



# PREVALENCE OF OCCUPATIONAL STRESS AMONG NURSES WORKING IN SELECTED DEDICATED COVID HEALTH CENTERS (DCHCS)

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## ABSTRACT

**Introduction:** The COVID-19 pandemic has had a major effect on our lives. Nurses' reactions to the stress of the COVID-19 pandemic must be viewed from an occupational health and safety perspective. Month after month of working in the high-stakes environment of COVID-19 has had a huge impact on the mental health and well-being of nurses. The aim of this study is to assess the occupational stress among nurses working in Dedicated COVID Health Centres (DCHC).

**Methods:** The study was done by collecting data from nurses working in selected DCHC's of Satara District. Descriptive study design was used to assess occupational stress among nurses. Data collection tool consisted of Self-Prepared 5-point Likert Scale to assess occupational stress. Non-probability purposive sampling technique was used to select 50 participants. 15 to 20 minutes were given to participants to complete the questionnaire. Data was analysed using frequency, percentage, and Chi square test.

**Results:** The findings of the study revealed that out of 50 participants 0% had mild, 28% had moderate, 56% had severe, and 16% had very severe occupational stress. The study also showed that there was no significant association between prevalence of occupational stress and demographic variables like Age, Level of education, Number of years of work experience, Duration of work experience in DCHC, Marital status and prevalence of occupational stress among nurses working in DCHC, Chi -square value = 1.049, 3.199, 0.519, 1.838, respectively ( $P = 0.5917, 0.202, 0.7714, 0.3988, 0.2092$  respectively).

**Conclusion:** Occupational stress is prevalent among nurses which can affect their motivation and level of functioning. This study findings indicate the need to plan measures to combat stress among nurses working in communicable disease departments.

**KEYWORDS:** Occupational stress, Nurses, COVID-19.

## INTRODUCTION

The name "corona virus" is derived from a Latin word *corona*, meaning "crown" or "wreath". It was borrowed from a Greek word, *korone* which means "garland" and "wreath". The name was coined by June Almeida and David Tyrell who first observed and studied human corona viruses. <sup>[1]</sup>

Corona viruses are a group of related RNA viruses that cause diseases in mammals and birds. In humans and birds, they cause respiratory tract infections that can range from mild to lethal. Mild illnesses in humans include some cases of

the common cold (which is also caused by other viruses, predominantly rhinoviruses), while more lethal varieties can cause SARS, MERS, and COVID-19<sup>[2]</sup>.

The COVID-19 pandemic has had a major effect on our lives. Many of us are facing challenges that can be stressful, overwhelming and cause strong emotions in adults and children <sup>[3]</sup>. Frontline nursing and medical staff, especially in the early stages of epidemics, have suffered from anxiety and depression due to high workload, insufficient personal protective equipment, lack of knowledge of the pathogen and direct contact with patients. Consequently, nurses have commonly



reported to experience a greater decline of morale and decreased job satisfaction due to the nature of the profession. Therefore, mental health initiatives are important to support nurses and doctors during an unprecedented health crisis of a pandemic.<sup>[4]</sup>

Nurses' reactions to the stress of the current pandemic must be viewed from an occupational health and safety perspective. Stress and burnout were recognized internationally as work hazards for nurses before the pandemic. Research suggests that both occupational and personality factors play a role in burnout. In 2019 the World Health Organization declared burnout an occupational phenomenon—rather than a medical condition. Characterized by feelings of exhaustion, disengagement from one's job, and a sense of diminished professional fulfilment, burnout is considered the result of chronic work stress that the individual is not able to manage. The onset of the COVID-19 pandemic has increased work stress among an already strained nursing corps, putting their mental health and well-being at risk. Recent research from China and Italy, two nations that experienced the early phase of the pandemic, found that nurses directly involved in the care of COVID-19 patients were at increased risk for mental health problems compared to other healthcare professionals.<sup>[5]</sup>

Several reviews have already been conducted on healthcare workers' mental health in the COVID-19 pandemic, with the recent research conducted on 11 June 2021. Pappa et al. (2020) identified thirteen studies searched on 17<sup>th</sup> April 2020 and pooled prevalence rates; they reported that more than one of every five healthcare workers suffered from anxiety and/or depression; nearly two in five reported insomnia.<sup>[6]</sup>

Healthcare workers like nurses, doctors and other medical staff who worked on the frontlines in China experienced symptoms of anxiety, depression and sleeping difficulty. More specifically, about 46.04% had anxiety, 44.37% had depression, and 28.75% experienced insomnia. In Wuhan, China, over 70% of healthcare workers reported psychological distress.<sup>[7]</sup>

Healthcare workers are at risk for developing trauma or other stress-related disorders due to fears of falling ill and not knowing what will happen in the future. Post-traumatic stress was common among health workers, with nurses demonstrating a higher likelihood of developing or having anxiety among others in the medical field.

The COVID-19 pandemic has led to a rise in fear, anxiety, stress, and depression among the population: of these, university undergraduates from countries severely affected by COVID-19 are some of the most vulnerable, as they face strict lockdown measures and have fewer resources to cope with it.<sup>[8]</sup>

Month after month of working in the high-stakes environment of COVID-19 has had a huge impact on the mental health and well-being of nurses. Long hours caring for patients, fears about contracting the virus, separation from loved ones, and redeployment – the pressure on nurses has been unrelenting since

March last year. Nurses are suffering the brunt of the COVID-19 pandemic. They are physically and mentally exhausted. Particularly, within critical care, there are significant levels of post-traumatic stress evident, which is extremely worrying. This is simply not sustainable. Long hours caring for patients, fears about contracting the virus, separation from loved ones, and redeployment – the pressure on nurses has been unrelenting since March 2020.<sup>[9]</sup>

A study was done to explore the influencing factors of job stress among nurses fighting COVID-19 conducted by Yufang Zhan, in China, published on 22 October 2020. A convenient sampling method was used to conduct a questionnaire survey with 110 nurses who were on the clinical frontline of the COVID-19 epidemic in a hospital in Wuhan. The results showed that the average job stress score of the 110 frontline nurses assisting in combating the COVID-19 epidemic was  $91.42 \pm 26.09$ , which represents a moderate stress level, the dimensions of work environment and resources as well as workload and time pressure were ranked first and second, respectively. The study concluded that the job stress among nurses on the clinical frontline of the COVID-19 epidemic was found to be at a medium level.<sup>[10]</sup>

A study carried out by Ruchira.W.Khasne, conducted in India to evaluate the prevalence of burnout during COVID 19 pandemic among healthcare workers, using the Copenhagen Burnout Inventory Questionnaire was sent to the HCWs, using WhatsApp Messenger, and voluntary participation was sought. The responses from 2026 HCWs were received. Burnout was assessed in personal, work, and client-related (COVID-19 pandemic-related) domains. The result shows that the prevalence of personal burnout was 44.6% (903), work-related burn-out was only 26.9% (544), and greater than half of the respondents (1,069, 52.8%) had pandemic-related burnout. Younger respondents (21–30 years) had higher personal and work-related burnout. The prevalence of personal and work-related burnout was significantly ( $p < 0.01$ ) higher among females. The doctors were 1.64 times, and the support staffs were 5 times more likely to experience pandemic-related burnout. The study concluded that there was a significant prevalence of burnout experienced by the HCW's during the COVID-19 pandemic, particularly among the doctors and the staff nurse.<sup>[11]</sup>

A research study was conducted at Pilani, Jodhpur by Jaydev P S et.al. The study aimed to assess the level of stress perceived by nurses working in selected COVID designated hospitals in India. The study used the Descriptive Cross Sectional Survey and Purposive Sampling Technique. A total of 190 nurses participated in the study. The result showed that a moderate level of stress was perceived by the majority of nurses. There was a statistically significant association found between perceived levels of stress with demographic variables like age, education, and experience at  $p < 0.05$  level, but no significant association existed between gender and level of stress perceived. The study concluded that the effective management of pandemic should be the priority for healthcare organizations and adequate training should be given for health care workers.<sup>[12]</sup>



A number of articles have been reviewed and it showed that most of the study participants were found to have high stress level and there is a significant prevalence of burnout during the COVID-19 pandemic among HCW's, particularly among doctors and staff nurses.

It is therefore, felt that there is a need to assess occupational stress among nurses working in selected Dedicated COVID Health Centre in Satara District of Maharashtra state.

**OBJECTIVE OF THE STUDY**

To assess the prevalence of occupational stress among nurses working in selected Dedicated COVID Health Centres (DCHC's).

**SUBJECTS AND METHODS**

In this study a descriptive research design was used to assess occupational stress among nurses working in selected DCHC's in Satara District.

In this study the research approach used was a quantitative approach; systematic selection of accessible population of Registered Staff Nurses working in selected DCHC's and who were available at the time of study and information was gathered by using self-structured 5-point Likert scale, in view of the problem statement of the selected study. The population consisted of registered male and female nurses of selected DCHC's in Satara District.

Setting of the study was selected in four DCHC's in Satara district which included 30 to 40 bed strength. The sample

selected for the study comprises of registered staff nurses working in selected DCHC's in Satara district and fulfilling the sampling criteria.

The pilot study was done on 15<sup>th</sup> September 2020 on five selected nurses working in DCHCs fulfilling the inclusion criteria, to measure the occupational stress, and to assess the feasibility of the study and to decide the plan for data collection.

50 samples were then collected. Sampling technique used was non-probability purposive sampling technique. Inclusion criteria was- registered nurses working in selected DCHC's in Satara District, Nurses who were available at the time of data collection and willing to participate in the study. Data collection tool consisted of structured questionnaire and self-prepared 5-point Likert scale.

**TOOL PREPARATION**

The tool used for this study is a Self-Prepared Likert Scale. The research tool which consists of two sections, section A: demographic data and section B: Stress rating scale (5 point Likert scale). Demographic data include various factors like age, gender, education, marital status, work experience and duration of work experience in selected DCHC's. The stress rating scale included factors like job related, personal protective equipment, family, friends and society, and personal. There were 20 items covering these areas. The tool was validated by 10 experts for its content.

Interpretation of score:

The total score of the scale is 100, based on the score achieved by a particular nurse, the result was interpreted as below:

No stress	20
Mild stress	21-40
Moderate stress	41-60
Severe stress	61-80
Very Severe stress	81-100

**RESULTS**

The demographic data collected was analysed using frequency and percentage. The prevalence of occupational stress was analysed by frequency and percentage of the total score of participants classified as mild, moderate, severe and very severe stress. The association between the demographic variables and occupational stress was analysed using Chi square test.

**ANALYSIS OF DEMOGRAPHIC DATA**

The frequency and percentage distribution of age of participants distribution among 50 participants. 76% of participants were between the age of 21-30. About 24% of participant were 30 years and above. [Figure 1]

The frequency and percentage of level of education, out of 50 participants, 60% of participants have completed ANM and 40% of participants have completed GNM or BSc. Nursing. [Figure 2]

The frequency and percentage of distribution of work experience in years,58% of participants have work experience of 3 years and 42% of participants have an experience of 4 years or more. [Figure 3]

The frequency and percentage distribution of duration of work experience in DCHC. The bar diagram explains, 42% of participants have 0-3 months and 58% of participants have 4 months or more duration of work experience in DCHC. [Figure 4]

The frequency and percentage distribution of marital status, 54% of participants were married and 46% of participants are unmarried. [Figure 5]

The frequency and percentage distribution of monthly income, 16% of participants' income is ₹0-10,000. 34% of participants' income is ₹11,000-20,000 and 50% of participants' income is ₹21,000-30,000.[Figure 6]



### Analysis of Occupational Stress

Analysis of occupational stress showed that 0% (0) had Mild stress, 28% (14) of participants had Moderate stress, 56% (28) of participants had Severe stress and 16% (8) of participants had Very severe stress. [Table 1] [ Figure 7 ]

### Analysis of association between occupational stress and demographic variables using chi-square test

The association between prevalence of occupational stress and demographic variables such as age, level of education, work experience (years), duration of work experience in DCHC (months) and marital status was analysed using Chi-Square test. The Chi-Square values were 1.049, 0.202, 0.7714, 0.3988 and 0.2092 respectively ( *P* values 0.5917, 0.202, 0.7714, 0.3988 and 0.2092 respectively). [ Table 2 ]. The results showed that there is no significant association between occupational stress and demographic variables.

Conclusion: The results show that out of 50 nurses 0% had no stress, 0% had mild stress, 28% had moderate stress, 56% had severe stress and 16% had very severe occupational stress. There is no statistically significant association between demographic variables and prevalence of stress.

### DISCUSSION

The study findings revealed that 0% of participants had no stress and 0% had mild stress, 28% of participants had moderate stress, while 56% and 16% of participants had severe stress and very severe stress respectively. A similar research study conducted among 290 medical staff in Iran in 2020 to assess the status of occupational stress among nurses facing COVID-19 patients in hospitals of Kerman also showed that 88% of nurses had a partial to high levels of stress, the factors associated are high workload, low response time at the peak of hospital visits, lack of adequate support for top managers of all job groups equally, lack of basic needs and inadequate personal protective equipment.<sup>[11]</sup> This study revealed that the fear of infection, self-isolation, heavy workload, lack of comfort while using Personal Protective Equipment (PPE), fear of transmitting infection to the family, inability to meet the basic needs like drinking water and attending to nature's call, emotionally and physically drained after duty were the factors that made nurses vulnerable to the development of occupational stress.

A cross-sectional study done by Yigrem Ali Chekole in a governmental health institution Dilla, Southern Ethiopia, to assess the prevalence of perceived stress and risk factors of COVID-19 among healthcare providers, result revealed that the prevalence of perceived stress among participants was 126. Although socio demographic variables such as, age of the participants ranged between 25–31 years, masters and above in their educational qualification and nurse professionals were found to have a strong statistically significant association with the perceived stress of corona virus disease.<sup>[12]</sup>

In this study, there was no significant association between demographic variables such as age, level of education, number of years of work experience, duration of work experience in DCHC's, marital status, income with prevalence of stress.

### Recommendations for further studies

A similar study can be done to assess the level of occupational stress among nurses working in communicable disease departments other than COVID 19.

A study can be done to assess the effect of selected interventions to reduce occupational stress among nurses working in communicable diseases departments.

### Conclusion

The study concludes that nurses working in dedicated COVID health centres at district level which treated clinically moderate cases of COVID-19 experienced occupational stress varying from moderate to very severe stress levels. The results of this study can be useful to plan measures to reduce occupational stress among nurses working in other communicable disease departments.

### Conflict of Interest Statement

There is no conflict of interest between the authors.

### Funding

None.

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## TABLES

**Table No. 1 Analysis of occupational stress**

N = 50

OCCUPATIONAL STRESS	FREQUENCY n	PERCENTAGE %
NO STRESS	0	0
MILD STRESS	0	0
MODERATE STRESS	14	28
SEVERE STRESS	28	56
VERY SEVERE STRESS	8	16

**Table No. 2 Analysis of association between occupational stress with demographic variables using chi-square test**

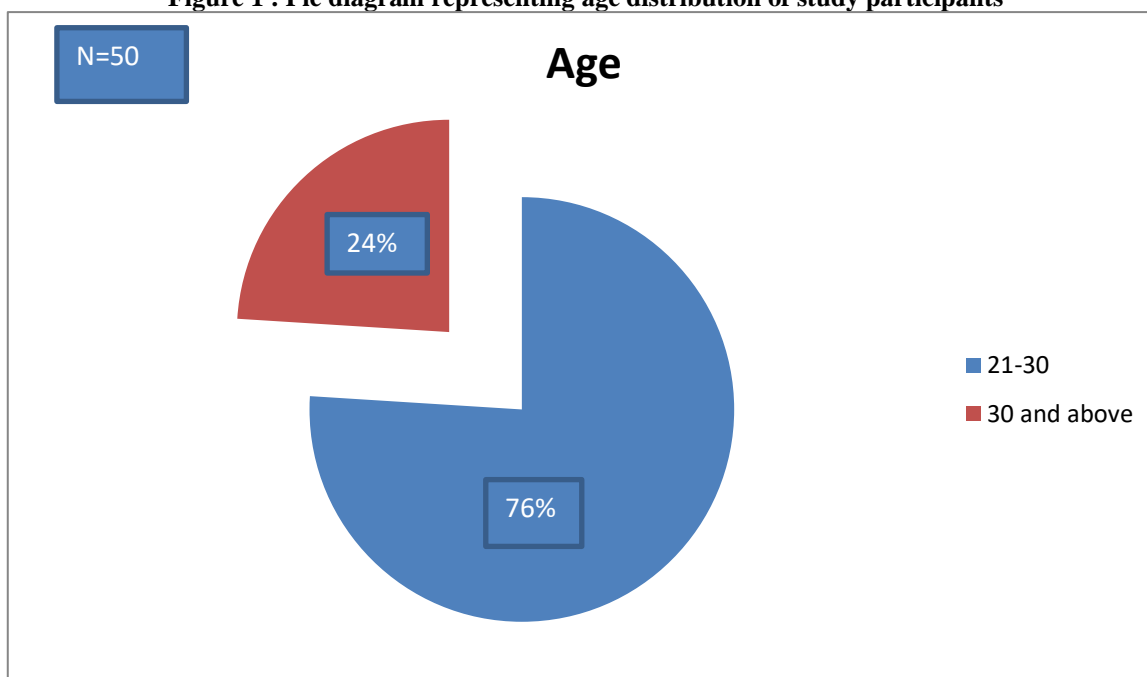
Demographic Variables	Moderate Stress	Severe Stress	Very severe Stress	Chi-Square Test value	P Value
<b>AGE</b>					
21-30	12(31.57%)	20(52.63%)	6(15.78%)	1.049	0.5917
31 and above	2(16.66%)	8(66.66%)	2(16.66%)		
<b>LEVEL OF EDUCATION</b>					
ANM	7(23.33%)	16(53.33%)	7(23.33%)	3.199	0.202
B.Sc and GNM	7(35%)	12(60%)	1(5%)		
<b>WORK EXPERIENCE(Years)</b>					
0-3	9(31.03%)	15(51.72%)	5(17.24%)	0.519	0.7714
4 and above	5(23.8%)	13(61.9%)	3(14.28%)		



<b>DURATION OF EXPERIENCE IN DCHC (Months)</b>					
0-3	8(38.09%)	10(47.61%)	3(14.28%)	1.838	0.3988
4 and above	6(20.68%)	18(62.06%)	5(17.24%)		
<b>MARITAL STATUS</b>					
Married	5(18.51%)	18(66.66%)	4(14.81%)	3.129	0.2092
Unmarried	9(39.13%)	10(43.47%)	4(17.39%)		

**FIGURES**

**Figure 1 : Pie diagram representing age distribution of study participants**



**Figure 2 : Pie diagram representing educational level of study participants**

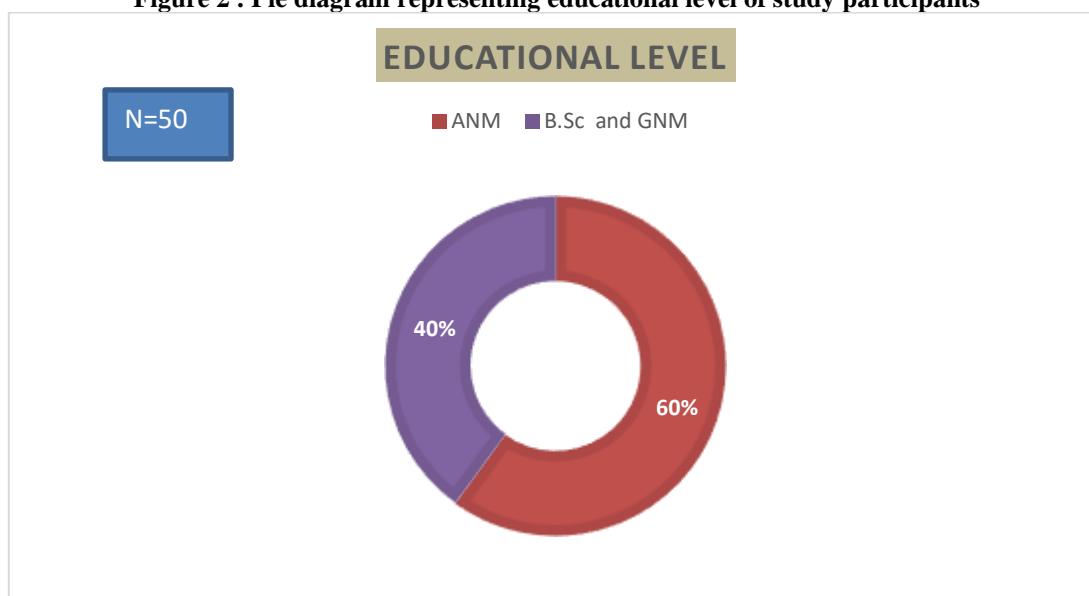


Figure 3 : Bar diagram representing total years of work experience of participants

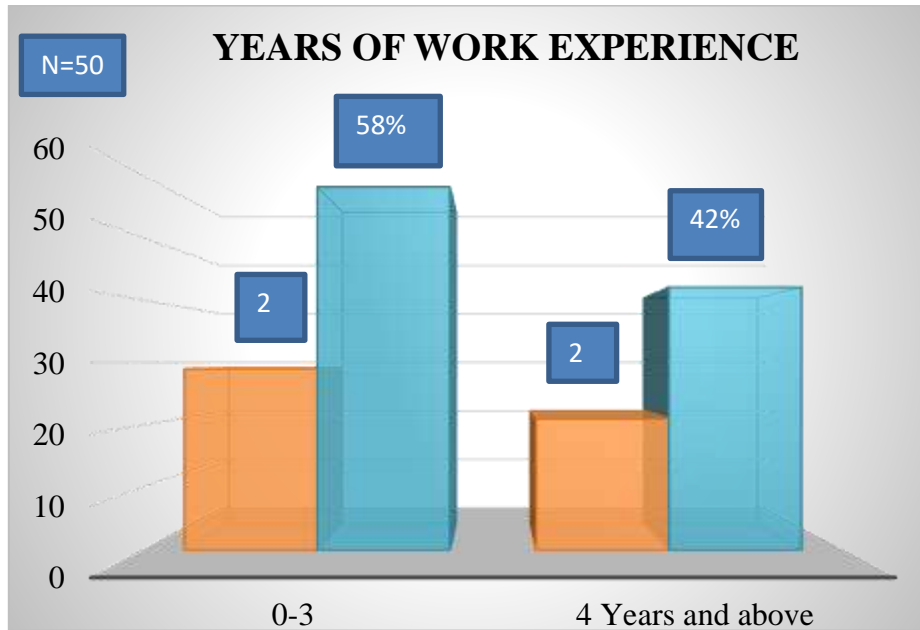


Figure 4 : Bar diagram representing duration of work experience in dedicated COVID health centres (DCHC) of participants

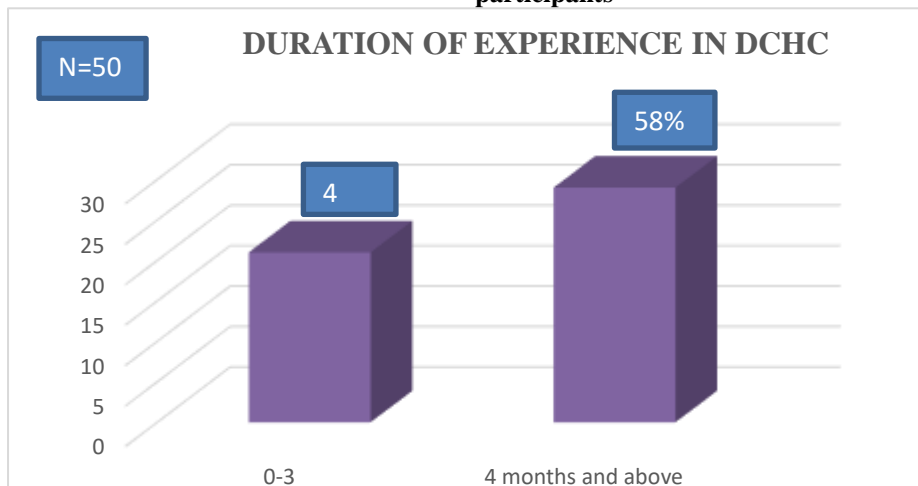


Figure 5 : Bar diagram representing frequency distribution of marital status of participants

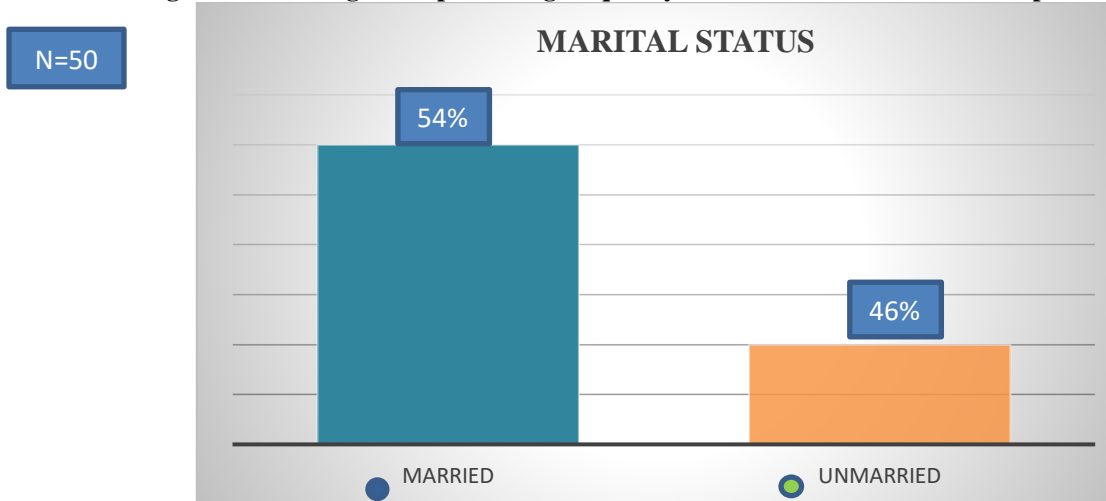


Figure 6: Pie diagram representing frequency distribution of monthly income (INR) of participants

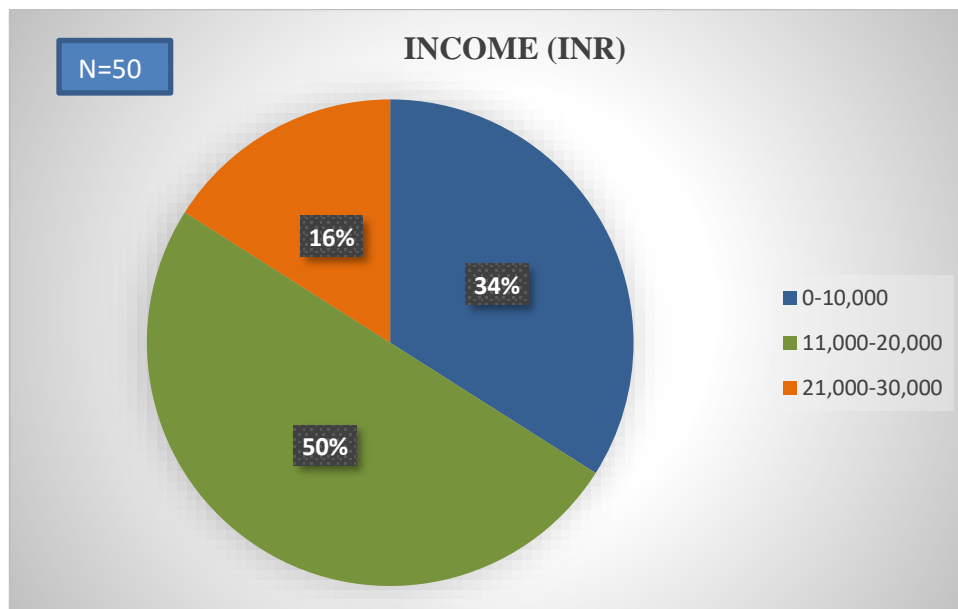




Figure 7 : Pie diagram representing the distribution of participants according to prevalence of Occupational Stress.

