International Journal Dental and Medical Sciences Research
Volume 3, Issue 2,Mar-Apr 2021 pp 462-468 www.ijdmsrjournal.com ISSN: 2582-6018

A Study On Perceived Stress Among Health Care Workers In A Medical College Hospital, Karnataka, India, During Covid-19 Pandemic

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Submitted: 01-03-2021 Revised: 15-03-2021 Accepted: 19-03-2021

ABSTRACT: Background and Objectives: The Corona virus disease of 2019 (COVID-19) outbreak has placed the entire healthcare system under tremendous stress. Stress can lead to physical or psychological illness.This study was done to determine the socio-demographic profile and present role of health care workers due to Pandemic and to estimate the prevalence of stress level and their correlates among the health care workers during COVID19 pandemic.

Methodology: A total of 223 health care workers were involved in the study. Perceived stress scale by Sheldon Cohen, which is a widely used psychological scale for measuring perceived stress has been used in the present study. There were 10 questions with 5 responses for each question. The total score was obtained by summing up the scores for individual responses.

Results: The mean PSS score among the study subjects was found to be 21.83 (±4.96 SD) The mean PSS score for male participants was 20.57 (±5.44SD) and that of female participants was 22.46 (±4.59SD). The mean PSS score for doctors was 21.65 (±5.45SD) and that for nurses, technicians and other paramedical staff was found to be 22 (±4.36SD)

Conclusion: The present study identified that doctors and other health care professionals had high perceived stress during the Covid-19 pandemic. It is necessary to motivate the health care professionals to resort to various coping strategies regularly so as to improve their psychological well being and to cope up with such stressful situations in the future.

Key words: Perceived stress, health care workers, Covid 19

I. INTRODUCTION

The Corona virus disease of 2019 (COVID-19) originally identified in the Wuhan province of China in December 2019 has become a public health emergency of International concern.In March 2020, WHO made assessment that COVID-19 can be characterizedas apandemic[1]. The current situation of Covid-19 outbreak has placed the entire healthcare system under tremendous stress. According to the WHO COVID-2019 daily situation reports, 4425485 reported cases Globally and a total of 302059 reported deaths as on 16th May 2020[2].As per the Ministry of health and family welfare, Government of India, it is reported that there are 53946 active cases,out of which 19357 got cured and 2872 deaths due to Covid-19 as on 17thmay 2020[3.]In the state of Karnataka, India, it is estimated that a total number

of 598 cases and 25 deaths due to covid-19 as on 2nd May 2020[4].

Stress can be defined as the non-specific response of the body to any demand for change[5]. Stress can lead to physical or psychological illness. Various studies have reported that healthcare workers have experienced high levels of stress and anxiety during previous pandemics[6].Theuncertainty of the extent of progression, treatment and prevention of the spread of covid-19 along with availability of resources has become a major concern for the healthcare system.

In India, several studies have been done to assess the perceived stress among healthcare workers during their regular work schedule, but there are very few studies regarding the same during a pandemic. Hence the study is designed to assess the perceived stress among the healthcare workers during the covid-19 pandemic. Considering the current situation and the possibility of a future pandemic, understanding the psychological impacts of pandemics on healthcare workers can help in planning and strengthening of the healthcare systems.

II. OBJECTIVES

1. To determine the socio-demographic profile and present role of health care workers due to Pandemic.
2. To estimate the prevalence of stress level and their correlates among the health care workers during COVID19 pandemic.

III. METHODOLOGY

Study subjects: Health care workers including doctors, interns, nurses, lab Technicians of BGS Global Institute of Medical Sciences, Bangalore.
Study Design: A cross sectional study

Sample size estimation

A study conducted among health care providers in Dilla town Health Institutions, southern Ethopia[7], revealed that the prevalence of perceived stress was 51.6%. The sample size for the present study was calculated based on the above information at a prevalence of 51.6%, level of significance alpha of 10% and confidence interval of 90%. Hence the required sample size was estimated to be 96. The final sample size for the study was found to be 223.

Method of statistical analysis.

All recorded data were entered using MS Excel and analysed using SPSS 22 version software for determining the statistical significance. Results are expressed in proportions and descriptive statistics.
To compare the PSS scores among the demographic factors Mann-Whitney U test is applied.

Methodology:

The present study was conducted at BGS GIMS Medical College and Hospital, Bengaluru, Karnataka, India. After obtaining Instituitionalethical committee clearance,a cross sectional study over a period of 2 months was conducted among doctors (Including clinical, paraclinical, preclinical doctors who were involved with Covid 19duties), interns,nurses and laboratory technicians. A standardised questionnaire was administered through web based survey. Google form was created and the link has been sent through whatsapp media individually.

After giving a brief introduction of the purpose and procedure of the present study, informed consent was obtained from all the participants. Confidentiality of the information provided was maintained throughout the study. The participants were given the option of refusal to participate in the study at any moment. Their participation was voluntary and no incentives were provided to the participant.
Perceived stress scale.

Perceived stress scale by Sheldon Cohen[8], which is a widely used psychological scale for measuring perceived stress has been used in the present study. The PSS scale consisting of 10 questions (PSS-10), is a self-report scale, which assess the feelings and the thoughts of the respondents during the last month. The responses to the questions range from 0 to 4 for each of the item, where 0= Never, 1= almost never, 2= Sometimes, 3= Fairly often, 4=very often.

The predictive validity of the PSS falls after four to eight weeks as the perceived stress is influenced by several factors in our day to day life. High PSS scores indicates high levels of stress and vice versa. There are four positively stated items in the questionnaire (4, 5, 7 & 8). PSS scores are obtained by reversing responses to the positively stated items and then summing across all scale items. The main PSS score and the frequency will be calculated to assess the perceived stress among the subjects.

Individual scores ranging from 0-13 was taken as no stress and scores equal to or more than 14 were labelled as stressed.

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IV. RESULTS

Demographic characteristics of the study population.

A total of 223 participants were selected for the present study of whom 94(42.2%) were doctors, interns were 20 (9%). nursing staffs were 81(36.3%) and laboratory technicians were 28 (12.6%).Majority of the respondents were from the clinical departments(79.4%), 37% from para clinical department and only 4% from pre-clinical departments. More than 50% of the study subjects were in the age group 21-30 years (54.7%) and subjects aged 51-60 years were<2%. The mean age of the study population was 31.12(± 8.04 SD). Almost 2/3rd of the subjects were females (148, 66.4%).Among the study population, 51.6% were married (115) and 48.4% were single (108). More than 56% of the study population had work experience less than or equal to 5 years (125,51.6%). The mean work experience of the study subjects was 6.29(± 5.83 SD). Due to the pandemic, around 40% of the study population were staying away from the family.

Perceived Stress Score (PSS)

In the present study, the mean PSS score was found to be 21.83 (±4.96 SD) with a median of 22 (IQR=6). The mean PSS score in the age group of 21-30 years was 22.17(±4.90 SD) and the median was 23 (IQR=7) and in the age group of 31-60 years the mean was 21.41 (± 5.02 SD) and median was 22 (IQR=7). The mean PSS score for male participants (n= 75) is 20.57 (±5.44SD) and that of female participants (n=148) is 22.46 (±4.59SD). The mean PSS score for doctors was 21.65 (±5.45SD) while the median was 22 (IQR=6). The mean PSS score for nurses, technicians and other paramedical staff was found to be 22 (±4.36SD) and median was also 22 (IQR=6.5).Thus nurses and technicians had a slightly higher level of perceived stress compared to doctors, but this was found to be not statistically significant. It was seen that total years of work experience did not have a statistically significant association with the perceived stress score.

Proportion of study subjects with stress.

All the study subjects were classified based on their PSS score. PSS score ranging from 0-13 was considered as low stress, scores ranging from 14-26 was considered as moderate stress and scores ranging from 27-40 was considered as severe stress. So a score of more than or equal to 14 were considered as stressed. Out of the 223 study subjects, 210 had a PSS score ≥14 and 13 had a PSS score ≤13. Hence 210 subjects were considered as stressed. The prevalence of stress among the study population was 94.17%. The frequencies of responses of the subjects to PSS-10 questionnaire survey is given in (Table:1).

Table:1 Subject's responses to Perceived stress scale in number and percentage

Sl.No	Statement	Responses				
		Never	Almost never	Sometimes	Often	Very often
1.	In the last month, how often have you been upset because of something that happened unexpectedly?	14 (6%)	19 (9%)	25 (11%)	137 (61%)	28 (13%)
2.	In the last month, how often have you felt that you were unable to control the important things in your life?	31 (14%)	31 (14%)	27 (12%)	110 (49%)	24 (11%)
3.	In the last month, how often have you felt nervous and "stressed"?	28 (13%)	28 (13%)	27 (12%)	110 (49%)	30 (13%)
4.	In the last month, how often have you felt confident about	25 (11%)	17 (8%)	90 (40%)	91 (41%)	0

	your ability to handle your personal problems?					
5.	In the last month, how often have you felt that you are able to manage effectively the changes in your life?	24 (11%)	24 (11%)	86 (38%)	89 (40%)	0
6.	In the last month, how often have you found that you could not cope with all the things that you had to do?	29 (13%)	29 (13%)	42 (19%)	112 (50%)	11 (5%)
7.	In the last month, how often have you been able to control irritations in your life?	25 (11%)	19 (9%)	104 (46%)	75 (34%)	0
8.	In the last month, how often have you felt that you are aware of the changes that are happening in day to day life?	22 (10%)	25 (11%)	78 (35%)	98 (44%)	0
9.	In the last month, how often have you been angered because of things that were outside of your control?	25 (11%)	26 (12%)	41 (19%)	102 (45%)	29 (13%)
10.	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	29 (13%)	28 (13%)	46 (21%)	99 (44%)	21 (9%)

Among those who were stressed, 95.1% (n=116) were in the age group of 21-30 years and 93% (n=94) were in the age group of 31-60 years. 88% (n=66) of the study subjects who were stressed were males and 97.3% (n= 144) of the study subjects were females. On analysis using Fisher Exact test, the p value was found to be 0.01, which is statistically significant. 92.2% (n=106) of the stressed subjects were married and 96.3% (n=104) were single. Among those who were stressed, 91.2% (104) were doctors and 97.2% (n=106) were nurses and technicians. Out of the 210 subjects who were stressed 94.9 %(129) had work experience ≤6 years and 93.1%(81) had work experience >6 years.(Table 2)

Table:2 Socio-demographic profile of donors who are stressed and not stressed

Age-Group (years)	Stressed (n=210)	Not Stressed(n=13)	Total	Chi-square	p-value
21 – 30	116 (95.1%)	6 (4.9%)	122 (100%)	0.408	0.523
31 – 60	94 (93.1%)	7 (6.9%)	101 (100%)		
Gender					
Male	66 (88%)	9 (12%)	75 (100%)	Fisher-Exact Test (p-value)	0.012
Female	144 (97.3%)	4 (2.7%)	148 (100%)		
Marital status					
Married	106 (92.2%)	9 (7.8%)	115 (100%)	Fisher-Exact Test (p-value)	0.256
Single/Unmarried	104 (96.3%)	4 (3.7%)	108 (100%)		
Professional Stream					
Doctors	104 (91.2%)	10 (8.8%)	114 (100%)	Fisher-Exact Test (p-value)	0.084
Nurses/Technicians	106 (97.2%)	3 (2.8%)	109 (100%)		
Experience					
≤ 6	129 (94.9%)	7 (5.1%)	136 (100%)	0.296	0.587
> 6	81 (93.1%)	6 (6.9%)	87 (100%)		

On carrying out Chi square test analysis of various coping mechanisms that is being done to reduce stress levels by the study subjects, it was found that34(16.1%) of them practiced yoga, meditation and pranayama, 88(41.9%) and 116 (55.2%) of the subjects resorted to listening to music or watching videos. There was no statistically significant association between coping mechanisms in relation to stress reduction.

V. DISCUSSION

In our study, among the sociodemographic variables (age, gender, marital status) a statistically significant association noticed only with gender. Female study subjects showed higher levels of stress than males. This is in accordance with a similar finding reported by Alessandra Baboreet al in their study on psychological effects of the COVID-19 pandemic[9]. We can assume that long hours of work, being away from family, risk of transmitting infection to family members all this would have contributed to an increased level of stress among female health workers.

With respect to marital status, we did not observe any association with perceived stress. The mean PSS score for those married is almost similar to those who are unmarried. This is in contrast to a study conducted by Doshi et al, reported high levels of fear among married people compared to their respective counterparts[10].

Among the health care professionals, we observed a slightly higher PSS score for nurses and technicians as compared to doctors. This is in accordance with a study conducted by Solomon Yimer et al in Ethiopia, which also revealed higher perceived stress among nursesduring COVID-19 pandemic as compared to doctors[11].A study conducted in China to assess the Psychological impact of COVID-19on health care workers found that prevalence of psychological problems like

anxiety, insomnia are more among nurses as compared to physicians and medical residents[11]. Long exhausting work hours, increased work load, fear of contracting the disease, discomfort of using personal protective equipments, fear of transmitting the disease to family members would have contributed for the higher level of perceived stress among nurses.

Out of the 210 people who were stressed 129 (94.9%) had work experience ≤6 years. A similar survey conducted inTaiwan to assess the perceived work stress among hospital staff found that work stress is less for those with more years of workexperience[12]. In contrary to this a study by Mc Grath et al found that work experience had no significant impact on perceived stress at work[13].

With regard to coping strategies adopted by our study subjects during the pandemic to reduce the stress levels, it was found that about 116 (55.2%) resorted to listening music. A study conductedin Italy among clinical staff involved in Covid-19 pandemic, reported that music therapy intervention reduced the levels of tiredness, sadness, fear and worry of the clinical staff[14].

Contrary to our expectations, only 16.1% (34) of our study subjects practiced Yoga, meditation and pranayama. A study by Sharma et al at Chandigarh, India has shown that regular practice of yoga and meditation can reduce the risk of comorbid conditions and helps in relieving stress and strengthening our immune system[15].

VI. CONCLUSION

The present study indicated thatdoctors and other health care professionalshad high perceived stress during the Covid-19 pandemic, which could be due to the fear of managing a sudden unforeseen, ill prepared situation, lack of adequate resources, fear of contracting the disease and transmitting to others. In view of the current situation and possibility of other future pandemics, our health care system has to be strengthened. It is necessary to motivate the health care professionals to resort to various coping strategies regularly so as toimprove their psychological well being and to cope up with such stressful situations in the future.

Conflict of interest- Nil
Funding- Nil

REFERENCES

[1]. WHO Director-General's opening remarks at the media briefing on COVID-19-27 March 2020 https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---27-march-2020

[2]. Coronavirus disease (COVID-19) SITUATION REPORT - 117 https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200516-covid-19-sitrep-117.pdf?sfvrsn=8f562cc_2

[3]. Ministry of Health and Family welfare, Government of India .https:// www.who.int/docs/default-source/wrindia/situation-report/india-situation-report-15.pdf?sfvrsn=f506ff90_2

[4]. Government of Karnataka Mid-day Situation update on COVID-19 https:// ksuwssb.karnataka.gov.in/frontend/opt1/images/covid/bulletin/Media%20bulletin%20COVID-19%20for%201-04-2020%20%208am%20English1.pdf

[5]. Tan SY, Yip A. Hans Selye (1907-1982): Founder of the stress theory. Singapore Med J. 2018 Apr;59(4):170-171.

[6]. 6.Goulia P, Mantas C, Dimitroula D, Mantis D, Hyphantis T. General hospital staff worries, perceived sufficiency of information and associated psychological distress during the A/H1N1 influenza.

[7]. Chekole YA, Minaye YS, Abate SM, Mekuriaw B. Perceived Stress and Its Associated Factors during COVID-19 among Healthcare Providers in Ethiopia: A Cross-Sectional Study. Advances in Public Health, vol. 2020.

[8]. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav. 1983 Dec; 24(4):385-96.

[9]. Babore A, Lombardi L, Viceconti ML, Pignataro S, Marino V, Crudele M, Candelori C, Bramanti SM, Trumello C. Psychological effects of the COVID-2019 pandemic: Perceived stress and coping strategies among healthcare professionals. Psychiatry Res. 2020 Nov;293

[10]. Doshi, D., Karunakar, P., Sukhabogi, J. R., Prasanna, J. S., & Mahajan, S. V. (2020). Assessing Coronavirus Fear in Indian Population Using the Fear of COVID-19 Scale. Int J Ment Health Addict. 2020 May 28 : 1–9

[11]. Que J, Shi L, Deng J, et al. Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China. Gen Psychiatr. 2020; 33(3):e100259.

[12]. Kuo F-L, Yang P-H, Hsu H-T, et al. Survey on perceived work stress and its influencing

factors among hospital staff during the COVID-19 pandemic inTaiwan. Kaohsiung J Med Sci. 2020; 1–9.

[13]. McGrath A, Reid N, Boore J. Occupational stress in nursing. Int J Nurs Stud. 2003 Jul; 40(5):555-65

[14]. Giordano F, Scarlata E, Baroni M, et al. Receptive music therapy to reduce stress and improve wellbeing in Italian clinical staff involved in COVID-19 pandemic: A preliminary study. Arts Psychother. 2020 Sep70:101688.

[15]. Sharma K, Anand A, Kumar R. The role ofYoga in working from home during the COVID-19 global lockdown. Work. 2020; 66(4):731-737.