



Stress gradation of medical practitioners during the pandemic (COVID-19) along with ways to de-stress; A cross sectional study at tertiary care hospitals using Kessler's 10 psychological distress scale.

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ABSTRACT... Objectives: To determine stress grades of doctors working in tertiary care hospitals by using a standard measuring tool i.e. Kessler 10 psychological distress scale along with finding out different coping methods adopted by doctors during the COVID-19 pandemic. **Study Design:** Cross Sectional study. **Setting:** Tertiary Care Hospitals of Khyber Pakhtunkhwa (KPK), Pakistan. **Period:** 15 March 2020 to 20 June 2020. **Material & Methods:** A structured questionnaire was sent online to the junior and senior doctors working during the pandemic. The data was automatically collected with the help of Google docs and then analysed using SPSS 26. **Results:** Of the 219 doctors who completed the questionnaire 142 were males (64.8%) and 77 were females (35.2%). Interestingly, analysis of the score revealed that 38.8% of the doctors were found likely to be well, 16.4% of the doctors were likely to have mild disease and 20.5% were likely to have a moderate disorder while 24.2% were likely to have a severe disorder. Further analysis showed that the mean of Kessler's score was greater for junior doctors as compared to Consultants which was found to be statistically significant ($p=0.044$). **Conclusion:** The impact of Corona virus disease (COVID-19) on the stress levels of health workers warrants considerable attention as it was declared a pandemic. Assessing the psychological impact and ways to tackle them will not only help the health care workers during this pandemic but will be beneficial in future pandemics as well.

Key words: COVID -19, Doctors, Kessler 10 Psychological Distress Scale.

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INTRODUCTION

In this modern era of technological advancements, Corona virus disease (COVID-19) came into existence which gave the health professionals a huge blow in terms of providing health care to the affectees. The first case of COVID-19 was reported in Wuhan, China in December 2019. By January 2020, WHO declared it as a Public Health Emergency of International Concern (PHEIC) which was later regarded as pandemic globally in March.¹ Despite being a disease of highly contagious nature, all the doctors, nurses and paramedic staff played a pivotal role in treating patients and providing them with optimum care. However, this lead to deterioration of their health and quality of life. This disease not only increased the mortality rate but also affected mental health especially of doctors and nurses.²

A study conducted at the epicenter of this pandemic recently showed that the work burden of managing COVID-19 patients drained doctors physically and had a detrimental effect on their emotional health.³

In the past, literature published during SARS (Severe Acute Respiratory Syndrome) showed that the chances of development of anxiety, depression and stress were higher in health care workers during the disease period.⁴ A situation of similar magnitude seems to exist during the COVID-19 pandemic. Healthcare workers not only have to look after COVID-19 patients, some of which are critically ill, but also remain in constant fear of contracting the disease. These symptoms resolve over few months in most cases once the disaster has settled. But few people may develop

chronic issues including depression, PTSD and anxiety disorders.⁵

Psychological distress has been extensively evaluated by Kessler 10 psychological distress scale in the general and clinical community.⁶ In order to grade stress levels in health care workers during the covid-19 pandemic, Kessler's Scale was used along with a separate questionnaire indicating the coping mechanisms adapted by the same professionals. Different studies conducted on distress clearly mentioned the clinical validity and the utility of this scale in measuring distress among individual of varying intelligence.⁷

Furthermore, analysis of the stress factors and coping strategies will enable us to better understand the basic health needs of doctors during the pandemic providing a guideline for the development of social support system for the healthcare workers. For this purpose, Kessler 10 scale was used to grade stress as it has not been previously. This research will not only help in grading stress levels by using an authentic scale, but will also help in understanding the basic requirements of doctors in order to cope stress during the pandemic.

MATERIAL & METHODS

A cross sectional study was conducted at Tertiary Care hospitals in Khyber Pakhtunkhwa (KPK) from March to June 2020. The basic aim of this study was to determine stress grades of doctors working in tertiary hospitals in the province of Khyber Pakhtunkhwa (KPK), Pakistan by using a standard measuring tool i.e Kessler 10 psychological distress scale along with finding out different coping methods adopted by doctors during the pandemic. This included junior doctors (HO, TMO, MO) and senior doctors i.e Consultants, of the aforementioned province working in tertiary hospitals and COVID-19 wards. For Sampling, Non Probability Convenience Sampling technique was applied. Structured Questionnaires were made and distributed with the help of Google Docs in order to minimize direct contact and observe social distancing. 230 doctors recorded their response out of which 11 were discarded as their forms were incomplete,

reaching to a sample size of 219 respectively. Most of the male and female doctors working during the pandemic were included in the study. During the research period, till completion of sample size, all the doctors were assessed with the help of aforementioned scale. The questionnaires were filled with the help of internet based Performa due to the situation of pandemic and health safety. This whole process was carried out after taking consent from the respective doctors along with approval from the ethical committee.

Performa containing spaces for personal details and clinical data related to the research parameters was designed.

The data was analyzed using SPSS (Statistical package for Social Sciences) 26. Mean and standard deviation for continuous variable and frequency and percentages for categorical variables were determined. The association between continuous and categorical variables was determined using Mann Whitney U test. 95 % confidence interval and p value of < 0.05 was considered statistically significant.

RESULTS

A total of 219 doctors were included in this study with 142 males (64.8%) and 77 females (35.2%). The mean age of the doctors was 28.14 ± 6.730 SD. In this study 122 (55.7%) house officers followed by 57(26%) Training Medical Officers, 24(11%) Medical Officers and 16(7.3%) Consultants took part in this study. Data was collected from tertiary care hospitals of KPK with major participants from Ayub Teaching Hospital i.e. 183(83.6%) after that, Mardan Medical Complex 19(8.7%), Lady Reading Hospital 6(2.7%), Khyber Teaching Hospital 5 (2.3%) and Saidu Shareef Hospital 5(2.3%) were the major contributors.

When inquired about the stress symptoms that the doctors working on the front line faced during their duty in COVID-19 wards, majority of them experienced anhedonia followed by anxiety and distress as depicted in the bar chart given (Figure-1).

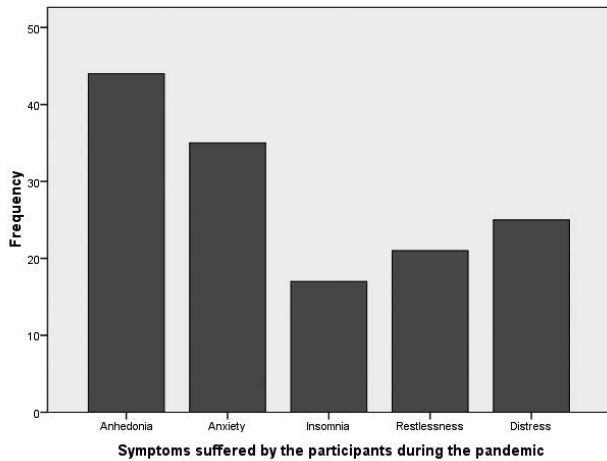


Figure-1. Symptoms suffered by participants during the pandemic (n=219).

Kesslers 10 psychological distress scale was used to grade stress among the participants. The over all mean of the score was 23.62 ± 7.636 SD. Out of the total, 134(61.1%) of the doctors showed to have mild to severe distress. Upon further interpretation of the score, 85(38.8%) of the doctors were found likely to be well, 36(16.4%) of the doctors were likely to have mild disease, 45(20.5%) were likely to have a moderate disorder while 53(24.2%) were likely to have a severe disorder. Below is a pie chart depicting different grades of stress (Figure-2).

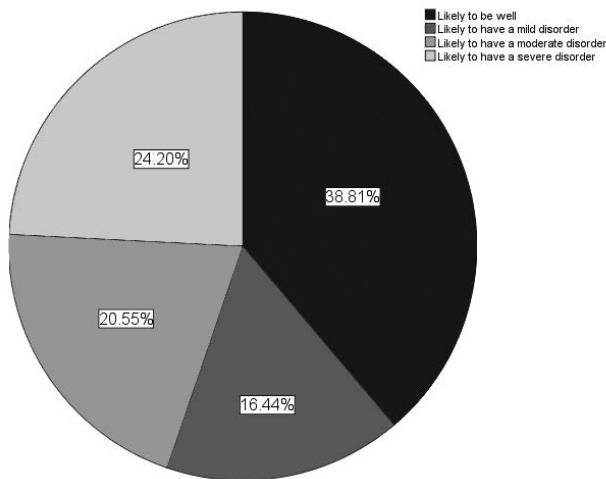


Figure-2. Kessler's 10 Psychological distress score (n=219).

The biggest concern was fear of infecting their own family members constituting 132 (60.3%)

of the doctors, with this fear affecting their duty performance in 158(72.1%) of the participants. A large number of health professionals i.e 151(68.9%) were not satisfied with their employer's behavior towards personal safety.

Another part of our research was to find out the factors that helped in alleviating stress which is highlighted in Table-I.

Factors Relieving Stress	Percentage of participants that agreed that these factors could relieve stress
Communicating with friends	199 (90.9%)
Daily exercise	190(86.8%)
Adequate Rest	188(85.8%)
Time management	186(84.9%)
Timely meals	155(70.8%)

Table-I. Frequency of factors relieving stress (n=219).

As seen above although many factors could have played a role in relieving stress majority of the doctors were not able to do them during this pandemic (daily exercise, adequate rest etc).

Factors Relieving Stress	Percentage of participants not able to enact coping mechanisms
Communicating with friends	57(26.0%)
Daily exercise	164(74.9%)
Adequate Rest	112(51.1%)
Time management	111(50.7%)
Timely meals	110(50.2%)

Table-II. Frequency of participants not able to enact coping mechanisms (n=219).

To determine the association between continuous and categorical variables, Mann Whitney U test was applied. Although the mean of the Kesslers score was greater in females (24.78 ± 7.460 SD) as compared to males (22.99 ± 7.683 SD) however, the result was not significant. When mean of Kessler's score was compared between junior doctors that included HOs, MOs, TMOs (23.91 ± 7.578 SD) and senior doctors that included Consultants (19.94 ± 7.646 SD), the score was greater for junior doctors which was

statistically significant ($p=0.044$).

DISCUSSION

COVID-19 initially manifested in Wuhan, is an acute infectious disease that can be fatal and result in death because of rapid respiratory complications.^{9,10} This pandemic has been declared a global health crisis which is not only the biggest threat to the health of our medical communities but they also have to endure the fact that we have bare minimum human understanding about such an unforeseen budding situation.¹¹

According to WHO those health care workers are exposed to the highest level of risk who are in direct contact with the patients.¹² A variety of tools are available to grade the level and severity associated with psychological stress. One of them is Kessler 10 Psychological Distress (K10) scale which is widely used in epidemiological population surveys. With respect to gender and education it has been proved to be without significant bias. The World Health Organization has been using this scale in World Mental Health Survey 14-16. This K10 questionnaire is known to have good psychometric association with Cronbach's alpha of 0.8938 {95% Confidence Interval (CI).¹³

In our study most of the health care workers suffered from anhedonia, anxiety and distress. It is in accordance to the research conducted in the year 2020 by Muller AE et al in which for every five front line workers, one and two reported anxiety, depression, distress, and/or sleep problems.¹⁴

Interestingly our study showed that 61.1% of the doctors suffered mild to severe distress. No research using Kessler's scale to grade stress among health care workers in Pakistan during COVID-19 pandemic was found, although a similar research was done in which fear of coronavirus-19 scale (FCV-19S) was used by Saleem Z in the year 2020 in which 95% of the health care workers had moderate to severe level of anxiety.¹⁵ In a new research done in China by Liu Z et al more than 70% of the front line workers during COVID-19 pandemic reported psychological distress which is comparable to our

study. In a previous study during the acute SARS outbreak, 89% of health care workers who were in high-risk situations reported psychological symptoms.¹⁶

Analysis of the factors responsible for causing stress showed that the biggest fear faced by our doctors was infecting their own family members in an outstanding percentage of 60.3% of the total. It is exactly in accordance with a study conducted in Pakistan by Urooj U in which 79.7% of the health care workers showed similar concern.¹⁷ One of the important findings in our study was that a large number of front line workers (68.9%) were not satisfied with their employer's behavior towards personal safety. On May 28, 2020, Médecins Sans Frontières (MSF) issued a statement, "The COVID-19 pandemic has caused shortages and price rises in PPE, especially those needed to protect frontline health workers".¹⁸ In a research conducted in Iran by Zhang SX et al showed that access to PPE predicts better job satisfaction and public health as well as caused less distress and, signifying its importance beyond physical protection.¹⁹ Thus this shows that adequate provision of PPE will alleviate one of the most amenable stress factors experienced by our health care workers.

Another part of our research was to find out different coping mechanism for our health care workers. The most important factors were communicating with friends during this pandemic, daily exercise, adequate rest, time management and timely meals. It is in accordance with a research done in China by Sun N et al where 70% of the health care workers made "life adjustments" such as sleeping, exercising, or eating more and 65% sought social support for stress relief.²⁰

Although mean of Kessler score was higher in females as compared to males it was found to be statistically insignificant in this study. However it contradicts the research done in Pakistan in which females health care workers were more anxious this may be due to the fact that the number of female participants in this study was relatively low.¹⁵ Another interesting fact observed among the senior and junior doctors was that's

the stress levels were found to be higher in the latter which can be attributed to less experience, uncertain conditions and more work load.

The limitation of our study was that it was a cross sectional study, a more comprehensive longitudinal study should be done to investigate the real pattern of stress among health care workers. Our sample size was limited due to time constraints that can limit the generalisability of the findings. To minimize direct contact with front line workers self reported questionnaires to access psychological symptoms were used which may be differ clinical mental assessment done by professionals.

CONCLUSION

COVID-19 pandemic not only resulted in physical but also caused considerable mental stress among our health care workers. By quantifying the psychological stresses and analysing ways to overcome them, this study will provide a frame work for hospital managements to take necessary actions to alleviate stress levels in an efficient way.






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2	M. Usama Zardad	Study design, Data analysis.	
3	Mahwish Toqueer	Write up, Data analysis.	
4	Anila Riyaz	Write up, Data analysis.	
5	Sana Khan	Proof reading & Data analysis.	
6	M. Usman Nazir	Proof reading & Data analysis.	