Psychological Impact of COVID-19 Pandemic on University Students at Karachi, Pakistan

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Abstract:

The spread of the COVID-19 pandemic across the world has shaken the economic and social sectors of life. The pandemic has not only affected these sectors but also endorsed intolerable psychological pressure on the public including the students. In this study, data was collected from university students of Karachi, Pakistan through cluster sampling using a convenience sampling technique. Generalized Anxiety Disorder Scale (GAD-7) with 7 items along with inquiry about basic information was used to assess the anxiety level of students. A total of 299 valid questionnaires were received. The results showed that 33.70% of the participants experienced mild anxiety, 19.53% experienced moderate and 18.36% experienced severe anxiety. Results of ordinal logistics regression analysis showed that students living in the district east and students staying with parents were considered protected against anxiety. Fear of COVID-19 was considered as a risk factor to enhance anxiety. Pearson correlation analysis results indicated that economic effects and their influence on daily life and delay in academic activities are positively associated with anxiety levels. On the other hand, social support was negatively associated with anxiety levels. The COVID-19 pandemic has adverse effects on the mental health of the students. This study provides implications to the policymakers that the student's mental health needs to be given priority through effective and comprehensive psychological therapy and multiple anxieties coping and solution-seeking campaigns.

Keywords

Psychological impact, COVID-19, University, anxiety, students

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1. **Introduction**

The spread of pandemic diseases is not new to human beings. History is full of such events and catastrophic happenings where humans were pushed to the walls. Is it annoyance of nature or something which human beings create for themselves knowingly or unknowingly? Such questions come to everyone's mind under the conditions of helplessness and despair. COVID-19 is one of such phenomena where modern medical science has appeared to be exhausting its expertise despite much needed and proclaimed technological advancements (Cunningham et al., 2020).

The virus known as Coronavirus starts its journey from China as claimed by the media predominantly the western one and spreads like jungle fire almost spontaneously. Then over the period, it changed its dimensions, causes of spreads, and predictions like it are sensitive to heat and hot weather etcetera. Conclusively, it affected all dimensions of human relationships and dimensions; to include social, political, and economic, and belief systems. It is being controlled as an outcome of the enforced measures or it coming to an end by itself is again a mystery. It has affected human beings of all status, faith, color, civilization, and walks with the natural formula of equality. However, students have been impacted with more severity due to the conditions of homebound and pressure of studies under limited guidance from the teachers (Islam et al., 2020).

1.1: Problem statement

To avoid the further spread of this virus, like other countries, the government of Pakistan also decided to close schools, colleges, and universities in the first week of March 2020. Later on, the whole country had been locked down completely and remained so for many months. These measures not only affected the economy of the country but also severely affected the mental health of the general public especially medical staff, patients, and students (Dhahri et al., 2020). In Pakistan, limited studies and research have been done on the impact of this virus on the mental health of the general public that reveals a negative influence on the psychology of the masses (Islam et al., 2020; Zafar et al., 2020). Students are one of the vital elements of society that are directly affected by this virus in different dimensions. Besides this, the fear of being infected, social distancing, and death, this pandemic had severely affected not only the academic activities but also the way of carrying out academic pursuits. Students had to face uncertain academic, social, and mental challenges. These challenges and fear had a significant impact on the mental wellbeing of students (Cao et al., 2020a). The focus of the recent research regarding COVID-19 is technical so far because scientists and professionals want immediate treatment of this deadlier virus. Besides this, others are focusing on the economic impacts of this virus in the whole world and regions. Students are the chief contributors in the economic, social and cultural development of nations. Worldwide limited research studies have been conducted on the psychological impacts of COVID-19 among masses and especially on the students (Dhahri et al., 2020; Islam et al., 2020; Mei et al., 2011a). Similarly, in Pakistan one does not find much on the psychological dimensions of

this virus, therefore, the aspect needs more studies and redressal of the issue comprehensively and effectively.

1.2: **Objectives**

- To study the psychological conditions of university students who have become homebound under the lockdown conditions caused by COVID-19.
- To investigate the psychological impact of COVID-19 on university students because of their study hours versus idle time situations.
- To conclude the given environments and suggest measures for the psychological health of young people.

1.3: Scope and Significance of the Study

The study takes into account the students of universities located in Karachi, their psychological conditions, and social impacts. The results of this study have tremendous practical implications regarding the provision of knowledge, cognitive, and behavioral directions. Moreover, this study provides an immediate sketch about the mental and psychological health of university students to the management and government institutions. The recent study provides evidence in this regard that family attention, social support, and psychotherapy are vital elements in the rehabilitation of students' mental health (Ye et al., 2020). Besides this, this study is helpful in the theoretical contribution towards the field of psychology and also provides an insight to government and the management of the university to formulate policies regarding the psychological rehabilitation of the students. The rest of the paper is designed as section two describes the literature review, section three describes the methodology, section four includes results and discussion, section five provide other statistical inferences and the final section describes conclusion and policy implications.

2. Literature Review

2.1: The Breakout and Shades of COVID-19

The world since its inception had faced dramatic and destructive tragedies along with growth and development (Gushulak & MacPherson, 2004). One of the major destructions caused to humanity has been through infectious diseases. Millions of people have died with such type of pandemics. Similarly, an outbreak of COVID-19, a coronavirus disease caused by the virus SARS-CoV-2 emerged in the city of Wuhan, China in December 2019 as reported by media especially the western channels (Cao et al., 2020). Numerous patients associated with seafood and animal markets in the city of Wuhan, in central

China, presented with an acute respiratory tract illness in the last week of December 2019 (Son et al., 2020).

2.2: Diagnosis of Chinese Health Officials

In the first week of January 2020, Chinese health officials diagnosed novel coronavirus (2019-nCov) as a source of this infection (Patel, 2020). This type of virus has never been detected earlier in humans and even in animals. Genetic information studied among these patients was significantly similar to that of bats. Soon after this breakthrough, the virus was renamed SARS-CoV-2 because it caused severe acute respiratory syndrome among the presented patients. SARS-CoV-2 share approximately 79% of its genetic sequence with subgenus Sarbecovirus (Beta-CoV lineage B), however, it is much more different to MERS-CoV responsible for Middle East respiratory syndrome which is a member of Merbecovirus subgenus. All the viruses belong to a subfamily called Orthocoronavirinae and come under the Coronaviridae family(Xu et al., 2020).

2.3: Symptoms and Causes

This disease causes severe acute respiratory syndrome which ultimately leads to death in most of cases. Moreover, the virus spreads among people through physical contact. A study conducted in China reveals that the nature of spread causes severe pressure on the governments, medical professionals, and the general public (Pan et al., 2020). Isolation, physical distancing, and staying at home are the only remedy suggested by medical professionals and scientists so far. The world has been locked down by this virus and approximately more than 2.5 million people have been affected and approximately one lakh eighty thousand have died so for, more deaths and infections are expected in coming months. On the other hand, in Pakistan, approximately ten thousand people have been infected and more than 200 have died so far (*Corona Stats - Google Search*, 2020). More deaths and infections are expected in Pakistan as well.

3. Research Methodology

3.1: General Anxiety Disorder Scale

The General Anxiety Disorder Scale (GAD-7) consisting of 7 items has been used for this study. This scale is widely used to screen and detect anxiety disorders and especially developed to detect patient health.

3.2: Population and Sampling Technique

The population of this study is university students of Karachi, Pakistan. We selected university students as our respondents because (1) they have more awareness regarding COVID-19 severity, (2)

they are more conscious about their future and can present well interpretation of their concerns, (3) earliest completion of the degree is the prime target of every university student and due to COVID-19 their education delayed and they have to pay in terms of money and time. Cluster sampling followed by convenience technique was adopted to collect the data. District east of Karachi was selected randomly among the six districts of Karachi. A list of districts was obtained from the official website of Karachi Municipal Corporation. Data has been collected from the students who are enrolled in universities situated in the district east. Students from different districts of Karachi are enrolled in these universities so we compare the mean scores in our analysis and interpretations. A structured questionnaire was distributed among students to gauge their mental wellbeing.

3.3: Measurement Scale

The survey questionnaire consisted of four sections. The first section inquired demographics information of respondents followed by section two comprising of General Anxiety Disorder Scale (GAD-7) which consisted of 7 items. The scale encompassed the symptoms and frequencies of occurrence of these symptoms among the students during the preceding two weeks. Respondents were asked to respond on a Likert scale. The total score of GAD-7 ranges from 0 to 20 and known as a strong screening scale with extremely good internal consistency (Toussaint et al., 2020) was used.

3.4: Data Analysis Tool

Data were analyzed using SPSS Version 22.0. Descriptive analysis was conducted to measure the demographic characteristics and some other characteristics associated with respondents. Parametric tools were used to conduct the uni-variate analysis to evaluate the significant relationship among sample characteristics and level of anxiety during the COVID-19 pandemic. Multivariate analysis was conducted through regression. To measure the strength of the relationship, the Pearson's correlation coefficient was used to illustrate the association.

4. **Results and Discussion**

4.1: **General characteristics of the study population**

There have been 299 respondents out of those, 184 (61.5%) were male and 115 (38.5%) female. The majority of them have been from Bahria university 140 (46.8%) followed by SZABIST 136 (45.5%) and others 23 (7.7%). Approximately 83.3% were students and 16.7 were faculty members and most of them belong to the management sciences department 81.9 %. Approximately 41 % were from district east followed by district south 25.4 % district west 10.7 % district Malir 9% district North 8.7 % and district Korangi 4.7 %. Besides this 93.6 % were living with their families.

4.2: Anxiety Level

Anxiety level among university students and faculty members during the COVID-19 pandemic is shown in the table below. Table 1 shows the level of anxiety among students and faculty members of universities. The majority of them have mild anxiety levels 100 (33.70) followed by normal 85 (28.7%), moderate 58 (19.53), and severe 55 (18.36). our findings in this regard are consistent with the previous studies conducted to measure anxiety and depression among students (Dhahri et al., 2020; Islam et al., 2020; Zafar et al., 2020).

Table 1: Students and faculty members with different anxiety level (n=299)

Anxiety level	Number	Ratio
Normal	85	28.7%
Mild	100	33.70%
Moderate	58	19.53%
Severe	55	18.36%

4.3: Factors affecting the student's anxiety level during COVID-19 pandemic

Table 2 shows the relationship between demographics and level of anxiety. Students living alone have a significant effect on anxiety. The students living apart from family has increased anxiety level ($P < .05$). On the other hand, all the other demographic parameters have an insignificant effect on anxiety ($P > .05$). Besides this, 24.4% of male students and 16.1% of female students have mild anxiety. 19.1% of students of Bahria University, 19.4% of students of SZABIST found to be mildly affected by the anxiety. Between faculty and students, 37.5% of students feel mild anxiety. Students of management sciences felt mild anxiety (34. 5%). A mild level of anxiety is noted among the students of district east (16.4%). A recent study conducted by Zafar et al. (2020) observed the anxiety and depression level among the general public, health professionals, and medical students in Pakistan and found that the females and general public having least awareness of COVID-19 have more anxiety and depression as compared to health professionals, medical students, and young people.

Table-2: Relationship between demography and anxiety level

Variable		Total	Anxiety level				P-value
			Normal.	Mild	Moderate	Severe	
Gender	Male	184	22.8%	24.4%	11.7%	2.6%	.739
	Female	114	13.4%	16.1%	7.3%	1.3%	
University	Bahria,	140	16.7%	19.1%	8.3%	2.6%	.403
	SZABIST and	135	14.7%	9.4%	9.0%	1.3%	
	Others	23	3.0%	2.3%	1.3%	1.0%	
Position	Faculty	50	7.3%	3.35%	4.6%	1.3%	.393
	Student	248	28.5%	37.5%	14.4%	2.6%	
Department	Management Sciences	244	28.8%	34.5%	15.1%	3.3%	
	Social	11	1.3%	1.3%	1.0%	0%	
	Sciences	5	.67%	.33%	.33%	.33%	.474
	Computer	4	.33%	.33%	.33%	.33%	
	Sciences					.33%	
	Humanities	6	.67%	.33%	.67%	0%	
	Engineering and Others	28	3.3%	3.5%	2.3%		
Region[b]	East	123	13.4%	16.4%	8.3%	2.6%	
	South	76	10%	16.1%	4.0%	.67%	
	North	26	2.6%	3.9%	2.0%	.33%	
	Malir	27	2.0%	5.05	2.0%	0%	.260
	Korangi	14	2.1%	.67%	2.0%	0%	
	West	32	5.3%	.67%	3.9%	.33%	
Steady income[a]	Yes	252	31.5%	33.9%	15.7%	3.3%	.408
	No	46	4.7%	6.7%	7.0%	1.3%	
Living with family[a]	Yes	280	37.5%	33.5%	20.1%	2.6%	.012
	No	18	.67%	2.7%	.68%	.73%	

[a] Independent sample t-test [b] One way ANOVA

4.4: **Correlation Analysis between COVID-19-Related Stressors and Anxiety**

Table-3

Related stressors	Anxiety level	
	R	P
Worry regarding economic influence	.207	.000
Worry regarding academic delays	.172	.003
Influence on daily life	.062	.298
Social support	-.181	.002

Table 3 shows the outcomes of the correlation analysis between the COVID-19 related stressors and anxiety level. The results of the correlation analysis revealed that the worry regarding the economic influence of the pandemic was positively associated with the anxiety level of the college students (r= .207, P < .000). Besides this, worry regarding the academic delays also positively associated with the anxiety of college students (r = .172, P < .003), and the effect of the COVID-19 on daily-life (r = .062, P < .298) was not significantly associated with the anxiety level. Moreover, the results suggested a negative association between social support and anxiety symptoms of college students during the COVID-19 outbreak. (r = -

.181, *P*< .002). The findings of this study are also consistent with the recent study conducted by Coa et al. (2020) in China. They found that the delay in academic activities due to COVID-19, economic effect, and the influence of COVID-19 on daily life activities are positively related to anxiety levels.

4.5: Ordinal Regression Analysis among Factors of Anxiety

The outcome of ordinal regression analysis of parameters related to anxiety level among the university students during the COVID-19 pandemic is presented in table 4. Some of the important and influential factors are included in the ordinal regression analysis. Significance value P= .004 in the model fit table reveals that the ordinal regression analysis values of at least one or more variables are found statistically significant. Significance value P=.005 in the goodness of model fit indicates a good model fit for this study. Hence, χ^2=256.021,p=.000 found in the test of parallel lines table reveals a weak model fit with the experiential values. On the other hand, results in table 3 showed that students living in district east as compared to other districts were found safe against the depression and experienced by the respondents as: (OR=.733 at 95% confidence interval=.052, 1.14). The students living with family (OR= -1.192 at 95% confidence interval= -.2.039, -.350) and fear of COVID-19 infection (*OR* =.922 at 955 confidence interval=.281, 1.56) were also found safe from anxiety. Our findings are consistent with the recent study that also showed a higher level of depression and anxiety among older students and students who provide tuition in the pre-pandemic period (Islam et al., 2020). Similarly, the study of Zafar et al. (2020) also supports our findings by providing evidence of higher depression and anxiety among females, occupations, and individuals ≤30 years.

Table-4 Results of Ordinal logistic regression analysis of factors affecting university student's anxiety level

Factors	Number	SE	OR	P-Value	OR (95%CI)
Region					
East	123	.348	.733	.035	.052, 1.14
South	75	.368	.308	.402	-.413, 1.03
North	26	.463	.675	.145	-.232, 1.58
Malir	27	.459	.754	.100	-1.45, 1.65
Korangi	14	.559	.105	.851	-991, 1.20
West	32	-----	-----	------	------
Steady income					
Yes	251	.283	-.334	.238	-.889, .22
No[a]	26	-----	-----	-----	-----

Living with family					
Yes	279	.430	-.1.192	.006	-2.039, -.35
No[a]	18	-----	------	-----	-----
Fear of COVID-19					
Yes	33	.327	.922	.005	.281, 1.56
No[a]	264	-----		-----	-----

SE Std. Error OR Odds ratio CI Confidence interval a: reference group

5. Statistical Inferences

5.1: Incubation Period

All the diseases have some major impacts on different sectors of life but the impact made by epidemic and pandemic are remarkable. Similarly, the outbreak of COVID-19 has made a huge impact on different sectors of life all over the world. The outbreak of COVID-19 is the same as SARS CoV and MERS-CoV but the symptoms are different. However, the mode of transmission is similar but faster than the SARS Cov and MERS-CoV. The incubation period of COVID-19 is 14 days and manifestation includes cough, fever, and flue. COVID-19 had locked down the entire world and creates economic shutdown and fear among the public. Besides this, the fear and worry created by this virus among students have some major psychological impacts (Mei et al., 2011b)**.**

5.2: Psychological Impacts and Anxiety

The psychological impacts and anxiety created fear and concern regarding academic delays and online learning issues. The primary objective of this study was to measure the anxiety level of university students and the factors that affect the level of anxiety. The results of the study showed that 79.59% of the students have been influenced by the anxiety caused by COVID-19. Among them 33.70 % feel mild, 19.53% feel moderate and 18.36% feel severe anxiety. This study is consistent with a recent study conducted in China by Cao et al; (2020). However, the percentage of anxiety among students is much higher in Pakistan as compared to China. The anxiety among university students is because of the effect on coursework, future employment, and social distancing among students and faculty members (Cornine, 2020). Moreover, the lack of idea sharing, problem sharing, interpersonal communication, and personal sharing is also factors of anxiety among the students (Kmietowicz, 2020; Xiao, 2020)**.**

5.3: Anxiety Issues of Pakistan

In Pakistan, the higher percentage of anxiety among students is because of the rapid increase in the number of patients across the country, presence of suspected patients, and inconsistent government policies regarding the COVID-19 as also highlighted by Bao and others (2020)**.** The shortage of protective surgical and medical equipment, breathtaking and irresistible, and fake news regarding COVID-19 further deteriorated the anxiety level among students (Ayittey et al., 2020). The statistical analysis also indicated that students living alone had a significant effect on anxiety levels. The students living away from families had increased anxiety levels ($P < .05$). On the other hand, all the other demographic parameters have an insignificant effect on anxiety ($P > .05$). No significant difference in means score in gender and other parameters contradicting the previous studies (Moreno et al., 2019)**.**

5.4: **Area Specific Analysis**

Results of ordinal regression analysis showed that students living in the district east of Karachi are protected from anxiety as compared to other regions. The reason appears to be better economic health, cultural and educational facilities. District east is comparatively better in social and health facilities. Hence, the region with better economic facilities provides residents a much prosperous social and security needs. Besides this, the infrastructure of the district east is much better than other regions especially the planning of residential and commercial areas which helps maintain the social distancing among residents. The availability of educational institutes also contributes to the awareness regarding the prevention of the pandemic (Tang et al., 2020)**.** Another favorable factor that is helpful against anxiety is family support and living with family. Students living with family have experienced less anxiety. Existing researches suggest that anxiety, depression, and emotional disorders among children and adults are because of psychological reasons state of being away from their families.

5.5: Economic Implications

Results of correlation analysis among the COVID-19 stressors showed a positive association among economic effects, effects on daily life and academic delays, and level of anxiety. These findings are also consistent with previous research conducted by Kernan (2019) which showed that pandemic emergencies have a strong impact on economies, daily life routines, and educational activities. The economic shutdown across Pakistan resulted in the unemployment of many families and students experienced anxiety about their university fees. The lockdown across the country resulted in the travel ban, holidays, and closure of all activities; it has severely disturbed the daily activities of individuals. The closure of schools, colleges, and universities for an unlimited time also disturbed the daily life activities of parents and students. Online education for students at home created burdens on the parents. In the end,

social support has been negatively associated with the level of anxiety and it is consistent with previous studies (Chen et al., 2020; Thompson et al., 2016). Social support reduces the stress of the population in economic shutdown and also enhances the methods of social support and influence the attitude of the public regarding social support and charity. In Pakistan social support by the organizations, government and affordable people has contributed to the reduction of stress and it was appreciated across the world. An effective and influential social support system is essential to meet the pandemics (Yin-xia et al., 2005).

6. Discussion, Conclusion, and Recommendations

A major percentage i.e. 79.59% of the students has been influenced by the anxiety caused by COVID-19. Among them 33.70 % feel mild, 19.53% feel moderate and 18.36% feel severe anxiety. Students living in the district east of Karachi were better protected from anxiety as compared to other regions. Another favorable factor that is helpful against anxiety is family support and living with family. Besides this, the fear of COVID-19 infection is another independent risk factor of anxiety. The COVID-19 concerned stressors including economic factors had adverse effects on daily life. Apprehensions of academic delays had a significant association with the anxiety level. However, social support is negatively related to the anxiety level. The study showed a psychological blow of COVID-19 on the students of universities in Karachi Pakistan. They need concentration, assistance, family, and social support along with university guidance and support. To build the students' mental health, the government, higher education commission, and universities should conduct high-quality seminars on psychological empowerment and crisis management.

Timely and accurate information regarding COVID-19 indicators is very much essential to take the public and students in confidence. Government and media should take a lead to segregate positive images and avoid spreading fake, overwhelming, and sensational news across the country. The news regarding cured patients can alleviate the ambiguity and fear among the students which ultimately reduces anxiety levels. Social media is a very important tool to enhance awareness and knowledge regarding infection. Besides this, online education in Pakistan is at the initial stage and the decision to continue courses in universities through online sources need due analysis in collaboration with the students. The infrastructure of the internet should be modified to meet the needs of the students. Moreover, students should be given compensation in studies and universities should establish a friendly environment between students and faculty members to reduce unrest of the students.

Human beings have faced many disasters since the inception of the universe. Similarly, an outbreak of COVID-19 also attracts the attention of the world. The disease has been highlighted and showed as an emergency across the world by WHO. Despite being the deadliest infection, COVID-19 is still a manageable disease all over the world and people need not be panic. To deal with COVID-19 infection, it is essential to maintain a clean and healthy daily routine. Wearing of face mask, washing hands repeatedly, and keeping a social distance can reduce the infection dramatically. The people need

to understand the severity of COVID-19 and should deal with it seriously without fear, depression, and anxiety. Moreover, the policymakers need to consider the students' mental health during the pandemic period a arrange some of the online seminars to rehabilitate the mental health of students. This study like other studies has some limitations which include limited time and geographical area. Future studies can be done in rural areas with a large sample size covering a larger population.

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