The Impact of COVID-19 on the Mental Health of Foreign Students Stranded from Chinese Universities

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Abstract

The study aims to inspect the influence of the pandemic of COVID-19 on the mental health of both undergraduate and postgraduate students, who have been stranded from Chinese universities. The study used the online questionnaire, which was comprised of three scales. These are self-rating anxiety scale (SAS), the self-rating depression scale (SDS), and the scale for social avoidance and distress (SAD). A total of 159 undergraduates and 153 postgraduate students have participated in this study and it comprises both males and females. For exploring the impact of the Covid-19 on the mental health of the students, who have been stranded from Chinese universities, the study has made the use of the independent sample t-test and analysis of variance (one-way ANOVA). The findings show that Mental health of students stranded from universities negatively affected due to high level of anxiety, depression, and social anxiety due to pandemic. However, the level of anxiety, depression, and social anxiety has reduced to some extent as compare to earlier studies after the emergence of pandemic of COVID-19. The outbreak of COVID-19 has affected females more than males and the postgraduate students have a lower level of depression as compared to the undergraduate students because they have shown a higher level of mean and standard deviation values. Moreover, the depression level was high among the students of Natural and Applied sciences. The results also confirm that the level of anxiety, depression, and social anxiety was high in the young students as compared to the mature ones. Then, the level of anxiety and social anxiety was high in the students, who could not resume their classes and degrees. The findings of this study suggest that the mental health of students should be carefully monitored after the pandemic of COVID-19 because it has left a deep mark on their mental health. Furthermore, it also calls for proper psychological counseling for addressing the issues of depression and anxiety in them.
Keywords: COVID-19 Pandemic; depression and anxiety; mental health; social avoidance; acute stress

1. Introduction

The pandemic of COVID-19 has brought many challenges to the lives of people [1]. The closure of laboratories and universities during the lockdowns and restrictions on the traveling and mobility of the students who were ill directly affected their mental health [2,3]. The pandemic has caused the social isolation, which caused the high level of stress, anxiety and psychological distress in the people [3-6].

Almost all the people have affected by this virus and it results in the deteriorated mental health and increased level of stress in them. The most exposed group of the population are the medical personnel, elderly people and

international migrants, who have to leave their space for migration to another space [7, 8]. The young people are less exposed to this Covid-19 [9] but it has badly affected their mental health [10, 11]. The studies have also shown that the level of stress and anxiety was already high in the students before the pandemic [12, 13]. Consequently, the students are more exposed to this pandemic and their mental health has affected [14].

Stress is related to the assessment of the lie [15]. It shows up how overloaded or uncontrollable is your life. Depression and anxiety are the common disorders in the human beings [16]. It has number of symptoms, which can be traceable [17]. Stress has the direct relations with the anxiety and symptoms of depression [18].

The outbreak of COVID-19 has been controlled to some extent by now but the lives of the people have not been restored. The disease was highly contagious and isolation along with social distancing were the only measures for preventing the spread of this disease in this world. Therefore, universities have to find alternative ways for teaching their students. The long period of isolation, social distancing, and semi-segregation have affected the life, learning, mental health, and working models of the people and organizations.

For controlling the spread of this disease, educational institutes have to close down their universities and switch to online teaching models. The number of students forced to study at their homes has peaked at 1.598 billion in more than 194 countries of the world by 1 April 2020 (UNESCO, 2021). The students were required to stay at their homes and focus on online learning. These changes forced the students and researchers to conduct the research online by staying at their homes in different parts of the world.

The literature has also shown that the impact of this virus has been more prominent in the higher education sectors. Firstly, this pandemic has changed the learning patterns of students. The students have to go for altered communication channels, online courses, new methods of assessments, and modern teaching styles [19]. Secondly, this virus has changed the social patterns of the students as well. For instance, no contact with friends, relatives, or classmates, staying home and doing study individually, no group study, being stranded abroad, and difficulty in returning to their home towns, etc. [20].

This Covid-19 Pandemic has affected the mental health and lifestyle of the people as well. It resulted in reduced physical activity the people, more sedentariness [21], decreased sleeping time, changed dietary behaviors, negative emotions, and discomfort [22, 23]. All these changes have been caused due to the threat of this virus. It also increased frustration, social isolation, depression, anxiety, sadness, fear, and stress in the people [24]. The impact of COVID-19 on the physical activities and found that there is a decline in everyday activities [19]. The negative impact of this virus on the health of the diabetes patients. It has been three years since this pandemic but these after-effects are still seen in the lives of the people [25].

According to the University World News, around 28,000 Pakistani students are studying in China and majority of these students have stranded from China at the height of the outbreak of COVID-19 in China. There are 6,000 students are still residing in Pakistan, which are intending to go back to China but they are unable to resume their studies. The positive measures for controlling the spread of this disease has resulted in a controlled environment and brought positive results in the public health, administrative, and economic level as well but these measures have affected the mental health of the students and many research scholars have tried to study this phenomenon. The mental health of all of these students have extremely affected by this outbreak. The lockdowns in China have increased the severity of anxiety in people after the pandemic of COVID-19 [26]. This dilemma of Covid-19 has increased the detection rates of anxiety and depression in college students in China [20]. There were similar findings in the educational sector of Bangladesh [27]. Researchers in Greece have found that the lockdown in Greece has affected the mental health of the students [28, 29].

Overall, this pandemic has increased the level of stress, fatigue, depression, anxiety, and loneliness during the period of lockdown among the students [30]. The majority of the studies have found the negative effect of this virus and lockdowns on the mental health of the university and college students, who have returned to their home countries due to the closure of their universities. Literature shows that the population of China has moderate to high level of depression and anxiety [31]. People who have to remain in the isolation for 14 days have high level of stress [32]. Therefore, it is crucial to find the impact of this virus on the mental health of undergraduate and postgraduate students, stranded from Chinese universities. It is also necessary to find the relationship between the demographic characteristics of the Pakistani students and their psychological problems because it will help in targeted psychological intervention. On it also calls for proper psychological counseling for addressing the issues of depression and anxiety in them.

The study has chosen undergraduate and postgraduate students, who have been stranded from Chinese universities. The postgraduate students have spent more time in their universities and they are much older and have reasonable income as compared to the undergraduate students. Students have much higher level of issue to their mental health during the COVID-19 [33]. Postgraduate students have more dangerous psychological issues as compare to undergraduate students [34, 35]. They have the capacity to face the pressures and challenges of their

surrounding environment [36]. On the other hand, literature also shows that postgraduate students can alight their experiences, and have more capabilities in mental resilience [37]. Consequently, the mixed evidence is available; therefore, the aim of this study is to find the impact of COVID-19 on the mental health of the students, who have stranded from the Chinese students [38]. The sample include both the undergraduates and postgraduate students.

The study checked the impact of COVID-19 on the mental health of undergraduate and postgraduate students by using online questionnaires, which made use of the three famous scales. The students are from different disciplines and they have been stranded from Chinese universities. The study also checked the normalization of the students and the provision of targeted psychological counseling for these students. This analysis can help the policy makers for creating the effect of distance and online learning in the future. Based on the literature, the following hypothesis has pursued by this study:

H_1: The pandemic of COVID-19 has negatively affected the mental health of the students.

H_0: The pandemic of COVID-19 has no effect on the mental health of the students.

H_2: There exist significant gender-based differences in the anxiety, depression, and social anxiety of the students.

H_0: There does not exist significant gender-based differences in the anxiety, depression, and social anxiety of the students.

H_3: There does exist significant degree level differences in the anxiety and social anxiety of the students.

H_0: There do not exist significant degree level differences in the anxiety and social anxiety of the students.

H_4: There do exist degree title-based differences in the anxiety and depression for the students.

H_0: There do not exist degree title-based differences in the anxiety and depression for the students.

H_5: There does exist a degree of age-based differences in the anxiety, depression, and social anxiety among students

H_0: There does exist a degree of age-based differences in the anxiety, depression, and social anxiety of the students.

H_6: There do exist status-based differences in the anxiety, depression, and social anxiety of the students

H_0: There does not exist status-based differences in the anxiety, depression, and social anxiety of the students.

2. Materials and Methods

2.1 Demographic Characteristics

The study collected data from 159 undergraduates and 153 postgraduate students, who have been stranded back to their country from Chinese universities after the emergence of the Covid-19 in China. The study made use of convenient sampling and included students from various disciplines. These include the business, humanities, natural and applied sciences, and Social sciences. All the participants have been informed about the purpose of this research and the study has got their implied consent for participation. They have also informed us that this data will be used for academic purposes only and will not be provided to any third party. Their confidentiality of the data and their respective anonymity will also be maintained during and after the course of this study. The sample includes a total of 312 respondents, who have different demographic characteristics, which as discussed below:

A total of 312 respondents participated in this study, out of which the females represent around 48% (150) portion, while the males have around 52% (162) participated in this study. All of these students have been stranded from Chinese universities during the pandemic of COVID-19. This has shown in the Figure 1a. Then, around 10% (30) students have studying on the self-sponsorship, while approximately, 90% (282) students were on scholarship. Most of the self-sponsored students were doing MBBS in China. The data has shown graphically as well in Figure 1b. Furthermore, around 51% (159) of students were pursuing their undergraduate degrees at the time of COVID-19, while the rest of the 49% (153) students enrolled in postgraduate programs in China. All of these students have been stranded in their hometowns for preventing the spread of this disease in the world. The same has shown graphically in Figure 1c.

Moreover, around 28% (88) students were getting their degrees in the field of Business, while approximately 15% (48) respondents have enrolled in humanities degrees. The study also contains a pool of students from Natural and Applied Sciences and they constitute about 39% (120) students in this study. On the other hand, around 18% (56) students were getting their degrees in the discipline of Social Sciences. All of these Pakistani students were pursing their degrees in China, when they have stranded from it after the outbreak of COVID-19. The same has shown graphically in Figure 1d. As far as their age is concerned, then around 37% (115) students fall in the age group of 21-25 years, while around 47% (145) students fall in the age group of 25-30 years. Only 17% (52) of students were the age of more than 30 years. The same has shown graphically in Figure 1e. Out of all of these students around 28% (87) would not be able to continue their studies and they are still in their home countries, while around 73% (225) have continued their studies. The pandemic of COVID-19 has affected the mental health of all these categories of students and brought some permanent changes in their behavior. The same has shown graphically in Figure 1f.
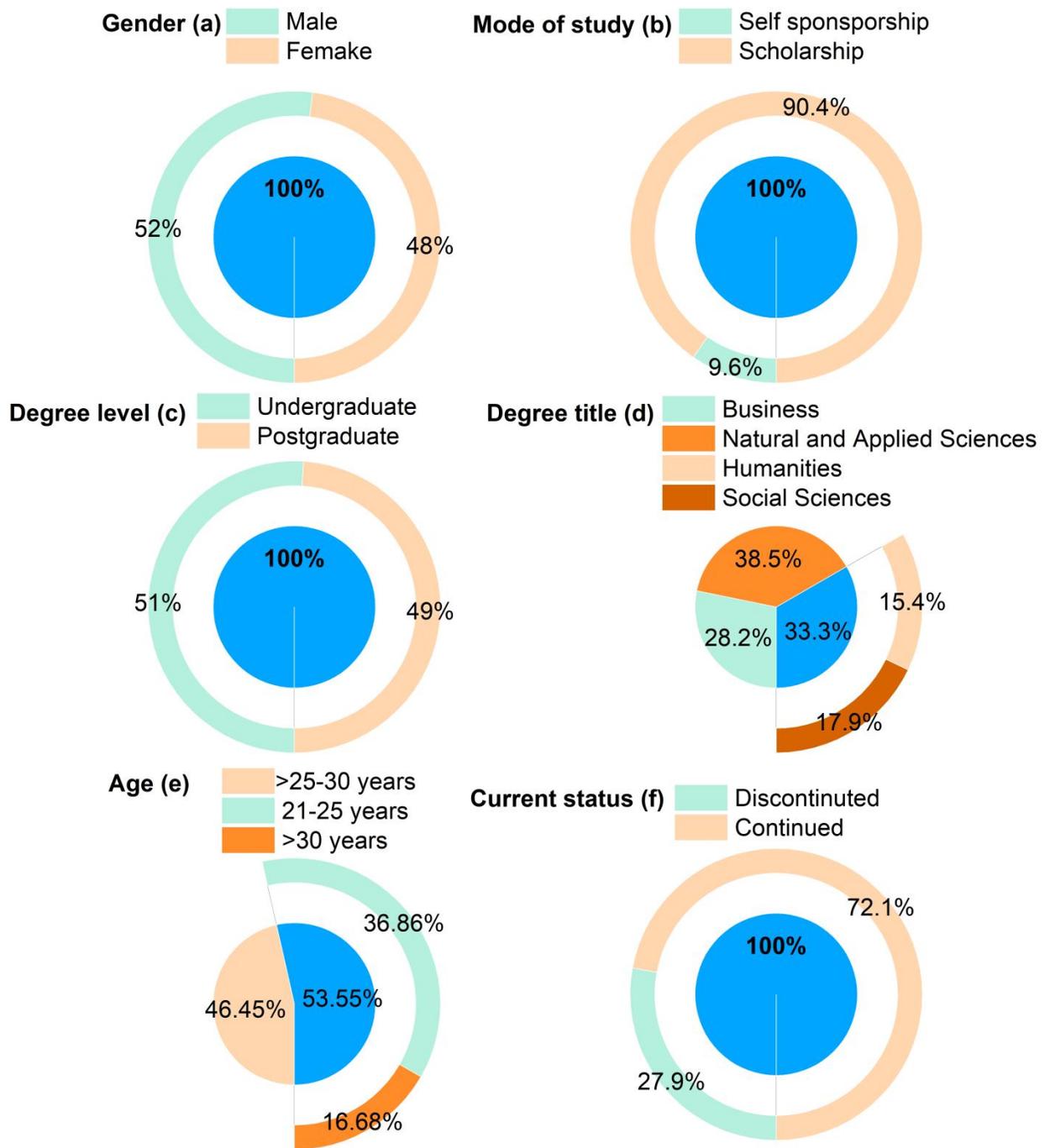
Figure 1. This figure contains the multiple graphs based on the characteristic of respondents: (a) Gender of the respondents (b) Mode of study (c) Degree level (d)Degree title (e) Age of the respondents (f) Current status of the study.

2.2 Scales to measure Anxiety, Depression and Distress

2.2.1 The scale of Self-Rating Anxiety (SAS)

The scale of Self-Rating Anxiety (SAS) has proposed by Zung in 1971[39]. The scale has based on 20 questions, which are aimed at evaluating the behavior of the individuals. Five items are scored in reverse order and four Likert scales have used for getting the responses of the respondents. It ranges from the occasional to the always. The sum of these scores brings the total value of anxiety in the individuals. The scale has Cronbach's Alpha value of 0.867, which shows these scales have a greater level of validity and reliability in explaining the behavior of the people. If the score ranges from 50-59, then it indicates mild anxiety in the people, while the range of 60-69 is the indication of more anxiety. If the scores of the respondents are above this level, then it is an indication of a higher level of anxiety in the people.

2.2.2 The scale of Self-Rating Depression (SDS)

The Self-Rating depression scale has been proposed for checking the level of depression among participants [39]. The scale is also based on the 20 questions, which are aimed at the self-evolution of the respondents. The five items are scored inversely and a four Likert scale has been used for this purpose. The score ranges from occasionally to always. For getting the standard scores, all the values are summed up, which will tell about the level of depression in people. The value of its Cronbach's Alpha is 0.85, which is an indication of its greater level of reliability and validity. If the scores range from 25-49, then it shows normal depression, while the scores of 53-61 show mild depression, while the scores of 62-71 indicate moderate depression in the people. If the scores are above this range, then it indicated a severe level of depression in the people. The depression level of the students, which have been stranded from Chinese universities has been measured with the help of this Scale.

2.2.3 The scale of Social Avoidance and Distress (SAD)

The Self-Rating depression scale has been proposed for checking the level of depression among participants [40]. This scale has based on 28 items and these futures consist of true and false items. Social avoidance and distress are the propensity of people for avoiding social interaction with people. It resulted in distress, whenever a person encountered such situations. The behavior has manifested with evasions and distress in the emotional reaction of the people. Around 14 items in the scale are prepared for capturing the avoidance, while the other 14 are meant to capture the anxiety in the individuals. The 1 indicates yes, while the 0 indicates no. If the score ranges from 5-6, then it shows mild social anxiety, while 7-10 shows moderate, 11-13 severe social anxiety. If the value is above 14, then it is an indication of extremely severe social anxiety in the people, which is an alarming stage.

Table 1: Reliability testing of SAS, SDS SADS

SAS Reliability Statistics		SDS Reliability Statistics		SADS Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
0.867	20	0.85	20	0.9	28

The value of Cronbach's Alpha is 0.86,0.85 and 0.9 for SAS, SDS and SADS Respectively. which indicates the stronger value of its reliability. All of these three scales have been used in this study for checking the mental health of both undergraduate and postgraduate students.

2.3 Statistical Analysis

SPSS (Statistical Package for Social Sciences Students) was used to analyze the data. This software has been used to analyze the responses collected from different undergraduate and postgraduate Pakistani students. Data was analyzed with the help of descriptive statistics, correlation matrix, means, and standard deviation. The t-test and one-way ANOVA has been used to check the impact of covid-19 on the mental health of the students stranded from universities.

3. Results

This section is divided into subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

3.1 Descriptive Statistics

The data has been collected from 159 postgraduates and 153 undergraduate students, who have been stranded from Chinese universities during the pandemic of COVID-19. The results of the descriptive statistics for SDS, SAS, and SADS have shown in table 2. The results show that the minimum value for the SDS score is 20 for SAS, 21 for SAS, and 2 for SADS. On the other hand, the maximum scores are 72, 71, and 18 for SAS, SDS, and SADS respectively. On average, the scores of the SDS are around 47 ± 10.29 as observed for the Social-Rating Anxiety Scale, which indicates the mild to moderate anxiety level in the students. On the other hand, the mean value for the Social-Rating Depression Scale is 41 ± 10.29, which indicates normal depression in the students. Lastly, the mean value for the Social avoidance and distress scales is around 10 ± 5.2654, which indicates a moderate level of social anxiety in the students.

The literature has shown that COVID-19 has affected the mental health of students. For instance, The author have found severe levels of depression and anxiety in the medical students of universities [34]. Even after the emergence of Coronavirus, the authors have found moderate to severe levels of anxiety and depression in the students of the universities. Scholars have found the impact of this virus on the mental health of the students and found a severe level of anxiety among them[20,41]. There have been reported a high level of depression in the students of Chinese universities [23].

Table 2: Descriptive Statistics of SAS, SDS, and SADS

	Minimum	Maximum	Mean	Std. Deviation	Variance	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
SDS	20	72	46.2212	10.29309	105.948	0.576	0.275
SAS	21	71	41.3654	10.29319	105.95	-0.446	0.275
SADS	2	18	9.8494	5.2854	27.935	-1.354	0.275

3.2 Correlation between the Anxiety, Depression, and Social Anxiety

The study checks the correlation between the scales of SAS, SDS, and SADS for finding the problem of multicollinearity in it. The results show that there exists a positive, strong, and significant relationship between the SAS and SDS, while a weak relationship has been found between the SDS and SADS. This indicates that there does not exist problem of multicollinearity so we can easily apply the t-test and one-way ANOVA for checking the impact of COVID-19 on the mental health of students.

Table 3: Correlation between SAS, SDS & SADS

Correlations		SAS	SDS	SADS
SAS_Total	Pearson Correlation	1	.507**	.404**
	Sig. (2-tailed)		.000	.000
SDS_Total	Pearson Correlation	.507**	1	.113*
	Sig. (2-tailed)	.000		.046
SADS_Total	Pearson Correlation	.404**	.113*	1
	Sig. (2-tailed)	.000	.046	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

3.3 Comparison of the Mental Health of the Students

The study checks the group differences between the three scales and their relationship with the different characteristics of the respondents by using the Independent sample t-test. The results have shown in table 4.

Table 4: Comparison of the mental health among different categories of Students

Category	Respondents	Number	Statistics	Anxiety	S.D	Depression	S.D	Social Anxiety	S.D
Gender	Male	162		38.821	9.495	45.532	12.303	7.968	3.945
	Female	150		44.887	10.466	46.704	8.109	11.211	5.800
			t-value	-5.247		-0.961		-5.687	
			P-value	0.000		0.002		0.000	
Degree Level	Postgraduate	159		40.882	9.832	46.190	11.222	8.366	4.901
	Undergraduate	153		41.830	10.729	46.252	9.348	11.277	5.263
			t-value	-0.813		-0.053		-5.051	
			P-value	0.833		0.014		162.000	
Degree Title	Business	88		41.364	10.107	46.080	10.222	9.966	5.227
	Humanities	48		39.938	10.050	46.313	11.620	9.354	4.364
			t-value	0.788		-0.121		0.690	
			P-value	0.483		0.459		0.042	
Degree Title	Natural and Applied Sciences	120		42.692	9.924	46.333	10.543	9.983	5.633
	Social Sciences	56		39.750	11.396	46.125	8.822	9.804	5.435
			t-value	1.746		0.128		0.199	
			P-value	0.694		0.123		0.622	
Age	21-25 years	115		43.574	11.017	43.583	10.901	12.148	4.321
	>25-30 years	145		40.235	10.578	49.235	10.392	8.793	5.820
			t-value	2.482		-4.262		5.155	
			P-value	0.098		0.005		0.000	
Age	21-30 years	260		40.235	10.578	49.235	10.392	8.793	5.820
	30 above	52		39.635	6.414	43.654	5.220	7.712	3.637
			t-value	0.384		3.704		1.254	
			P-value	0.000		0.000		0.000	
Current status of Study	Discontinued	87		42.195	8.420	50.023	4.109	10.483	5.687
	Continued	225		41.044	10.932	44.751	11.525	9.604	5.114
			t-value	0.885		4.162		1.318	
			P-value	0.053		0.000		0.061	

3.3.1 Students Mental Health and Gender-based Differences

The results of the t-test show that there exist significant gender-based differences in the anxiety, depression, and social anxiety of Pakistani students. The gender-based difference for anxiety in males is 38.8205 and it is significant at the 5% level, which shows that the pandemic of COVID-19 has significantly increased the anxiety level of males. On the other hand, the level of anxiety in females has the value of 44.8873 and its t values show significant results. Then the t-values for Depression and social anxiety are -0.961 and -6.687 and both are significant at a 5% level. This shows that there exist gender differences. Females are more affected by this pandemic as compared to males and they have shown greater values of anxiety, depression, and social anxiety as shown in table 4.

3.3.2 Students Mental Health Degree level-based differences

The results of the t-test show that there do not exist significant degree level differences in the anxiety and social anxiety of the Pakistani students because both have shown insignificant values. On the other hand, there do exist degree level differences for depression because is t-value of -0.053 is significant at the 5% level (0.014) as shown in table 4. This shows that the postgraduate students have a lower level of depression as compared to the undergraduate students because they have shown a higher level of mean and standard deviation value. This is maybe due to the reason that undergraduates have spent less time on campus and they are unfamiliar with such situations. Consequently, they can easily get panic and increase the level of their depression.

3.3.3 Students Mental Health Degree Title-based differences

The results of the t-test show that there do not exist degree title-based differences in the anxiety and depression for the Pakistani students, who have stranded from China. The t-values show insignificant results. The t-values show significant results for the Social anxiety for the students of Business and Humanities. The results show that the students of Business have suffered more from the Social Anxiety after stranded from the China. This have shown in table 4. Overall, the results show insignificant values, which means the pandemic of COVID-19 has affected all the degree levels equally and there does not exist any difference except for the students of the Business.

3.3.4 Students Mental Health Age-based differences

The results of the t-test show that there does exist a degree of age-based differences in the anxiety, depression, and social anxiety among students. The t-values show significant values for all the age groups except the 21-25 and 25-30. They have shown insignificant results for anxiety. This means that this virus has affected the anxiety level of all the students irrespective of their ages. On the other hand, depression and social anxiety have shown significant t values of -4.262, 5.155, 0.384, 3.704, and 1.254, which are significant at the 5% level. This shows that there do exist age-based differences and students of different ages has affected differently by this virus. Mostly, the level of anxiety, depression, and social anxiety was high in the young students as compared to the mature ones. This is due to the higher expectation level of these students, who get disappointed about their future after being stranded from universities due to the impact of this Covid-19.

3.3.5 Students Mental Health Study Status differences

The results of the t-test show that there do exist status-based differences in the anxiety, depression, and social anxiety of Pakistani students. Depression has affected equally both the continued and discontinued students as shown in table 4. Overall, the level of anxiety and social anxiety was high in the students, who could not resume their classes and degrees, while the students who have joined their universities again have reduced levels of these disorders and they are in a good mental state.

3.4 The Impact of the different factors on the SAS, SDS, and SADS

The one-way ANOVA checks the impact of the different factors on the SAS, SDS, and SADS. The results have shown in the table below:

3.4.1 Gender based Impact of Anxiety, Depression, and Social Anxiety on students

The results show that gender only affects the scores of the Social-Rating anxiety scale and it shows the significant value of F, which means that there do exist significant differences between and within the groups. On the

other hand, the SDS, and SADS affected the males and females equally and there do not exist differences between and within the groups as shown in table 5.

Table 5: The impact of the Covid-19 on students' mental health based on their gender

		Sum of Squares	Mean Square	F	Sig.
SAS	Between Groups	3531.1746	1765.59	18.5446	2.5E-08
	Within Groups	29419.172	95.2077		
	Total	32950.346			
SDS	Between Groups	215.32318	107.662	1.01628	0.36314
	Within Groups	32734.417	105.937		
	Total	32949.74			
SADS	Between Groups	1531.4182	765.709	33.0614	9.7E-14
	Within Groups	7156.5017	23.1602		
	Total	8687.9199			

3.4.2 The Impact of Mode of Study on Anxiety, Depression, and Social Anxiety

The results show that the mode of study affects the scores of the Social-Rating anxiety scale and Social Anxiety and Distress Scales because it shows a significant value of F. these are significant at the 5% level. This means that there do exist significant differences between and within the groups of scholarship-based and self-sponsored students. On the other hand, the SDS affected both the groups equally and there does not exist any differences between and within the groups as shown in table 6.

Table 6: The impact of the Covid-19 on students' mental health based on their mode of study

		Sum of Squares	Mean Square	F	Sig.
SAS	Between Groups	7403.12	7403.12	89.8324	7E-19
	Within Groups	25547.2	82.4104		
	Total	32950.3			
SDS	Between Groups	281.49	281.49	2.67115	0.1032
	Within Groups	32668.3	105.381		
	Total	32949.7			
SADS	Between Groups	926.719	926.719	37.0153	3.5E-09
	Within Groups	7761.2	25.0361		
	Total	8687.92			

3.4.3 The Impact of Degree level on Anxiety, Depression, and Social Anxiety

The results show that degree level does not affect the scores of the Social-Rating anxiety scale, Social depression scale, and Social Anxiety and Distress Scales because it shows the insignificant value of F. This means that the pandemic of COVID-19 has equally affected all the groups of all the degree levels. There do not exist major differences between and within the groups as shown in table 7.

Table 7: The Impact of Covid-19 on mental health on students with different degree level

		Sum of Squares	Mean Square	F	Sig.
SAS	Between Groups	70.0487	70.0487	0.66043	0.41703
	Within Groups	32880.3	106.065		
	Total	32950.3			
SDS	Between Groups	0.30001	0.30001	0.00282	0.95766
	Within Groups	32949.4	106.289		
	Total	32949.7			
SADS	Between Groups	660.593	660.593	25.5108	7.5E-07
	Within Groups	8027.33	25.8946		
	Total	8687.92			

3.4.4 The Impact of Degree title on Anxiety, Depression, and Social Anxiety

The results show that degree titles do affect the scores of Anxiety, depression, and social anxiety of the Pakistani students because it shows significant values of the F. This indicates the significant differences between and within the groups and confirms that all the degrees have been affected differently by this virus. The previous results confirm that the level of depression, anxiety, and social anxiety is high for Business students. The results have shown in table 8.

Table 8: Impact of Covid-19 on mental health of students with different disciplines

		Sum of Squares	Mean Square	F	Sig.
SAS	Between Groups	455.078	151.693	1.43779	0.23177
	Within Groups	32495.3	105.504		
	Total	32950.3			
SDS	Between Groups	4.19304	1.39768	0.01307	0.99796
	Within Groups	32945.5	106.966		
	Total	32949.7			
SADS	Between Groups	15.237	5.07901	0.18037	0.90968
	Within Groups	8672.68	28.1581		
	Total	8687.92			

3.4.5 The Impact of age on Anxiety, Depression, and Social Anxiety

The results show that age does affect the scores of the Social-Rating anxiety scale and Social Anxiety and Distress Scales because it shows a significant value of F. these are significant at the 5% level. This means that there do exist significant differences between and within groups of all ages. The previous t-test values also confirm that younger students have been affected more significantly by this virus, while the senior and mature students have shown strong mental health even during and after the pandemic of COVID-19. The results have shown in table 9.

Table 9: The impact of the Covid-19 on students' mental health based on their age

		Sum of Squares	Mean Square	F	Sig.
SAS	Between Groups	902.1391362	451.0695681	4.349088748	0.01372
	Within Groups	32048.20702	103.7158803		
	Total	32950.34615			
SDS	Between Groups	2459.97835	1229.989175	12.46538608	6.2E-06
	Within Groups	30489.76203	98.67236904		
	Total	32949.74038			
SADS	Between Groups	1006.966735	503.4833675	20.25482486	5.4E-09
	Within Groups	7680.953137	24.85745352		
	Total	8687.919872			

3.4.6 The Impact of the Status of study on Anxiety, Depression, and Social Anxiety

The results show that the status of the study does not affect the SAS and SADS because it has shown insignificant values of the F, while it does affect the SDS significantly because there exist significant differences between and within the groups. It also shows the significant values of the F, which are significant at the 5% level. The results have shown in table 10.

Table 10: The impact of the Covid-19 on students' mental health based on their   current status of study

		Sum of Squares	Mean Square	F	Sig.
SAS	Between Groups	83.1124	83.1124	0.78391	0.37664
	Within Groups	32867.2	106.023		
	Total	32950.3			
SDS	Between Groups	1743.72	1743.72	17.3221	4.1E-05
	Within Groups	31206	100.665		
	Total	32949.7			
SADS	Between Groups	48.4002	48.4002	1.73668	0.18853
	Within Groups	8639.52	27.8694		
	Total	8687.92			

4. Discussion

This study aimed at checking the impact of the Corona virus on the mental health of the Pakistani students, who have been stranded from the China after the emergence of the virus. The results show that level of anxiety, depression, and social anxiety has reduced after the pandemic of COVID-19. The study has tested the following hypothesis:

H_1: The pandemic of COVID-19 has negatively affected the mental health of the Pakistani students.

H_0: The pandemic of COVID-19 has no effect on the mental health of the Pakistani students.

The earlier scholars have found higher scores for SAS, SDS, and SADS [42] [23]. On the other hand, the findings of this shows a moderate level of scores for all these scales, which indicates that the mental health of the students is improving now. Hence, the null hypothesis can be rejected in the favor of the alternative hypothesis because the pandemic of COVID-19 does affect the mental health of the Pakistani students. findings is consistent with the findings of [43, 44].They have found that the Pakistani students have low level of anxiety and obsessions from the pandemic of COVID-19, while the other scholars have found the significant results in all over the world.

These findings have attributed to the strong resilience of the Pakistani students and the less understanding about the seriousness of this disease [45].

H_2: There exist significant gender-based differences in the anxiety, depression, and social anxiety of Pakistani students.

H_0: There does not exist significant gender-based differences in the anxiety, depression, and social anxiety of Pakistani students.

The study shows that there exist significant gender-based differences in the anxiety, depression, and social anxiety of Pakistani students. The outbreak of COVID has affected females more than males and they have shown greater values of anxiety, depression, and social anxiety. Hence, the null hypothesis can be rejected in the favor of the first alternative hypothesis because gender based differences does affect the mental health of the students. These findings are consistent with the results of [46, 47]. This is due to the low socioeconomic status of women in the developing countries like Pakistan [20].

H_3: There does exist significant degree level differences in the anxiety and social anxiety of the Pakistani students.

H_0: There do not exist significant degree level differences in the anxiety and social anxiety of the Pakistani students.

The results also show that there do not exist significant degree level differences but the postgraduate students have a lower level of depression as compared to the undergraduate students because they have shown a higher level of mean and standard deviation values. This is maybe due to reason that undergraduates have spent less time on campus and they are unfamiliar with such situations. Consequently, they can easily get panic and increase the level of their depression. Hence, the Alternative hypothesis can be rejected in the favor of the second null hypothesis because degree level based differences does not affect the mental health of the students. These findings are consistent with the work of [42]. The results are also consistent with the findings of Khan, Muhammad Naeem, et al (2021), who found the insignificant presence of depressive symptoms in the Pakistani students after the pandemic of COVID-19 [22].

H_4: There do exist degree title-based differences in the anxiety and depression for the Pakistani students.

H_0: There do not exist degree title-based differences in the anxiety and depression for the Pakistani students.

Moreover, there also do not exist degree title-based differences. However, the students of Business were more depressed. The Harvard survey also shows the same results that the stress and anxiety level of the business students' increase with their time in the program. When such students have to go back to Pakistan due to COVID-19, then it has increased the pressure on their mind and that created depression in them. The high level of stress for the business students is may be attributed to the high level of expectations from these students. As the business, degree is the professional one and we expect more from such students. When they could not come up to those expectations and they have to get back to their countries, this has increased the level of stress and anxiety among them. Hence, the alternative hypothesis can be rejected in the favor of the null hypothesis because degree-title based differences does not affect the mental health of the students.

H_5: There does exist an age-based differences in the anxiety, depression, and social anxiety of Pakistani students.

H_0: There does not exist an age-based difference in the anxiety, depression, and social anxiety of Pakistani students.

The results also confirm that the level of anxiety, depression, and social anxiety was high in the young students as compared to the mature ones because these students have limited exposure and they have not faced the tough challenges of their lives mostly. Hence, the null hypothesis can be rejected in the favor of the fourth alternative hypothesis because age does affect the mental health of the students.

H_6: There do exist status-based differences in the anxiety, depression, and social anxiety of Pakistani students

H_0: There does not exist status-based differences in the anxiety, depression, and social anxiety of Pakistani students.

Then, the level of anxiety and social anxiety was high in the students, who could not resume their classes and degrees, while the students who have joined their universities again have reduced levels of these disorders and they are in a good mental state. Hence, the null hypothesis can be rejected in the favor of the alternative hypothesis because status based differences does affect the mental health of the students. The findings are consistent with the results of Chowdhury, U., et al., (2022), who has found that the depression and stress level is high among the students after the COVID-19, who did not have any job, or have no skills[20].

4.1 Suggestions

Based on the findings of this study, it is recommended that the universities should actively manage the students for controlling their level of anxiety, depression, and social anxiety in them. Physical activities have a direct impact on the stress, depression and anxiety level of the students [48, 49]. So these are recommended especially for the student from coming out the jerks of this pandemic [50]. This otherwise could lead to the mental illness of the students and result in serious consequences. The universities should provide the proper guidance to their students for understanding their mental health and comprehending their differences. The study has important implications for the universities for controlling the level of anxiety, and depression in their students after the impact of COVID-19. Furthermore, the universities should establish early warning signs for the mental illness of the students and should recommend the proper psychological counseling for them. The universities should also understand the individual characteristics of the students and develop a system for increasing the communication between the students and their advisors. This can help in reducing their stress level. The university should also initiate its efforts for resuming the students of those students who would not be able to resume their studies after the pandemic of Corona.

5. Conclusions

COVID-19 has affected the lives of the students and increased their level of depression and anxiety in them. The current study is an effort to check the impact of this virus on the mental health of Pakistani students, who have been stranded in China after the emergence of COVID-19. The results show that level of anxiety, depression, and social anxiety has reduced after the pandemic of COVID-19. The earlier scholars have found higher scores for SAS, SDS, and SADS, while this study has found a moderate level of scores for all these scales, which indicates that the mental health of the students is improving now. The study shows that there exist significant gender-based differences in the anxiety, depression, and social anxiety of Pakistani students. The outbreak of COVID has affected females more than males and they have shown greater values of anxiety, depression, and social anxiety. The results also show that there do not exist significant degree level differences but the postgraduate students have a lower level of depression as compared to the undergraduate students. This is maybe due to reason that undergraduates have spent less time on campus and they are unfamiliar with such situations. Consequently, they can easily get panic and increase the level of their depression. Moreover, there also do not exist degree title-based differences. However, the students of Business were more depressed. The results also confirm that the level of anxiety, depression, and social anxiety was high in the young students as compared to the mature ones. Then, the level of anxiety and social anxiety was high in the students, who could not resume their classes and degrees, while the students who have joined their universities again have reduced levels of these disorders and they are in a good mental state.

6. Author Contributions

SA and TQ presented the main idea and wrote the first draft of the manuscript. AS contributed to revising and proofreading the manuscript. TL helped to finalize the revisions and proofreading. All authors contributed to the article and approved the submitted version.

7. Informed Consent Statement

Informed consent was obtained from all subjects involved in the study

8. Data Availability Statement

Data will be provided according to demand

9. Acknowledgments

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10. Conflicts of Interest

The authors declare no conflict of interest.

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