Impact of the Covid-19 Pandemic on Anxiety Levels of Medical Students in Pakistan

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Abstract: Covid-19 is a communicable infective disease and has been the major current health challenge since it emerged in China in late 2019. Although earlier data analyses of Dawei Wang etc. from 138 hospital of China had shown that its mortality rate is less than 5%, shown (4.3%), major concern is its widespread transmission. The Covid-19 pandemic has adversely affected economics and the mental health of millions worldwide. Fear is the one of the psychological outcomes of pandemic, but the psychological impact of the pandemic was overshadowed by financial and economic impact, which are interrelated. Conducted through an online questionnaire, this study evaluates the anxiety level of medical students of Nishtar Medical University and Multan and Quaid-e-Azam Medical College (QAMC) Bahawalpur in southern Punjab of Pakistan by using fear Covid-19 scale. The research employs the fear scale developed by Ahorsu et al. based on unidimensional 7 items, 5-point Likert scale. This scale is a valid and reliable tool and has been used to assess the fear for Covid-19 in general population. This scale has been used internationally by many researchers to measure anxiety levels.

The research correlated the socio demographic variables, such as age, sex, education level and living surroundings, with anxiety levels that would help to redesign curriculum for education and to plan programs to enhance the knowledge of medical students for preventive measures against Covid-19. 577 male and female students from 1st to 5th year of bachelor's in medicine and bachelor's in surgery (MBBS) with ages ranging from 17 to 25 years participated in this study.

Conclusion: Our study shows that the Covid-19 has created fear and phobia that is affecting the mental health of medical students. Health programs is a basic requirement at the time to minimize the psychological impact of phobia in medical students.

Key Words: Covid-19, Pandemic, Anxiety, Fear Scale, Medical students, Pneumonia

Introduction

The Corona virus disease 2019 (Covid-19) outbreak began in Wuhan, China in December 2019 with manifestations of respiratory symptoms associated with fever and fatigue progressing to pneumonia and even death in some cases. The World Health Organization (WHO) has declared it pandemic with infecting millions of people and more than one million losses of lives worldwide. Health care system all over the world have been utilizing most of their resources with primary focus on treatment of infected patients and prevention of its further spread with little attention towards its psychological impact resulting from fear and phobia as is already proven by literature on the toll on mental health caused by different pandemics in the past (Huremović 2019; Chong M-Y et. al., 2004).

Fear is a natural bodily response to stress with a feeling of apprehension about the outcome. Occasional fear is a normal phenomenon, for example going for an interview or giving a speech may cause many people experience nervous and mild anxiety. If this feeling of anxiety interferes with daily activities, it may lead to different anxiety disorders. Fear could be generated in a planned manner in the health sector by messages perceived as threatening, it's called 'fear appeal' (Pakpour, 2020). Fear appeal is used to change the behavior of public towards some factors or habits, those that are injurious to health. Fear appeal has successfully worked on topics of cigarette smoking, breast cancer screening by self-breast examination, and medication adherence (Tannenbaum, 2015). The protection motivation theory defined by R. W. Rogers explains that the individual adopt health behaviors only when their expected susceptibility and severity is high. (Pakpour, 2020). Similar fear appeal has been utilized as a motivational factor against the prevention of Covid-19 by public messages to change the behavior for social distancing, frequent hand washing, use of hand sanitizer, and use of face masks. A recent study has shown that people adopt more preventive measures when they perceive high threat (Harper et.al, 2020).

Media has an unquestionable role in spreading these health related fear appeals but on the other hand the news and regular updates on the number of Covid-19 related deaths and infected people generates anxiety in the public (Sher, 2019). Such anxiety disorder has resulted in increased rate of suicides triggered by behavioral and psychological consequences of lockdown, isolation, feeling of loneliness, fear, and anxiety (Sher, 2020).

Many studies have been conducted to measure fear against medical conditions including fear for breast cancer, dementia, surgery, hypoglycemia, and Alzheimer's disease. Champion and his colleagues developed the Breast Cancer Fear Scale that was used by M. Moshki and his colleagues to evaluate fear and anxiety in the Iranian population (Monshki et.al., 2017). Samantha L. French utilized and validated the scale for fear of Alzheimer's disease (FAD) to measure the anxiety level in the general population (French, et. al., 2012). Different scales have been designed

to measure the anxiety level in different social groups against specific topics. Measuring the anxiety level for a specific factor in different groups using specific social and demographic variables including age, gender and education helps to plan for education and prevention programs.

Medical school students are assets of the health care system. They are the first line of soldiers on the battle against pandemics. Their self-care abilities need to be strengthened to deal with a pandemic. The mental health of medical students has already been seen to be a worldwide problem (Kaper, et.al., 2020; Pham et.al., 2019). Therefore, we conducted this study to measure the effect of the Covid-19 pandemic on anxiety levels of medical students in southern Punjab of Pakistan.

Method

Study was conducted on medical students of southern Punjab, Pakistan via online questionnaire Performa. The Covid-19 fear scale was used to measure the fear and anxiety level in medical students of southern Punjab including Nishtar Medical University, Multan and Quaid-e-Azam Medical College, Bahawalpur.

Only the students who filled the Performa willingly and completely were included in the study. The students who were unwilling to participate in the study were excluded. Performa was designed to gather demographic information including age, gender, year of study, residence, and socioeconomic status.

The Fear Covid-19 scale (FCoV-19S) consist of 7 questions evaluated on a 5-point scale; 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree. A total score is calculated as the sum of the 7 items that is ranging from 7 to 35. The higher the score, the greater is the fear of Covid-19. The acceptable values for the internal consistency and the test retest reliability of the scale were 0.82 and 0.72. the FCov19s has positive correlation with anxiety and depression level.

Data Analysis

Data analysis was done by using SPSS-24. Firstly, the mean, standard deviation, and percentages were calculated and reported. The Cronbach's alpha test was applied for reliability analysis and to assess internal consistency. Reliability analysis corresponding to value >0.70 was taken satisfactory. Convergent validity, the correlation between the FCoV-19 scale score and its 7 items were derived by Spearman's correlation coefficient.

Results and Discussion

Pneumonia caused by Covid-19 is a current global health emergency and has been declared as pandemic. Most patients present clinically with symptoms of pneumonia including fever and dyspnea. The World Health Organization (WHO) confirmed Covid-19 cases in more than 150 countries and currently Covid-19 is the major cause of death worldwide. Isolation and quarantine of infected patients are major measure to control the spread of infection. Lockdown to force the public to avoid unnecessary visits at public places is another major step taken as a protective measure. Lockdown has badly affected not only the economy but also the academic career of students due to closure of teaching universities and postponement of examinations (Li, et.al., 2020). The disease has

affected the physical health on one side and has impact on mental health of the public by increasing the anxiety level on the other hand. This study that relies on Harper FCov19s has shown that behavior change to control the spread of Covid-19 by adopting preventive behaviors have been effective. A total 577 students participated in this study. Mean age of the participants was 20.4 years with SD of 1.52. Only 8.7% students were under the age of 18 years, the rest of them were above 18 years (age wise contribution shown in Graph 01).

Graph 01: Showing Age Wise Contribution of Students

Demographic features are shown in table 01.

Table 01: Showing Demographic Features n=577

Demographic Feature	Frequency	Percentage
Gender		
Female	351	60.8
Male	226	39.2
Total	577	100
Age		
<18	50	8.7
>18	527	91.3
Total	577	100
Study year		
1st year	213	36.9
2nd year	165	28.6
3rd year	141	24.4
4th year	34	5.9
5th	24	4.2
Total	577	100
Day-scholar/Hostelite		
Day-scholar	184	31.9
Hostelite	393	68.1
Total	577	100

Female students showed more interest in the study compared to male students as the percentage of female student participants was 60.8% and that of male student participants was 39.2%. Students residing in hostels responded well compared to day-scholars. This difference in response could be caused by the fact that living far from home and family might be a causative factor for anxiety. The majority of participants were preclinical and junior class students including 1st, 2nd and 3rd year students constituting 89.9%, showing that clinical students having more patient exposure probably increases the health literacy and confidence level thus showing least interest in anxiety related studies for communicable diseases (class wise contribution shown in Graph 02).

Graph 02: Showing Class Wise Contributions of Medical Students

(1st & 2nd year students are preclinical, 3rd to 5th year students are clinical students)

Previous studies have shown a strong correlation of Covid-19 fear with demographic variables including age, gender, socioeconomic status, and health literacy level (Nguyen, et.al., 2020). Our study also shows the factors affecting the anxiety level include gender, level of study, socioeconomic status, living with family or not, and exposure to Covid -19 infected patients. Female students have shown a high anxiety level than male students; that could be due to the fact that women have more stressful life events in normal circumstances (Lancet, 2020). Moreover, female students in general have more prevalence for anxiety and depression than male students (Evans, et.al., 2018; Eaton, et.al., 2012). The anxiety level was higher among junior or preclinical students compared to clinical or senior students. Senior students' better disease related knowledge, skills, and preventive measures might be reducing their Covid fear (Nguyen, et.al., 2020). Students with high socioeconomic status and day-scholars had lower anxiety levels than students living in hostels or students with lower socioeconomic status. It could be explained by the fact that living with family members allows better care for self and dear ones under direct supervision. While feelings of loneliness or isolation increases the depression and anxiety (Domènech-Abella et.al., 2019; Calati,

et.al., 2019). Ability to afford medical services and necessary medication is another factor to lower the anxiety level. Previous studies have also shown that children of financially stable parents have lower risk to have psychological problems (Cao, et.al, 2020). Students having exposure to Covid-19 patients have high anxiety levels as compared to those who have not seen such patients around. Exposure to Covid-19 infected patients in surroundings increases the anxiety level especially if patient care had poor outcome. Moreover, management of a patient in isolation away from family members and friends and funeral arrangement after death in absence of family members is also a factor increasing fear of Covid-19.

Our study shows that Fc19s is a reliable and valid tool to assess the pandemic related anxiety level of medical students. Study shows higher values for internal consistency, item-scale convergent validity and floor and ceiling effects. (Descriptive statistics, Component Matrix and Correlation matrix are shown in table 02, 03 & 04 Respectively). Reliability analysis derived by Cronbach's alpha test was 0.87.

Descriptive Statistics

	Mean	Std. Deviation
How afraid are you of Corona virus?	3.4495	1.18309
How uncomfortable does it make you to think about current Corona Pandemic?	3.4721	1.16752
How afraid are you of losing your life because of Corona Pandemic?	3.0976	1.47613
How nervous and anxious do you get when you hear news about spreading of Corona virus?	3.6202	1.21882
How afraid are you about contacting Corona virus?	3.6272	1.26451

Component Matrix^a

	Raw Component 1	Rescaled Component 1
How afraid are you of Corona virus?	0.927	0.783
How uncomfortable does it make you to think about current Corona Pandemic?	0.864	0.740
How afraid are you of losing your life because of Corona Pandemic?	1.253	0.849
How nervous and anxious do you get when you hear news about spreading of Corona virus?	1.028	0.844
How afraid are you about contracting Corona virus?	1.073	0.848

Correlation Matrix^a

		How afraid are you of Corona virus?	How uncomfortable does it make you to think about current Corona Pandemic?	How afraid are you of losing your life because of Corona Pandemic?	How nervous and anxious do you get when you hear news about spreading of Corona virus?	How afraid are you about contacting Corona virus?
Correlation	How afraid are you of Corona virus?	1.000	0.536	0.557	0.589	0.597
	How uncomfortable does it make you to think about current Corona Pandemic?	0.536	1.000	0.513	0.589	0.515
	How afraid are you of losing your life because of Corona pandemic?	0.557	0.513	1.000	0.594	0.625
	How nervous and anxious do you get when you hear news about spreading of Corona virus?	0.589	0.589	0.594	1.000	0.701
	How afraid are you about contacting Corona virus?	0.597	0.515	0.625	0.701	1.000

Conclusion

The Covid-19 pandemic has not only resulted in worldwide economic downfall and burden on health care systems but also has strong psychological impact causing fear of Corona virus among medical students. Our study shows health literacy has a positive impact on Corona fear, so enhancing the knowledge about Covid-19 and protective measures against its spread has key role in control of its spread on one hand and to lower the anxiety level on other hand. Therefore, there is need for public health interventions and strategic plans for education and training programs for medical students to reduce their anxiety level.

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