European Economic Letters
ISSN 2323-5233
Vol 13, Issue 5 (2023)
http://eelet.org.uk

Assessing psychological well-being among medical officers during COVID-19 pandemic: An approach toward sustainable development

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Abstract

The COVID-19 pandemic has resulted in a significant loss of human life and affected healthcare infrastructure globally. The present study aimed to study the presence of anxiety and stress symptoms among medical officers in the Indian army and the impact of anxiety and stress on psychological well-being during COVID. The data was collected from February 2021 to April 2021 using a standardized questionnaire to measure anxiety, stress, and psychological well-being. Data collected from 319 respondents were analyzed using SPSS by Chi-square tool, bivariate correlation, H-test, and U-test. The presence of anxiety and stressed symptoms were 11.9% and 37.3% among medical officers in the Indian army. Medical officers of the AMC unit (doctors) were more impacted by anxiety compared with MNS and ADC medical officers. The risk factors having significant association with stress symptoms were age (maximum in 31-40 and 51-60 years), rank (initial service ranks and senior ranks both), and unit (AMC and MNS are more prone to stress symptoms as compared to ADC unit). Anxiety (-0.543) at $p<0.01$ has more negative impact on psychological well-being among medical officers of armed forces as compared to stress at work (-0.243) at $P<0.01$. In this present study, results showed the high presence of anxiety and stress symptoms among medical officers during COVID-19. Results also demonstrated that there is a difference in anxiety level at different times of COVID. Differences in psychological well-being also exist and are impacted due to the presence of stress and anxiety. By prioritizing well-being, focus will be shifted to sustainable development of medical officers.

Keywords: COVID-19, Anxiety, Stress, Psychological well-being, Sustainable development.

1. Introduction

Over the last decade, many studies have been conducted on the presence of burnout and job satisfaction among healthcare providers and frontline workers (Fred & Scheid, 2018), (West, Dyrbye, & Shanafelt, 2018), (Shanafelt, et al., 2016), (Dyrbye, West, Burriss, & Shanafelt, 2012). Medical practitioners' well-being and mental health are becoming increasingly important as a major health concern and a threat to quality of healthcare and sustainability provision worldwide (Sovold, et al., 2021). WHO defines health as “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.

Mental health has been a crucial aspect of an individual’s well-being. The terms mental health, well-being, happiness, life satisfaction, and psychological health have been used interchangeably. Goal 3 of sustainable development goals by UNDP also included good health and well-being emphasis that good health is essential for attaining sustainable development by 2030.

COVID-19 highlighted the importance of well-being, especially among healthcare professionals. Happy and fulfilled doctors are more likely to have happy and engaged patients and to provide better patient care. One thing about the healthcare system is that it gets very little attention, which not only affects patients but also healthcare providers too (Physicians, 2022).

The COVID-19 pandemic has caused widespread anxiety, depression, fear, and distress among physicians and the general public. Physicians are more affected by these mental health disorders than the general public (Wang, Fu, & Chen, 2012), (Gong, et al., 2014). However, these mental health disorders were also present among healthcare professionals in non-pandemic times but with less severity. We can compare the results from two studies conducted in China on the

prevalence of stress, anxiety and depression signs among healthcare providers. A study conducted in non-COVID times revealed that the presence of anxiety and depression was 25.67% and 28.13% among doctors (Gong, et al., 2014). A study conducted at times of COVID showed that the presence of anxiety and depression were at levels of 44.7% and 50.7%, respectively (Zhang, Yang, Liu, & et al., 2020). The findings of both studies showed that the presence of a pandemic increases the occurrence of mental health problems among healthcare providers.

There is no such study among the medical officers of the armed forces. A few studies are available in the past among medical officers of armed forces on career satisfaction, stress, job satisfaction, and life satisfaction. Only one such study conducted by (Gupta, et al., 2020) in the past that measures psychological health among doctors of armed forces in India at time of the COVID-19 pandemic. There is no such study that assesses the impact of anxiety and stress on psychological well-being of medical officers in armed forces. Therefore, this research measures the prevalence of anxiety, stress at work and psychological well-being of medical officers in the Indian army. In addition to the above objective, this research also aims to check the extent to which these mental health symptoms impact the psychological well-being of medical officers serving in the Indian army.

In Indian context, medical officers of the Indian army come under AFMS (Armed Forces Medical Services). AFMS comes under Ministry of Defence, Government of India and comprises of three units i.e., AMC (Army Medical Corps), ADC (Army Dental Corps) and MNS (Military Nursing Services). For the current study, medical officers of all three units have been considered. Medical officers serving under AFMS are different from their civilian counterparts. Medical officers serve as both physicians or healthcare providers and soldiers. They also provide healthcare services to those who protect the nation and their families.

2. Research methodology

2.1 Materials and Methods

The sampling method used in this study was purposive sampling. Purposive sampling was used to choose respondents from randomly selected northern army hospitals of the Indian Army.

The study was conducted in 7 army hospitals in the Northern India. 7 army hospitals are Western Command (Chandimandir), Army base hospital (Delhi), 166MH, Jammu, 153 GH (Leh), MH Ambala Cantt, MH Hisar, and Army Hospital Research & Referral (Delhi).

2.2 Data collection

Data collection was done from February 2021 to April 2021.At the initial stage, the questionnaire was distributed among 400 individuals but for the final data analysis 319 responses were taken into consideration. The remaining 81 were excluded on the basis of incomplete information. Respondents were assured that information being gathered from them is purely for research purposes and would be kept confidential. Therefore, data were considered final for analysis from 319 respondents. For this present study, the term medical officers included only commissioned medical officers of the Indian Army. Medical officers do not include non-commissioned ranks. Data were collected from medical officers of three units, i.e., Army Medical Corps (AMC), Army Dental Corps (ADC) and Military Nursing Services (MNS). 319 medical officers including 129 from AMC, 69 from ADC and 121 from MNS.

2.3 Measures

A structured scale was used to measure anxiety, stress at work and psychological well-being among medical officers. The items used to measure anxiety (7-items) were taken from the Depression anxiety stress scale (DASS-21) developed by Lovibond and Lovibond. The sample item is "My mouth felt dry". Stress at work was measured by two items from the work-related quality of life (WRQoL) scale specially designed for healthcare workers. This scale was developed by (Laar, Edwards, & Easton, 2007). The sample item is "I often feel under pressure at work". Psychological well-being was measured by 8-items Flourishing Scale developed by (Diener, et al., 2009). The sample item is "I lead a purposeful and meaningful life". The Cronbach alpha for anxiety, stress at work, and psychological well-being scales is 0.80, 0.81, and

0.91 respectively. All three variables were measured on 7-point Likert scale ranging from "1 - Strongly agree" to "7 – Strongly disagree", with average point being Neutral (=4).

2.4 Data analysis

Data were analyzed using IBM SPSS version 24. To investigate the descriptive statistics and their relationship with symptoms of anxiety and stress, a chi-square analysis technique was used. A P-value < 0.05 was considered to be significant. Bivariate correlations were computed to determine the impact of anxiety and stress on psychological well-being. Finally, to find the disparity in psychological well-being level based on demographic variables, the Kruskal-Wallis H test and Mann-Whitney U test were conducted using IBM SPSS.

2.5 Demographic profile

Statistics showed that in the present study 122 (38.2%) were males and 197 (61.8%) were females. Respondents with age group of 21-30 years are 59 in number and 18.5% of the total, 133 (41.7%) were in 31-40 years, 48 (15%) in 41-50 years and 79 (24.8%) were in age group of 51-60 years. Unit wise 129 (40.4%) belong to the AMC unit, 69 (21.6%) belong to the ADC unit, and 121 (37.9%) belong to the MNS unit. 71 (22.3%) respondents were at the rank of Captain, 78 (24.5%) were Major, 66 (20.7%) were Lt. Colonel and 104 (32.6%) were in the other category. When statistics were calculated on the basis of work experience, respondents less than 5 years of experience were 58 (18.2%), 82 (25.7%) were with 5-10 years of experience, 51 (16 %) were having 11-15 years of work experience, 30 (9.4%) were with 16-20 years of work experience and 98 (30.7%) were with work experience more than 20 years. 272 (85.3%) respondents were married and 47 (14.7%) were unmarried.

2.6 Chi-square analysis

All participants who participated in this research were segregated into two groups based on scores of anxiety and stress. Participants with a score of less than 4 were assigned to the anxiety and stress group, while those with a score greater than equal to 4 were assigned to the non-anxiety / non-stress group. The mean scores for anxiety and presence of anxiety symptoms were 5.87 (1.24) and 11.9%. the mean scores for stress and stressed symptoms were 4.87 (1.88) and 37.3%. Significant relationships with age were observed in the anxiety group (P = 0.00), also with work experience (P = 0.00), rank (P = 0.00) and unit (P = 0.00). Gender and marital status were found to have no relationship.

In the stress group, significant relationships were observed with age (P = 0.01), rank (P = 0.01) and unit (P = 0.00). No relationship was found with gender, marital status and work experience, or total years of service.

Table 1: Descriptive Statistics for Demographics and their Relationships with Anxiety and Stress Symptoms

			Anxiety Symptoms			**Stress Symptoms**		
Variables		Medical Officers N (%)	Anxiety Score Mean (SD)	N (%)	P	Stress Score Mean (SD)	N (%)	P
Total		319 (100)	5.87 (1.24)	38 (11.9)		4.87 (1.88)	119 (37.30)	
Gender	Male	122 (38.2)	3.02 (0.07)	19 (15.6)	0.11	2.93 (0.24)	36 (29.5)	0.23
	Female	197 (61.8)	2.95 (0.48)	19 (9.6)		2.60 (0.81)	83 (42.1)	

Age	21-30	59 (18.5)	2.73 (0.51)	9 (15.3)	0.00	2.84 (0.70)	16 (27.1)	0.01
	31-40	133 (41.7)	3.06 (0.23)	28 (21.1)		2.58 (0.79)	59 (44.4)	
	41-50	48 (15.0)	3.14	1 (2.1)		2.71 (0.48)	7 (14.9)	
	51-60	79 (24.8)	-	0 (0.0)		2.82 (0.55)	37 (46.8)	
Marital status	Married	272 (85.3)	3.06 (0.23)	30 (11.0)	0.24	2.65 (0.71)	105 (38.6)	0.24
	Unmarried	47 (14.7)	2.71 (0.55)	8 (17.0)		3.07 (0.51)	14 (29.8)	
Work experience	<5 years	58 (18.2)	2.72 (0.45)	10 (17.2)	0.00	2.71 (0.75)	16 (27.6)	0.10
	5-10 years	82 (25.7)	3.10 (0.28)	20 (24.4)		2.50 (0.87)	35 (42.7)	
	11-15 years	51 (16.0)	3.00	1 (2.0)		2.38 (0.96)	18 (35.3)	
	16-20 years	30 (9.4)	3.00 (0.12)	6 (20.0)		2.85 (0.37)	7 (23.3)	
	>20 years	98 (30.7)	3.14	1 (1.0)		2.96 (0.16)	43 (43.9)	
Rank	Captain	71 (22.3)	2.73 (0.51)	9 (12.5)	0.00	2.83 (0.72)	15 (12.6)	0.01
	Major	78 (24.5)	3.08 (0.26)	21 (26.9)		2.24 (0.94)	41 (34.5)	
	Lt. Colonel	66 (20.7)	3.01 (0.05)	8 (12.3)		2.97 (0.23)	23 (19.3)	
	Others (Senior than Lt. Colonel)	104 (32.6)	-	0 (0.0)		2.96 (0.17)	40 (33.6)	
Unit	AMC	129 (40.4)	2.92 (0.26)	35 (27.1)	0.00	2.86 (0.36)	58 (45.0)	0.00
	ADC	69 (21.6)	3.85	1 (1.4)		3.50 (0.45)	7 (10.1)	
	MNS	121 (37.9)	3.71 (0.20)	2 (1.7)		2.42 (0.88)	54 (44.6)	
Anxiety symptoms	No	281 (88.1)	6.26 (0.68)	0 (0)	-	5.13 (1.83)	84 (29.9)	0.00

	Yes	38 (11.9)	2.98 (0.34)	100 (100)		2.94 (0.80)	35 (92.1)	
Stress symptoms	No	200 (62.69)	6.42 (0.74)	3 (1.5)	0.00	6.16 (0.92)	0 (0)	-
	Yes	119 (37.30)	4.95 (1.37)	35 (29.4)		2.70 (0.70)	100 (100)	

Source: Authors Calculations

SD: Standard deviation, P: Significance value, AMC: Army Medical Corps, ADC: Army Dental Corps, MNS: Military Nursing Services

2.7 Correlation Analysis

Table 2: Bivariate correlation showing associations between anxiety, stress, and psychological well-being

	Anxiety	Stress at work	Psychological well-being
Anxiety	1		
Stress at work	0.614	1	
Psychological well-being	-0.546	-0.243	1
Mean	5.87	4.87	1.86
Standard Deviation	1.24	1.88	0.90

Source: Authors Calculations

Correlation is significant at 0.01 level

Table 2 demonstrates the significant positive association between anxiety and stress at work, significant negative association between anxiety and psychological well-being, and significant negative association between stress at work and psychological well-being come at $P<0.01$.

2.8 Kruskal Wallis-H and Mann-Whitney U Test

Table 3: Differences in psychological well-being according to demographic variables

Variable		**Mean Rank**	**Kruskal-Wallis H**	**Asymp. Sig. (Significance Value)**
Age	21-30	145.77	36.956	.000
	31-40	195.61		
	41-50	134.40		
	51-60	126.23		
Rank	Captain	150.51	33.793	.000

	Major	200.66		
	Lt. Colonel	176.39		
	Others	125.58		
Total years of service	Below 5 years	149.38	26.627	.000
	5-10 years	202.82		
	11-15 years	157.56		
	16-20 years	134.87		
	Above 20 years	139.42		
Variable		**Mean Rank**	**Mann-Whitney U**	**Asymp. Sig. (Significance Value)**
Gender	Male	162.06	11766.000	.749
	Female	158.73		
Marital Status	Married	162.55	5698.500	.226
	Unmarried	145.24		

Source: Authors Calculations

Table 3 shows the variation in psychological well-being depending upon the demographic variables.

3. Conclusion

We conducted this study among medical officers serving in the armed force hospitals of India. Medical officers for this particular unit comprised of AMC unit (Doctors), MNS (Nurses), and ADC (Dentists). This study was carried out through a self-administered questionnaire. Results of our research indicate anxiety and stressed symptoms. The presence of anxiety and stressed symptoms were 11.9% and 37.3% respectively, with 35 participants having both. Our research revealed lower presence of anxiety symptoms among doctors as compared to a study conducted in China, which had 25.67%. This difference may be due to differences in sociocultural composition of the population. The sample of the present study consists of medical officers comprising doctors, nurses, and officers of dentistry specialization. The difference between the present study and past literature may be due to the fact that Chinese study has only been conducted among doctors. However, this study included medical officers of all three units of AFMS.

When comparing the results of the present study with those of a study conducted among armed force doctors at initial covid times. The presence of anxiety symptoms among medical officers was found to be 11.9%, and anxiety symptoms among doctors during initial COVID times was 35.2% (Gupta, Kohli, P, & et al, 2020). These facts show that COVID times or healthcare emergency increases the presence of anxiety symptoms among healthcare professionals. However, the difference in level of anxiety symptoms may be due to varied severity of COVID, preparedness of healthcare infrastructure, awareness, knowledge to deal with COVID, and availability of vaccines. A study conducted by (Parikh, Dalal, Gediya, Shah, & Gandhi, 2022) found that 55.39%, 54.92% of healthcare professionals in tertiary healthcare facilities possess anxiety and stress symptoms, respectively. This difference may be due to the fact that in this study healthcare workers treat the civilian population, which is huge in number as compared to the number of patients attending army medical officers. Medical officers already have acquired the skills to handle panic situations as they have been

trained to serve in war zones. These can be the reasons for the low presence of anxiety and stress symptoms among medical officers in the armed forces as compared to healthcare workers in tertiary care hospitals.

The demographic factors that have significant association with anxiety were age (21-30, 31-40 years), work experience (initial years of service i.e., in service bracket of less than 5 years and 5-10 years), rank (mostly medical officers with lower rank e.g., at the rank of major), and unit in which they are serving (medical officers serving in AMC unit were more prone to anxiety as compared to officers of other two units). The presence of anxiety symptoms is unaffected by gender or marital status. From these findings, we concluded that medical officers have more anxiety symptoms in their initial years of career. (Gupta, et al., 2020) also highlighted that anxiety symptoms are more frequent in younger doctors as compared to doctors with service years more than 21 years.

In this present study, maximum stressed medical officers were in the age group of 31-40 years. The findings are consistent with past literature in which maximum stress was found among age group of 25-35 years (Mitra, et al., 2018), (Chatterjee, Bhattacharya, Baur, & Madhwani, 2020), (Sidhu, Kaur, Kaur, & Kaur, 2021). The stress level of medical officers in the MNS unit (nurses) was slightly higher compared with AMC medical officers (doctors).

The risk factors having significant association with stress symptoms were age (maximum in 31-40 and 51-60 years), rank (initial service ranks and senior ranks both), and unit (AMC and MNS are more prone to stress symptoms as compared to ADC unit). Gender and marital status did significantly impact the score of stress among medical officers. The findings of a study reported that there is no significant relationship between gender and stress level (Sathiya, et al., 2016).

The factors that significantly impact the psychological well-being among medical officers are age, rank and total years of service. Risk factors for which psychological well-being may be at worst level are age (31-40 years), rank (Major), in initial years of service with work experience of 5-10 years. These findings are consistent with the results of "improved mental health with aging in the general population" (Thomas, et al., 2016). Older doctors bring valuable skills, clinical expertise, knowledge, and life experiences gained only after years of practice. Senior physicians are critical for training future generations of physicians and can serve as inspiration for other professionals (Jeste & Nguyen, 2018). This may follow the same ideology as in the case of work experience and rank. Older people possess a higher level of well-being compared to young ones. In the past there is no such literature available that shows the relationship between work experience of an individual and their level of well-being. We can also say that age, rank and work experience go parallel to each other because all three demographic variables have a direct relationship with each other. From the results of the present study, it has been concluded that well-being was found on the higher side in medical officers with more work experience as compared to initial years of service. It was a preliminary study in this regard, and in future, further investigation can be done to find the association between work experience and level of well-being. Gender and marital status do not significantly impact the psychological well-being of medical officers significantly. The findings of present study were consistent with research conducted by (Salleh & Mustaffa, 2016), which demonstrated that there is no difference in psychological well-being based on gender.

From the outcomes of this present study, we can conclude that there are presence of symptoms of anxiety and stress among medical officers of the Indian army. However, there is a difference in the level of anxiety symptoms in the present study and the study conducted by (Gupta, Kohli, P, & et al, 2020) regardless of similar population. The presence of anxiety symptoms was less in the present study, i.e. 11.9% as compared to 35.2%. This difference may be due to some reasons, such as the present study was conducted in the later phase of COVID, when the number of cases was decreasing, and the past study was conducted at the start of the pandemic. Other reasons could be that the present study comprises medical officers of all three units of AFMS (doctors, nurses and dentists) and the past study comprises only doctors. The degree of anxiety symptoms varies between doctors, nurses, and dentists as they perform different types of duties. The level of stress symptoms could not be compared with a previous study of a similar population. Presence of stress symptoms were 37.3%. Study conducted by (Benfante, Tella, Romeo, & Castelli, 2020) highlighted the presence of stress among nurses, frontline workers at the time of COVID.

In this present study, Table 2 presents the bivariate correlation between anxiety, stress, and psychological well-being among medical officers at the time of COVID crisis. Results show that the presence of anxiety and stress among medical

officers has significant negative association with psychological well-being. If we compare the impact, anxiety (-0.543) at $p<0.01$ has more negative impact on psychological well-being among medical officers of armed forces as compared to stress at work (-0.243) at $P<0.01$. Findings of past literature also show the negative relationship between anxiety, stress, depression, and insomnia on the psychological toll of healthcare workers (Cai, et al., 2020), (Kang, et al., 2020).

To conclude the current study, results showed the high presence of anxiety and stress symptoms among medical officers during COVID-19. Results also exhibit the difference in the level of anxiety at different times of COVID. At the initial phase of COVID, there was more anxiety compared to the later phase. There is no study available in the past on mental health, psychological stress among medical officers of the armed forces during non-crisis times. The study is unique in its nature, as it is the first to examine the psychological well-being of medical officers in the armed forces. Results also reveal that the psychological well-being of medical officers also deteriorates due to the presence of anxiety and stress. Results also show that different phases of COVID have different impacts on anxiety and stress symptoms. It is very important to improve the well-being of medical officers, as they are saviors of those who protect the nation. Various studies in past had highlighted the importance of psychological well-being of healthcare professionals (De Simone, 2014), (Vries, et al., 2016), (Walther, Kraus, Beeken, & Pier, 2021). If the well-being of medical officers is poor, it will affect the quality of care that they provide to their patients. Personnel of the Indian army are already exposed to high levels of stress due to family separation, frequent postings, serving in difficult terrain, and unique demands of the workforce (Sharma, 2015). COVID like situations increase the level of stress, mental health symptoms, and lower psychological well-being among medical officers.

To improve the mental health or psychological well-being of medical officers, it is essential to reduce anxiety and stress among them. Therefore, to reduce these mental health symptoms, different types of support could be provided to medical officers, such as availability of psychologists, recreational activities, proper training to handle such unexpected situations, and practice of yoga and meditation.

3.1 Recommendations and limitations of the study

Some limitations were there in the present study. First of all, the study was conducted among few hospitals of the Indian army. Therefore, in future, samples from across India could be taken as the level of pandemic crisis and the number of cases could vary from one region to another. Second, the sample size was small for this present study due to time constraints. Future studies can compare the mental health symptoms at different times of COVID like 1st wave, 2nd wave, and 3rd wave. A similar study could be conducted to compare the presence of symptoms in other Asian countries or developing economies. In future, a comparative study could be conducted to examine the presence of symptoms among developed and developing and underdeveloped countries.

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