

Psychological impact of COVID-19 Pandemic and associated factors on college students

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Abstract

Objective: To determine the psychological impact of coronavirus disease-2019 pandemic on college students, and to explore factors influencing their anxiety and depression levels.

Method: The cross-sectional study was conducted from October 2020 to January 2021 at the Jinnah Sindh Medical University, Karachi, and comprised medical students of either gender in the first to third year of the academic programme. Data was collected using a pretested online structured questionnaire comprising demographic information, academic problems, daily life difficulties and the 25-item Aga Khan University Anxiety and Depression Scale. Data was analysed using SPSS22.

Results: Of the 397 students, 72(18.1%) were males and 325(81.9%) were females. The overall mean age of the sample was 19.9±1.2 years. Of the total, 221(55.7%) students were found to be anxious and depressed. Factors related to academic difficulties and daily life issues had significant correlation ($p<0.05$) with anxiety and depression. Multiple linear regression analysis indicated that the need for some form of mental health support was the most significant ($p<0.001$) predictor of anxiety and depression, followed by family issues ($p<0.001$) and social media ($p<0.001$). Anxiety and depression were also significantly associated with fear of family or friend getting coronavirus disease-2019 ($p=0.003$), lack of attentiveness to study ($p=0.040$) and felt anxiety when ordering food online ($p=0.019$).

Conclusion: With better understanding, academic institutions and healthcare policymakers may take measures and mitigate students' distress during the pandemic.

Keywords: Anxiety, Depression, COVID-19 pandemic, College students. (JPMA 72: 2014; 2022)

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Introduction

The first case of coronavirus disease-2019 (COVID-19) infection emerged in December 2019 in the Chinese city of Wuhan.¹ As of July 18, 2020, there were 14,106,753 cases and 602,656 deaths worldwide.² Pakistan is one of the affected countries where people are fighting against this disease with limited resources. The first case was confirmed in February 2020, and there were 261,917 cases and 5,522 deaths as of July 18, 2020.³ Due to an increasing number of cases, the government imposed a nationwide lockdown to restrict public gatherings such as restaurants, shopping malls, educational institutions and religious places that remained closed since March 2020.⁴

It has been noted that due to the rapid spread of COVID-19 infection and the subsequent lockdown, new stressors have emerged, such as apprehension about one's health and that of the loved ones, financial problems, limited resources, and unforeseen and wide-ranging changes of

one's daily routine.⁵ In a study approximately 62.5% of 400 participants in Karachi reported anxiety on a daily basis due to the spread of COVID-19.⁶ Exposure of excessive information through the internet and other media sources aggravated the impact.⁷

According to recent studies, college students are found to be the most vulnerable group to the psychological impact of the pandemic.⁸ Compared to the general population, college students are already exposed to greater levels of psychological distress due to a competitive academic environment.⁹ A study in China concluded that about 25% college students faced anxiety symptoms.¹⁰ Psychological disturbances are a major hindrance to scholastic achievements and can have a negative impact on pupils' eagerness to learn, focus and sustain social connections which are all pivotal for success in academics.¹¹ The uncertainty of exams, economic effects of the pandemic, restricted social connections and impacts on daily life affect college students academically, psychologically and financially.^{8,10} The universities in Pakistan introduced online learning due to the nationwide lockdown, but the students could not take full benefits due to limited resources and issues such as limited access to internet, slow internet speed and some

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requiring technical assistance.¹²

The current study was planned to determine the psychological impact of COVID-19 pandemic on college students, and to explore factors influencing their anxiety and depression levels.

Subjects and Methods

The cross-sectional study was conducted from October 2020 to January 2021 at the Jinnah Sindh Medical University, Karachi. After approval from the institutional ethics review board, the sample size was calculated using OpenEpi calculator¹³ with confidence level 95% and bound on error 5% at an anticipated frequency of depression 45%.¹⁴ The sample was raised using non-probability quota sampling technique to match the ratio of boys and girls in the medical college. Those included were medical students of either gender aged 17-21 years from year 1 to year 3 of the academic programme. Those having prior history of mental illness or taking any medication were excluded, and so were those who refused to participate.

After taking informed consent from the subjects, data was collected using a structured, self-administered questionnaire developed on the basis of published surveys.^{8,10} A pilot study comprising 8 participants was carried out to ensure clarity of the questionnaire which was anonymous and made available online by using Google Forms.

The questionnaire consisted of three parts. The first part was used to obtain demographic information, including age, gender, place of residence, class level, lived with parents, and steady family income. The 14-item second part focussed on the stressors faced by the students since the COVID-19 outbreak. It was scored by the participants on a 4-point Likert scale, ranging from 0=never to 4=always. Values were dichotomized to 0=never, rarely, and 1=often, always. The last part of the questionnaire assessed anxiety and depression using the 25-item self-administered Aga Khan University Anxiety and Depression Scale (AKUADS). At a cut-off score of 20, it has a reported sensitivity of 66%, specificity of 79%, positive predictive value (PPV) of 83, and negative predictive value (NPV) of 60. It has a good level of reliability, with item-item correlation ≥ 0.75 .¹⁵

Data was analysed using SPSS 22. Descriptive statistics were conducted to illustrate the demographic, academic and daily life difficulties of the participants. Pearson's chi-square analysis was used to explore the significant relation between COVID-19 associated factors with anxiety and depression. Statistically significant variables were screened and put through multivariate linear

regression models to evaluate the predictive nature of variables on anxiety and depression. Results were reported as beta coefficients with standard error. $P < 0.05$ was considered statistically significant.

Results

Of the 397 students, 72(18.1%) were males and 325(81.9%) were females. The overall mean age of the

Table-1: Analysis of college student's anxiety and depression during coronavirus disease-2019 (COVID-19) pandemic according to demographic features (N=397).

Variables	Total N(%)	Normal N(%)	Anxiety and Depression N(%)	p-value
1. Gender				
Male	72(18.1)	38(52.8)	34 (47.2)	0.072
Female	325(81.9)	138(42.5)	187 (57.5)	
2. Academic year				0.135
First Year	156(39.3)	75(48.1)	81 (51.9)	
Other (second year and third year)	241(60.7)	101(41.9)	140 (58.1)	
3. Place of residence				0.008
Karachi	356(89.7)	150(42.1)	206 (57.9)	
Other (outside the Karachi)	41(10.3)	26(63.4)	15 (36.6)	
4. Lived with Parents				0.274
Yes	382(96.2)	171(44.8)	211 (55.2)	
No	15(3.8)	5(33.3)	10 (66.7)	
5. Had steady family income				0.132
Yes	347(87.4)	158(45.5)	189 (54.5)	
No	50(12.6)	18(36)	32 (64.0)	

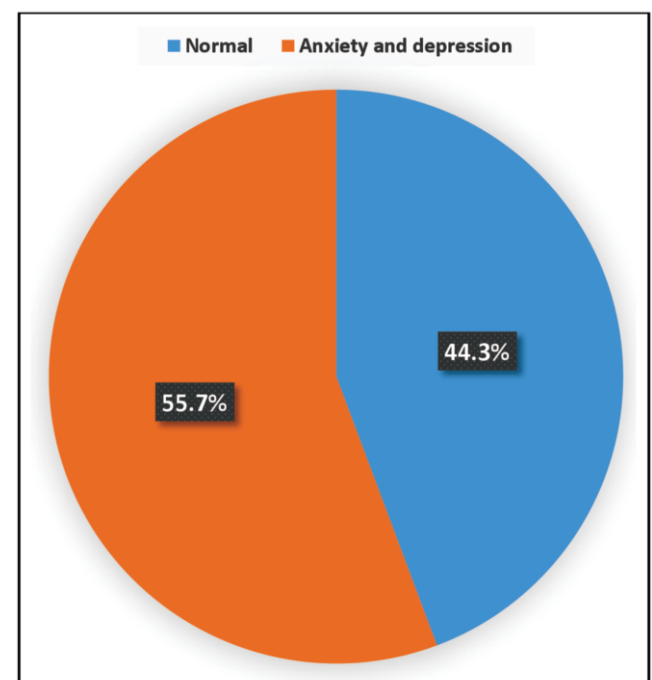


Figure: Anxiety and depression among college students during the pandemic (N=397).

sample was 19.9±1.2 years. Of the total, 221(55.7%) students were found to be anxious and depressed (Figure). Students living in Karachi had significantly high level of anxiety and depression than students living outside Karachi ($p<0.008$) (Table-1). Correlation of difficulties in academic and daily life activities with anxiety and depression were also explored (Table-2).

Table-2: Analysis of college student's anxiety and depression during coronavirus disease-2019 (COVID-19) pandemic according to academic and daily life difficulties.

Variables	Total N(%)	Normal N(%)	Anxiety and Depression N(%)	p-value
Academic Difficulties				
1. Lack of attentiveness to study				
Yes	254(64)	88(34.6)	166(65.4)	<0.001
No	143(36)	88(61.5)	55(38.5)	
2. Uncertainty about exams				
Yes	293(73.8)	111(37.9)	182(62.1)	< 0.001
No	104(26.2)	65(62.5)	39(37.5)	
3. Worried about academic delays				
Yes	196(49.4)	66(33.7)	130(66.3)	< 0.001
No	201(50.6)	110(54.7)	91(45.3)	
4. Limited access to computer and internet problem				
Yes	177(44.6)	62(35)	115(65)	0.001
No	220(55.4)	114(51.8)	106(48.2)	
5. Lack of student feedback				
Yes	119(30)	39(32.8)	80(67.2)	0.002
No	278(70)	137(49.3)	141(50.7)	
Daily Life Difficulties				
6. Had Financial Constraint				
Yes	42(10.6)	12(28.6)	30(71.4)	0.021
No	355(89.4)	164(46.2)	191(53.8)	
7. Fear of family or friend getting COVID-19				
Yes	264(66.5)	101(38.3)	163(61.7)	<0.001
No	133(33.5)	75(56.4)	58(43.6)	
8. Bothered by restricted social connections				
Yes	275(69.3)	105(38.2)	170(61.8)	<0.001
No	122(30.7)	71(58.2)	51(41.8)	
9. Had family issues				
Yes	83(20.9)	16(19.3)	67(80.7)	<0.001
No	314(79.1)	160(51)	154(49)	
10. Increase in anxiety levels due to social media				
Yes	177(44.6)	42(23.7)	135(76.3)	<0.001
No	220(55.4)	134(60.9)	86(39.1)	
11. Bothered by potential loss of face to face contact with friends				
Yes	266(67)	103(38.7)	163(61.3)	0.001
No	131(33)	73(55.7)	58(44.3)	
12. Bothered by lack of social gathering				
Yes	236(59.4)	92(39)	144(61)	0.006
No	161(40.6)	84(52.2)	77(47.8)	
13. Felt anxiety when ordering food online				
Yes	98(24.7)	31(31.6)	67(68.4)	0.002
No	299(75.3)	145(48.5)	154(51.5)	
14. Needed some form of mental health support				
Yes	99(24.9)	12(12.1)	87(87.9)	<0.001
No	298(75.1)	164(55)	134(45)	

Table-3: Multivariate linear regression model of factors leading to anxiety and depression among college students during the pandemic (N=397).

S.No	Variable	β	S.E	p-value
Academic Difficulties				
1.	Lack of attentiveness to study	2.17	1.05	0.040
2.	Uncertainty about exams	2.24	1.11	0.050
3.	Worried about academic delays	1.10	1.09	0.312
4.	Limited access to computer and internet problem	0.46	1.01	0.645
5.	Lack of student feedback	0.77	1.10	0.483
Daily Life Difficulties				
6.	Had Financial Constraint	0.41	1.58	0.796
7.	Fear of family or friend getting COVID-19	3.05	1.04	0.003
8.	Bothered by restricted social connections	1.22	1.16	0.295
9.	Had family issues	4.58	1.27	<0.001
10.	Increase in anxiety levels due to social media	4.48	1.02	<0.001
11.	Bothered by potential loss of face to face contact with friends	0.59	1.09	0.584
12.	Bothered by lack of social gathering	0.95	1.09	0.389
13.	Felt anxiety when ordering food online	2.63	1.11	0.019
14.	Needed some form of mental health support	8.05	1.21	<0.001

$p<0.05$, β =Coefficient; S.E: Standard Error, COVID-19: Coronavirus disease-2019.

Factors related to academic difficulties and daily life issues had significant correlation ($p<0.05$) with anxiety and depression. Multiple linear regression analysis indicated that the need for some form of mental health support was the most significant ($p<0.001$) predictor of anxiety and depression, followed by family issues ($p<0.001$) and social media ($p<0.001$). Anxiety and depression were also significantly associated with fear of family or friend getting coronavirus disease-2019 ($p=0.003$), lack of attentiveness to study ($p=0.040$) and felt anxiety when ordering food online ($p=0.019$) (Table-3).

Discussion

Studies have suggested that the pandemic is causing mental health problems among college students which can manifest as stress, anxiety, insomnia, anger and fear.^{16,17} Recent findings suggest that college students experiencing considerable number of academic and daily life difficulties during the pandemic reported increased levels of mental health burden.^{16,17}

The present study indicated that 55.7% of the students were experiencing anxiety and depression due to COVID-19 outbreak. The students' anxiety about COVID-19 might have been related to the adverse effects of ongoing pandemic on daily life followed by the rapid disease spread.¹⁴ There was no significant association of living with parents or stable family income with anxiety and depression. This was because majority (87.4%) of the sample had stable family income and lived with parents (96.2%), which is consistent with previous findings.¹⁰ Students who lived outside Karachi were less likely to

report higher levels of anxiety and depression than the students of Karachi residents. A possible explanation for this could be that Karachi had higher positivity rate for COVID-19 infection compared to the other cities, and its dense population was another contributing factor. People residing in densely populated cities, where the chance of contracting the virus is evidently higher, have increased levels of depression.¹⁸

There was no significant difference in gender terms and the academic year.

Multiple linear regression analysis of factors associated with anxiety and depression showed that fear of family or friends getting COVID-19 was significantly associated with anxiety and depression in the students, which might be related to the high contagiousness of the coronavirus pneumonia.¹⁹ Social media was also a significant predictor of anxiety and depression in the students, as isolation led to excessive usage of social media which served as a major insight to the current situation,²⁰ but it seemed more to be a place of misinformation and fake news rather than guidance.²¹ Authorities should make standard announcements reflecting the situation and to devise a team to control the spread of ambiguous information through social media which caused panic in society.

Family issues were also a strong predictor of anxiety and depression in the students. It may be because the pandemic decreased recreational activities and most families were under financial crises which increased family stress. A study showed that economic crises and increased unemployment made the situation worse, making it difficult for people to access basic necessities.²² The uncertainty of the situation and worsening social relationships had a significant contribution to the deteriorating mental health of the students. Home-based relaxation and stress management skills with online guidance and financial support programmes by the government could be helpful in counteracting depression in the home environment.²²

Academic difficulties, such as lack of attentiveness to studies, were significantly associated with anxiety and depression. Anxiety and depression were significantly associated with uncertainty about exams, worried about academic delays, lack of student feedback, limited access to computer, and internet problems. However, once the effects of other covariates were considered, the other academic difficulties were no longer significant predictors of anxiety and depression. A possible solution to academic difficulties could be the setting up of an online portal to allow the university administration to be in

contact with the students, to address their issues, and to subsequently work on effective solutions. Academic institutions and teachers could also reduce academic pressure and exam loads by taking decisions. For instance, academic institutions allowed a choice to students between pass/fail options and regular grades for each subject, shortened their syllabus, permitted open book exams, and provided other incentives to help manage stress during the pandemic.¹⁷

Many restaurants were forced to close due to pandemic, leaving only takeaway or delivery services. Studies show that students prefer to eat fast food, snacks and beverages during academic stress.^{23,24} Due to the current situation, the students felt anxiety when ordering food online which was also positively associated with anxiety and depression in the students.

The novel findings of the present study is that undergraduate students who needed some form of mental health support were the most vulnerable population, and the requirement of mental health support was the strongest predictor of anxiety and depression. During COVID-19, students could not cope with stress due to restricted face-to-face contact. A study showed that isolation, social distancing, self-quarantine, and restriction on travel were possibly affecting mental health in an unfavourable way.²⁵ Higher academic institutions should provide psychological interventions from mental health experts, and deal with emotional issues which would be helpful in reducing anxiety and depression in students.

It is evident from the responses in the current study that social isolation, due to the lockdown imposed in the last of week of March, 2020,⁴ led to the loss of coping strategies students used to de-stress themselves with, such as going out with family and friends, outdoor dining, religious practices, attending family events and many other leisure activities that were an integral part of daily routine. Hence, it is really important that the students must acquire new coping strategies, such as video calls with friends, watching television shows, reading books, exercise, video-gaming and learning new online skills. Also, religious activities can be performed at home which will provide spiritual relief.

It's the current study has limitations. The study design being cross-sectional, it is difficult to make causal inferences. Due to sudden occurrence of this outbreak, assessment of an individual's anxiety and depression before the epidemic could not be evaluated. Self-reported levels of anxiety and depression may not be aligned with assessment by mental health professionals

because the AKUADS is a screening tool, not a diagnostic one. Due to the limitations of resources and time constraints, the sample consisted of medical college from a single public-sector university of one urban centre, which may limit the generalisation of the findings.

Conclusion

Evidence of important predictors of anxiety and depression during COVID-19 may help the authorities formulate psychological interventions to improve mental health during the epidemic. Universities in Pakistan can play a vital role in collaboration with the government by setting up online mental health programmes through university mentors and online mental consultation which should keep the information confidential so that the students may trust them and feel comfortable in sharing their mental health issues during the pandemic.

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