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Psychological impact of COVID-19 pandemic on Pakistani doctors

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Author`s Contribution

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ABSTRACT

Introduction: The COVID-19 pandemic has caused a significant burden on healthcare system and adversely affected the health care professionals all over the world including Pakistan. Therefore, the short- and long-term effects of this pandemic on mental health of Pakistani medical doctors need to be established.

Objective: This study aimed to assess the mental health status and associated factors among doctors exposed to COVID-19 in Pakistan.

Methodology: An online survey was carried among doctors working in different government hospitals. A Questionnaire was developed which comprised of three different sections. Mental health was assessed on basis of scoring in three Likert scales including Generalized anxiety disorder -7 scale (GAD-7), Insomnia severity index (ISI-7) and Patient health questionnaire (PHQ-9). Cluster analysis was used, and chi-square test was applied for comparison of characteristics.

Results: Study was conducted on 73 specialists /consultants working in different government hospitals of the country. 54.8% of them suffered from subthreshold mental disturbances while 23.3% had mild disorders, 12.3% had moderate disorders and 9.6% suffered from severe mental disturbances. Various factors having significant relationship with psychological status of doctors were identified.

Conclusion: COVID-19 outbreak has significantly affected the psychological health of Pakistani doctors. The factors adversely affecting the mental health of our health care professionals need to be addressed by providing psychological support to them.

Keywords: *COVID 19, mental health, health care workers, psychological support*

Introduction

Coronavirus (COVID-19) outbreak in Wuhan, China in December 2019 has progressed to a global health issue. It has adversely affected approximately 169 countries of the world including Pakistan.[1,2] It was declared as PHEIC (Public Health Emergency of International Concern) on Jan 30, 2020 by WHO who officially named it Corona Virus Disease 2019 COVID-19.[3-5] Pakistan's first case was reported on 26 February 2020 [6] but approximately after four weeks, the number of cases in Pakistan were 784 as declared by WHO and the situation is worsening till date.[1]

Currently, the Pakistani doctors are not only facing physical exhaustion due to work overload but there is an additional social pressure by media, myths, inadequate safety equipment, concerns regarding contagion exposure to family and much more.[3] This has led to many psychological issues including sleep disturbances, anxiety and depression etc.[3]

Pandemics are associated with drastic civilization alternating consequences. The psychological effects of infectious pandemics can be devastating on the society, especially on the health care workers. Stress, fear, anxiety and other psychological consequences of the

disease are seen more often when it is highly contagious and fatal.[3] Doctors are the frontline workers and many studies conducted worldwide have shown that doctors have been adversely affected by it not only leading to significant mortalities, but most importantly causing them psychological distress and other mental health ailments including anxiety, depression and post traumatic syndrome.[3,6] This study aims to understand the psychological impact of Covid-19 outbreak on Pakistani doctors and to identify various factors linked to mental health of Pakistani doctors, working in an already under-resourced constrained environment.

Methodology

This cross-sectional survey-based study was conducted from 15 May to 15 June 2020. After taking approval from institutional review board of Atomic Energy Cancer Hospital (NORI), an open-ended questionnaire was constructed. It was piloted on 10 specialist doctors for its ease of understanding, reachability and technicality. The responses of those 10 consultants were not included in the study. The questionnaire consisted of three sections. Section one was concerned with demographic details of the participants including gender, age as well as serving institution and speciality/department, section two comprised of questions assessing the risk and degree of exposure to COVID -19 while section three addressed the mental health of the participants by using three different Likert scales along with questions on utilization of psychological resources in the form of books, social and electronic media as well as getting psychotherapy in times of stressful conditions. Generalized Anxiety Disorder Scale was used (GAD-7) which is an easy-to-use tool and is used to assess the anxiety and panic disorder. It uses 7 questions and scores are calculated by assigning points to different response categories. Severity ranges from minimal /no disorder (score 0-4), mild (score 5-9), moderate (score 10-14) and severe disorder with scores ranging from (15-21). Second scale was Patient Heath Questionnaire PHQ-9. It is comprised of 9 questions and on the basis of scores calculated is categorized into minimal/no disorder (score 0-4) mild (score 5-9), moderate (score 10-14) and severe depressive disorder (score 15-21). Third scale was Insomnia Severity Index ISI-7, it is used to determine the extent of insomnia, based on points for different questions, it is classified into normal (score 0-7), subthreshold insomnia (score 8-14), moderate (score 15-21) and severe insomnia (score 22-28). All the above-mentioned scales are self-administered, easy to use screening tools for assessment of mental health having good and reliable sensitivities and specificities. The questionnaire was created on Google forms and distributed through social media among different specialists/consultants of various Government hospitals of Pakistan. All the data collected in the study was voluntary and anonymous. All the doctors who were consultants /specialists working in Government organizations were included in the study. All the junior doctors and doctors working in private institutes were excluded from the study. Sample size was not preplanned; an iterative approach was considered. All the responses received fulfilling the inclusion criteria in the desired time period were included in the study. Frequencies were calculated for demographic data. All the participants were divided into 4 groups by using Ward method by utilizing Euclidian squared root distance as measurement parameter. The scores of all the three scales were clustered by using K-Means Cluster analysis. Then Chi-Square Test was used to find association between different groups and categorical variables. The data was analyzed by using SPSS version 22.

Results

The google form was sent to 95 consultants/ specialists, out of which 73 health care professionals, which filled and returned the form were included in the survey. Results revealed that majority of doctors who participated in the study were females. All the participants were divided in four age groups. Frequencies and percentages were calculated for continuous variables as shown in Table 1.

Doctors working in various fields with different specialties participated in the study, which allowed us to gather data from health professionals working under varied circumstances and exposure in relation to Covid-19. Specialties of doctors who participated in the study are shown in Figure 1.

Table 1: Demographic Data

Variable	Frequency	Percentage
Gender		
Male	14	19.2%
Female	59	80.8%
Age		
22-30 years	5	6.9%
31-39 years	42	57.5%
40-47 years	19	26.0
> 47 years	7	9.6%
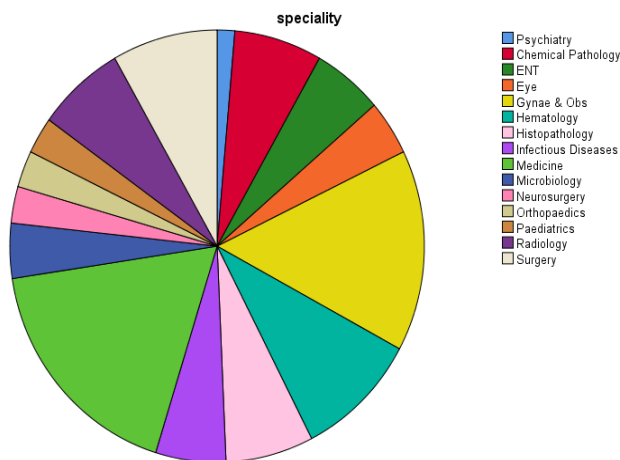
Figure 1: Distribution of doctors according to their specialty.

All the participants of the study were divided into four clusters on the grounds of their scores of three Likert scales GAD-7, PHQ-9 and ISI-7 used. Of the total 73 participants, 40 (54.8%) had subclinical mental health problems, 17 (23.3%) had mild mental health problems, 9 (12.3%) had moderate mental health problems while 7(9.6%) had severe mental health problems. Distinct allocated clusters had statistically different Likert scale scores as shown in Table 2.

Table 2: Cluster analysis arrangement

Variables	1	2	3	4	*p*-value
Frequency/ percentages	40/ 54.8%	17/ 23.3%	9/ 12.3%	7/ 9.6%	<.001
GAD-7mean	3	10	11	15	<.001
ISI-7mean	3	6	14	22	<.001
PHQ-9mean	3	9	9	23	<.001

Comparison of properties of variables among different clusters was done and it was found that no statistically significant differences were observed when comparing some variables like age and gender. However statistically significant differences were found when few variables like being front line worker and taking help from psychological resources at periods of stress were compared. Complete and detailed comparison among various variables in relation to cluster groups along with their P-values is shown in Table 3.

Table 3: Comparison of properties of variables among clusters

Variable	Response	Clusters				Total	p value
		1	2	3	4		
Age (yrs.) 22-30 31-40 41-47 >47		5 17 12 6	6 9 2 0	3 3 3 0	1 3 2 1	15 32 19 7	0.34
Gender	Male Female	11 29	3 1 14	0 9	0 7	14 59	0.13
Speciality	Medicine Psychiatry ENT EYE Obs & Gynae Haematology Microbiology Chemical pathology Histopathology Surgery Inf. diseases Orthopaedics Radiology Neurosurgery Paediatrics	5 0 2 1 3 5 2 5 3 3 3 2 2 2 2	5 0 0 1 4 1 1 0 1 1 1 0 2 0 0	1 1 0 1 2 0 0 0 1 2 0 0 1 0 0	2 0 2 0 2 1 0 0 0 0 0 0 0 0 0	13 1 4 3 11 7 3 5 5 6 4 2 5 2 2	0.51

Variable	Response	Clusters				Total	p value
		1	2	3	4		
Front line worker	Yes	6	4	2	5	17	
	No	28	11	4	2	45	0.03
	Maybe	6	2	3	0	11	
Financial constraints	Yes	10	5	3	2	20	
	No	27	12	6	3	48	0.27
	Maybe	3	0	0	2	5	
Diagnosed with COVID19	Yes	2	0	3	4	9	<.05
	No	38	17	6	3	64	
Friend with COVID-19	Yes	26	13	7	5	51	0.78
	No	14	4	2	2	22	
Use of Psychological resource material	Yes	11	12	2	1	26	0.00 6
	No	29	5	7	6	47	
Psychotherapy Sessions	Yes	10	8	2	0	20	0.10
	No	30	9	7	7	53	

Discussion

Since the advent of pandemic COVID-19, the health care professionals worldwide have directly or indirectly suffered by it. Previously the percentage of infected corona population was low in Pakistan as compared to other parts of the world. However due to multiple factors such as negligence and lack of awareness in general population, the cases of people infected with corona virus have increased steadily and has reached almost a peak in Pakistan. With the increase in suspected cases, the burden on healthcare system of Pakistan has increased substantially as well .The study is designed and conducted especially at this time to identify and address the psychological effects of this pandemic on Pakistani doctors. As with every passing day, not only the number of people infected with Corona virus is increasing but the proportion of doctors being infected by Corona virus is increasing as well. This study included the doctors working in government hospitals, providing healthcare services to people residing in densely populated areas. The doctors working in government setups are exposed to increased number of patients and they have limited resources to work with. Moreover, psychological support in the form of awareness seminars, addressing common psychological problems and psychotherapies are also scarcely available in most of government institutes.

The results of this study revealed that situation arising due to COVID-19 has significantly influenced the mental health of Pakistani health care professionals. More than half of the participants had subthreshold mental disturbance, followed by 23 and 12% having mild and moderate mental health problems respectively, while 7% suffered from severe mental health disturbances. These results are in concordance with study conducted by Sethi et al.[7] Self quarantine and social distancing have further increased the incidence of psychological problems. Regarding the comparison of demographic data with anxiety and depressive disorders, our study did not show significant relationship between age, gender and increased incidence of mental health disorders. This is in accordance with an international study conducted by Liang et al.[8] which showed that no significant relationship existed between age and incidence of mental health problems. Similarly, a local study conducted by Saqlain et al.[9] concurs with our findings. However, this was in contrast to a local study conducted on college students by Salman et al.[10] which revealed a significant positive correlation between the age and incidence of mental health disturbance. Our study showed that dealing with corona virus infected patient as a frontline worker had significant correlation with the increased incidence of psychological problems. The same results were revealed by a study conducted in China by Lai et al.[11] Relatively fewer studies have been done to identify the psychological impact of this pandemic on healthcare workers in Pakistan since this pandemic reached its recent peak, caused by abrupt substantial increase in number of cases of COVID-19. To our knowledge our study is the first one reporting the association of many variables with anxiety and depressive disorders targeting our population of interest, the specialist doctors working in government hospitals. There was a significant correlation between getting infected from Corona virus and increased chances of suffering from anxiety and depressive disorders. However, there was a negative correlation between exposure of friends or neighbors with COVID 19 and increased mental stress. This may be due to increased spread of disease among masses, as the people around us are increasingly been infected. We found a positive correlation between the use of psychological resources in times of increased stress and lesser chances of developing mental disorders. This is in accordance with study conducted by Mukhtar et al.[12]

Similarly a study by Rahman et al,[13] supported and urged the need for increased availability and usage of psychological resource material and setting up psychological guidelines for use in pandemics to reduce its devastating psychological effects.

Limitation of Study

One of the limitations of the study is the use of convenience sampling which may affect the generalizability of findings. Another limitation is the inherent design of the study with sampling technique being restricted to doctors with internet access only. However, despite these limitations, our study is the first of its kind in Pakistan which recognizes different factors affecting the mental health of Pakistani doctors working in Government hospitals during COVID-19 outbreak. Further larger longitudinal studies need to be conducted that would aid the policy makers in addressing various factors influencing the mental health of Pakistani doctors during outbreak of Corona virus disease 2019.

Conclusion

Pandemic COVID-19 had a strong impact on mental health of Pakistani doctors. Various factors having a negative influence on their mental health were identified. The effect of these factors should be minimised by devising methods aiming to reduce devastating psychological effects of this outbreak on our healthcare workers. Psychological help should be available at local and national level and should be provided to doctors working in all the hospitals across the country.

References

1. Javed B, Sarwer A, Soto EB, Mashwani ZU. Is Pakistan's Response to Coronavirus (SARS-CoV-2) Adequate to Prevent an Outbreak? Front Med (Lausanne). 2020 Apr 21;7:158. PMID: 32373620; PMCID: PMC7187779.
   DOI: https://doi.org/10.3389/fmed.2020.00158

2. Balkhi F, Nasir A, Zehra A, Riaz R. Psychological and Behavioral Response to the Coronavirus (COVID-19) Pandemic. Cureus. 2020 May 2;12(5):e7923. PMID: 32499970; PMCID: PMC7265762.
   DOI: https://doi.org/10.7759/cureus.7923.

3. Rana W, Mukhtar S, Mukhtar S. Mental health of medical workers in Pakistan during the pandemic COVID-19 outbreak. Asian J Psychiatr. 2020 Jun;51:102080. Epub 2020 Apr 7. PMID: 32283512; PMCID: PMC7139243.
   DOI: https://doi.org/10.1016/j.ajp.2020.102080.

4. Abid K, Bari YA, Younas M, Tahir Javaid S, Imran A. Progress of COVID-19 Epidemic in Pakistan. Asia Pac J Public Health. 2020 May;32(4):154-156. Epub 2020 May 19. PMID: 32429679; PMCID: PMC7240311.
   DOI: https://doi.org/10.1177/1010539520927259.

5. Harapan H, Itoh N, Yufika A, Winardi W, Keam S, Te H, Megawati D, Hayati Z, Wagner AL, Mudatsir M. Coronavirus disease 2019 (COVID-19): A literature review. J Infect Public Health. 2020 May;13(5):667-673. Epub 2020 Apr 8. PMID: 32340833; PMCID: PMC7142680.
   DOI: https://doi.org/10.1016/j.jiph.2020.03.019.

6. Cai H, Tu B, Ma J, Chen L, Fu L, Jiang Y, Zhuang Q. Psychological Impact and Coping Strategies of Frontline Medical Staff in Hunan Between January and March 2020 During the Outbreak of Coronavirus Disease 2019 (COVID-19) in Hubei, China. Med Sci Monit. 2020 Apr 15;26:e924171. PMID: 32291383; PMCID: PMC7177038.
   DOI: https://doi.org/10.12659/MSM.924171.

7. Sethi BA, Sethi A, Ali S, Aamir HS. Impact of Coronavirus disease (COVID-19) pandemic on health professionals. Pak J Med Sci. 2020 May;36(COVID19-S4):S6-S11. PMID: 32582306; PMCID: PMC7306959.
   DOI: https://doi.org/10.12669/pjms.36.COVID19-S4.2779.

8. Liang Y, Chen M, Zheng X, Liu J. Screening for Chinese medical staff mental health by SDS and SAS during the outbreak of COVID-19. J Psychosom Res. 2020 Jun;133:110102. Epub 2020 Mar 21. PMID: 32224344; PMCID: PMC7139244.
   DOI: https://doi.org/10.1016/j.jpsychores.2020.110102.

9. Saqlain M, Munir MM, Rehman SU, Gulzar A, Naz S, Ahmed Z, Tahir AH, Mashhood M. Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: a cross-sectional survey from Pakistan. J Hosp Infect. 2020 Jul;105(3):419-423. Epub 2020 May 11. PMID: 32437822; PMCID: PMC7211584.
   DOI: https://doi.org/10.1016/j.jhin.2020.05.007.

10. Aylie NS, Mekonen MA, Mekuria RM. The Psychological Impacts of COVID-19 Pandemic Among University Students in Bench-Sheko Zone, South-west Ethiopia: A Community-based Cross-sectional Study. Psychol Res Behav Manag. 2020 Sep 30;13:813-821. PMID: 33061696; PMCID: PMC7533263.
    DOI: https://doi.org/10.2147/PRBM.S275593.

11. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, Wu J, Du H, Chen T, Li R, Tan H, Kang L, Yao L, Huang M, Wang H, Wang G, Liu Z, Hu S. Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. JAMA Netw Open. 2020 Mar 2;3(3):e203976. PMID: 32202646; PMCID: PMC7090843.
    DOI: https://doi.org/10.1001/jamanetworkopen.2020.3976.

12. Mukhtar S. Mental Health and Psychosocial Aspects of Coronavirus Outbreak in Pakistan: Psychological Intervention for Public Mental Health Crisis. Asian J Psychiatr. 2020 Jun;51:102069. Epub 2020 Apr 16. PMID: 32344331; PMCID: PMC7161472.
    DOI: https://doi.org/10.1016/j.ajp.2020.102069.

13. Rahman J, Muralidharan A, Quazi SJ, Saleem H, Khan S. Neurological and Psychological Effects of Coronavirus (COVID-19): An Overview of the Current Era Pandemic. Cureus. 2020 Jun 5;12(6):e8460. PMID: 32528783; PMCID: PMC7282368.
    DOI: https://doi.org/10.7759/cureus.8460.