

Impact Of Covid-19 On Mental Health And Academic Activities of University Students: A Cross Sectional Study From Pakistan

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Abstract: Introduction: Mental health is essential for wellbeing. Mental health issues may affect the lives of students in several ways. COVID-19 pandemic has negatively affected the mental health of students. Previously conducted studies from Pakistan have just focused on prevalence of mental health problems and such studies could not relate the mental health problems with academic activities. The objective of this study was to associate COVID-19 affected mental health with academic activities among university students. **Methods:** This cross-sectional study was conducted during month of April 2021 at university of Sindh, Pakistan. After obtaining informed consent form study participants a pretested questionnaire was distributed to collect demographic and mental health data. Depression, Anxiety, Stress Scale (DASS-21) was used to assessment of depression, anxiety, and stress. Cronbach's alpha value for DASS-21 was 0.84. **Results:** Among total of 400 study participants, 49% were females and 51% were males. The mean age of study participants was 20.9±1.06 years. Overall prevalence of mild to severe stress, anxiety, and depression was 14.8%, 10.5% and 18.8% respectively. Among demographic factors female having less amount for pocket money was associated with increased prevalence of stress and anxiety respectively. Academic factors such as unable to focus, difficulties in completing assignments and facing internet connectivity problems were associated with increased prevalence of anxiety, stress, and depression. **Conclusion:** COVID-19 have negatively impacted the mental health of university students. There is need of chalking out scientific strategies to launch psychosocial support programs for students to teach them coping skills against mental health problems.

Keywords: Mental Health, Depression, Anxiety, Stress, Students.

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Introduction

Mental health is essential for wellbeing. Mental health issues may have a negative impact which may affect the lives of students in several ways including poor quality of life, inability to perform well in academics, declining physical health, unsatisfactory attitude towards college or university life. Poor mental health also impacts the relationship of students with family and friends. These problems may lead to long term after-effects on employment, earning capacity and overall health[1]. The mental health problem in students can affect the people around them, academic institutions, community, and society in several ways. Students with mental health problems cannot perform well enough in terms of achieving higher grades, being motivated, group study, class activities and may drop from the academic institutions. A study has linked the mental health issue in a person can impact the relationships, interactive activities and reduce the work output[2, 3]. The academic institution may face financial difficulties due to problems such as student

dropout. Taken together, the loss of the productive individuals which are needed to run the community is a great loss of society[4]. Pandemics have a negative impact on society[5].

The traumatic events like severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic have increased the fear of infection among the people. The fear of catching any disease may have a negative impact on mental health. COVID-19 pandemic has largely impacted mental health globally. The United Nations International Children Emergency Fund has estimated that 28% of the world population are children and 16% of the world population are adolescents (aged 10-19 years). COVID-19 has impacted all age groups particularly children and adolescents. World Health Organization (WHO) declared COVID-19 as a global pandemic and announced a health emergency. Measures such as staying at home, social distancing, mask wearing, lockdown of cities, closure of public parks, cinemas, restaurants, were set as preventive strategies against the COVID-19. Such preventive strategies narrowed the social interactions.

Students of an academic institution play a lot, study together, share ideas and enjoy having fun together, in absence of such interactive and active life, and living an unusual and homebound life may cause stress, anxiety and depression among them[6]. Previously conducted studies on the impact of COVID-19 on mental health have reported stress, anxiety, and depression among students[7-9]. A report from the United States indicated COVID-19 was worrisome among students about their parents' health, difficulties in concentration needed for the study, sleep disturbance, decrease in socialization due to social distancing and poor academic activities[10]. A group from China using the General Anxiety Disorder (GAD-7) scale screened 7143 students and found that students who had acquaintance with COVID-19 infected person were at more risk of developing anxiety [OR=3.95 CI=2.37-3.80]. Beside this, correlation analysis showed economics effects on daily life and delay in academic activities were positively correlated with symptoms of anxiety[11]. Aqeel et al, in a cross sectional study, using Beck Depression Scale, Beck Anxiety Inventory have reported 20%, 14%, 23% prevalence of mild, moderate and severe anxiety among students, additionally the same report showed prevalence of mild, moderate and severe depression among study participants was 9%, 9% and 15% respectively[12]. Gul et al, conducted a study in multiple big cities including Karachi, Hyderabad, Sukkur, Larkana, Lahore, Faisalabad, Rawalpindi, and Islamabad targeting mental health issues of students aged 19-25 years. They noticed that prevalence of mild, moderate, and severe anxiety among study participants was 25%, 9% and 7%. This report also showed that the frequency of anxiety among female students was higher compared to male students[13]. Khizar et al, using sample size of 1598 have reported the prevalence of mild to severe depression, anxiety and stress was 24%, 30%, and 3% respectively[14]. In addition to these studies, a few other studies have been conducted which focus on knowledge, practices about COVID-19 among students[15], perceived severity of COVID-19 and increased frequency of religious practices[16], Previously conducted studies from Pakistan have just focused on prevalence of mental health problems and such studies could not relate the mental health problems with academic activities. The objective of this study was to associate COVID-19 affected mental health with academic activities among university students.

Methods

Study Setting

This cross-sectional study was conducted during April 2021 at university of Sindh. The university of Sindh is the largest university in Sindh province. It runs more than 60 academic programs in faculties including Arts, Social Sciences, Business Administration, Engineering Sciences, Natural Sciences, and Law. Students from urban and rural areas study in the university. Four hundred students were randomly selected for sampling. Data was randomly taken from students of all faculties by using convenience sampling method. The study participants were informed about the aims and objectives of the study by trained data collectors of the Department of Physiology. Written informed consent was obtained. Participants were assured that their personal information

will be kept secret. Data of only healthy adult students at university of Sindh without known mental disorder with no other know medical history were included in analysis. Data of such students who were physically challenged, did not study at university of Sindh or having known mental disorder and other know medical history were excluded from data analysis

Sample Size Calculation

Total 26000 students are enrolled in the university of Sindh. By Hypothesizing % frequency of outcome factor in the population (p): 50%+/-5, at 95% confidence interval, using EPI software we calculated that the sample size of 379 participants were to carry out this unmatched cross-sectional study.

Study Variables

The questionnaire was consisted of three sections including demographic information, academic activities and depression anxiety and stress scale (DASS-21). In the demographic section students were asked about their age, gender, religion, living area, pocket money, class level and faculty of study. The detailed categorization of data is given in Table 1. In academic activities students were asked were you unable to focus on academics during COVID-19 pandemic? Did you face difficulties in online mode of learning during COVID-19 pandemic? Did you face difficulties in completing your assignments during COVID-19 pandemic? Did you face internet connectivity issues during COVID-19 pandemic? Do you think COVID-19 pandemic will keep affecting your activities in future? “yes” and “no” were given as options to study participants. The DASS scale was used to assess the mental health of students. DASS is a set of self-report scales to assess depression, anxiety, and stress. The reliability of DASS Scales 21 questions was assessed through using Cronbach’s alpha test. The Cronbach’s alpha value was 0.84.

Table 1. Basic characteristics of study participants.

Factor	Frequency (%)
<u>Age in years</u>	
19	29 (7.25%)
20	115 (28.75%)
21	138 (34.5%)
22	83 (20.75%)
23	35 (8.75%)
<u>Gender</u>	
Female	196 (49%)
Male	204 (51%)
<u>Ethnicity</u>	
Sindhi	246 (51.5%)
Urdu	220 (30%)
Other	34 (8.5%)
<u>Religion</u>	
Muslim	340 (85%)
Hindu	60 (15%)
<u>Living area:</u>	
Rural	165 (41.5%)
Urban	234 (58.5%)
<u>Pocket Money per month</u>	
≤10000 PKR	23 (5.8%)
>10000 PKR	357 (98.3%)
≥20000 PKR	20 (5%)
<u>Class Level</u>	
Undergraduate-II	80 (20%)

Undergraduate-III	179 (44.8%)
Undergraduate-IV	141 (35.3%)
Faculty	
Arts	25 (6.3%)
Engineering Sciences	15 (3.8%)
Natural Sciences	280 (70%)
Social Sciences	80 (20%)
Mental Health	
Stress	59 (14.8%)
Anxiety	42 (10.5%)
Depression	75 (18.8%)

Data Analysis:

Data was analyzed using Special Package for Social Sciences (SPSS) software version 23. Descriptive statistics, chi square and frequency distributions were computed. The significance threshold was set at 0.05 p value.

Results

Demographic factors associated with Stress, Anxiety and Depression among students: The mean age of study participants was 20.9 ± 1.06 years. Among 400 study participants 51% were males, 51.5% were Sindhi speaking, 58% belonged to urban areas. Twenty percent of study participants were from Undergraduate class II, 44.8% of study participants were from undergraduate class III and 35% of study participants were from undergraduate class IV. The demographic characteristics of study participants are represented in Table 1. Overall prevalence of stress, anxiety, and depression was 14.8%, 10.5% and 18.8% respectively Table 1. The gender wise distribution of the data showed that female gender was associated with increased prevalence of stress [Chi square 6.57 with p value <0.05] Table 2.

Table 2. Association of demographic factors with stress, anxiety and depression among university students.

Factor	Frequency (%) N=400	Stress	Anxiety	Depression
Age in years				
19	29 (7.25%)	3	4	6
20	115 (28.75%)	18	14	21
21	138 (34.5%)	8	12	27
22	83 (20.75%)	15	10	14
23	35 (8.75%)	5	2	7
X^2		1.57 ^{ns}	2.20 ^{ns}	0.37 ^{ns}
Gender				
Female	196 (49%)	38	25	42
Male	204 (51%)	21	17	33
X^2		6.57*	2.08 ^{ns}	0.81 ^{ns}
Ethnicity				
Sindhi	246 (51.5%)	31	25	43
Urdu	220 (30%)	21	14	24
Other	34 (8.5%)	7	3	8
X^2		2.54 ^{ns}	0.30 ^{ns}	0.89 ^{ns}
Religion				
Muslim	340 (85%)	53	34	65
Hindu	60 (15%)	6	8	10
X^2		1.26 ^{ns}	0.60 ^{ns}	0.20 ^{ns}
Living area:				

Rural	165 (41.5%)	21	18	34
Urban	234 (58.5%)	38	24	41
X^2		0.99 ^{ns}	0.03 ^{ns}	0.55 ^{ns}
Pocket Money per month				
≤10000 PKR	23 (5.8%)	4	6	6
>10000 PKR	357 (98.3%)	53	33	66
≥20000 PKR	20 (5%)	2	3	3
X^2		0.48 ^{ns}	6.97*	1.01 ^{ns}
Class Level				
Undergraduate-II	80 (20%)	12	9	14
Undergraduate-III	179 (44.8%)	26	16	38
Undergraduate-IV	141 (35.3%)	21	17	23
X^2		0.013 ^{ns}	0.87 ^{ns}	1.35 ^{ns}
Faculty				
Arts	25 (6.3%)	4	4	9
Engineering Sciences	15 (3.8%)	3	0	2
Natural Sciences	280 (70%)	38	29	51
Social Sciences	80 (20%)	14	9	16
X^2		1.15 ^{ns}	2.11 ^{ns}	0.87 ^{ns}

X^2 Value with * indicates 0.01 level of significance. ^{ns} indicates non significance.

Association of COVID-19 Affected Academic Activities With STRESS, Anxiety And Depression Among Students

The COVID-19 pandemic related impact of academic activities was associated with stress, anxiety, and depression among students. Factor unable to focus on academic activities was associated with increased prevalence of stress [Chi square 6.53 p value < 0.05] and depression [Chi square 7.04 p value < 0.05] among students. Factor difficulties in completing assignments was associated with increased prevalence of stress [Chi square 7.16 p value < 0.01] and depression [Chi square 4.39 p value < 0.05] among students. Factor internet connectivity problem was associated with increased prevalence of depression [Chi square 4.91 p value < 0.05] Table 3.

Table 3. Association COVID-19 affected academic activities with mental health among students

Factor	Frequency	Stress	Anxiety	Depression
Were you unable to focus on academics during COVID-19 pandemic?				
No	75 (18.75%)	4	4	6
Yes	325 (81.25%)	55	38	69
X^2		6.53*	2.65	7.04*
Did you face difficulties in online mode of learning during COVID-19 pandemic?				
No	43 (10.8%)	3	5	6
Yes	357 (89.3%)	56	37	69
X^2		2.31	0.06	0.72
Did you face difficulties in completing your assignments during COVID-19 Pandemic?				
No	120 (30%)	19	9	15
Yes	357 (70%)	50	33	60
X^2		7.16**	1.64	4.39*
Did you face internet connectivity issue during COVID-19 Pandemic?				
No	73 (18.3%)	9	5	7
Yes	327 (81.8%)	50	37	68
X^2		0.41	1.26	4.91*

Do you think COVID-19 pandemic will keep affecting your activities in future?	46 (11.5%)	5	4	6
No	133 (33.3%)	26	20	28
Yes	221 (55.3%)	28	18	41
May be				
χ^2		3.74	4.37	1.45

* Indicate 0.01 level of significance.

** Indicate 0.001 level of significance.

Discussion

Mental health is important to wellbeing. A mentally healthy individual can perform much better than a person with mental health problems. COVID-19 has negatively impacted not only physical health but mental health also. The COVID-19 linked mental health issues are increasing day by day. In addition to this, COVID-19 pandemic has affected every segment of the society including students because schools and universities were closed, students switched to online mode of learning, public spaces for social gatherings were closed[17-20]. Several studies have already reported stress, anxiety[21], depression, quality of sleep, and psychological distress[22] among the general population. Moreover, several research groups have also focused exploring mental health problems among students as well[8, 9, 11, 13]. Several reports have published their data of mental health impact which indicate the prevalence of depression anxiety, stress, lack of focus, academic difficulties, and low scores.

The objective of this research study was to assess the prevalence of mental health problems including stress, anxiety, and depression and to link these problems to academic difficulties faced by university students. Our reports shows that Overall prevalence of stress, anxiety, and depression was 14.8%, 10.5% and 18.8% respectively among university students which is consistent with a study from Philippines which measured the impact of COVID-19 on mental health of students and reported the prevalence of depression, anxiety and stress was 17%, 28% and 13%. Moreover, the in demographic factors for example, female gender was associated with greater psychological impact[23], this finding is consistent with our result. Our report showed that internet connectivity problems during COVID-19 for online classes have been associated with increased prevalence of depression among students, this finding is consistent with a study from Lebanon showing similar results[24]. Our data showed that due to COVID-19 pandemic, the factor unable to focus on studies was associated with increased prevalence of stress and depression, this finding is also consistent with a report from Texas that showed the positive association of psychological problems and difficulty in concentration on study[11]. We noticed a significant association between prevalence of stress and depression and difficulties in completion of assignments among students, another report have also noticed similar trend[8].

In conclusion, COVID-19 have negatively impacted the mental health causing depression, anxiety, and stress among of university students. The mental health problems are affecting the academic life of the students. There is need of chalking out scientific strategies to launch psychosocial support programs for students to teach them coping skills against mental health problems. Based on effectiveness of previously conducted study, we recommend that Government of Pakistan should start web-based community interaction programs for [25] to provide psychosocial counselling to university and college students so that they can perform well enough in their academic life to transform society.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Informed consent was obtained from all individual participants included in the study.

HUMAN AND ANIMAL RIGHTS

No animals were used in this study. The study on humans was conducted in accordance with the ethical rules of the Helsinki Declaration and Good Clinical Practice.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

Data will be provided on reasonable request at ayazsamo@usindh.edu.pk

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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