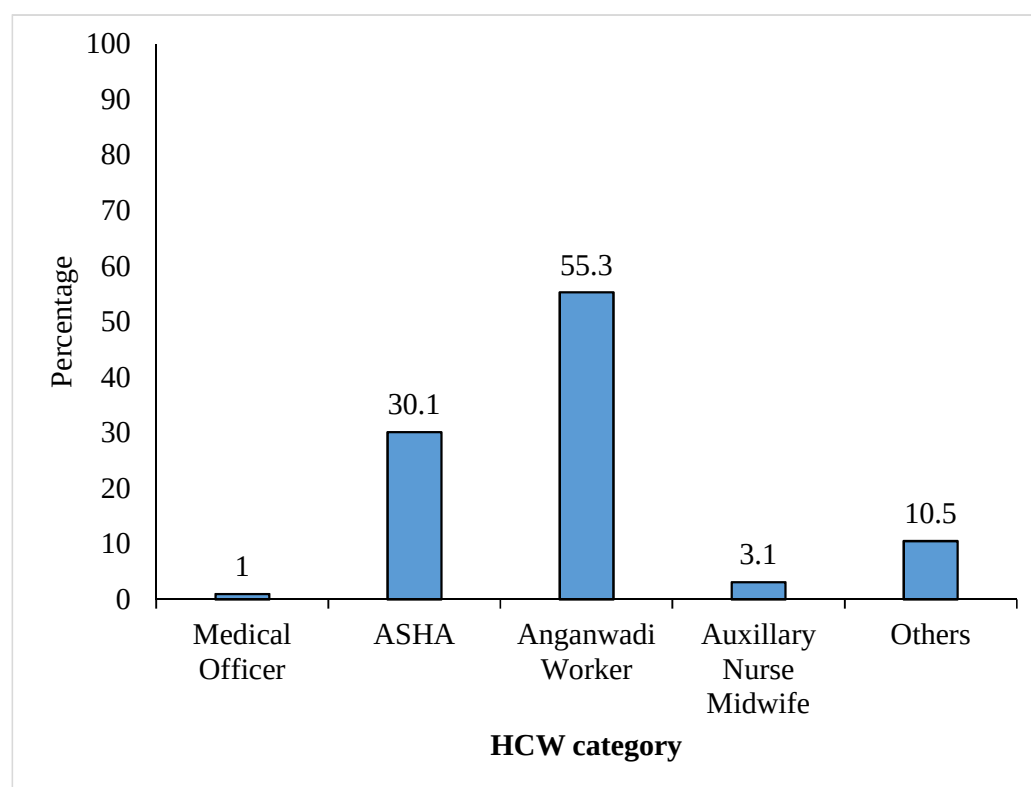


Table 7. Distribution of study participants based on marital status (n=385)		
Marital Status	Frequency	Percentage
Married	337	87.5
Unmarried	24	6.2
Divorcee	11	2.9
Separated	4	1.0
Widow	9	2.3
Total	385	100.0

In the present study, 337 (87.5%) participants were married, 24 (6.2%) participants were unmarried, 11 (2.9%) participants were divorcee, 4 (1%) participants were separated, and 9 (2.3%) participants were widow.

Figure 7. Distribution of study participants based on marital status (n=385)

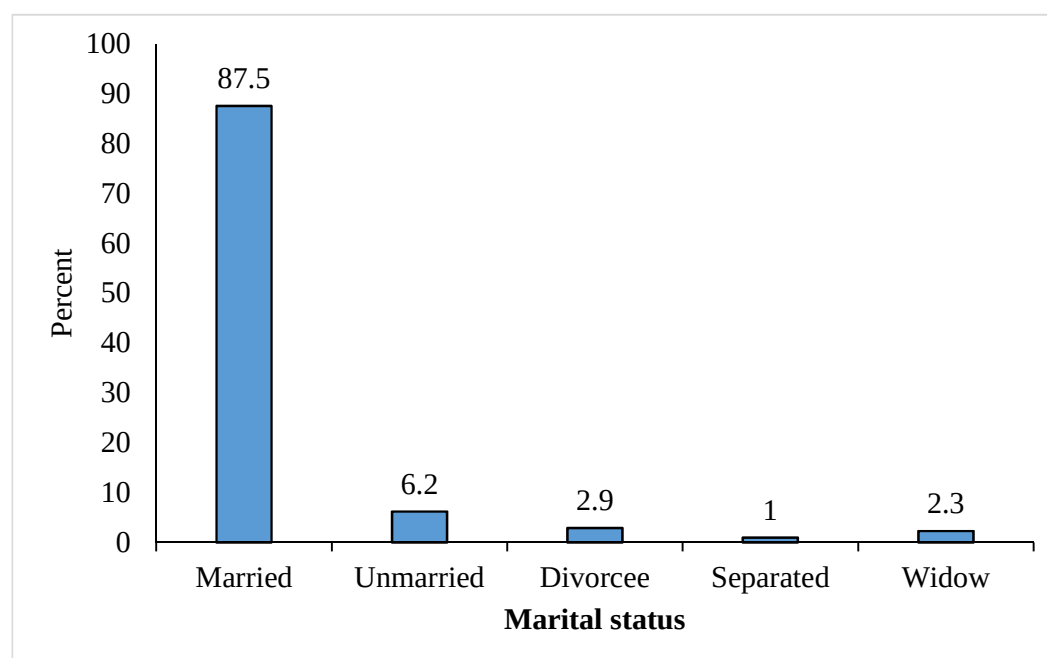


Table 8. Distribution of study participants based on socio economic status (n=385) (as per Modified B.G Prasad Classification)

Socio Economic Status	Frequency	Percentage
Class 1	54	14.0
Class 2	127	33.0
Class 3	129	33.5
Class 4	72	18.7
Class 5	3	0.8
Total	385	100.0

Among the 385 study participants, 54 (14%) belonged to Class I according to Modified B.G. Prasad's Classification, 127 (33%) to Class II, 129 (33.5%) to Class III, 72 (18.7%) to Class IV and 3 (0.8%) belonged to Class V.

Figure 8. Distribution of study participants based on socio economic status (n=385)

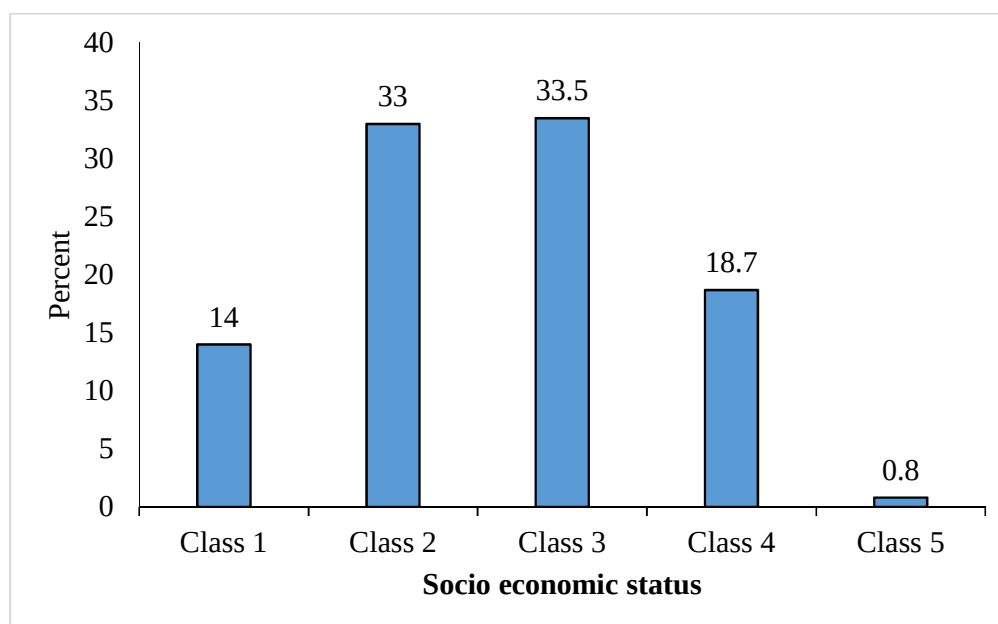


Table 9. Distribution of study participants based on work experience (n=385)		
Work Experience	Frequency	Percentage
Up to 5 years	112	29.1
6-10 years	103	26.8
11-20 years	116	30.1
More than 20 years	54	14
Total	385	100.0

In the present study, 112 (29.2%) study participants had work experience up to 5 years, 103 (26.8%) had 6-10 years, 116 (30.1%) had 11-20 years and 54 (14%) had work experience of more than 20 years.

Figure 9. Distribution of study participants based on work experience (n=385)

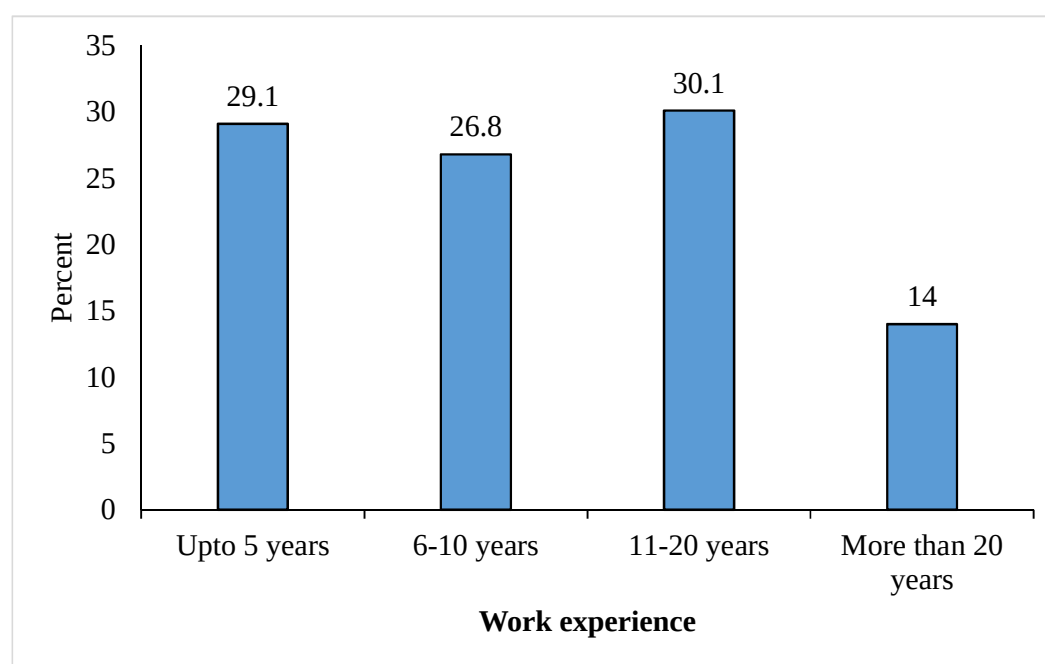


Table 10. Distribution of study participants based on their diet (n=385)

Diet	Frequency	Percentage
Veg	195	50.6
Mixed	190	49.4
Total	385	100.0

In our study, out of 385 study participants, 195 (50.6%) followed vegetarian diet and 190 (49.4%) followed mixed diet.

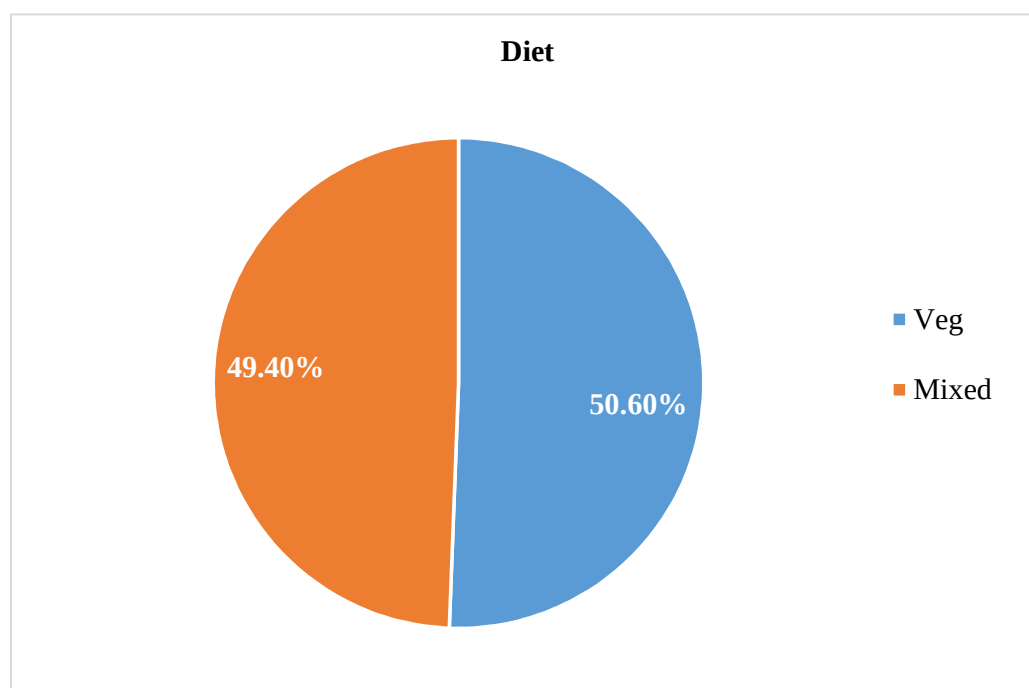
Figure 10. Distribution of study participants based on diet (n=385)

Table 11. Distribution of study participants based on history of alcohol consumption (n=385)

Alcohol Consumption	Frequency	Percentage
Yes	12	3.1
No	373	96.9
Total	385	100.0

Out of 385 study participants, alcohol consumption was seen in 12 (3.1%) and 362 (94%) with no history of alcohol consumption.

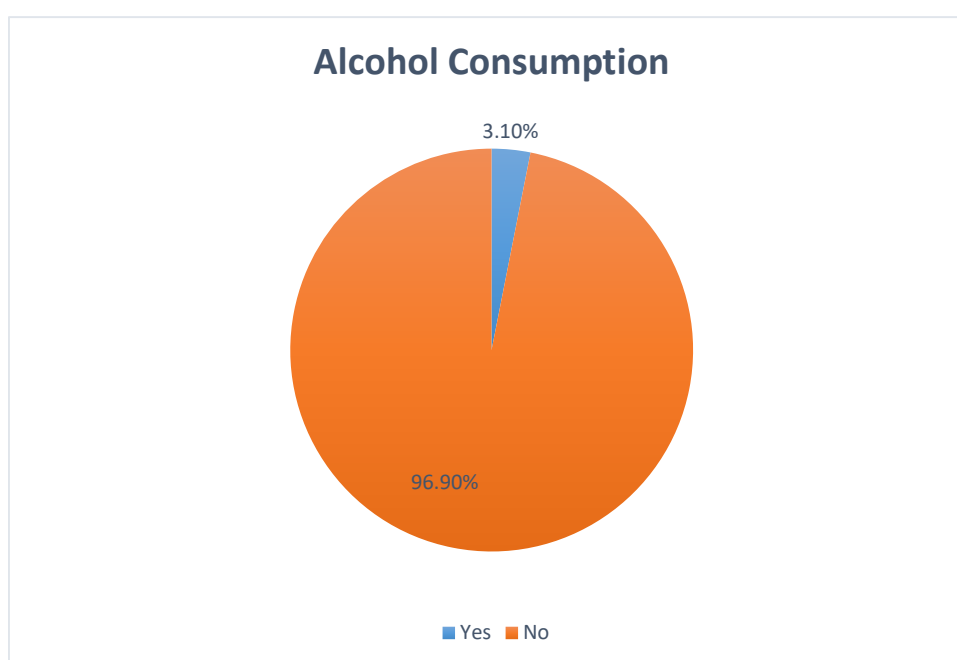
Figure 11. Distribution of study participants based on alcohol consumption (n=385)

Table 12. Distribution of study participants based on history of tobacco use (n=385)

Tobacco use	Frequency	Percentage
Yes	23	6.0
No	362	94.0
Total	385	100.0

Out of 385 study participants, tobacco use was seen in 23 (6%) and 362 (94%) with no history of tobacco use.

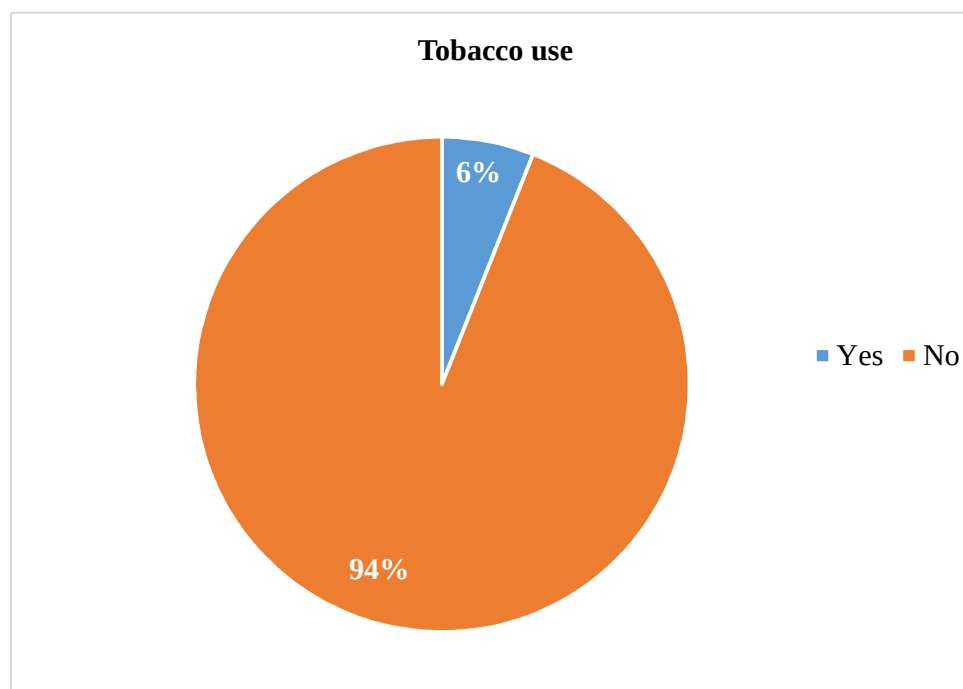
Figure 12. Distribution of study participants based on tobacco use (n=385)

Table 13. Distribution of study participants based on their sleep (n=385)

Sleep Pattern	Frequency	Percentage
Normal	315	81.8
Disturbed	70	18.2
Total	385	100.0

Among the study participants, nearly 315 (81.8%) having normal sleep pattern and 70 (18.2%) of the study participants reported having a disturbed sleep.

Figure 13. Distribution of study participants based on sleep disturbance (n=385)

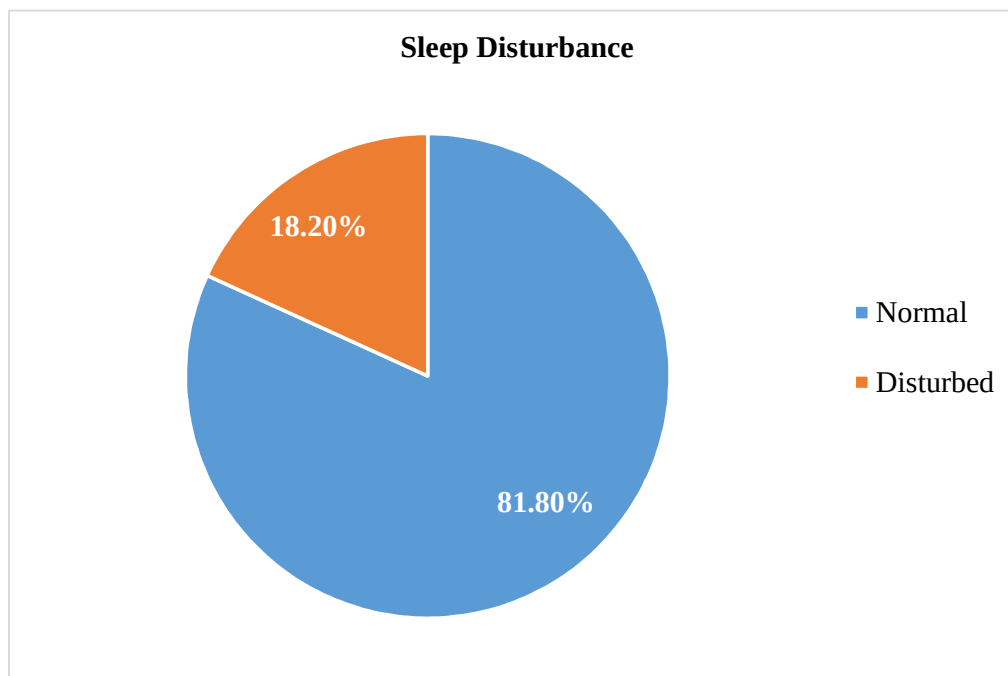


Table 14. Distribution of study participants based on ventilation at house(n=385)

Well Ventilated house	Frequency	Percentage
Yes	322	83.6
No	63	16.4
Total	385	100.0

In the present study, 322 (83.6%) participants stayed in well ventilated house and 63 (16.4%) participants stayed without adequate ventilation.

Figure 14. Distribution of study participants based on ventilation at house (n=385)

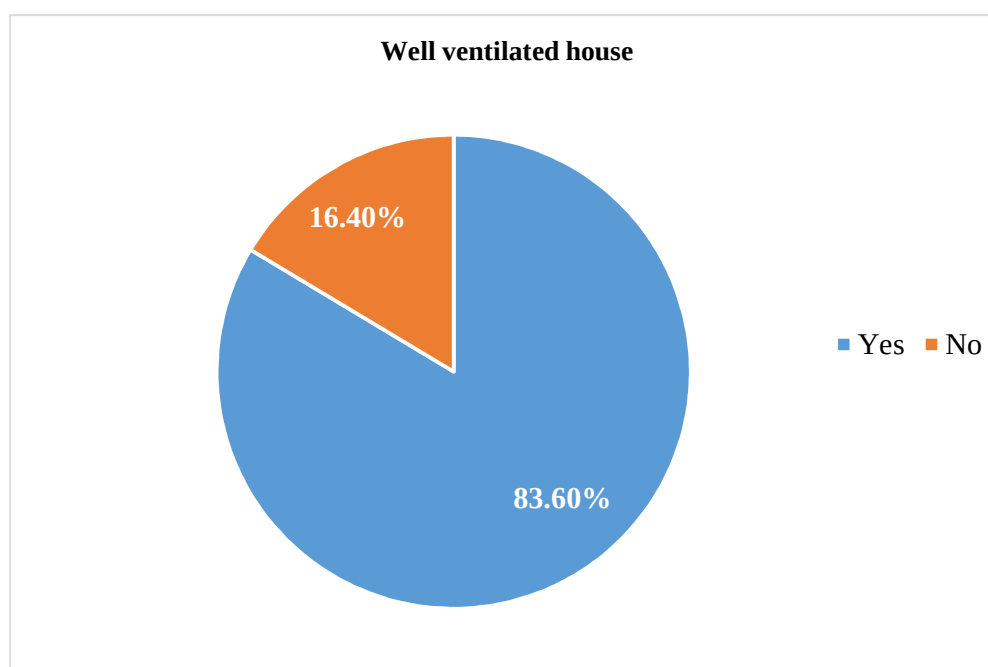


Table 15. Distribution of study participants based on overcrowding at house(n=385)

Overcrowding at house	Frequency	Percentage
Present	95	24.7
Absent	290	75.3
Total	385	100.0

In the present study, 95 (24.7%) participants had overcrowding present in their respective houses and 290 (75.3%) had absence of overcrowding.

Figure 15. Distribution of study participants based on overcrowding at house (n=385)

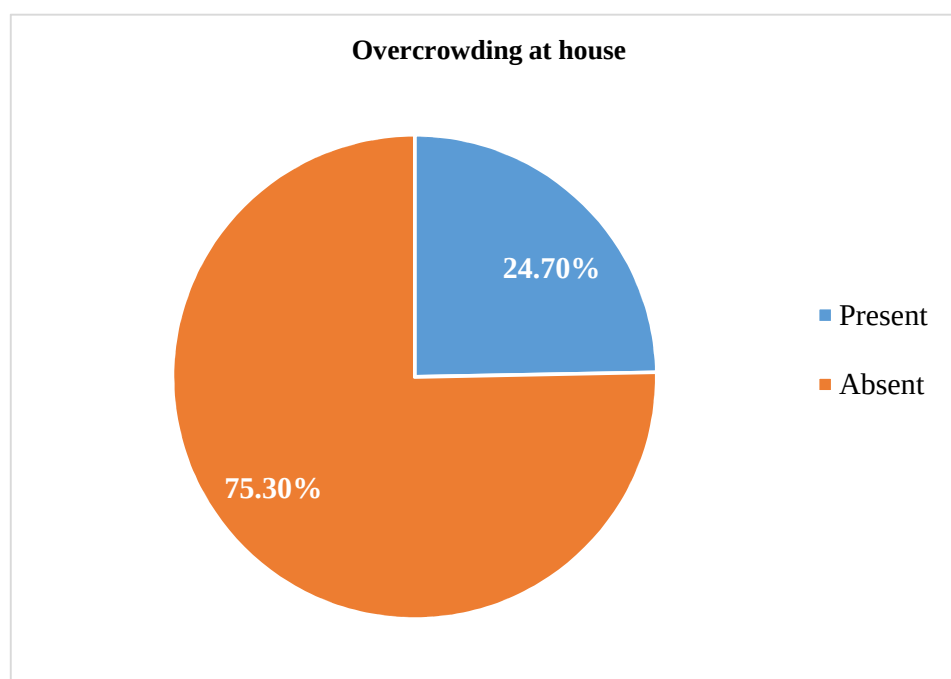


Table 16. Distribution of study participants based on history of ever being diagnosed with COVID (n=385)

History of ever being diagnosed with COVID	Frequency	Percentage
Yes	80	20.8
No	305	79.2
Total	385	100.0

In the present study, nearly 80 (20.8%) of the study participants reported that they have been diagnosed with COVID in the past and 305 (79.2%) participants had no history of diagnosed with COVID.

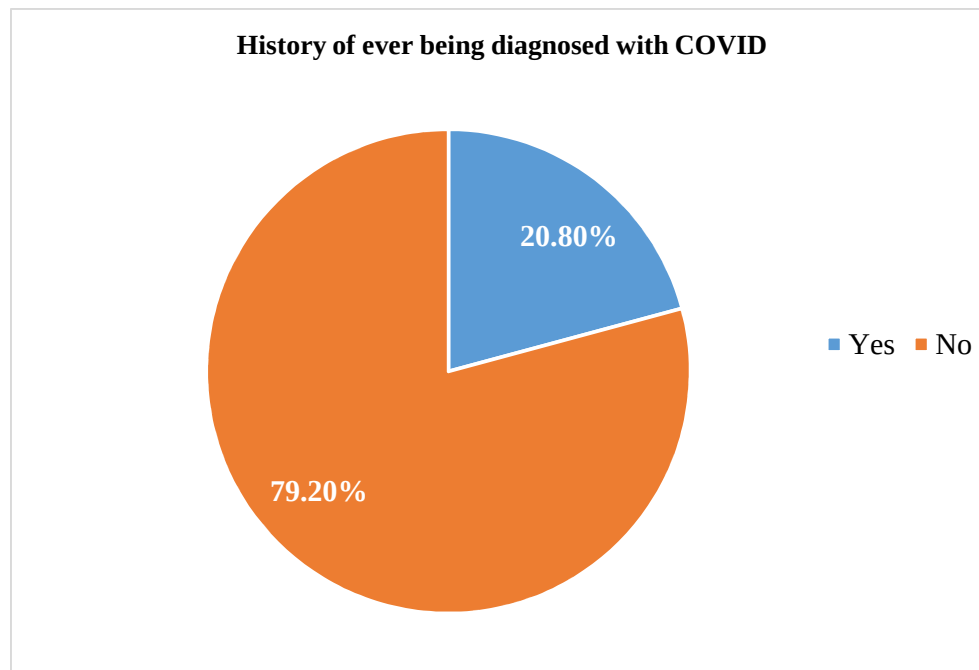
Figure 16. Distribution of study participants based on history of ever being diagnosed with COVID (n=385)

Table 17. Distribution of study participants based on history of quarantine/ isolation (n=385)

History of quarantine/ isolation	Frequency	Percentage
Yes	109	28.3
No	276	71.7
Total	385	100.0

Among the study participants, 109* (28.3%) of the study participants reported that they were quarantined or isolated in the past and 276 (71.7%) had no history of quarantine or isolation in the past.

(109*- This includes 80 who were diagnosed with COVID and 29 who had come in contact with cases)

Figure 17. Distribution of study participants based on history of quarantine/ isolation in the past (n=385)

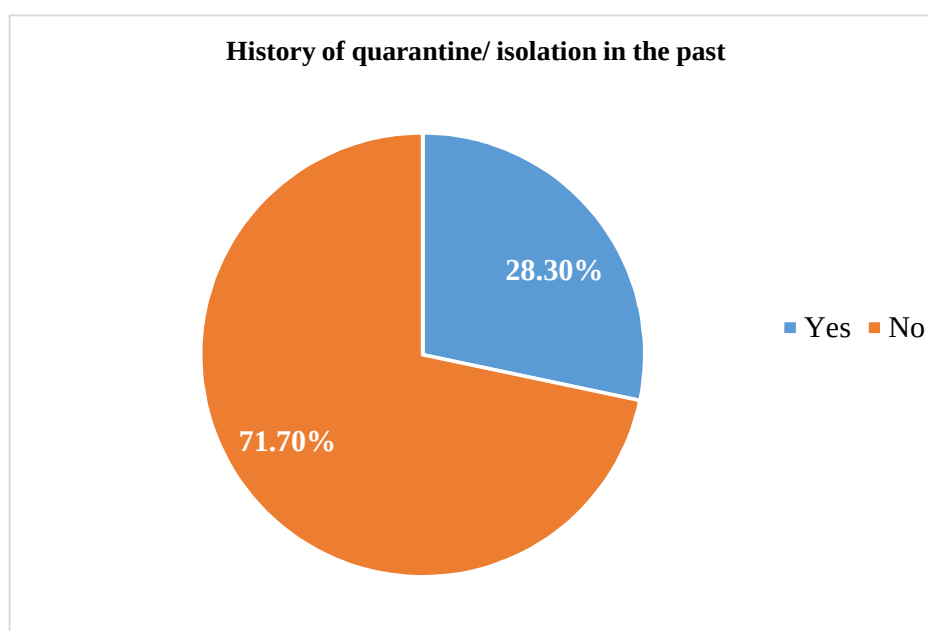


Table 18. Distribution of study participants based on history of household members infected with COVID (n=385)

History of household members infected with COVID	Frequency	Percentage
Yes	115	29.9
No	270	70.1
Total	385	100.0

Among the study participants, 115 (29.9%) reported that there was a household member infected with COVID and 270 (70.1%) reported that there was no history of household members infected with COVID.

Figure 18. Distribution of study participants based on history of household member infected with COVID (n=385)

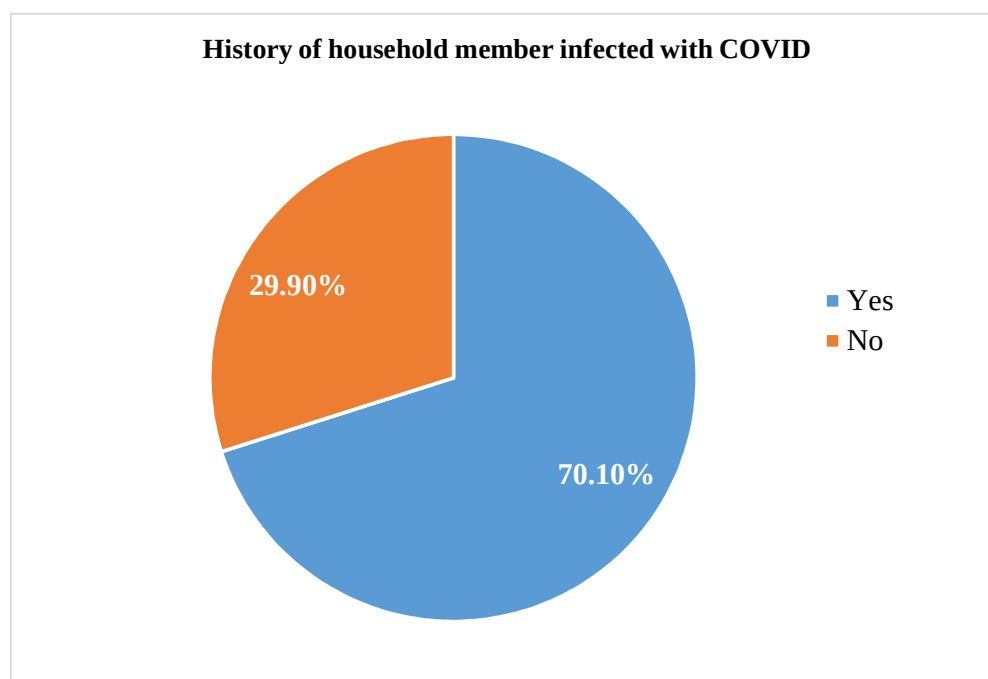


Table 19. Distribution of study participants based on number of household members infected with COVID (n=385)

Number of household members infected with COVID	Frequency	Percentage
1	29	25.2
2	58	50.4
3	22	19.1
4	6	5.2
Total	385	100.0

In the present study, 29 (25.2%) one member were infected, 58 (50.4%) two members were infected, 22 (19.1%) three members were infected, and 6 (5.2%) four members were infected with COVID among the household members.

Figure 19. Distribution of study participants based on number of household members infected with COVID (n=385)

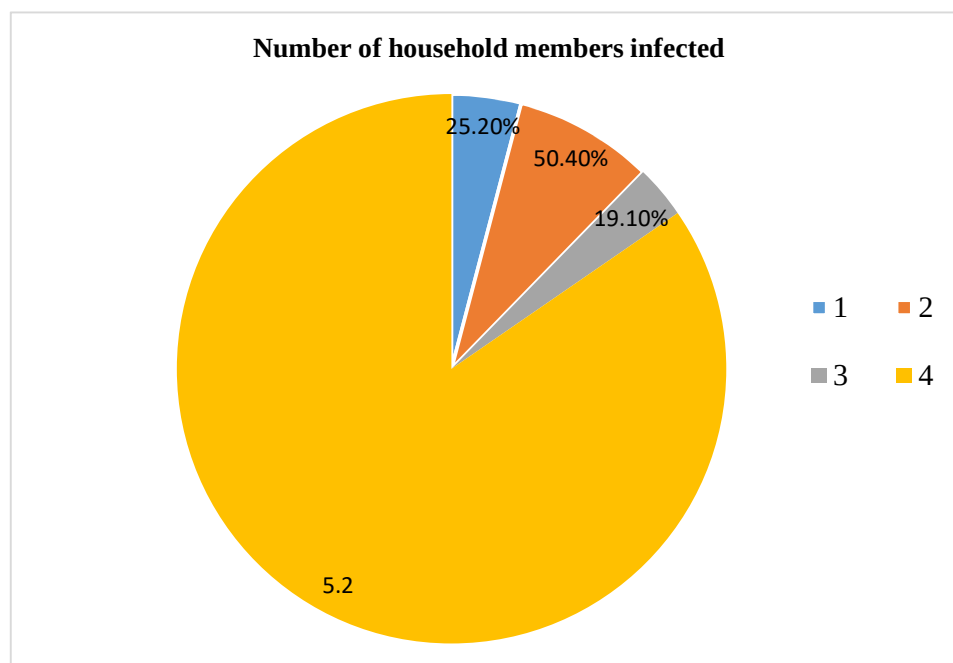


Table 20. Distribution of study participants based on history of direct contact with COVID patient (n=385)

History of direct contact with COVID patient	Frequency	Percentage
Yes	309	80.3
No	76	19.7
Total	385	100.0

In the present study, 309 (80.3%) study participants had history of direct contact with COVID patient and 76 (19.7%) had no history of direct contact.

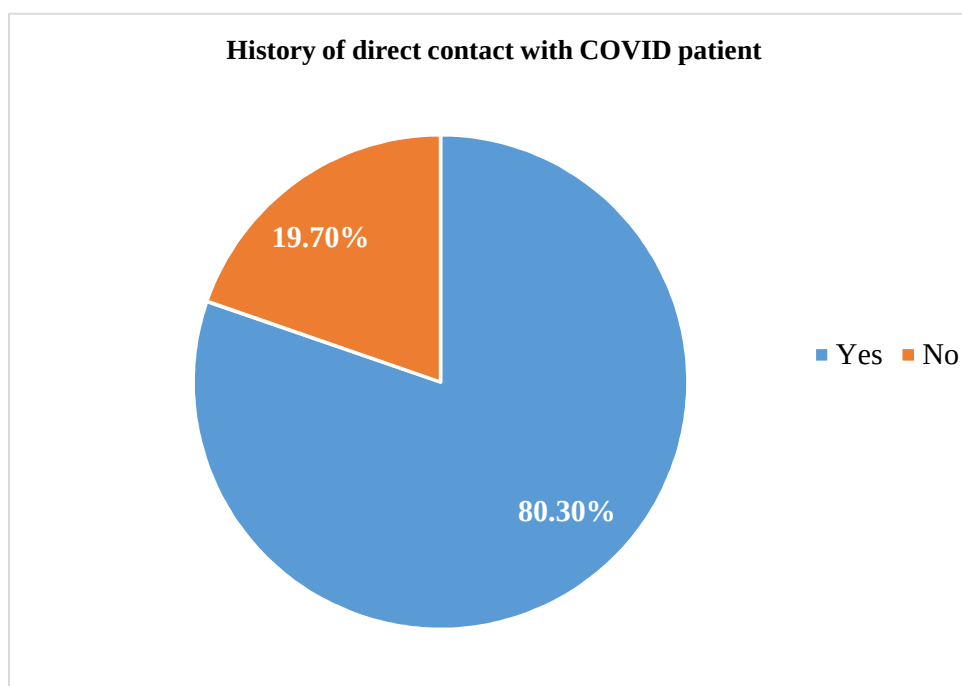
Figure 20. Distribution of study participants based on history of direct contact with COVID patient (n=385)

Table 21. Distribution of study participants based on being associated with care of suspected or confirmed COVID patient (n=385)

Associated with care of suspected or confirmed COVID patient	Frequency	Percentage
Yes	229	59.5
No	156	40.5
Total	385	100.0

Among 385 study participants, 229 (59.5%) were associated with care of suspected or confirmed COVID patient and 156 (40.5%) were not associated with care of suspected or confirmed COVID patient.

Figure 21. Distribution of study participants based on being associated with care of suspected or confirmed COVID patient (n=385)

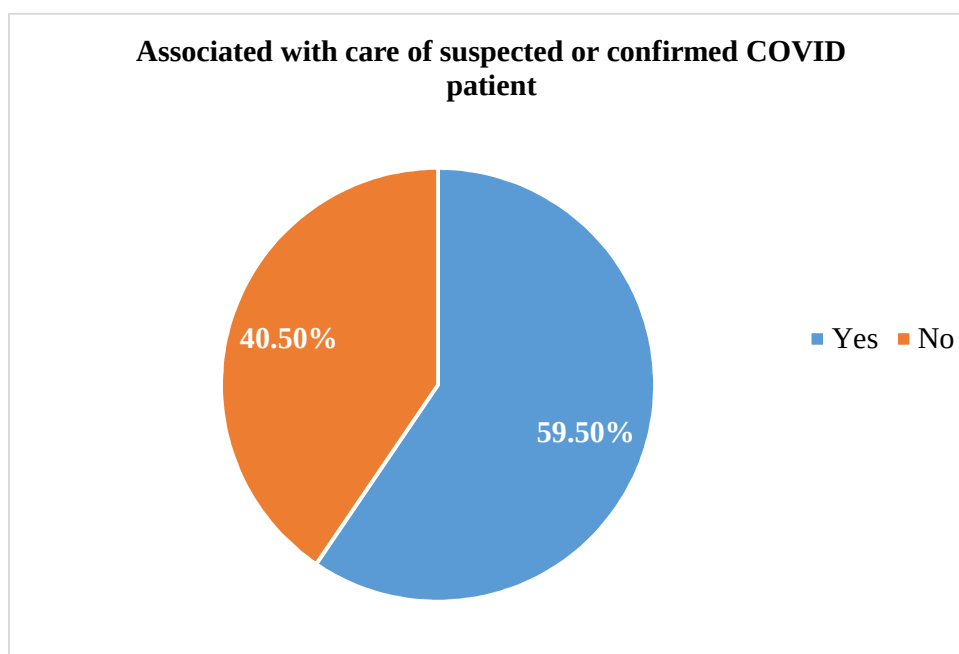


Table 22. Distribution of study participants based on working overtime during COVID pandemic (n=385)

Assigned more than duty hours during COVID pandemic	Frequency	Percentage
Yes	175	45.5
No	210	54.5
Total	385	100.0

In the present study, nearly 175 (45.5%) of the study participants stated that they were assigned more than duty hours during the COVID pandemic. Amongst those who were assigned more than duty hours the mean duration was 11.22 ± 1.8 hours.

Figure 22. Distribution of study participants based on being assigned more than duty hours during COVID pandemic (n=385)

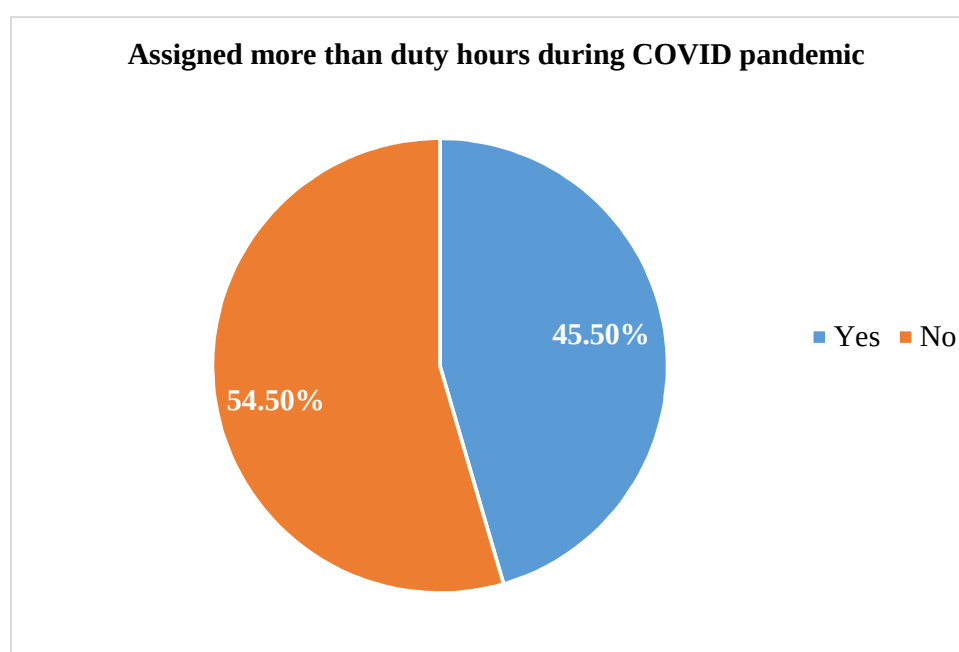


Table 23. Distribution of study participants who were provided with PPE (n=385)

Provided with PPE	Frequency	Percentage
Yes	85	22.1
No	300	77.9
Total	385	100.0

Majority of the study participants reported that they were not provided with PPE 300 (77.9%). Amongst those provided with PPE were 85 (22.1%).

Figure 23. Distribution of study participants who were provided with PPE (n=385)

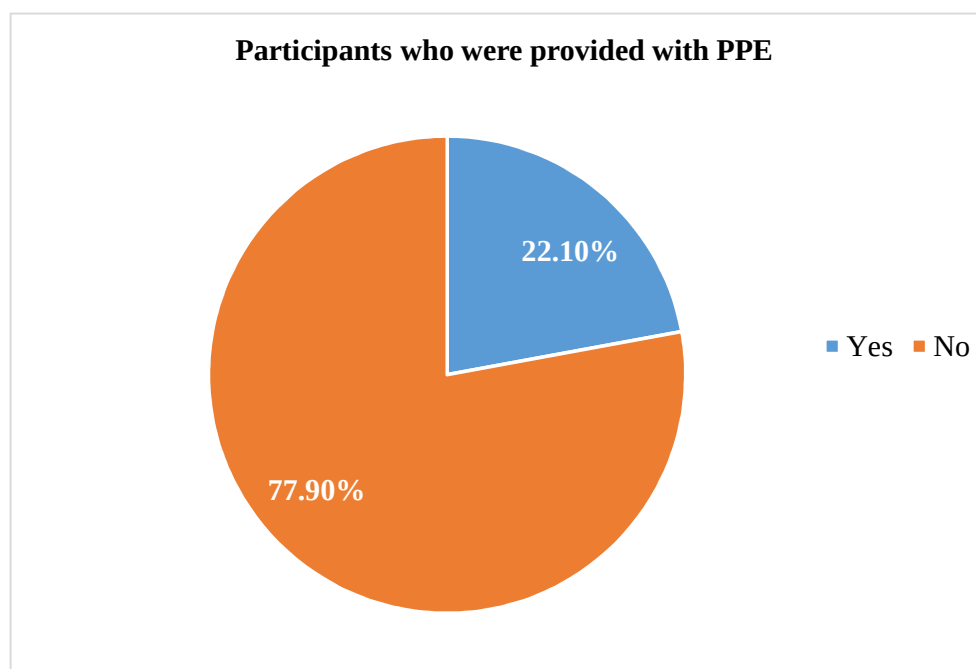


Table 24. Distribution of study participants feeling safe with provided PPE (n=85)

Safe with provided PPE	Frequency	Percentage
Yes	82	96.5
No	3	3.5
Total	85	100.0

Out of 385, study participants. 85 participants reported that they were provided with PPE. Out of 85 participants, 82 (96.5%) participants reported they feel safe with provided PPE and 3 (3.5%) participants reported that they don't feel safe with provided PPE.

Figure 24. Distribution of study participants feeling safe with provided PPE (n=85)

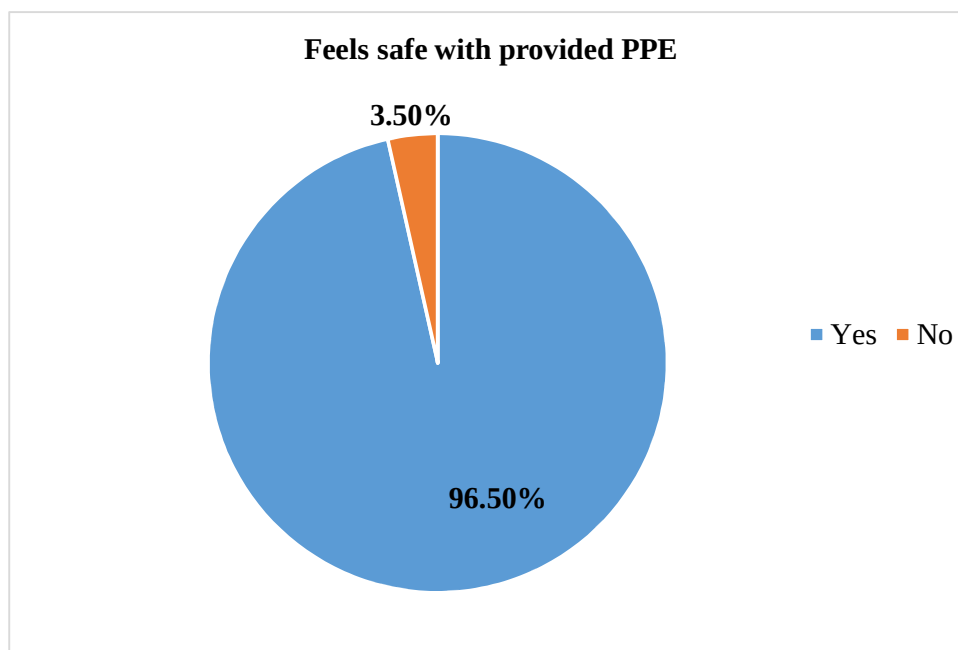


Table 25. Distribution of study participants based on being assigned duties in places other than their jurisdiction (n=385)		
Assigned duties in places other than their jurisdiction	Frequency	Percentage
Yes	111	28.8
No	274	71.2
Total	385	100.0

Among the study participants, nearly 111 (28.8%) of the study participants stated that they were assigned duties in places other than their jurisdiction and 274 (71.2%) had stated they were not assigned duties in places other than their jurisdiction.

Figure 25. Distribution of study participants based on being Assigned duties in places other than their jurisdiction (n=385)

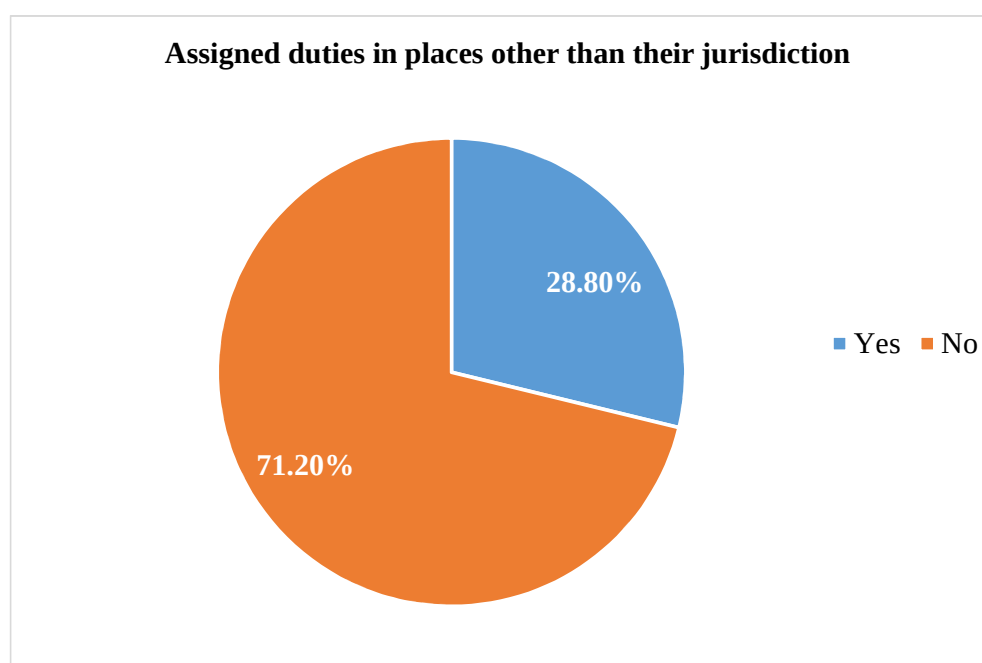


Table 26. Distribution of study participants based on presence of comorbidities (n=385)

Comorbidities	Frequency	Percentage
No comorbidities	282	73.2
Diabetes	26	6.8
Systemic Hypertension	29	7.5
Diabetes and Hypertension	31	8.1
Coronary Artery Disease	2	0.5
COPD	3	0.8
Thyroid disorders	7	1.8
Total	385	100.0

Among the 385 study participants, 26 (6.8%) reported to have diabetes, 29 (7.5%) had hypertension, 31 (8.1%) had diabetes and hypertension, 2 (0.5%) had coronary artery disease, 3 (0.8%) had COPD and 7 (1.8%) had thyroid disorders.

Figure 26. Distribution of study participants based on presence of comorbidities (n=385)

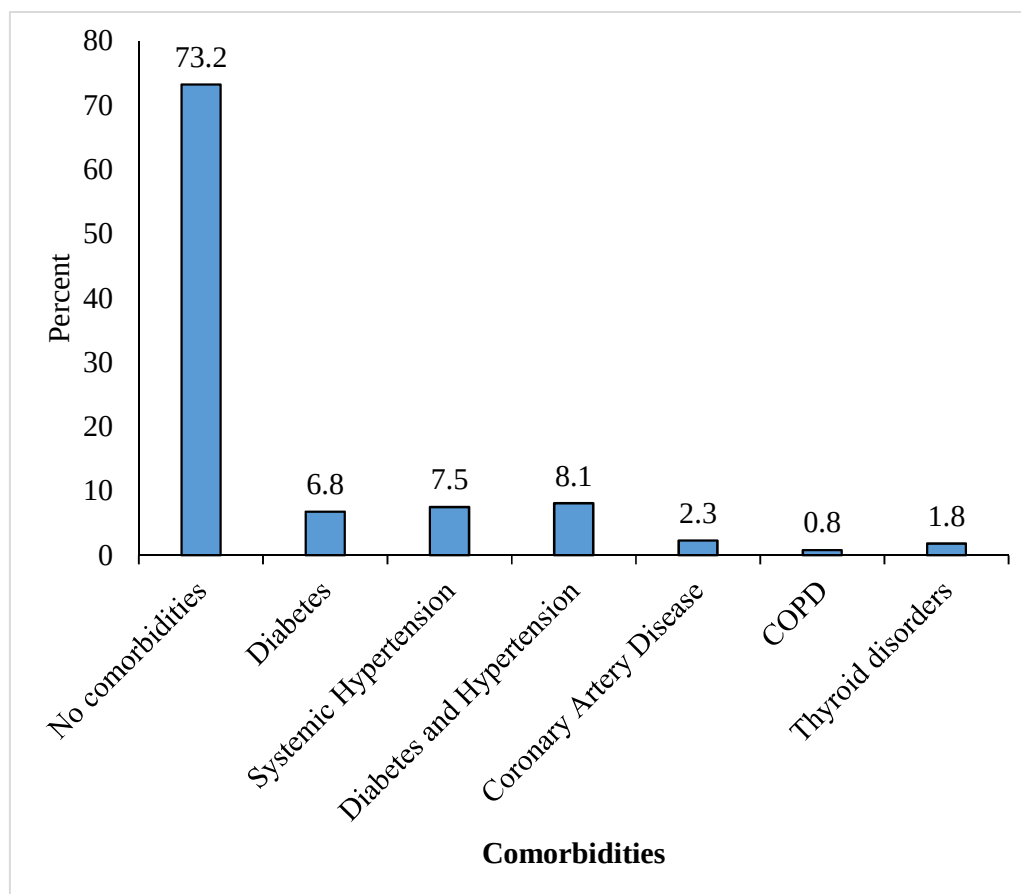


Table 27. Distribution of study participants based on BMI classification (n=385)

BMI classification	Frequency	Percentage
Underweight (<17.5)	3	0.8
Normal (17.5-24.99)	312	81.0
Overweight (25-29.99)	64	16.6
Obese (30 and above)	6	1.6
Total	385	100.0

Among the study participants, 3 (0.8%) are underweight, 312 (81%) were normal, 64 (16.6%) were overweight, 6 (1.6%) were obese.

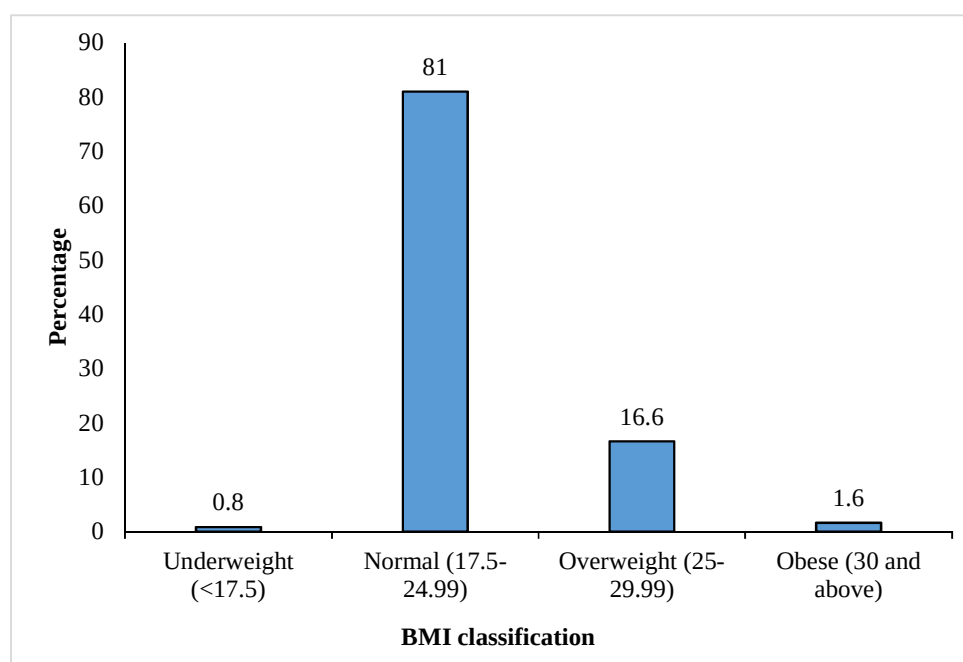
Figure 27. Distribution of study participants based on BMI classification (n=385)

Table 28. Distribution of study participants based on severity of Depression as per DASS scale (n=385)

Depression	Frequency	Percentage
Normal	297	77.1
Mild	35	9.1
Moderate	48	12.5
Severe	5	1.3
Total	385	100.0

Among 385 study participants, majority of the study participants were normal while 35 (9.1%) had mild depression, 48 (12.5%) had moderate depression and 5 (1.3%) had severe depression.

Figure 28. Distribution of study participants based on severity of Depression as per DASS scale (n=385)

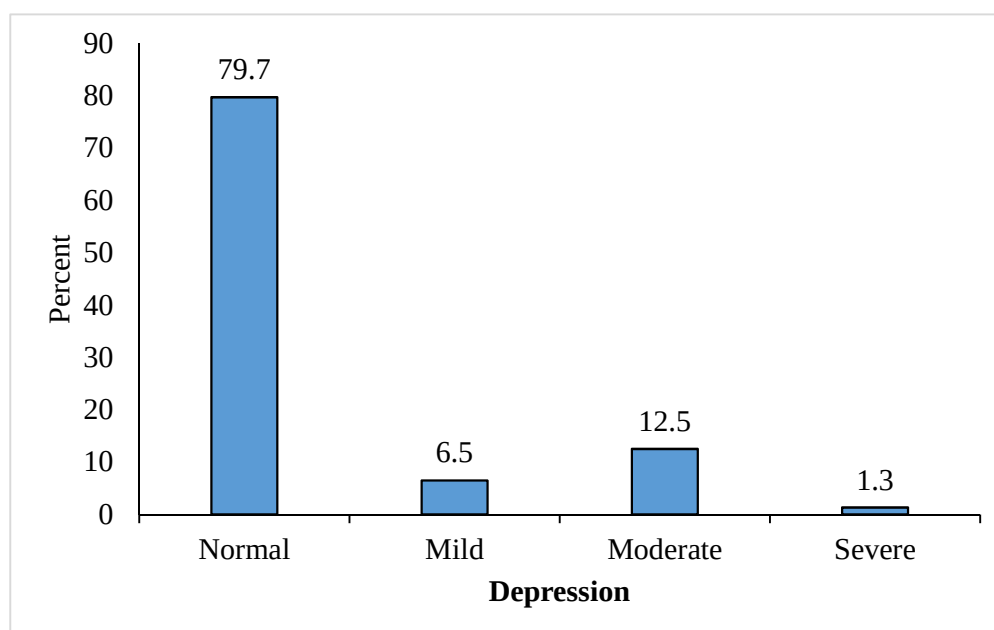


Table 29. Distribution of study participants based on severity of Anxiety as per DASS scale (n=385)

Anxiety	Frequency	Percentage
Normal	278	72.2
Mild	31	8.1
Moderate	55	14.3
Severe	14	3.6
Extremely Severe	7	1.8
Total	385	100.0

Among 385 study participants, majority of the study participants were normal while 31 (8.1%) had mild anxiety, 55 (14.3%) had moderate anxiety, 14 (3.6%) had severe anxiety and 7 (1.8%) had extremely severe anxiety.

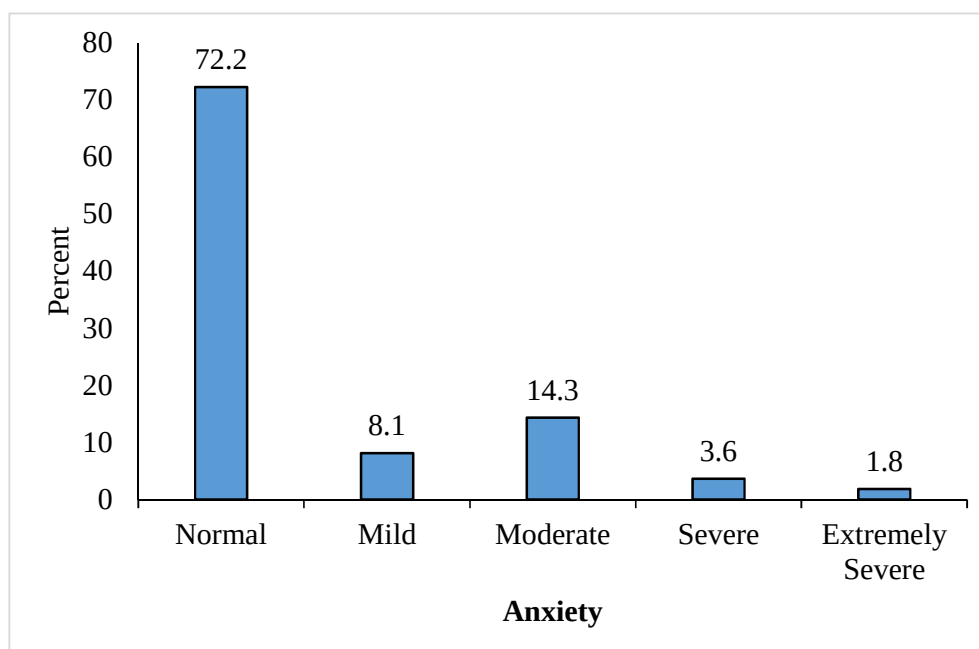
Figure 29. Distribution of study participants based on severity of Anxiety as per DASS scale (n=385)

Table 30. Distribution of study participants based on severity of Stress as per DASS scale (n=385)

Stress	Frequency	Percentage
Normal	306	79.5
Mild	42	10.9
Moderate	30	7.8
Severe	7	1.8
Total	385	100.0

Among 385 study participants, majority of the study participants were normal while 42 (10.9%) had mild stress, 30 (7.8%) had moderate stress and 7 (1.8%) had severe stress.

Figure 30. Distribution of study participants based on severity of Stress as per DASS scale (n=385)

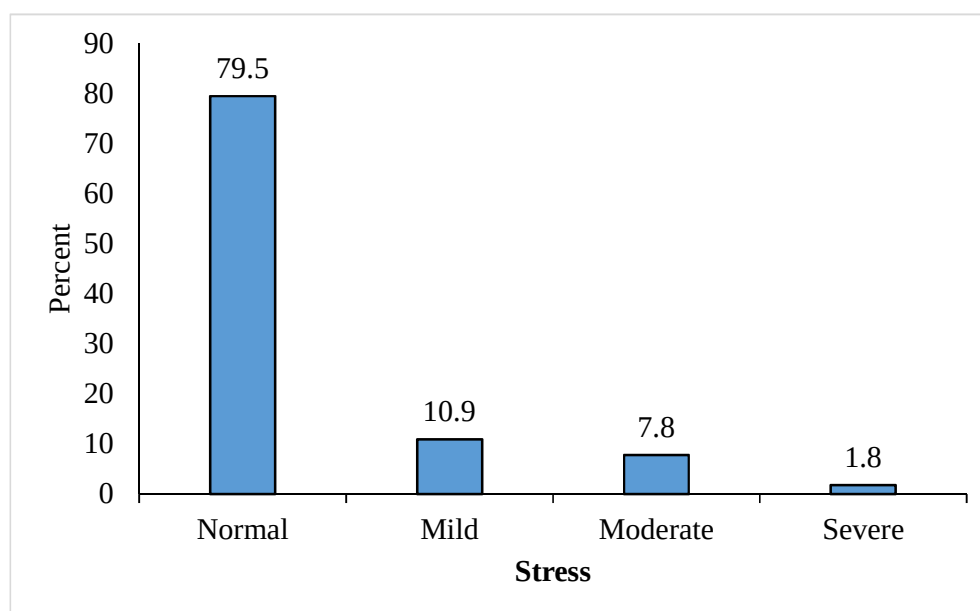


Table 31. Association between Depression and age (n = 385)					
Age (in years)	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
21-30	50(80.6)	12(19.4)	62(100.0)	2.055	0.561
31-40	131(78.9)	35(21.1)	166(100.0)		
41-50	98(74.8)	33(25.2)	131(100.0)		
51-60	18(69.2)	8(30.8)	26(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

Among 62 participants aged 21-30 years, 12 (19.4%) had depression and 50 (80.6%) with no depression. Among 166 participants aged between 31-40 years 35 (21.1%) had depression and 131 (78.9%) with no depression. Among 131 participants aged 41- 50 years 33 (25.2%) had depression and 98 (74.8%) with no depression. Similarly, among 26 participants aged 51-60 years 8 (30.8%) had depression and 18 (69.2%) with no depression. No significant association was found between age of participants and depression.

Table 32. Association between Anxiety and age (n = 385)

Age (in years)	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
21-30	47(75.8)	15(24.2)	62(100.0)	1.789	0.617
31-40	123(74.1)	43(25.9)	166(100.0)		
41-50	91(69.5)	40(30.5)	131(100.0)		
51-60	17(65.4)	9(34.6)	26(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

Among 62 participants aged 21-30 years, 15 (24.2%) had anxiety and 47 (75.8%) with no anxiety. Among 166 participants aged between 31-40 years 43 (25.9%) had anxiety and 123 (74.1%) with no anxiety. Among 131 participants aged 41- 50 years 40 (30.5%) had anxiety and 91 (69.5%) with no anxiety. Similarly, among 26 participants aged 51-60 years 9 (34.6%) had anxiety and 17 (65.4%) with no anxiety. Age of participants wasn't significantly associated with anxiety.

Table 33. Association between Stress and age (n = 385)					
Age (in years)	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
21-30	48(77.4)	14(22.6)	62(100.0)	6.307	0.098
31-40	141(84.9)	25(15.1)	166(100.0)		
41-50	96(73.3)	35(26.7)	131(100.0)		
51-60	21(80.8)	5(19.2)	26(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

Among 62 participants aged 21-30 years, 14 (22.6%) had stress and 48 (77.4%) with no stress. Among 166 participants aged between 31-40 years 25 (15.1%) had stress and 141 (84.9%) with no stress. Among 131 participants aged 41- 50 years 35 (26.7%) had stress and 96 (73.3%) with no stress. Similarly, among 26 participants aged 51-60 years 5 (19.2%) had stress and 21 (80.8%) with no stress. Age of participants wasn't significantly associated with stress.

Table 34. Association between Depression and sex (n = 385)					
Sex	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Male	18(72.0)	7(28.0)	25(100.0)	0.401	0.527
Female	279(77.5)	81(22.5)	360(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 25 male participants, 7 (28%) had depression and 18 (72%) had no depression. Similarly, among 360 female participants 81 (22.5%) had depression and 279 (77.5%) had no depression. No statistical significance was seen between gender and depression.

Table 35. Association between Anxiety and sex (n = 385)

Sex	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Male	17(68.0)	8(32.0)	25(100.0)	0.236	0.627
Female	261(72.5)	99(27.5)	360(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 25 male participants, 8 (32%) had anxiety and 17 (68%) had no anxiety. Similarly, among 360 female participants 99 (27.5%) had anxiety and 261 (72.5%) had no anxiety. No statistical significance was seen between gender and anxiety.

Table 36. Association between Stress and sex (n = 385)					
Sex	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Male	21(84.0)	4(16.0)	25(100.0)	0.335	0.563
Female	285(79.2)	75(20.8)	360(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 25 male participants, 4 (16%) had stress and 21 (84%) had no stress. Similarly, among 360 female participants 75 (20.8%) had stress and 285 (79.2%) had no stress. No statistical significance was seen between gender and stress.

Table 37. Association between Depression and residence (n = 385)					
Residence	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Urban	87(68.5)	40(31.5)	127(100.0)	8.021	0.005
Rural	210(81.4)	48(18.6)	258(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, 127 participants were living in urban out of which 40 (31.5%) had depression and 87(68.5%) had no depression. Similarly, among 258 in rural area 48 (18.6%) had depression and 210 (81.4%) had no depression. Urban had more depression than rural and statistically significant.

Table 38. Association between Anxiety and residence (n = 385)

Residence	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Urban	81(63.8)	46(36.2)	127(100.0)	6.708	0.010
Rural	197(76.4)	61(23.6)	258(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, 127 participants were living in urban area out of which 46 (36.2%) had anxiety and 81 (63.8%) had no anxiety. Similarly, among 258 in rural area 61 (23.6%) had anxiety and 197 (76.4%) had no anxiety. Urban had more anxiety than rural and statistically significant.

Table 39. Association between Stress and residence (n = 385)

Residence	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Urban	98(77.2)	29(22.8)	127(100.0)	0.623	0.430
Rural	208(80.6)	50(19.4)	258(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, 127 participants were living in urban area out of which 29 (22.8 %) had stress and 98 (77.2 %) had no stress. Similarly, among 258 in rural area 50 (19.4 %) had stress and 208 (80.6 %) had no stress. Statistical significance wasn't seen between residence and stress.

Table 40. Association between Depression and religion (n = 385)

Religion	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Hindu	241(75.8)	77(24.2)	318(100.0)	2.173	0.704
Muslim	26(81.3)	6(18.8)	32(100.0)		
Christian	8(88.9)	1(11.1)	9(100.0)		
Jain	17(85.0)	3(15.0)	20(100.0)		
Others	5(83.3)	1(16.7)	6(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 318 Hindu participants, 77 (24.2%) had depression and 241 (75.8%) had no depression. Among 32 Muslim participants, 6 (18.8%) had depression and 26 (81.3%) had no depression. Among 9 Christian participants, 1 (11.1%) had depression and 8 (88.9%) had no depression. Among 20 Jain participants, 3 (15%) had depression and 17 (85%) had no depression. Similarly, among 6 other participants, 1 (16.7%) had depression and 5 (83.3%) had no depression. No significant association between religion and depression.

Table 41. Association between Anxiety and religion (n = 385)					
Religion	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Hindu	227(71.4)	91(28.6)	318(100.0)	2.885	0.577
Muslim	25(78.1)	7(21.9)	32(100.0)		
Christian	5(55.6)	4(44.4)	9(100.0)		
Jain	16(80.0)	4(20.0)	20(100.0)		
Others	5(83.3)	1(16.7)	6(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 318 Hindu participants, 91 (28.6 %) had anxiety and 227 (71.4 %) had no anxiety. Among 32 Muslim participants, 7 (21.9 %) had anxiety and 25 (78.1 %) had no anxiety. Among 9 Christian participants, 4 (44.4%) had anxiety and 5 (55.6%) had no anxiety. Among 20 Jain participants, 4 (20%) had anxiety and 16 (80%) had no anxiety. Similarly, among 6 other participants, 1 (16.7%) had anxiety and 5 (83.3%) had no anxiety. No significant association between religion and anxiety.

Table 42. Association between Stress and religion (n = 385)

Religion	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Hindu	252(79.2)	66(20.8)	318(100.0)	1.445	0.836
Muslim	27(84.4)	5(15.6)	32(100.0)		
Christian	6(66.7)	3(33.3)	9(100.0)		
Jain	16(80.0)	4(20.0)	20(100.0)		
Others	5(83.3)	1(16.7)	6(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 318 Hindu participants, 91 (28.6 %) had stress and 227 (71.4 %) had no stress. Among 32 Muslim participants, 7 (21.9 %) had stress and 25 (78.1 %) had no stress. Among 9 Christian participants, 4 (44.4%) had stress and 5 (55.6%) had no stress. Among 20 Jain participants, 4 (20%) had stress and 16 (80%) had no stress. Similarly, among 6 other participants, 1 (16.7%) had stress and 5 (83.3%) had no stress. No significant association between religion and stress.

Table 43. Association between Depression and socio-economic status (n = 385)

Socioeconomic status class	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
1	40(74.1)	14(25.9)	54(100.0)	3.412	0.491
2	105(82.7)	22(17.3)	127(100.0)		
3	96(74.4)	33(25.6)	129(100.0)		
4	54(75.0)	18(25.0)	72(100.0)		
5	2(66.7)	1(33.3)	3(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 54 participants belonging to socioeconomic status class 1, depression was seen in 14 (25.9%) and 40 (74.1%) had no depression, among 127 belonging to class 2, depression was seen in 22 (17.3%) and 105 (82.7%) had no depression, among 129 participants belonging to class 3, depression was seen in 33 (25.6%) and 96 (74.4%) had no depression, among 72 class 4 participants, 18 (25%) had depression and 54 (75%) had no depression and among class 5, there were 3 participants, depression was seen in 1 (33.3%) and 2 (66.7%) had no depression. There was no statistically significant association between socio economic status and depression.

Table 44. Association between Anxiety and socio-economic status (n = 385)					
Socioeconomic status class	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
1	36(66.7)	18(33.3)	54(100.0)	2.662	0.616
2	92(72.4)	35(27.6)	127(100.0)		
3	92(71.3)	37(28.7)	129(100.0)		
4	55(76.4)	17(23.6)	72(100.0)		
5	3(100.0)	0(0.0)	3(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 54 participants belonging to socioeconomic status class 1, anxiety was seen in 18 (33.3%) and 36 (66.7%) had no anxiety , among 127 belonging to class 2, anxiety was seen in 35 (27.6%) and 92 (72.4%) had no depression, among 129 participants belonging to class 3, anxiety was seen in 37 (28.7%) and 92 (71.3%) had no anxiety, among 72 class 4 participants, 17 (23.6%) had anxiety and 55 (76.4%) had no anxiety and among class 5, there were 3 participants, no anxiety is seen. There was no statistically significant association between socio economic status and anxiety.

Table 45. Association between Stress and socio-economic status (n = 385)					
Socioeconomic status class	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
1	47(87.0)	7(13.0)	54(100.0)	3.235	0.519
2	99(78.0)	28(22.0)	127(100.0)		
3	99(76.7)	30(23.3)	129(100.0)		
4	59(81.9)	13(18.1)	72(100.0)		
5	2(66.7)	1(33.3)	3(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 54 participants belonging to socioeconomic status class 1, stress was seen in 7 (13%) and 47 (87%) had no stress, among 127 belonging to class 2, stress was seen in 28 (22%) and 99 (78%) had no stress, among 129 participants belonging to class 3, stress was seen in 30 (23.3%) and 99 (76.7%) had no stress, among 72 class 4 participants, 13 (18.1%) had stress and 59 (81.9%) had no stress and among class 5, there were 3 participants, stress was seen in 1 (33.3%) and 2 (66.7%) had no stress. There was no statistically significant association between socio economic status and stress.

Table 46. Association between work experience with Depression, Anxiety and Stress							
DASS- 21		Work Experience				χ^2	P value
		0-10 years	11-20 years	21-30 years	31-40 years		
Depression	Absent	171 (79.5%)	87 (75.0%)	36 (70.6%)	2 (66.7%)	3.131	0.372
	Present	44 (20.5%)	29 (25.0%)	15 (29.4%)	1 (33.3%)		
	Total	215	116	51	3		
Anxiety	Absent	159 (74.0%)	78 (67.2%)	39 (76.5%)	2 (66.7%)	2.260	0.520
	Present	56 (26.0%)	38 (32.8%)	12 (23.5%)	1 (33.3%)		
	Total	215	116	51	3		
Stress	Absent	179 (83.3%)	87 (75.0%)	38 (74.5%)	2 (66.7%)	4.381	0.223
	Present	36 (16.7%)	29 (25.0%)	13 (25.5%)	1 (33.3%)		
	Total	215	116	51	3		

In the current study, out of 385 participants, 215 individuals had 0-10 years of work experience, out of which 44 (20.5%) had depression, 38 (32.8%) had anxiety and 29 (25%) had stress. Work experience 11-20 years, out of which 29 (25%) had depression, 56 (26%) had anxiety and 36 (16.7%) had stress. Work experience 21-30 years, out of which 15 (29.4%) had depression, 12 (23.5%) had anxiety and 13 (25.5%) had stress. Work experience 31-40 years, out of which 1 (33.3%) had depression, 1 (33.3%) had anxiety and 1 (33.3%) had stress. There was no significant association between work experience and depression, anxiety and stress.

Table 47. Association between Depression and education (n = 385)

Education	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Illiterate	1(100.0)	0(0.0)	1(100.0)	0.307	0.959
Standard 5-8	58(77.3)	17(22.7)	75(100.0)		
10-12/ Diploma	212(77.1)	63(22.9)	275(100.0)		
Degree/ postgraduate	26(76.5)	8(23.5)	34(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportion

In the present study, among 1 illiterate, depression was absent, among 75 participants with standard 5-8th education, 17 (22.7%) had depression and 58 (77.3%) had no depression, among 275 participants with 10-12th/ Diploma, 63 (22.9%) had depression and 212 (77.1%) had no depression, among 34 participants with degree/ postgraduate, 8 (23.5%) had depression and 26 (76.5%) had no depression. There was no statistically significant association between education status and depression.

Table 48. Association between Anxiety and education (n = 385)					
Education	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Illiterate	1(100.0)	0(0.0)	1(100.0)	1.754	0.625
Standard 5-8	51(68.0)	24(32.0)	75(100.0)		
10-12/ Diploma	203(73.8)	72(26.2)	275(100.0)		
Degree/ postgraduate	23(67.6)	11(32.4)	34(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 1 illiterate, anxiety was absent, among 75 participants with standard 5-8th education, 24 (32%) had anxiety and 51 (68%) had no anxiety, among 275 participants with 10-12th/ Diploma, 72 (26.2%) had anxiety and 203 (73.8%) had no anxiety, among 34 participants with degree/ postgraduate, 11 (32.4%) had anxiety and 23 (67.6%) had no anxiety. There was no statistically significant association between education status and anxiety.

Table 49. Association between Stress and education (n = 385)

Education	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Illiterate	1(100.0)	0(0.0)	1(100.0)	2.074	0.557
Standard 5-8	56(74.7)	19(25.3)	75(100.0)		
10-12/ Diploma	220(80.0)	55(20.0)	275(100.0)		
Degree/ postgraduate	29(85.3)	5(14.7)	34(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 1 illiterate, stress was absent, among 75 participants with standard 5-8th education, 19 (25.3%) had stress and 56 (74.7%) had no stress, among 275 participants with 10-12th/ Diploma, 55 (20%) had stress and 220 (80%) had no stress, among 34 participants with degree/ postgraduate, 5 (14.7%) had stress and 29 (85.3%) had no stress. There was no statistically significant association between education status and stress.

Table 50. Association between category of health care workers with Depression, Anxiety and Stress

Category	Depression		Anxiety		Stress	
	Absent (%)	Present (%)	Absent (%)	Present (%)	Absent (%)	Present (%)
MO	2 (50%)	2 (50%)	3 (75%)	1 (25%)	4 (100%)	0 (0%)
ASHA	90 (77.6%)	26 (22.4%)	77 (65.4%)	39 (33.6%)	86 (74.1%)	30 (25.9%)
AWW	164 (77%)	49 (23%)	165 (77.5%)	48 (22.5%)	176 (82.6%)	37 (17.4%)
ANM	9 (75%)	3 (25%)	6 (50%)	6 (50%)	10 (83.3%)	2 (16.7%)
LHV	2 (100%)	0 (0%)	1 (50%)	1 (50%)	2 (100%)	0 (0%)
Nurse	6 (100%)	0 (0%)	4 (66.7%)	2 (33.3%)	4 (66.7%)	2 (33.3%)
Pharmacist	2 (100%)	0 (0%)	2 (100%)	0 (0%)	1 (50%)	1 (50%)
Lab Technician	1 (25%)	3 (75%)	0 (0%)	4 (100%)	0 (0%)	4 (100%)
Class IV worker	5 (83.3%)	1 (16.7%)	6 (100%)	0 (0%)	6 (100%)	0 (0%)
Community Health Officer	1 (100%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)
Male Health Worker	11 (84.6%)	2 (15.4%)	9 (69.2%)	4 (30.8%)	11 (84.6%)	2 (15.4%)
Clerk	2 (66.7%)	1 (33.3%)	2 (66.7%)	1 (33.3%)	2 (66.7%)	1 (33.3%)
Ambulance Driver	2 (66.7%)	1 (33.3%)	2 (66.7%)	1 (33.3%)	3 (100%)	0 (0%)
TOTAL	297	88	278	107	306	79
	$\chi^2 = 12.061$ p-value =0.441		$\chi^2 = 22.451$ p-value =0.033		$\chi^2 = 25.241$ p-value =0.014	

In the current study, out of 385 health care workers, different category of workers was exposed to different environmental conditions, out of which medical officers (50%), ASHA (22.4%), AWW (23%), ANM (25%), lab technician (75%), class IV worker (16.7%), male health worker (15.4%), clerk (33.3%) and ambulance driver (33.3%) had depression. Out of which medical officers (25%), ASHA (33.6%), AWW (22.5%), ANM (50%), LHV (50%), Nurse (33.3%), lab technician (100%), male health worker (30.8%), clerk (33.3%) and ambulance driver (33.3%) had anxiety. Out of which ASHA (25.9%), AWW (17.4%), ANM (16.7%), Nurse (33.3%), pharmacist (50%), lab technician (100%), male health worker (15.4%), clerk (33.3%) had stress. No significant association between category of health care worker and depression. Lab technician had maximum amount of anxiety and stress. Followed by which LHV, ANM and AWW had maximum amount of anxiety. Pharmacist and nurse had maximum amount of stress. There was a significant association between category of health care worker with anxiety and stress.

Table 51. Association between Depression and marital status (n = 385)

Marital Status	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Married	263(78.0)	74(22.0)	337(100.0)	5.864	0.210
Unmarried	20(83.3)	4(16.7)	24(100.0)		
Divorcee	7(63.6)	4(36.4)	11(100.0)		
Separated	2(50.0)	2(50.0)	4(100.0)		
Widow	5(55.6)	4(44.4)	9(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 337 married participants, 74 (22%) had depression and 263 (78%) had no depression, among 24 unmarried participants, 4 (16.7%) had depression and 20 (83.3) had no depression, among 11 divorcee, 4 (36.4%) had depression and 7 (63.6%) had no depression, among 4 separated, 2 (50%) had depression and 2 (50%) had no depression, among 9 widow, 4 (44.4%) had depression and 5 (55.6%) had no depression. No statistical significance between marital status and depression.

Table 52. Association between Anxiety and marital status (n = 385)					
Marital Status	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Married	249(73.9)	88(26.1)	337(100.0)	7.892	0.096
Unmarried	17(70.8)	7(29.2)	24(100.0)		
Divorcee	5(45.5)	6(54.5)	11(100.0)		
Separated	3(75.0)	1(25.0)	4(100.0)		
Widow	4(44.4)	5(55.6)	9(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 337 married participants, 88 (26.1%) had anxiety and 249 (73.9%) had no anxiety, among 24 unmarried participants, 7 (29.2%) had anxiety and 17 (70.8) had no anxiety, among 11 divorcee, 6 (54.5%) had anxiety and 5 (45.5%) had no anxiety, among 4 separated, 1 (25%) had anxiety and 3 (75%) had no anxiety, among 9 widow, 5 (55.6%) had anxiety and 4 (44.4%) had no anxiety. No statistical significance between marital status and anxiety.

Table 53. Association between Stress and marital status (n = 385)

Marital Status	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Married	276(81.9)	61(18.1)	337(100.0)	25.845	<0.001
Unmarried	20(83.3)	4(16.7)	24(100.0)		
Divorcee	6(54.5)	5(45.5)	11(100.0)		
Separated	2(50.0)	2(50.0)	4(100.0)		
Widow	2(22.2)	7(77.8)	9(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 337 married participants, 61 (18.1%) had stress and 276 (81.9%) had no stress, among 24 unmarried participants, 4 (16.7%) had stress and 20 (83.3%) had no stress, among 11 divorcee, 5 (45.5%) had stress and 6 (54.5%) had no stress, among 4 separated, 2 (50%) had stress and 2 (50%) had no stress, among 9 widow, 7 (77.8%) had stress and 2 (22.2%) had no stress. Widows had maximum amount of stress compared to other marital status and was statistically significant.

Table 54. Association between Depression and overcrowding (n = 385)					
Over crowding	Depression		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Present	55(57.9)	40(42.1)	95(100.0)	26.5	<0.001
Absent	242(83.4)	48(16.6)	290(100.0)		
Total	297(77.1)	88(22.9)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 95 participants living in an overcrowding environment, 40 (42.1%) had depression and 55 (57.9%) had no depression, among 290 participants with no overcrowding, 48 (16.6%) had depression and 242 (83.4%) had no depression. Overcrowded families had more depression and statistically significant.

Table 55. Association between Anxiety and overcrowding (n = 385)

Over crowding	Anxiety		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Present	59(62.1)	36(37.9)	95(100.0)	6.414	0.011
Absent	219(75.5)	71(24.5)	290(100.0)		
Total	278(72.2)	107(27.8)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 95 participants living in an overcrowding environment, 36 (37.9%) had anxiety and 59 (62.1%) had no anxiety, among 290 participants with no overcrowding, 71 (24.5%) had anxiety and 219 (75.5%) had no anxiety. Overcrowded families had more anxiety and statistically significant.

Table 56. Association between Stress and overcrowding (n = 385)					
Over crowding	Stress		Total n (%)	χ^2	p value*
	Absent n (%)	Present n (%)			
Present	64(67.4)	31(32.6)	95(100.0)	11.345	<0.001
Absent	242(83.4)	48(16.6)	290(100.0)		
Total	306(79.5)	79(20.5)	385(100.0)		

* Chi Square test was applied to test statistical difference in proportions

In the present study, among 95 participants living in an overcrowding environment, 36 (37.9%) had stress and 59 (62.1%) had no stress, among 290 participants with no overcrowding, 71 (24.5%) had stress and 219 (75.5%) had no stress. Overcrowded families had more stress and statistically significant.

II. ASSOCIATION BETWEEN HISTORY RELATED TO COVID-19 AND DEPRESSION, ANXIETY and STRESS

Table 57. Association between diagnosed with COVID with Depression, Anxiety and Stress					
DASS- 21		Diagnosed with COVID-19		χ^2	P value
		YES	NO		
Depression	Absent	38 (47.5%)	259 (84.9%)	50.324	<0.0001
	Present	42 (52.5%)	46 (15.1%)		
	Total	80 (100%)	305 (100%)		
Anxiety	Absent	31 (38.8%)	247 (81%)	56.330	<0.0001
	Present	49 (61.3%)	58 (19%)		
	Total	80 (100%)	305 (100%)		
Stress	Absent	47 (58.8%)	259 (84.9%)	26.610	<0.0001
	Present	33 (41.3%)	46 (15.1%)		
	Total	80 (100%)	305 (100%)		

In our study, out of 385 participants people diagnosed with COVID was 80, out of it 42 (52.5%) had depression and 38 (47.5%) was without depression. People diagnosed with COVID was 80, out of it 49 (61.3%) had anxiety and 31 (38.8%) had no anxiety. Out of 80 participants diagnosed with COVID, 33 (41.3%) was stressed and 47 (58.8%) had no stress. There was a significant association between participants diagnosed with COVID and depression, anxiety and stress.

Table 58. Association between quarantined/ isolated with Depression, Anxiety and Stress

DASS- 21		Quarantined/ Isolated		χ^2	P value
		YES	NO		
Depression	Absent	61 (56.0%)	236 (85.5%)	36.681	<0.0001
	Present	48 (44.0%)	40 (14.5%)		
	Total	109 (100%)	276 (100%)		
Anxiety	Absent	52 (47.7%)	226 (81.9%)	45.483	<0.0001
	Present	57 (52.3%)	50 (18.1%)		
	Total	109 (100%)	276 (100%)		
Stress	Absent	72 (66.1%)	234 (84.8%)	16.804	<0.0001
	Present	37 (33.9%)	42 (15.2%)		
	Total	109 (100%)	276 (100%)		

In the current study, out of 385 participants, 109 participants were quarantined or isolated, out of which 48 (44%) of people had depression and 61 (56%) of people had no depression. Out of 109 participants were quarantined or isolated, 57 (52.3%) of people had anxiety and 52 (47.7%) had no anxiety. Out of 109 participants were quarantined or isolated, 37 (33.9%) of people had stress and 72 (66.1%) had no stress. There was a significant association between participants quarantined or isolated and depression, anxiety and stress.

Table 59. Association between household members infected with COVID and Depression, Anxiety and Stress

DASS- 21		Household members infected with COVID		χ^2	P value
		YES	NO		
Depression	Absent	70 (60.9%)	227 (84.1%)	24.628	<0.0001
	Present	45 (39.1%)	43 (15.9%)		
	Total	115 (100%)	270 (100%)		
Anxiety	Absent	61 (53.0%)	217 (84.0%)	30.011	<0.0001
	Present	54 (47.0%)	53 (19.6 %)		
	Total	115 (100%)	270 (100%)		
Stress	Absent	76 (66.1%)	230 (85.2%)	18.037	<0.0001
	Present	39 (33.9%)	40 (14.8%)		
	Total	115 (100%)	270 (100%)		

In our study, out of 385 participants, 115 participants of the household members were infected with COVID, out of which 45 (39.1%) of people had depression and 70 (60.9%) of people had no depression. Out of 115 participants of the household members were infected with COVID, 54 (47%) of people had anxiety and 61 (53%) had no anxiety. Out of 115 participants of the household members were infected with COVID, 39 (33.9%) of people had stress and 76 (66.1%) had no stress. There was a significant association between household members infected with COVID and depression, anxiety and stress.

Table 60. Association between direct contact with COVID-19 patient and Depression, Anxiety and Stress

DASS- 21		Direct contact with COVID-19 patient		χ^2	P value
		YES	NO		
Depression	Absent	232 (74.8%)	65 (86.7%)	4.791	0.029
	Present	78 (25.2%)	10 (13.3%)		
	Total	310 (100%)	75 (100%)		
Anxiety	Absent	211 (68.1%)	67 (89.3%)	13.613	<0.0001
	Present	99 (31.9%)	8 (10.7%)		
	Total	310 (100%)	75 (100%)		
Stress	Absent	241 (77.7%)	65 (86.7%)	2.949	0.086
	Present	69 (22.3%)	10 (13.3%)		
	Total	310 (100%)	75 (100%)		

In our study, out of 385 participants, 310 participants came with direct contact with COVID-19 patients, out of which 78 (25.2%) of people had depression and 232 (74.8%) of people had no depression. Out of 310 participants came with direct contact with COVID-19 patients, 99 (31.9%) of people had anxiety and 211 (68.1%) had no anxiety. Out of 310 participants came with direct contact with COVID-19 patients, 69 (22.3%) of people had stress and 241 (77.7%) had no stress. No significant association between direct contact with COVID-19 patient and stress. There was a significant association between direct contact with COVID-19 patient and depression, anxiety.

Table 61. Association between care of suspected/ confirmed COVID-19 patient and Depression, Anxiety and Stress

DASS- 21		Care of suspected/ confirmed COVID-19 patients		χ^2	P value
		YES	NO		
Depression	Absent	165 (72.1%)	132 (84.6%)	8.306	0.004
	Present	64 (27.9%)	24 (15.4%)		
	Total	229 (100%)	156 (100%)		
Anxiety	Absent	148 (64.6%)	130 (83.3%)	16.177	<0.0001
	Present	81 (35.4%)	26 (16.7%)		
	Total	229 (100%)	156 (100%)		
Stress	Absent	172 (75.1%)	134 (85.9%)	6.622	0.01
	Present	57 (24.9%)	22 (14.1%)		
	Total	229 (100%)	156 (100%)		

In our study, out of 385 participants, 229 participants came with care of suspected/ confirmed COVID-19 patients, out of which 64 (27.9%) of people had depression and 165 (72.1%) of people had no depression. Out of 229 participants came with care of suspected/ confirmed COVID-19 patients, 81 (35.4%) of people had anxiety and 148 (64.6%) had no anxiety. Out of 229 participants came with care of suspected/ confirmed COVID-19 patients, 57 (24.9%) of people had stress and 172 (75.1%) had no stress. There was a significant association between care of suspected/ confirmed COVID-19 patients and depression, anxiety and stress.

Table 62. Association between assigned more than duty hours during COVID-19 pandemic and Depression, Anxiety and Stress

DASS- 21		Assigned more than duty hours during pandemic		χ^2	P value
		YES	NO		
Depression	Absent	112 (64.0%)	185 (88.1%)	31.34	<0.0001
	Present	63 (36.0%)	25 (11.9%)		
	Total	175 (100%)	210 (100%)		
Anxiety	Absent	105 (60.0%)	173 (82.4%)	23.826	<0.0001
	Present	70 (40.0%)	37 (17.6%)		
	Total	175 (100%)	210 (100%)		
Stress	Absent	115 (65.7%)	191 (91.0%)	37.281	<0.0001
	Present	60 (34.3%)	19 (9.0%)		
	Total	175 (100%)	210 (100%)		

In our study, out of 385 participants, 175 participants were assigned more than duty hours during COVID-19 pandemic, out of which 63 (36%) of people had depression and 112 (64%) of people had no depression. Out of 175 participants were assigned more than duty hours during COVID-19 pandemic, 70 (40%) of people had anxiety and 105 (60%) had no anxiety. Out of 175 participants were assigned more than duty hours during COVID-19 pandemic, 60 (34.3%) of people had stress and 115 (65.7%) had no stress. There was a significant association between assigned more than duty hours during COVID-19 pandemic and depression, anxiety and stress.

Table 63. Association between provided with PPE during COVID-19 pandemic and Depression, Anxiety and Stress					
DASS- 21		Provided with PPE		χ^2	P value
		YES	NO		
Depression	Absent	52 (61.2%)	245 (81.7%)	15.771	<0.0001
	Present	33 (38.8%)	55 (18.3%)		
	Total	85 (100%)	300 (100%)		
Anxiety	Absent	46 (54.1%)	232 (77.3%)	17.788	<0.0001
	Present	39 (45.9%)	68 (22.7%)		
	Total	85 (100%)	300 (100%)		
Stress	Absent	56 (65.9%)	250 (83.3%)	12.368	<0.0001
	Present	29 (34.1%)	50 (16.7%)		
	Total	85 (100%)	300 (100%)		

In our study, out of 385 participants, 85 participants were provided with PPE, out of which 33 (38.8%) of people had depression and 52 (61.2%) of people had no depression. Out of 85 participants were provided with PPE, 39 (45.9%) of people had anxiety and 46 (54.1%) had no anxiety. Out of 85 participants were provided with PPE, 29 (34.1%) of people had stress and 56 (65.9%) had no stress. There was a significant association between provision of PPE and depression, anxiety and stress.

Table 64. Association between worked other than their place of jurisdiction with Depression, Anxiety and Stress

DASS- 21		Worked Outside their work jurisdiction		χ^2	P value
		YES	NO		
Depression	Absent	70 (62.5%)	227 (83.2%)	19.207	<0.0001
	Present	42 (37.5%)	46 (16.8%)		
	Total	112 (100%)	273 (100%)		
Anxiety	Absent	56 (50.0%)	222 (81.3%)	38.817	<0.0001
	Present	56 (50.0%)	51 (18.7%)		
	Total	112 (100%)	273 (100%)		
Stress	Absent	64 (57.1%)	242 (88.6%)	48.324	<0.0001
	Present	48 (42.9%)	31 (11.4%)		
	Total	112 (100%)	273 (100%)		

In our study, out of 385 participants, 112 participants worked other than their place of jurisdiction, out of which 42 (37.5%) of people had depression and 70 (62.5%) of people had no depression. Out of 112 participants worked other than their place of jurisdiction, 56 (50%) of people had anxiety and 56 (50%) had no anxiety. Out of 112 participants worked other than their place of jurisdiction, 48 (42.9%) of people had stress and 64 (57.1%) had no stress. There was a significant association between worked other than their place of jurisdiction and depression, anxiety and stress.

III. ASSOCIATION BETWEEN PERSONAL HISTORY AND DEPRESSION, ANXIETY and STRESS

Table 65. Association between sleep pattern with Depression, Anxiety and Stress

DASS- 21		Sleep Pattern		χ^2	P value
		NORMAL	DISTURBED		
Depression	Absent	260 (82.5%)	37 (52.9%)	28.618	<0.0001
	Present	55 (17.5%)	33 (47.1%)		
	Total	315 (100%)	70 (100%)		
Anxiety	Absent	244 (77.5%)	34 (48.6%)	23.818	<0.0001
	Present	71 (22.5%)	36 (51.4%)		
	Total	315 (100%)	70 (100%)		
Stress	Absent	267 (84.8%)	39 (55.7%)	29.631	<0.0001
	Present	48 (15.2%)	31 (44.3%)		
	Total	315 (100%)	70 (100%)		

In our study, out of 385 participants, 70 participants had disturbed sleep pattern, out of which 33 (47.1%) of people had depression and 37 (52.9%) of people had no depression. Depression was high among disturbed sleep pattern. Out of 70 participants had disturbed sleep pattern, 36 (51.4%) of people had anxiety and 34 (48.6%) had no anxiety. Anxiety was high among disturbed sleep pattern. Out of 70 participants had disturbed sleep pattern, 31 (44.3%) of people had stress and 39 (55.7%) had no stress. Stress was high among disturbed sleep pattern. There was a significant association between sleep pattern during COVID-19 pandemic and depression, anxiety and stress.

Table 66. Association between tobacco with Depression, Anxiety and Stress

DASS- 21		Tobacco Use		χ^2	P value
		YES	NO		
Depression	Absent	15 (65.2%)	282 (77.9%)	1.973	0.16
	Present	8 (34.8%)	80 (22.1%)		
	Total	23 (100%)	362 (100%)		
Anxiety	Absent	16 (69.6%)	262 (72.4%)	0.085	0.77
	Present	7 (30.4%)	100 (27.6%)		
	Total	23 (100%)	362 (100%)		
Stress	Absent	20 (87.0%)	286 (79.0%)	0.838	0.36
	Present	3 (13.0%)	76 (21.0%)		
	Total	23 (100%)	362 (100%)		

In our study, out of 385 participants, 23 participants reported tobacco use, out of which 8 (34.8%) of people had depression and 15 (65.2%) of people had no depression. Out of 23 participants reported tobacco use, 7 (30.4%) of people had anxiety and 16 (69.6%) had no anxiety. Out of 23 participants reported tobacco use, 3 (13%) of people had stress and 20 (87%) had no stress. There was no significant association between tobacco use and depression, anxiety and stress.

Table 67. Association between alcohol with Depression, Anxiety and Stress

DASS- 21		Alcohol Use		χ^2	P value
		YES	NO		
Depression	Absent	8 (66.7%)	289 (77.5%)	0.771	0.38
	Present	4 (33.3%)	84 (22.5%)		
	Total	12 (100%)	373 (100%)		
Anxiety	Absent	8 (66.7%)	270 (72.4%)	0.19	0.663
	Present	4 (33.3%)	103 (27.6%)		
	Total	12 (100%)	373 (100%)		
Stress	Absent	9 (75.0%)	297 (79.6%)	0.152	0.696
	Present	3 (25.0%)	76 (20.4%)		
	Total	12 (100%)	373 (100%)		

In the current study, out of 385 participants, 12 people were consuming alcohol, out of which 4 (33.3%) was depressed and 8 (66.7%) had no depression. Out of 12 participants, 4 (33.3%) had anxiety and 8 (66.7%) had no anxiety. Out of 12 participants, 3 (25%) was stressed and 9 (75%) had no stress. There was no significant association between alcohol use and depression, anxiety and stress.

Table 68. Association between Social Support with Depression, Anxiety and Stress

DASS- 21		Social Support (MSPSS)		χ^2	P value
		Low	High		
Depression	Absent	53 (60.9%)	244 (77.5%)	16.777	<0.0001
	Present	34 (39.1%)	54 (22.5%)		
	Total	87 (100%)	298 (100%)		
Anxiety	Absent	51 (58.6%)	227 (72.4%)	10.340	0.001
	Present	36 (41.4%)	71 (27.6%)		
	Total	87 (100%)	298 (100%)		
Stress	Absent	63 (72.4%)	243 (79.6%)	3.442	0.064
	Present	24 (27.6%)	55 (20.4%)		
	Total	87 (100%)	298 (100%)		

In the current study, out of 385 participants, 87 people were receiving low social support out of which 34 (39.1%) was depressed and 53 (60.9%) had no depression. Out of 298 participants receiving high social support, 54 (22.5%) was depressed and 244 (77.5%) had no depression. Out of 87 participants, 36 (41.4%) had anxiety and 51 (58.6%) had no anxiety. Out of 298 participants receiving high social support, 71 (27.6%) had anxiety and 227 (72.4%) had no anxiety. Out of 87 participants, 24 (27.6%) was stressed and 63 (72.4%) had no stress. Out of 298 participants receiving high social support, 55 (20.4%) was stressed and 243 (79.6%)

had no stress. Participants with high social support had comparatively less depression, stress and anxiety than those who had low social support. In other words, we can say that participants with high social support were able to cope with depression, anxiety and stress in a better manner as compared to those who had low social support. There was no significant association between stress and social support. Significant association was seen between depression and stress with social support.

DISCUSSION

I. Sociodemographic profile of study participants (Table 1- 9)

Table 1: Distribution of study participants based on age

In our study, most of the study participants about 43% were in the age group of 31-40 years. Similar findings were seen in the study conducted in India among healthcare workers through online survey, which showed the mean age of the study participants were in the age group of 35.54 ± 6.09 years.²² Another study done through online survey among clinical and non-clinical healthcare workers in India which showed that 48.6% of the participants are from 31-40 years age group.²⁴

Another study conducted in India among the healthcare workers showed that participants with age group 18- 29 years was 50.9%, 30- 44 years was 46.6%, 45- 60 years was 2.6% respectively.²⁹

Table 2: Distribution of study participants based on gender

In the current study, 93.5% were females. The study was conducted in the primary health care setup. Majority of the participants were Accredited Social Health Activist (ASHA) and anganwadi workers. Similar study done in health care workers in India through online survey revealed that 64.5% of the participants were females.²⁴ Another study done in China which showed that majority of the participants were females 70.7%.⁴

Another study conducted in India among the healthcare workers showed that male participants reported was 53.4% and female participants was 46.6% respectively.²⁹

Table 3: Distribution of study participants based on residence

In the present study, 67% resided in rural areas and 33% in urban areas. Similar study done in tertiary care hospital in India amongst 140 healthcare workers reported that 60% population is from urban and 40% population is from rural.²⁶

Another study conducted among healthcare workers in India reported that participants from urban 79.4% and rural 16.1% respectively.²⁷

Table 4: Distribution of study participants based on religion

In the present study, majority of the study participants were Hindus 82.6%, followed by Muslims 8.3%, Christians 2.3%, Jains 5.2%, and others 1.6%. Similar findings were seen in the study conducted in tertiary care centers of western India which showed that 93% Hindus, 4.9% Muslims, 1.6% Christians and 0.3% others.³⁶

Table 5: Distribution of study participants based on education status

In the current study majority 71.4% of the participants had educational qualification 10-12th/ Diploma, 5-8th standard (19.5%), and 34 (8.8%) had either degree or postgraduate education. Majority of the workers were ASHAs and ANM, so the study participants were in the particular education status. Similar study conducted among healthcare workers in India showed that participants educational status diploma 1.4%, graduate 58.6% and post graduate 40%.²⁶

Another study conducted among healthcare workers in India reported that participants education status graduate and above 68.4% and below graduate 31.6%.²⁷

Table 6: Distribution of study participants based on HCW category

In the present study, majority of the workforce was Anganwadi worker (55.3%), 30.1% were ASHA workers and 3.1% were Auxiliary Nurse Midwife (ANM). Similar group of workers were found in a study conducted in India among 10 states through telephonic interviews revealed that 10.7% were ANM and 11.2% of people were ASHAs.²⁷

Another study conducted on healthcare workers in Singapore showed the distribution of HCW'S were physician (28.7%), nurse (34.3%), allied health care professional (13.8%), technician (2.1%), clerical staff (6.4%), administrator (7%) and maintenance worker (7.7%).²¹

Table 7: Distribution of study participants based on marital status

In the present study, 87.5% of participants were married and 6.2% were unmarried, 1% participants were separated, and 2.3% participants were widow. Similar findings were seen in study done all over India among the healthcare workers which showed that 2% of the study participants were widow.³⁰ Another study done among healthcare workers working in tertiary care center of western state of India reported that 0.9% of the study participants were separated.³⁶

Table 8: Distribution of study participants based on socioeconomic class

In the present study, 14% belonged to Class I according to Modified B.G. Prasad's Classification, 33% to Class II, 33.5% to Class III, 18.7% to Class IV and 0.8% belonged to Class V. Most of the studies was conducted among hospital setup, they had income status for categorization. Another study conducted in 10 states of India among healthcare worker showed that persons earning income < 10000 was

found to be 14.3. Persons earning 10000- 20000 was 26.2%. Persons earning 20000-50000 was 33%. Persons earning 50000 and above was 26.5%.²⁷

Table 9: Distribution of study participants based on work experience

In the present study, (29.2%) study participants had work experience up to 5 years, (26.8%) had 6-10 years, (30.1%) had 11-20 years and (14%) had work experience of more than 20 years. Similar study done in India among healthcare workers showed that work experience of 10 years and below 69% and greater than 10 years of work experience was 31%.⁴⁰

II. Personal profile of study participants

Table 10: Distribution of study participants based on their diet

In the current study, (50.6%) followed vegetarian diet and (49.4%) followed mixed diet. Diet was equally distributed.

Table 11: Distribution of study participants based on history of alcohol use

In the present study, out of 385 study participants, alcohol consumption was seen in (3.1%) and (94%) with no history of alcohol consumption.

Table 12: Distribution of study participants based on history of tobacco use

In our study, out of 385 study participants, tobacco use was seen in (6%) and (94%) with no history of tobacco use. Similar study conducted in tertiary institutions in Singapore revealed that tobacco use was seen among 3.6% of the healthcare workers.²¹

Table 13: Distribution of study participants based on their sleep

In the current study, (81.8%) having normal sleep pattern and (18.2%) of the study participants reported having a disturbed sleep, similar results were found in the study done among health care workers in India, an online survey reported that 31.5% of the health care workers had poor sleep.³⁰

III. COVID related history of study participants**Table 14: Distribution of study participants based on ventilation**

In the present study, (83.6%) participants stayed in well ventilated house and (16.4%) participants stayed without adequate ventilation.

Table 15: Distribution of study participants based on overcrowding

In the present study, (24.7%) participants had overcrowding present in their respective houses and (75.3%) had absence of overcrowding.

Table 16: Distribution of study participants based on history of COVID infection

In the present study, nearly (20.8%) of the study participants reported that they have been diagnosed with COVID in the past and (79.2%) participants had no history of diagnosed with COVID. Other study conducted in Denmark among the healthcare workers 19.9% reported diagnosed with COVID-19 infection.⁵⁴

Another cross-sectional study conducted in Iran among the healthcare workers showed that history of COVID infection in HCW's was 20.7%.⁵⁵

Table 17: Distribution of study participants based on history of quarantine/isolation

In our study, 28.3% of the study participants reported that they were quarantined or isolated in the past and 71.7% had no history of quarantine or isolation in the past. Another study done through telephonic interviews among the healthcare workers in India showed that 53.9% of participants was quarantined and 57.9% participants was isolated.²⁷

Another study conducted in India to find out the psychological impact of COVID-19 showed that healthcare workers quarantined was 10.9% and those who are not quarantined was 89.1%.⁴¹

Table 18: Distribution of study participants based on household members infected with COVID and number of household members infected with COVID

In the current study, (29.9%) reported that there was a household member infected with Covid and (70.1%) reported that there was no history of household members infected with Covid.

Table 19: Distribution of study participants based on number of household members infected with COVID

In the present study, (25.2%) one member was infected, (50.4%) two members was infected, (19.1%) three members was infected, and (5.2%) four members was infected with COVID among the household members.

Table 20: Distribution of study participants based on history of direct contact with covid patient

In the present study, 80.3% of healthcare workers had history of direct contact with COVID and 19.7% had no history of direct contact. Similar study done in hospital in Pakistan showed that 81.2% of people had exposure to COVID-19.⁵⁸ Another study done in India among Health Care Personnel's (HCP) revealed that 87% had direct contact and 13% had no direct contact.⁴¹ Another study conducted on health care professionals in India showed HCPs involved in direct contact with COVID-19 patients was 26.88%.³²

Table 21: Distribution of study participants based on being associated with care of suspected or confirmed COVID patient

In our study, 59.5% were associated with care of suspected or confirmed Covid patient and 40.5% were not associated with care of suspected or confirmed Covid patient. Another study conducted among nurses in India revealed 28.6% of participants were associated with care of corona affected/suspected patients and 71.6% of participants were not associated with care of corona affected/suspected patients.³⁷

Another study conducted in India among clinical and nonclinical healthcare workers revealed that 47.6% of people were involved in managing COVID patients and 52.4% of people were not involved in managing COVID patients.²⁴

Table 22: Distribution of study participants based on working overtime during COVID pandemic

In the current study, stated that 45.5% of workers are working beyond 8 hours during the COVID-19 pandemic. Mean duration of duty hours was 11.22 ± 1.8 hours. Another study conducted in tertiary hospitals of India showed that 70% of participants are working beyond 8 hours of duty time. Mean duration was 14.70 ± 1.97 hours.⁴⁴

Another study conducted in 10 states of India through telephonic interviews showed that working beyond 8 hours during the COVID-19 pandemic was 65.4%.²⁷

Table 23: Distribution of study participants who were provided with PPE

In our study, 22.1% reported that they were provided with Personal Protective Equipment (PPE). Due to high demand and limited availability of PPE only smaller proportion of people had access to it. Similar findings were seen in study done through online in healthcare workers in India, revealed that 35.5% of healthcare workers was provided with PPE.³⁰

Table 24: Distribution of study participants feeling safe with provided PPE

In our study, 85 participants reported that they were provided with PPE. Out of 85 participants, (96.5%) participants reported they feel safe with provided PPE and (3.5%) participants reported that they don't feel safe with provided PPE.

Table 25: Distribution of study participants based on being assigned duties in places other than their jurisdiction

In the current study, among the study participants, (28.8%) of the study participants stated that they were assigned duties in places other than their jurisdiction

and (71.2%) had stated they were not assigned duties in places other than their jurisdiction.

Table 26: Distribution of study participants based on presence of comorbidities

In our study, among the study participants, (6.8%) reported to have diabetes, (7.5%) had hypertension, (8.1%) had diabetes and hypertension, (0.5%) had coronary artery disease, (0.8%) had COPD and (1.8%) had thyroid disorders. Similar study done amongst healthcare workers in Singapore and India showed that 1.4% were diabetic, 3.8% had hypertension, 4% had COPD and overall presence of comorbidities was seen in 28%.²³

Another study done in tertiary care hospital in India amongst 140 healthcare workers which showed that 8.6% had diabetes, 15.7% had hypertension and 7.9% had COPD.²⁶

Another study conducted in India among the healthcare workers revealed that healthcare workers with asthma/ COPD 4.3%, hypertension 2.6%, diabetes mellitus 2.3%, hypothyroidism 1.1% and miscellaneous 1.7%.²⁹

Table 27: Distribution of study participants based on BMI classification

In our study, among the study participants, (0.8%) are underweight, (81%) were normal, (16.6%) were overweight, (1.6%) were obese. Another retrospective cohort study conducted in Italy, among the healthcare workers showed that participants with BMI > 25 (kg/m²) was reported to be 40.1%.⁵⁷

Table 28: Distribution of study participants based on depression

In the current study, majority of the study participants were normal while (9.1%) had mild depression, (12.5%) had moderate depression and (1.3%) had severe depression. Overall depression was found to be 22.9%. Similar study conducted among healthcare workers working in tertiary care centers of western states of India reported depression among 18.54% subjects.³⁶

Another study conducted in India among healthcare workers showed that mild (38%), moderate (8.6%), moderately severe (2%) and severe (0.8%) depression respectively.²⁹

Another study conducted among healthcare professionals through online showed that normal (56.4%), mild depression (15.1%), moderate depression (13.3%), severe depression (6.7%) and extremely severe depression (8.4%).³²

Table 29: Distribution of study participants based on anxiety

In the present study, majority of the study participants were normal while (8.1%) had mild anxiety, (14.3%) had moderate anxiety, (3.6%) had severe anxiety and (1.8%) had extremely severe anxiety. Overall anxiety was reported to be 27.8%. Similar study done tertiary hospital in Singapore showed that healthcare workers suffering from anxiety was found to be 31.5%.²¹

Another study conducted in India among healthcare workers showed that mild (48.6%), moderate (13.7%) and severe (4%) anxiety respectively.²⁹

Another study conducted among healthcare professionals through online showed that normal (61.1%), mild anxiety (5.6%), moderate anxiety (15.8%), severe anxiety (5.8%) and extremely severe anxiety (11.8%).³²

Table 30: Distribution of study participants based on stress

In our study, majority of the study participants were normal while (10.9%) had mild stress, (7.8%) had moderate stress and (1.8%) had severe stress. Overall stress was found to be 20.5%. Similar study done in tertiary care centers of western states of India showed that 18.54% of the subjects were stressed.³⁶

Another study conducted in India among healthcare workers showed that low (17.4%), moderate (78.9%) and high (3.7%) stress respectively.²⁹

Another study conducted among healthcare professionals through online showed that normal (66.2%), mild stress (8.9%), moderate stress (12.4%), severe stress (9.3%) and extremely severe stress (3.1%).³²

Table 31- 33 Association between age with depression, anxiety & stress

In the current study, among participants aged 21-30 years, (19.4%) had depression, (24.2%) had anxiety and (22.6%) had stress. Among participants aged between 31-40 years, (21.1%) had depression, (25.9%) had anxiety and (15.1%) had stress. Among participants aged 41- 50 years, (25.2%) had depression, (30.5%) had anxiety and (26.7%) had stress. Similarly, among 26 participants aged 51-60 years, (30.8%) had depression, (34.6%) had anxiety and (19.2%) had stress. No significant association was found between age of participants with depression, anxiety and stress. Similar study done among healthcare workers in India revealed 20-35 years of age group, had (32.1%) depression, (39.4%) anxiety. Among 36-50 years of age group,

had (26.5%) depression, had (35.1%) anxiety. Among 51-65 years of age group, had (25%) depression, had (35.1%) anxiety. There was significant association between age of participants and anxiety.⁴⁵

Table 34-36: Association between sex with depression, anxiety and stress

In the present study, among male participants, (28%) had depression, (32%) had anxiety and (16%) had stress. Similarly, among female participants (22.5%) had depression, (27.5%) had anxiety and (20.8%) had stress. No statistical significance was seen between gender with depression, anxiety and stress. Similar study done in India stated that males 27.5% had depression and females 30.1% had depression. Statistically no significant association between gender and depression.⁴⁵

Table 37-39. Association between residence with depression anxiety and stress

In the present study, participants living in urban, (31.5%) had depression, (36.2%) had anxiety and (22.8%) had stress. Similarly, in rural area (18.6%) had depression, (23.6%) had anxiety and (19.4%) had stress. Significant association was found between residence with depression and anxiety. No significant association between residence and stress.

Table 40-42: Association between religion with depression anxiety and stress

In the present study, among Hindu participants, (24.2%) had depression, (28.6%) had anxiety and (28.6%) had stress. Among Muslim participants, (18.8%) had depression, (21.9%) had anxiety and (21.9%) had stress. Among Christian participants, (11.1%) had depression, (44.4%) had anxiety and (44.4%) had stress. Among Jain participants, (15%) had depression, (20%) had anxiety and (20%) had stress. Similarly, among other participants, (16.7%) had depression, (16.7%) had

anxiety and (16.7%) had stress. No significant association between religion with depression, anxiety and stress. Another study conducted in tertiary centers of India among health care professionals showed Hindus had 34.2% of low stress, 60.9% of moderate stress, 5% of high stress. Muslims had 26.7% of low stress, 60% of moderate stress, 13.3% of high stress. Christians had 20% of low stress, 80% of moderate stress. Other religion had 100% of moderate stress. Hindus had 17.4% depression and 20.7% anxiety. Muslims had 26.7% depression and 6.7% anxiety. Christians had 60% depression and 20% anxiety.³⁶

Table 43-45: Association between socioeconomic status with depression anxiety and stress

In the present study, among participants belonging to socioeconomic status class 1, (25.9%) had depression, anxiety was seen in (33.3%) and stress was seen in (13%). Among participants belonging to class 2, depression was seen in (17.3%), anxiety was seen in (27.6%) and stress was seen in (22%). Among participants belonging to class 3, depression was seen in (25.6%), anxiety was seen in (28.7%) and stress was seen in (23.3%). Among class 4 participants, (25%) had depression, anxiety was seen in (23.6%) and stress was seen in (18.1%). Among class 5, depression was seen in 1 (33.3%), no anxiety was seen and stress was seen in (33.3%). There was no statistically significant association between socio economic status with depression, anxiety and stress.

Table 46- Association between work experience with depression anxiety and stress

In the current study, 0-10 years of work experience (20.5%) had depression, (32.8%) had anxiety and (25%) had stress. Work experience 11-20 years, (25%) had depression, (26%) had anxiety and (16.7%) had stress. Work experience 21-30 years, (29.4%) had depression, (23.5%) had anxiety and (25.5%) had stress. Work experience 31-40 years, (33.3%) had depression, (33.3%) had anxiety and (33.3%) had stress. There was no significant association between work experience with depression, anxiety and stress. Similar study conducted in India among healthcare professionals which showed that work experience of <5 years had 27% depression and 30% anxiety. Work experience of 5-10 years had 21% depression and 33% anxiety. Work experience of >10 years had 16% depression and 25% anxiety.⁴⁰

Another study done in India among the frontline health care professionals who had work experience <5 years had 32.4% of anxiety and 31.6% depression. Work experience >5 years had 25.7% anxiety and 31.6% depression.⁴⁴

Another study conducted in tertiary care centers of western India among health care workers showed work experience of < 1 year had 27.2% stress, 1- 3 years had 18.9% stress, > 3- 10 years had 26.2% stress and > 10 years had 27.8% stress.³⁶

Table 47-49: Association between education with depression anxiety and stress

In the present study, among illiterate no depression, anxiety and stress, among participants with 5-8th standard education (22.7%) had depression, (32%) had anxiety and (25.3%) had stress, among participants with 10-12th/ Diploma (22.9%) had depression, (26.2%) had anxiety and (20%) had stress, among participants with

degree/ postgraduate, (23.5%) had depression, (32.4%) had anxiety and (14.7%) had stress. There was no statistically significant association between education status with depression, anxiety and stress. In other studies, most of the healthcare workers were from a hospital setup. Our study included community healthcare providers from primary healthcare setup included different category of workers with different educational background, so mismatch was seen with other studies. Other study conducted among armed forces doctors in India stated that participants with bachelor degree (24.6%), out of which (33.7%) had anxiety and (26.1%) had depression. Among (41%) with master degree, (32.2%) had anxiety and (25.1%) had depression. Among (34.4%) with doctoral degree, (39.9%) had anxiety and (33.3%) had depression.⁴⁵

Table 50: Association between category of HCW's with depression anxiety and stress

In the current study, different category of workers was exposed to different environmental conditions, out of which medical officers (50%), ASHA (22.4%), AWW (23%), ANM (25%), lab technician (75%), class IV worker (16.7%), male health worker (15.4%), clerk (33.3%) and ambulance driver (33.3%) had depression. Out of which medical officers (25%), ASHA (33.6%), AWW (22.5%), ANM (50%), LHV (50%), Nurse (33.3%), lab technician (100%), male health worker (30.8%), clerk (33.3%) and ambulance driver (33.3%) had anxiety. Out of which ASHA (25.9%), AWW (17.4%), ANM (16.7%), Nurse (33.3%), pharmacist (50%), lab technician (100%), male health worker (15.4%), clerk (33.3%) had stress. No significant association between category of health care worker and depression. There

was a significant association between category of health care worker with anxiety and stress.

Another online study conducted among healthcare workers in India revealed that doctors had 52.2% anxiety, dentist had 6.5% anxiety, nurse had 38% anxiety and paramedics had 3.3% anxiety.³⁰

Table 51-53: Association between marital status with depression anxiety and stress

In the present study, among married participants (22%) had depression, (26.1%) had anxiety and (18.1%) had stress, among unmarried participants 16.7% had depression, (29.2%) had anxiety and (16.7%) had stress, among divorcee (36.4%) had depression, (54.5%) had anxiety and (45.5%) had stress, among separated (50%) had depression, (25%) had anxiety and (50%) had stress, among widow (44.4%) had depression, (55.6%) had anxiety and (77.8%) had stress. No statistical significance between marital status with depression and anxiety. Statistically significant association was found between marital status and stress. Similar study conducted in India amongst the healthcare workers showed married persons have 24.5% anxiety.³⁰

Another study conducted in India among healthcare workers showed unmarried had 24.3% depression, 25% anxiety and 49% stress. Married had 12.7% depression, 14% anxiety and 49.7% stress. Divorced/ separated had 33.3% depression, 33.3% anxiety and 1% stress. Widow/ widower had no depression, 100% anxiety and 0.3% stress.³⁶

Table 54-56: Association between overcrowding with depression anxiety and stress

In the present study, among participants living in an overcrowding environment, 42.1% had depression and 57.9% had no depression. Among participants living in an overcrowding environment, 37.9% had anxiety and 62.1% had no anxiety. Among participants living in an overcrowding environment, 37.9% had stress and 62.1% had no stress. There was a significant association between overcrowding with depression, anxiety and stress.

Table 57: Association between participants diagnosed with COVID and depression anxiety and stress

In our study, people diagnosed with COVID was 80, out of it 52.5% had depression and 47.5% was without depression. People diagnosed with COVID, out of it 61.3% had anxiety and 38.8% had no anxiety. Out of participants diagnosed with COVID, 41.3% was stressed and 58.8% had no stress. Significant association was found between participants diagnosed with COVID and depression, anxiety and stress. Another cross-sectional study conducted in Iran among the healthcare workers showed that HCW's infected with COVID-19 had no significant association between diagnosed with COVID and depression, anxiety and stress.⁵⁵

Table 58: Association between quarantine/isolation with depression anxiety and stress

In the current study, participants quarantined or isolated, out of which 44% of people had depression and 56% of people had no depression. Out of participants quarantined or isolated, 52.3% of people had anxiety and 47.7% had no anxiety. Out

of participants quarantined or isolated, 33.9% of people had stress and 66.1% had no stress. There was a significant association between participants quarantined or isolated with depression, anxiety and stress. Another cross-sectional study conducted in Iran among the healthcare workers showed that the workers had history of quarantine but there was a significant association between quarantine with depression and anxiety with a p value of 0.03.⁵⁵

Table 59: Association between household members infected with COVID with depression anxiety and stress

In our study, participants of the household members infected with COVID, had 39.1% depression and 60.9% of people had no depression. Out of participants of the household members infected with COVID, 47% of people had anxiety and 53% had no anxiety. Out of participants of the household members infected with COVID, 33.9% of people had stress and 66.1% had no stress. There was a significant association between household members infected with COVID and depression, anxiety and stress.

Table 60: Association between direct contact with COVID-19 patient with depression anxiety and stress

In the current study, participants came with direct contact with COVID-19 patients, out of which 25.2% of people had depression and 74.8% of people had no depression. Among participants came with direct contact with COVID-19 patients, 31.9% of people had anxiety and 68.1% had no anxiety. Among participants came with direct contact with COVID-19 patients, 22.3% of people had stress and 77.7% had no stress. There was a significant association between direct contact with

COVID-19 patient and depression, anxiety. No significant association between direct contact with COVID-19 patient and stress. Similar study conducted among healthcare professionals in India through online survey showed that paraclinical 15% had depression and 11% had anxiety. Resident/Intern had 26% had depression and 34% had anxiety. Nurse had 28% had depression and 25% had anxiety. Physician had 18% had depression and 30% had anxiety.⁴⁰

Table 61: Association between care of suspected/ confirmed COVID-19 patient with depression anxiety and stress

In our study, participants came with care of suspected/ confirmed COVID-19 patients, 27.9% of people had depression, 35.4% of people had anxiety and 24.9% of people had stress. There was a significant association between care of suspected/ confirmed COVID-19 patients and depression, anxiety & stress. Similar study done in India among healthcare professionals revealed that participants who were involved in care of COVID patients had 32.4% of depression and 29.5% of anxiety.⁴⁴

Another online survey conducted among health care workers showed that workers involved in COVID care had p value <0.01 for depression, anxiety and stress. There was significant association between care of COVID-19 patient with depression, anxiety and stress.³⁷

Table 62: Assigned between assigned more than duty hours during COVID-19 pandemic with depression, anxiety and stress

In our study participants who were assigned more than duty hours during COVID-19 pandemic, 36% of people had depression, 40% of people had anxiety and 34.3% of people had stress. There was a significant association between assigned

more than duty hours during COVID-19 pandemic and depression, anxiety and stress. Similar study among healthcare professionals conducted in India showed that working overtime had resulted in 30.5% of depression and 30% of anxiety.⁴⁴

Another study conducted in tertiary centers in India among the healthcare workers showed that 8-12 hours of duty showed low levels of stress 46%, moderate stress 49.1% and high stress 2.4%. Participants had 12-24 hours of duty showed that 23% of low stress and moderate stress 76.9%. Participants with beyond 8 hours of duty had 28.5% of depression and 33.4% of anxiety respectively.³⁶

Table 63: Association between PPE provided during COVID-19 pandemic with depression anxiety and stress

In our study, 85 participants were provided with PPE, out of which (38.8%) of people had depression and (61.2%) of people had no depression. Out of 85 participants were provided with PPE, (45.9%) of people had anxiety and (54.1%) had no anxiety. Out of 85 participants were provided with PPE, (34.1%) of people had stress and (65.9%) had no stress. There was a significant association between provided with PPE and depression, anxiety and stress. Another study done in India among the healthcare workers through online survey showed that who had used PPE had minimal anxiety (63.4%), mild anxiety (22.9%), moderate anxiety (9.2%) and severe anxiety (4.6%). Those who had no availability of PPE had minimal anxiety (41.4%), mild anxiety (30%), moderate anxiety (17.1%) and severe anxiety (11.4%).³⁰

Table 64: Association between worked other than their place of jurisdiction with depression anxiety and stress

In our study, 112 participants worked other than their place of jurisdiction, out of which (37.5%) of people had depression and (62.5%) of people had no depression. Out of 112 participants worked other than their place of jurisdiction, (50%) of people had anxiety and (50%) had no anxiety. Out of 112 participants worked other than their place of jurisdiction, (42.9%) of people had stress and (57.1%) had no stress. There was a significant between worked other than their place of jurisdiction and depression, anxiety and stress.

Table 65: Association between sleep pattern with depression anxiety and stress

In our study, participants who had disturbed sleep pattern, out of which 47.1% of people had depression and 52.9% of people had no depression. Depression was high among disturbed sleep pattern. Among participants with disturbed sleep pattern, 51.4% of people had anxiety and 48.6% had no anxiety. Anxiety was high among disturbed sleep pattern. Among participants with disturbed sleep pattern, 44.3% of people had stress and 55.7% had no stress. Stress was high among disturbed sleep pattern. There was a significant association between sleep pattern during COVID-19 pandemic and depression, anxiety and stress.

Table 676: Association between tobacco with depression, anxiety and stress

In our study, participants who had disturbed sleep pattern, out of which 34.8% of people had depression and 65.2% of people had no depression. Among participants with disturbed sleep pattern, 30.4% of people had anxiety and 69.6% had no anxiety. Among participants with disturbed sleep pattern, 13% of people had stress and 87%

had no stress. There was no significant association between tobacco use with depression, anxiety and stress. Similar study conducted among healthcare workers in India showed that people who use tobacco had 36.1% of depression and 33.7% of anxiety.³¹

Table 67: Association between alcohol with depression, anxiety and stress

In the current study, participants who had disturbed sleep pattern, out of which 33.3% of people had depression and 66.7% of people had no depression. Among participants with disturbed sleep pattern, 33.3% of people had anxiety and 66.7% had no anxiety. Among participants with disturbed sleep pattern, 25% of people had stress and 75% had no stress. There was no significant association between alcohol use with depression, anxiety and stress. Similar study conducted among healthcare workers in India showed that people who use tobacco had 36.1% of depression and 33.7% of anxiety.³¹

Table 68: Association between Social Support with Depression, Anxiety and Stress

In our study, out of 385 participants, 87 people were receiving low social support out of which 39.1% was depressed. Out of 298 participants receiving high social support, 22.5% was depressed. Out of 87 participants, 41.4% had anxiety. Out of 298 participants receiving high social support, 27.6% had anxiety. Out of 87 participants, 27.6% was stressed. Out of 298 participants receiving high social support, 20.4% was stressed. Participants who received low social support were more depressed, anxious and stressed, when compared to participants who received high social support. There was no significant association between stress and social support.

Significant association was seen between depression and stress with social support. Similar study conducted among Pakistani doctors in Islamabad revealed that participants with high social support were able to cope with depression, anxiety and stress in a better manner as compared to those who had low social support.⁵⁶

CONCLUSION

The present cross-sectional study reported a prevalence of depression, anxiety and stress among community health care providers was 22.9%, 27.8% and 20.5% respectively. Our study shows various risk factors such as participants residence was significantly associated with depression and anxiety, stress was significantly associated with marital status, history of overcrowding, diagnosed with COVID, quarantined/isolated, history of household members infected with COVID, involved in care of COVID-19 patients, increased workload, unavailability of PPE, worked other than their place of jurisdiction and disturbed sleep pattern was significantly associated with depression, anxiety and stress. Among the category of healthcare workers lab technician was most affected with depression, anxiety and stress.

From the above findings indicate that we need to identify community health care providers at risk at an early stage and provide appropriate psychological resilience at timely intervals. The important mitigation measures have to be taken into account during the pandemic would be limitation of work hours, provide adequate Personal Protective Equipment (PPE) and mental health support by counsellors. In addition, appropriate steps had to be taken to reduce mental health issues among medical staff in the event of an epidemic or pandemic in the future.

Our study has showed that even the healthcare personnel who are not involved in the forefront of COVID-19 care also suffered mental health problems. There is a need of personalized psychiatrists and psychologist for mental health care.

RECOMMENDATIONS

Following suggestions are made for the prevention and management of depression, anxiety, and stress based on the results of our study.

1. Healthcare workers are vulnerable to mental health conditions such as depression, anxiety and stress during the pandemic situation importance to ensure early recognition of symptoms must be given.
2. Informational pamphlets regarding depression, anxiety and stress which describes warning signs and support resources can be given.
3. Periodical screening at institutional level should be done routinely and persons identified with symptoms can be referred for further evaluation.
4. Telephonic conversations with psychiatric staff or face to face interviews with counsellors can be made available for psychological support.
5. Encourage help-seeking behavior and ensure mental health resources readily available when required.
6. Have adequate man power at work place and manage the resources accordingly to avoid increased work load on particular groups.
7. Fixed hours of work in a week and adequate rest must be given to healthcare workers to avoid burnout.

STRENGTHS

1. The current study shows the magnitude of depression, anxiety and stress problem among community health care providers and its associated factors in an urban as well as rural area.
2. Majority of the studies conducted was conducted in corporate setup and population was among health care workers. Our study was one of its kind conducted among various categories of health and non-health care personnel conducted in primary health care background.
3. Universal sampling method was adopted which included all community health care providers from all healthcare facilities.
4. The study was conducted during the pandemic phase and hence can get an idea of mental status of healthcare workers working with COVID-19 background.

LIMITATIONS

1. Lack of longitudinal follow up which failed to check the psychological well-being once the crisis phase wanes.
2. Our study can't be generalized to the whole population of healthcare workers because it was conducted in four primary healthcare centres in Belagavi, Karnataka and majority of the healthcare providers were females.

SUMMARY

The present study cross sectional study was conducted among 385 community healthcare providers of Belagavi city during the period January to December 2021. It was carried out to assess the prevalence of depression, anxiety and stress among the healthcare personnel. All the health care providers of two Primary health centres namely Vantamuri and Kinaye and two Urban health centres namely Ashok Nagar and Rukmini Nagar which come under the field practice area of the Department of Community Medicine, Jawaharlal Nehru Medical College, KAHER, Belagavi will be enrolled in this study. Universal sampling method- was adopted and all the community health care providers who provided consent were included in the study, so the sample size was 385 participants.

In our study most of the participants, 43.1% belonged to age group of 31-40 years and majority (93.5%) of study participants were females. More than 2/3rd of them (82.6%) belonged to Hindu by religion. More than 2/4th (67%) was residing in rural areas and rest were from urban. In the study, 71.4% had either 10th-12th or Diploma education, most of the workers were ASHA 30.1% and 55.3% were anganwadi worker. Nearly 87% of study participants were married. Study participants belonging to socioeconomic class II and class III were 33% and 33.5%. Mostly 30.1% of study participants had work experience of 11-20 years. Nearly 2/4th of the study participants followed the vegetarian diet 50.6%. Majority of the study participants wasn't using alcohol and tobacco. Disturbed sleep was noticed among 81.8% of participants. Among the healthcare workers overcrowding was reported to be 24.7%.

Our study reported that participants diagnosed with COVID was around 20.8% and people quarantined/ isolated were 28.3%. Among household members of study participants infected with COVID was 29.9%. Nearly, 80.3% of participants had reported that they had direct contact with COVID-19 patient and 59.5% of participants was involved in care of COVID-19 patients. Our study had 45.5% of healthcare workers working beyond 8 hours during the COVID-19 pandemic. PPE was provided to 22.1% of healthcare workers and out of 85 HCW's provided with PPE, 96.5% reported they felt safe with provided PPE. Among the study participants, (28.8%) of the study participants stated that they were assigned duties in places other than their jurisdiction. In our study, (6.8%) reported to have diabetes, (7.5%) had hypertension, (8.1%) had diabetes and hypertension, (0.5%) had coronary artery disease, (0.8%) had COPD and (1.8%) had thyroid disorders. Majority of study participants falls in the normal BMI (80%), the rest were (16.6%) overweight, (1.6%) were obese and (0.8%) are underweight.

In the current study, majority of the study participants were normal while (9.1%) had mild depression, (12.5%) had moderate depression and (1.3%) had severe depression. Among the participants (8.1%) had mild anxiety, (14.3%) had moderate anxiety, (3.6%) had severe anxiety and (1.8%) had extremely severe anxiety. Furthermore (10.9%) had mild stress, (7.8%) had moderate stress and (1.8%) had severe stress. Sociodemographic details such as age and sex had no significant association between depression, anxiety and stress. Sociodemographic details such as residence, religion, socioeconomic status, work experience and education had no significant association with depression, anxiety and stress.

In the study, among the category of healthcare workers no significant association was seen with depression. Significant association was seen between category of HCW's with anxiety and stress. No significant association was seen between marital status with depression, anxiety and stress. Overcrowding was significantly associated with depression, anxiety and stress. Our study shows significant association between HCW's diagnosed with COVID, quarantined/isolated, household members of HCW's infected with COVID, direct contact with COVID-19 patients, care of COVID-19 confirmed individuals with depression, anxiety and stress. In the current study, participants who have assigned more than duty hours, worked other than their place of jurisdiction and provided with PPE was found to be significantly associated with depression, anxiety and stress. In our study, among the personal history sleep pattern was found to be significantly associated with depression, anxiety and stress. Between tobacco and alcohol consumption there was no significant association between depression, anxiety and stress.

BIBLIOGRAPHY

1. Wu Z, McGoogan JM. Characteristics of and Important Lessons from the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. *JAMA*. 2020 Apr 7;323(13):1239-42.
2. WHO Coronavirus (COVID-19) Dashboard. 2022. 12 Oct 2022. Available from: <https://covid19.who.int/>).
3. Andrews MA, Areekal B, Rajesh KR, Krishnan J, Suryakala R, Krishnan B, Muraly CP, Santhosh PV. First confirmed case of COVID-19 infection in India: A case report. *Indian J Med Res*. 2020 May;151(5):490-2.
4. Levin AT, Owusu-Boaitey N, Pugh S, Fosdick BK, Zwi AB, Malani A, et al. Assessing the burden of COVID-19 in developing countries: systematic review, meta-analysis and public policy implications. *BMJ Glob Health*. 2022;7(5):e008477.
5. Das S. Mental Health and Psychosocial Aspects of COVID-19 in India: The Challenges and Responses. *Journal of Health Management*. 2020;22(2):197-205.
6. Joseph B, Joseph M. The health of the healthcare workers. *Indian J Occup Environ Med*. 2016 May-Aug;20(2):71-72.
7. Santarone K, McKenney M, Elkbuli A. Preserving mental health and resilience in frontline healthcare workers during COVID-19. *Am J Emerg Med*. 2020;38(7):1530-1.

8. Pfefferbaum B, North CS. Mental health and the Covid-19 pandemic. *N Engl J Med*. 2020 Aug 6;383(6):510-2.
9. Cheng F-F, Zhan S-H, Xie A-W, Cai S-Z, Hui L, Kong X-X, et al. Anxiety in Chinese pediatric medical staff during the outbreak of Coronavirus Disease 2019: a cross-sectional study. *Transl Pediatr*. 2020 Jun;9(3):231-6.
10. Elhadi M, Msherghi A, Elgzairi M, Alhashimi A, Bouhuwaish A, Biala M, et al. Psychological status of healthcare workers during the civil war and COVID-19 pandemic: A cross-sectional study. *J Psychosom Res*. 2020 Aug 16;137:110221.
11. Huang L, Wang Y, Liu J, Ye P, Chen X, Xu H, et al. Factors influencing anxiety of health care workers in the radiology department with high exposure risk to COVID-19. *Med Sci Monit*. 2020 Jul 25;26:e926008-1.
12. Alharthi MH, Alshomrani AT, Bazaid K, Sonpol HMA, Ibrahim IAE, Alashkar AM. Factors Affecting the Psychological Well-Being of Health Care Workers During the COVID-19 Crisis. *Psychol Res Behav Manag*. 2022 Jul 28;15:1931-42.
13. Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, et al. Psychosocial impact of COVID-19. *Diabetes Metab Syndr*. 2020 Sep 1;14(5):817-23.
14. Gavin B, Lyne J, McNicholas F. Mental health and the COVID-19 pandemic. *Ir J Psychol Med*. 2020 Sep;37(3):156-158.

15. Diagnosis of Mental Health issues post covid-19. Ministry of Health and Family Welfare, 2022. (Accessed 02 Oct 2022, at <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1813665>).
16. De Kock JH, Latham HA, Leslie SJ, Grindle M, Munoz S-A, Ellis L, et al. A rapid review of the impact of COVID-19 on the mental health of healthcare workers: implications for supporting psychological well-being. *BMC public health* 2021;21(1):104.
17. Sun P, Wang M, Song T, Wu Y, Luo J, Chen L, et al. The Psychological Impact of COVID-19 Pandemic on Health Care Workers: A Systematic Review and Meta-Analysis. *Front Psychol.* 2021 July 8;12:626547.
18. Cénat JM, Blais-Rochette C, Kokou-Kpolou CK, Noorishad PG, Mukunzi JN, McIntee SE, et al. Prevalence of symptoms of depression, anxiety, insomnia, posttraumatic stress disorder, and psychological distress among populations affected by the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Res.* 2021;295:113599.
19. Sahebi A, Abdi K, Moayedi S, Torres M, Golitaleb M. The prevalence of insomnia among health care workers amid the COVID-19 pandemic: An umbrella review of meta-analyses. *J Psychosom Res.* 2021 Oct 1;149:110597.
20. Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsis E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain Behav Immun.* 2020 Aug 1;88:901-7.

21. Tan BY, Chew NW, Lee GK, Jing M, Goh Y, Yeo L, et al. Psychological impact of the COVID-19 pandemic on health care workers in Singapore. *Annals of internal medicine* 2020;173(4):317-20.
22. Raj R, Koyalada S, Kumar A, Kumari S, Pani P, Nishant, et al. Psychological impact of the COVID-19 pandemic on healthcare workers in India: An observational study. *J Family Med Prim Care*. 2020;9(12):5921-6.
23. Chew NWS, Lee GKH, Tan BYQ, Jing M, Goh Y, Ngiam NJH, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun*. 2020;1(88):559-65.
24. Sunil R, Bhatt MT, Bhumika TV, Thomas N, Puranik A, Chaudhuri S, et al. Weathering the Storm: Psychological Impact of COVID-19 Pandemic on Clinical and Nonclinical Healthcare Workers in India. *Indian J Crit Care Med*. 2021;25(1):16-20.
25. Bhattacharya PK, Prakash J. Impact of COVID-19 on Psychological and Emotional Well-being of Healthcare Workers. *Indian J Crit Care Med*. 2021;25(5):479-81.
26. Chatterjee SS, Chakrabarty M, Banerjee D, Grover S, Chatterjee SS, Dan U. Stress, Sleep and Psychological Impact in Healthcare Workers During the Early Phase of COVID-19 in India: A Factor Analysis. *Front Psychol*. 2021 Feb 25;12:473.

27. Menon GR, Yadav J, Aggarwal S, Singh R, Kaur S, Chakma T, et al. Psychological distress and burnout among healthcare worker during COVID-19 pandemic in India-A cross-sectional study. *PLoS One*. 2022 Mar 10;17(3):e0264956.
28. Jacob J, Vijay V, Issac A, et al. Somatoform Symptoms among Frontline Health-Care Providers during the COVID-19 Pandemic. *Indian J Psychol Med*. 2021;43(3):272-4.
29. 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):353-8.
30. 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 Dec 22;6(4):e24206.
31. Parthasarathy R, Jaisoorya T, 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.
32. Jakhar J, Biswas PS, Kapoor M, Panghal A, Meena A, Fani H, et al. Comparative study of the mental health impact of the COVID-19 pandemic on health care professionals in India. *Future Microbiol*. 2021;16(16):1267-76.

33. Khanna RC, Honavar SG, Metla AL, Bhattacharya A, Maulik PK. Psychological impact of COVID-19 on ophthalmologists-in-training and practising ophthalmologists in India. *Indian J Ophthalmol.* 2020;68(6):994-8.
34. Abdulla E, Velladath SU, Varghese A, Anju MJCE, Health G. Depression and anxiety associated with COVID-19 pandemic among healthcare professionals in India-A systematic review and meta-analysis. *Clin Epidemiol Glob Health* 2021;12:100888.
35. Spoorthy MS, Pratapa SK, Mahant S. Mental health problems faced by healthcare workers due to the COVID-19 pandemic—A review. *Asian J Psychiatr.* 2020;51:102119.
36. Patel A, Kandre DD, Mehta P, Prajapati A, Patel B, Prajapati S, et al. Multi-centric study of psychological disturbances among health care workers in tertiary care centers of Western India during the COVID-19 pandemic. *Neuropsychiatra i Neuropsychologia.* 2021;15(3):89-100.
37. Parel JT, Varshney M, George M, Khurana R, Thomas L, Khakha DJJDA. Feeling the early impact of COVID-19 pandemic: Mental health of nurses in India. *J Depress Anxiety.* 2020;9(5):381.
38. Ranjan L, Gupta P, Gujar N, Baraik S. Psychological distress and quality of life among hospital staff in India during COVID-19 pandemic. *International Journal of Arts, Science and Humanities* 2021;8:55-60.
39. Rathore P, Kumar S, Choudhary N, Sarma R, Singh N, Haokip N, Bhopale S, Pandit A, Ratre BK, Bhatnagar S. Concerns of health-care professionals

- managing COVID patients under institutional isolation during COVID-19 Pandemic in India: A descriptive cross-sectional study. *Indian J Palliat Care*. 2020 Jun;26(Suppl 1):S90.
40. Suryavanshi N, Kadam A, Dhumal G, Nimkar S, Mave V, Gupta A, et al. Mental health and quality of life among healthcare professionals during the COVID-19 pandemic in India. *Brain behav*. 2020;10(11):e01837.
41. Grover S, Mehra A, Sahoo S, Avasthi A, Rao TSS, Vaishnav M, et al. Evaluation of Psychological Impact of COVID-19 on Health-Care Workers. *Indian J Psychiatry*. 2021;63(3):222-7.
42. Nathiya D, Suman S, Singh P, Raj P, Tomar BS. Mental Health outcome and Professional quality of Life among Healthcare Worker during COVID-19 pandemic: A (FRONTLINE-COVID) survey. *Ann Med Psychol*. 2021.
43. Dordi MD, Jethmalani K, Surendran KK, Contractor A. The effect of the COVID-19 pandemic on the mental health of Indian health care workers. *International Journal of Indian Psychology*. 2020;8:597-608.
44. Sharma SK, Mudgal SK, Thakur K, Parihar A, Chundawat DS, Joshi J. Anxiety, depression and quality of life (QOL) related to COVID-19 among frontline health care professionals: A multicentric cross-sectional survey. *J Family Med Prim Care*. 2021;10(3):1383-9.
45. Gupta S, Kohli K, Padmakumari P, Dixit PK, Prasad AS, Chakravarthy BS, et al. Psychological health among armed forces doctors during COVID-19 pandemic in India. *Indian J Psychol Med*. 2020;42(4):374-8.

46. Shetty A, Bhat R, Shetty P, Hegde M, Krishna Nayak U, souza N. The psychological impact of the COVID-19 pandemic on dental healthcare professionals. *J Int Oral Health* 2020. 2020;12(8):98-105.
47. Coker AO, Coker OO, and Sanni D. Psychometric properties of the 21-item Depression Anxiety Stress Scale (DASS-21). *African Res Rev*. 2018; 12: 135.
48. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment* 1988;52:30-41.
49. Debnath DJ. Kakkar R. Modified BG Prasad Socio-economic Classification, Updated –2020. *Indian J Comm Health*. 2020;32(1):124-125.
50. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed, Jabalpur: Banarasidas Bhanot; 2021.p.132, 445 and 846.
51. Tobacco Questions for Survey -WHO. [Online]. [cited 2022 November 04]; Available from: https://www.who.int/tobacco/surveillance/en_tfi_tqs.pdf
52. MedicalNewsToday.com. What is medical abuse disorder, and what is the treatment? [Online]. [cited 2022 November 17]; Available from: <https://www.medicalnewstoday.com/articles/157163#symptoms>.
53. Section 4: Guide to Physical Measurements (Step2) - WHO STEPS Surveillance. [online]. [cited 2022 October 26]; Available from: https://www.who.int/ncds/surveillance/steps/STEPS_Manual.pdf
54. Iversen K, Bundgaard H, Hasselbalch RB, Kristensen JH, Nielsen PB, Pries-Heje M, et al. Risk of COVID-19 in health-care workers in Denmark: an observational cohort study. *Lancet Infect Dis*. 2020 Dec 1;20(12):1401–8.

55. Paykani T, Zimet GD, Esmaeili R, Khajedaluee AR, Khajedaluee M. Perceived social support and compliance with stay-at-home orders during the COVID-19 outbreak: evidence from Iran. *BMC Public Health*. 2020 Dec 1;20(1).
56. Bilal A, Mustehsan ZH, Hasan B, Sarwar N, Ayaz N, Khan R. Mental Health and Its Association with Perceived Social Support During Covid-19 Pandemic Among Pakistani Doctors: A Comparative Study. *Pakistan Journal of Public Health*. 2021 May 31;11(1):11–6.
57. Vimercati L, de Maria L, Quarato M, Caputi A, Gesualdo L, Migliore G, et al. Association between long COVID and overweight/obesity. *J Clin Med*. 2021 Sep 1;10(18).

ANNEXURES

ANNEXURE – I

INFORMED CONSENT FORM

KAHER J. N. MEDICAL COLLEGE, BELAGAVI

DEPARTMENT OF COMMUNITY MEDICINE

**“PSYCHO-SOCIAL EFFECT OF COVID-19 PANDEMIC ON HEALTH CARE
PROVIDERS- A CROSS SECTIONAL STUDY.”**

Guide: _____

Associate Professor of Community Medicine

Co-guide: _____

Investigator: _____

Introduction: You are being invited to participate in this study to find out “**Psycho-social effect of COVID-19 pandemic on health care providers - A cross sectional study.**” The global COVID-19 pandemic continues to be one of the biggest health threats, contributing to more deaths and newly diagnosed cases keeps on increasing. India ranks second among the world as per number of total cases. This unpredictable, fast spreading of the disease caused universal awareness, anxiety and distress, all of which are expected to be the psychological outcomes to the randomly changing situation. Health care workers play a major role in controlling the infections and providing treatment. Longer work duration, physical, pressure, isolation, lack of social support may have consequences on their mental health. Health care workers experiencing high levels of stress, anxiety and depressive symptoms for longer time can produce psychological implications. Hence it is important that the health care workers keep a track of their physical and mental health. To evaluate the psychological outcomes, perceived threat items among health care workers and social support

provided to them at the required situations. These are the reasons for the present study to be undertaken. Participation in this study is completely voluntary.

Explanation of procedures: In this study, you will have to answer a few prepared questions about socio-demographic details. **DASS21** scale will be used to assess depression, anxiety and stress. Perceived threat items among health care workers will be assessed and to find out social support received using **Multidimensional Scale of Perceived Social Support**. If you agree to participate, then only questions will be asked to you. At any moment, you can withdraw from the study.

Possible Benefits: During this study, if you are found to be suffering from psychological problems you will be counselled and referred to KLE Prabhakar Kore Hospital for further management. No risk is involved in this study.

Incentives: You will not be eligible for any kind of monetary benefits or free services by virtue of your participation in the study.

Possible Risks: There is no risk involved in this study.

Privacy and Confidentiality: The results of the study may be published for scientific purposes. However, your identity will not be revealed and all information collected will be coded so that, no one other than the investigator will know your identity.

Withdrawal: You can withdraw from the study at any point of time if you wish to do.

Costs of Participation: The cost of the study will be borne by the researcher. There will be no additional cost to you for participating in this study.

Payment of Participation: There will be no incentives to you for participating in this study.

Authorization to publish the results: The researcher may use the information gathered from this study for presentation or publication in scientific journals. However, your personal identity will not be revealed.

Legal Rights: By signing this consent form; you are not waiving any of your Legal rights.

Questions:

If you have any question about your rights as a study participant, you may contact **Dr. Harsha Hegde**, Chairperson, JNMC Institutional Ethics Committee on Human Subjects' Research at 0831-2741701 / 9480422500 or

Dr. (Mrs) N.S. Mahantshetti, Principal, J.N. Medical College, Belagavi- 590010. Ph no: 0831-2471350.

CONSENT STATEMENT

“I have read / have been explained in my own understandable language about the contents in this form and my queries have been clarified by the investigator and I have been told that I have the right to withdraw from participating in this study at any point of time. I have been assured that confidentiality will be maintained and will be used only for this study and my identity shall never be revealed in future.”

I hereby give my consent for participation in the study voluntarily and not under the influence of the investigator or any other influence.

Name of the Participant

Signature of the participant
or Left-Hand Thumb impression

Name of Investigator

Signature of investigator

Name of Witness

Signature of Witness

Date:

Signature of PG guide

ANNEXURE – II QUESTIONNAIRE

KAHER

J. N. MEDICAL COLLEGE, BELAGAVI

DEPARTMENT OF COMMUNITY MEDICINE

PSYCHO-SOCIAL EFFECT OF COVID-19 PANDEMIC ON HEALTH CARE

PROVIDERS - A CROSS SECTIONAL STUDY

Primary Investigator: _____

SI. No: _____

1.SOCIODEMOGRAPHIC DETAILS

a) Name:

b) Age: _____yrs.

c) Sex: 1) Male 2) Female

d) Address: 1) Urban 2) Rural

e) Religion: 1) Hindu 2) Muslim 3) Christian 4) Jain 5) Others

f) Education status:

1) Illiterate 2) Read and write 3) Standard 1-4th

4) Standard 5-8th 5) 10-12/Diploma 6) Degree/Post graduate

g) Category of Health care workers

1) Medical Officer 2) Accredited Social Health Activist (ASHA)

3) Anganwadi Worker (AWW) 4) Auxiliary Nurse Midwife (ANM)

5) Lady Health Visitor (LHV) 6) Nurse 7) Pharmacist

8) Lab technician 9) Ambulance driver 10) Class IV workers

11) Others, please specify

h) Marital status: 1) Married 2) Unmarried 3) Divorcee 4) Separated

i) Total income of family per month: Rs. _____

j) Total number of family members: _____

k) Socio economic status: (According to Modified BGP Classification)

1) I 2) II 3) III 4) IV 5) V

l) House well ventilated: 1) Yes 2) No

m) Overcrowding 1) Present 2) Absent

2.HISTORY RELATED TO COVID-19

1.Have you ever been diagnosed with COVID 1) Yes 2) No

2.Have you been quarantined or isolated? 1) Yes 2) No

If, yes

3.How did you spend time during 14 days of quarantine?

1)Reading books 2) Watching movies 3) Doing household chores

4) Laying/sleeping 5) Listening to music 6) Engaging in social media

7) Painting 8) Work from home 9) Others

4.Have your household members been infected with COVID-19? 1) Yes 2) No

If yes, How many household members were infected? _____

5.Have you come in direct contact with COVID-19 patient? 1)Yes 2) No

6.Are you associated with the care of suspected/confirmed COVID-19 patients?

1)Yes 2) No

7.Were you assigned more than your duty hours during COVID-19 pandemic?

If yes, _____working hours

8.Have you been provided with adequate PPE? 1)Yes 2) No

9.Do you feel safe with the use of PPEs provided to you? 1)Yes 2) No

10.What is your duration of work experience? (Years of service) _____

11. Where you asked to work in any other place other than your centre of jurisdiction?

1) Yes

2) No

If Yes, 1) Airport

2) Slums

3) Other villages

4) Railway station

5) Bus stand

6) Others

3. PERSONAL AND MEDICAL HISTORY:

a) Diet

1) Veg

2) Mixed

b) Sleep

1) Normal

2) Disturbed

c) Tobacco use

1) Yes

2) No

If Yes

i) Smoking

ii) Smokeless

d) Do you consume alcohol? 1) Yes

2) No

If yes,

- Frequency - 1. Daily 2. Once a week 3. Occasionally

e) Are you suffering from any of the following diseases? (Self-declared)

1- Diabetes only

2- Hypertension only

3- Diabetes + Hypertension

4- Coronary artery disease

5- COPD

6- Others specify _____

4. GENERAL PHYSICAL EXAMINATION

1. Height (CMS) _____

2. Weight (kgs) _____

3. Body Mass Index (BMI) _____

4. Blood Pressure (mm Hg) _____

5. DEPRESSION, ANXIETY AND STRESS SCALE (DASS21)

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you

The rating scale is as follows:

- 0 - Did not apply to me at all
- 1 - Applied to me to some degree, or some of the time
- 2 - Applied to me to a considerable degree or a good part of time
- 3 - Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things.	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g., in the hands)	0	1	2	3
8(s)	I felt that I was using a lot of nervous energy.	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

6. PERCEIVED THREAT AMONG HEALTH CARE WORKERS

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1.I'm afraid of being infected by COVID-19					
2.I'm anxious to be shifted to the ward for COVID-19 patients					
3.I'm worried about being quarantined or isolated					
4.My job puts me at a high risk of being infected by COVID-19					
5.My close contacts are at high risk of being infected due to my job					
6.My close friends and relatives are worried that I might transmit the virus to them					
7.I'm distanced by others due to my job					
8.I'm stigmatized by others due to my job					

7.Multidimensional Scale of Perceived Social Support

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**

Circle the "2" if you **Strongly Disagree**

Circle the "3" if you **Mildly Disagree**

Circle the "4" if you are **Neutral**

Circle the "5" if you **Mildly Agree**

Circle the "6" if you **Strongly Agree**

Circle the "7" if you **Very Strongly Agree**

1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7	SO
2.	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	SO
3.	My family really tries to help me.	1	2	3	4	5	6	7	Fam
4.	I get the emotional help and support I need from my family.	1	2	3	4	5	6	7	Fam
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7	SO
6.	My friends really try to help me.	1	2	3	4	5	6	7	Fri
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7	Fri
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7	Fam
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	Fri
10.	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7	SO
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7	Fam
12.	I can talk about my problems with my friends.	1	2	3	4	5	6	7	Fri

ANNEXURE III – KEY TO MASTERCHART

1.SOCIODEMOGRAPHIC DETAILS

A) Serial no:

B) Age:

- | | |
|----------|----------|
| 1) 21-30 | 2) 31-40 |
| 3) 41-50 | 4) 51-60 |

C) Sex: 1) Male 2) Female

D) Address: 1) Urban 2) Rural

E) Religion: 1) Hindu 2) Muslim 3) Christian 4) Jain 5) Others

F) Education status:

- | | | |
|-------------------------------|-------------------|-------------------------------|
| 1) Illiterate | 2) Read and write | 3) Standard 1-4 th |
| 4) Standard 5-8 th | 5) 10-12/Diploma | 6) Degree/Post graduate |

G) Category of Health care workers

- | | |
|------------------------------|---|
| 1) Medical Officer | 2) Accredited Social Health Activist (ASHA) |
| 3) Anganwadi Worker (AWW) | 4) Auxiliary Nurse Midwife (ANM) |
| 5) Lady Health Visitor (LHV) | 6) Nurse 7) Pharmacist |
| 8) Lab technician | 9) Ambulance driver 10) Class IV workers |
| 11) Male Health Worker | 12) Community Health Officer 13) Clerk |
| 14) Others | |

H) Marital status: 1) Married 2) Unmarried 3) Divorcee 4) Separated

I) Socio economic status: (According to Modified BGP Classification)

- | | | | | |
|------|-------|--------|-------|------|
| 1) I | 2) II | 3) III | 4) IV | 5) V |
|------|-------|--------|-------|------|

J) House well ventilated: 1) Yes 2) No

K) Overcrowding 1) Present 2) Absent

2.HISTORY RELATED TO COVID-19

Q1. Have you ever been diagnosed with COVID 1) Yes 2) No

Q2. Have you been quarantined or isolated? 1) Yes 2) No

If, yes

Q3. How did you spend time during 14 days of quarantine?

- 1) Reading books 2) Watching movies 3) Doing household chores
4) Laying/sleeping 5) Listening to music 6) Engaging in social media
7) Painting 8) Work from home 9) Others 0) Not applicable

Q 4. Have your household members been infected with COVID-19? 1) Yes 2) No
0) Not applicable

Q4a. If yes, how many household members were infected?

Q5. Have you come in direct contact with COVID-19 patient? 1) Yes 2) No

Q 6. Are you associated with the care of suspected/confirmed COVID-19 patients?
1) Yes 2) No

Q 7. Were you assigned more than your duty hours during COVID-19 pandemic?

Q7 a. If yes, _____ working hours

Q8. Have you been provided with adequate PPE? 1) Yes 2) No

Q 9. Do you feel safe with the use of PPEs provided to you? 1) Yes 2) No

Q10. What is your duration of work experience? (Years of service) _____

Q11. Where you asked to work in any other place other than your center of jurisdiction?
1) Yes 2) No

- Q11 a. If Yes, 1) Airport 2) Slums 3) Other villages
4) Railway station 5) Bus stand 6) Others

3.PERSONAL AND MEDICAL HISTORY:

Q1) Diet 1) Veg 2) Mixed

Q2) Sleep 1) Normal 2) Disturbed

Q3) Tobacco use 1) Yes 2) No

Q3a. If Yes i) Smoking ii) Smokeless

Q4. Do you consume alcohol? 1) Yes 2) No

Q4a. If yes,

- Frequency - 1. Daily 2. Once a week 3. Occasionally

Q5) Are you suffering from any of the following diseases? (Self-declared)

1- Diabetes only 2- Hypertension only 3- Diabetes + Hypertension

4- coronary artery disease 5- COPD 6- Others specify _____

4.GENERAL PHYSICAL EXAMINATION

Q1. Height (CMS) _____

Q2. Weight (kgs) _____

Q3. Body Mass Index (BMI) _____

Blood Pressure (mm Hg) _____

5. DEPRESSION, ANXIETY AND STRESS SCALE (DASS21)

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you

The rating scale is as follows:

- 0 - Did not apply to me at all
- 1 - Applied to me to some degree, or some of the time
- 2 - Applied to me to a considerable degree or a good part of time
- 3 - Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things.	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g., in the hands)	0	1	2	3
8(s)	I felt that I was using a lot of nervous energy.	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
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6. PERCEIVED THREAT AMONG HEALTH CARE WORKERS

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3. Neither agree nor disagree
4. Agree
5. Strongly agree

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8. PHC

1. Kinaye
2. Vantamuri
3. Rukmini Nagar
4. Ashok Nagar

[illegible]