Effects of the COVID-19 Pandemic on Medical Students' Social and Mental Health: A Cross-Sectional Study

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Article

Effects of the COVID-19 Pandemic on Medical Students' Social and Mental Health: A Cross-Sectional Study

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Abstract

Objectives: This study assesses the impact of the COVID-19 pandemic on the social relationships and mental health of university students, the new habits learned by the students during the lockdown period, the level of happiness of students during and after the lockdown period, and what type of communication and teaching the students preferred after the lockdown period. **Method:** We conducted a cross-sectional study among 367 students at Gulf Medical University. Informed consent was obtained. A validated self-anxiety stress questionnaire was used. The data were analyzed, and descriptive statistics were used to explain the socio-demographic characteristics. The Chi-square test was used to determine whether the distribution of observed frequencies differed from the theoretically expected frequencies, the T-test assessed the association between variables, and the logistic analysis assessed predictors of the results. **Results**: 125 students (62.6%) less than 20 years of age reported that social distancing affected their social relationships; there were mainly 147 females (64.2%). Regarding mental health, 134 people (73.6%) aged less than 20 years old were reported unmotivated with distance digital learning, and they were mainly 164 females (78.1%), who reported they were affected, and also females reported to be learning new habits during lockdown more than males, with 133 (60.7%) females, and they were 119 (62%) of the age group <20. Regarding happiness levels, 159 (70.7%) females reported that quarantine affected their level of happiness, and they were under 20 years of age. Lastly, 159 females (72.6%) said no to online learning over face-to-face teaching methods, and they were of both age groups <20 and 20 years or older. **Conclusion** University students are at risk for mental disorders. Our study implies that universities and health care providers need to take action to continuously assess, prevent, identify, and manage the mental health conditions of university students adequately, since students' mental health was impacted negatively. Females reported that they are worried about going into a state of depression more often than men, and both age groups faced the same problem equally.

Keywords: pandemic; mental health; social relationships; university students

Introduction

Pandemics have long been recognized as major public health crises with far-reaching consequences that extend beyond physical health. The psychological and social impact of such global outbreaks can be profound, particularly for individuals in high-stress environments such as medical students. Medical education is inherently demanding, requiring students to balance rigorous

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academic workloads, clinical responsibilities, and personal well-being. During pandemics, these challenges are often exacerbated by factors such as disrupted learning, increased uncertainty, and heightened exposure to distressing medical scenarios [1]. Historically, pandemics like the 1918 influenza and the SARS outbreak of 2003 have been associated with significant mental health burdens, including anxiety, depression, and social isolation. Students often experience significant emotional distress as they witness the effects of widespread disease while simultaneously facing uncertainties about their training and future careers. The absence of structured coping mechanisms and the disruption of peer and mentor support systems exacerbate these issues, leading to profound consequences for both mental health and social well-being [2]. One of the most significant pandemics that affected the entire world, particularly university medical students, is COVID-19. As a result, the mental health of university students has been brought into focus. Although several studies have assessed mental health issues during epidemics, most have focused on health workers, patients, children, and the general population [3]. The Kaiser Family Foundation decided to focus on students. The results of the polls showed that 47% reported negative mental health effects resulting from worry or stress related to studying during the global pandemic of COVID-19 [4]. Moreover, the pandemic affected college students physically, academically, financially, and psychologically. Some colleges and universities that reported cases of COVID-19 had to take measures to prevent widespread transmission of the virus among staff and young adults [5]. Higher education institutions across the country switched from in-person to online learning. In a short period, college students' lives have dramatically changed as they have been asked to leave campus, adjust to new living circumstances, and adapt to online learning platforms. While social distancing measures may have successfully slowed down the spread of the infection and relieved the public health systems, it had eventually increased the social isolation of students, and caused a lot of pressure to perform academically [3] Reduced social interactions, a lack of social support, and newly arising stressors associated with the COVID-19 crisis could potentially affect students' mental health negatively [6]. For example, online courses designed to replace high levels of interaction and hands-on experiences such as practicums, labs, and/or artistic performance have a clear disadvantage regarding the evaluation of students. Later, some studies showed that there might be an expected solution to solve this problem, which is social media. It plays a major role in buffering stress, helping the students to be more effective, and stabilizing their social life [7]. Lastly, when it comes to the financial effect of COVID-19 on students, according to a survey by the loan management website Student Loan Hero, 4 out of 5 college students did face financial difficulties. Furthermore, mental health issues significantly impair students' academic success and social interactions, affecting their future career and personal opportunities [3]. An outbreak of a new virus was reported in December 2019 in Wuhan, China. This led to a global pandemic that affected the entire population economically, which led to a negative effect on many people's lives [8]. Some of these were big shifts in the stock market, this market is where bought and sold in shares, the largest stocks such as Dow Jones, FTSE, and Nikkei all had significant falls as the global pandemic evolved in the first couple of months; FTSE dropped by 14.3% in 2020, its biggest drop since 2008. Many individuals lost their jobs or had their incomes reduced, leading to major increases in unemployment rates across economies. A significant number of countries experienced a rapid growth of COVID-19 cases, which then led to home quarantine around March 2020. Most governments globally enacted several laws to stop the further spread of the virus, such as closing all schools and universities and eliminating all activities that are open to the public or even private. Furthermore, imposing national law to execute mass quarantine, led to the disconnection of friendships and relationships due to miscommunication causing individuals to spend time on their own creating a feeling of loneliness affecting mental health and even increased suffering for people who are already suffering from mental illness; Some of these results are loneliness, frustration, anxiety and even worries about the future [9]. Hence this research was conducted to assess the impact of pandemics generally and COVID-19 specifically on the social and mental health of university students because as said before many aspects have been researched about the effects of pandemics

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and COVID-19 on many different jobs and roles but none or very few focused on this sensitive and important group that will be the future generation that will lead our world in various places.

Materials and Methods

This study is reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Our study population was the Gulf Medical University students in Dubai, United Arab Emirates, where our inclusion criteria were students above 18 years old, and our exclusion criteria were any students not willing to participate. Our sample size was 575 students, and the study was also conducted in the Gulf Medical University. The duration of the study was approximately 6 months. Our study instrument, the questionnaire, was developed after reviewing validated questionnaires used by other researchers in different countries to assess mental and social health during the COVID-19 pandemic. As well as its effects on social relationships, happiness level, and mental health state, and to identify which type of communication university students preferred after the lockdown period. The Validation procedure of the questionnaire was reviewed and revised by three experts knowing the field of social and mental health states of patients. Their suggestions were taken into consideration and again reviewed by the experts before piloting. Regarding the Pilot Study, we performed it because the subject of study is university students and in the GMU then we took a small population for testing before its distribution and this helped us in the interpretation and comprehension of the survey. This was done to understand the feasibility of conducting, the time to complete the questionnaire, and the comprehension of questions.

Our research was approved by the Institutional Review Board (IRB) as it aligned with our aim which is to respect the anonymity and confidentiality of all participants, a consent form was given to each participant to assess his or her will to be involved in our study and we conducted our questionnaire face to face in the university, where we distributed our questionnaire to each student which is appropriate to be chosen based on our inclusion/exclusion criteria and gave them our consent form. Lastly, for data analysis, we used descriptive statistics to explain the socio-demographic characteristics, and for inferential statistics, we used the chi-square test (used to determine whether the distribution of observed frequencies differs from the theoretically expected frequencies) and the T-test was used to see the association between different variables like mental and physical health.

Results

The deidentified data from our survey was collected and exported into an Excel sheet, and the data was then exported into and analysed using Statistical Package for the Social Sciences (SPSS) Software. The data was then interpreted and tabulated.

In Table 1, the significant value was P=0.04, which talks about COVID-19's effect on any person's relationship, and the highest value was 57.1% of the people aged 20 or more voted that COVID-19 didn't affect their relationships.

In Table 2 the significant value was P=0.01 which talks about the COVID-19 effect on being attentive toward friends well well-being and the highest value was 92.5% of females voted that they agree that they are more attentive now and P=0.03 was the other significant value which talks about the effect of covid 19 on the choice of helping the poor or sick people with the highest value 91.6% for females voting for a yes and lastly P=0.02 which talks about fear of getting sick after covid-19 has came and the highest value was 67.2% for females who voted yes.

In Table 3, the significant value was P=0.003, which talks about the effect of COVID-19 on studying during the quarantine period, and the highest value was 73.4%, which was from the other regions and indicated that their duration of studying was shorter.

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In Table 4, the significant value was P=0.04, which talks about the new habits that people learned during the COVID-19 period, and the highest value was 37.9% for cooking, which was voted by females.

In Table 5 the significant value was 0.008 which asses if COVID-19 made people hopeless and the highest value was 72.5% of females voting yes they felt hopeless, the other significant value was P=0.001 which talked about helped them stay happy and the highest value was 44% of females voting for family and friends.

In Table 6 the significant value was P=0.05, which highlights whether there was an increase or decrease in the level of happiness during the COVID-19 period, and the highest value was 80.7% of the females who voted that it decreased their level of happiness.

In Table 7, the significant value was P=0.012, which highlights the preference of online learning over face-to-face learning, and the highest value was 79% of the people less than 20 years old who voted no.

Table 1. Distribution of participants according to Social relationship by age (N=367).

Social relationship	Groups	Age				P value
		Less than 20		Greater or equal to 20		
		NO.	%	NO.	%	
Affects relationships with any person	Yes	105	54.1%	57	42.9%	0.04
	No	89	45.9%	76	57.1%	
Stronger relationship with your family members	Yes	180	90%	115	85.2%	0.1
	No	20	10%	20	14.8%	
Attentive towards friends' well-being	Agree	181	90.5%	120	88.9%	0.6
	Disagree	19	9.5%	15	11.1%	
Need help out the poor or sick	Yes	180	90%	118	88.1%	0.5
	No	20	10%	16	11.9%	
Contact friends	Yes	131	65.2%	91	67.4%	0.6
	No	70	34.8%	44	32.6%	
Fear of getting sick	Yes	121	60.2%	91	67.4%	0.1
	No	80	39.8%	44	32.6%	
Social distancing affected	Yes	125	62.6%	84	62.2%	0.9

In Table 1, the significant value was P=0.04, which talks about COVID-19's effect on any person's relationship, and the highest value was 57.1% of the people aged 20 or more voted that COVID-19 didn't affect their relationships.

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Table 2. Distribution of participants according to Social relationship by Gender (N=367).

Social relationship	Groups	Gender				P value
		Male		Female		
		No.	%	No.	%	
Affects relationships with any person	Yes	55	51.9	107	48.4	0.6
	No	51	48.1	114	51.6	
Stronger relationship with your family members	Yes	95	89.6	200	87.3	0.5
	No	11	10.4	29	12.7	
Attentive towards friends' well-being	Agree	19	84.1	211	92.5	0.01
	Disagree	17	15.9	17	7.5	
Need help out the poor or sick	Yes	90	84.1	208	91.6	0.03
	No	17	15.9	19	8.4	
Contact friends	Yes	78	72.9	144	62.9	0.07
	No	29	27.1	85	37.1	
Fear of getting sick	Yes	58	54.2	154	67.2	0.02
	No	49	45.8	75	32.8	
Social distancing affected	Yes	62	57.9	147	64.2	0.2
	No	45	42.1	82	35.8	

In Table 2 the significant value was P=0.01 which talks about the COVID-19 effect on being attentive toward friends well well-being and the highest value was 92.5% of females voted that they agree that they are more attentive now and P=0.03 was the other significant value which talks about the effect of covid 19 on the choice of helping the poor or sick people with the highest value 91.6% for females voting for a yes and lastly P=0.02 which talks about fear of getting sick after covid-19 has came and the highest value was 67.2% for females who voted yes.

Table 3. Distribution of participants according to mental health by WHO REGION (N=367).

Mental health	Groups	WHO						P value
		EMR		SEAR		Others		
		NO.	%	NO.	%	NO	%	
Distance digital learning affects on the ability to study	Made me motivated to study	42	28.2%	15	17.4%	15	21.4%	0.155
	Made me unmotivated to study	107	71.8%	71	82.6%	55	78.6%	
	Not at all	34	20.6%	10	11.5%	10	12.5%	0.454

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Worried about all the severe complications that can happen if ever infected with COVID-19	A little	43	26.1%	31	35.6%	19	23.8%	
	Sometimes	54	32.7%	27	31%	32	40%	
	Frequently	22	13.3%	12	13.8%	12	15%	
	Very much	12	7.3%	7	8%	7	8.8%	
Worried that I will go into a depressed mood because of all the stress surrounding us	Not at all	30	18%	20	23%	24	30%	0.253
	A little	36	21.6%	19	21.8%	13	16.3%	
	Sometimes	46	27.5%	18	20.7%	19	23.8%	
	Frequently	32	19.2%	24	27.6%	15	18.8%	
	Very much	23	13.8%	6	6.9%	9	11.3%	
Worried that infecting myself or others will affect my studies	Not at all	31	18.8%	19	21.6%	17	21.3%	0.060
	A little	39	23.6%	23	26.1%	16	20%	
	Sometimes	43	26.1%	22	25%	18	22.5%	
	Frequently	33	20%	16	18.2%	8	10%	
	Very much	19	11.5%	8	9.1%	21	26.3%	
Did you study more or less during quarantine	More	66	40.2%	17	20%	21	26.6%	0.003
	Less	98	59.8%	68	80%	58	73.4%	

In Table 3, the significant value was P=0.003, which talks about the effect of COVID-19 on studying during the quarantine period, and the highest value was 73.4%, which was from the other regions and voted that their studying was less.

Table 4. Distribution of participants according to new habits by gender (N=367).

New habits	**Groups**	**Gender**				**P value**
		Male		**Female**		
		No.	**%**	**No.**	**%**	
Learn any new habits	Yes	67	63.8	133	60.7	0.5
	No	38	36.2	86	39.3	
Type of new habits	Sport	22	32.8	25	18.9	0.04
	musical	14	20.9	19	14.4	
	Technology	10	14.9	18	13.6	
	Cooking	13	19.4	50	37.9	
	Others	8	11.9	20	15.2	

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In Table 4, the significant value was P=0.04, which talks about the new habits that people learned during the COVID-19 period, and the highest value was 37.9% for cooking, which was voted by females.

Table 5. Distribution of participants according to happiness by gender (N=367).

Happiness	Groups	Gender				P value
		Male		Female		
		No.	%	No.	%	
Felt hopeless	Yes	57	57.6	161	72.5	0.008
	No	42	42.4	61	27.5	
Quarantine affects the level of happiness	Yes	67	63.2	159	70.7	0.1
	No	39	36.8	66	29.3	
If yes	Increase	17	26.2	40	26.5	0.9
	decrease	48	73.8	111	73.5	
Which stage were you the happiest	Before	45	44.6	108	51.7	0.3
	During	25	24.8	39	18.7	
	After	31	30.7	62	29.7	
What kept you happy	Family, friends	36	34	96	44	0.001
	Video games	41	38.7	26	11.9	
	Social media	17	16	54	24.8	
	Movies	7	6.6	24	11	
	Self-development	1	0.9	14	6.4	
	None	4	3.8	4	1.8	

In Table 5 the significant value was 0.008 which asses if COVID-19 made people hopeless and the highest value was 72.5% of females voting yes they felt hopeless, the other significant value was P=0.001 which talked about helped them stay happy and the highest value was 44% of females voting for family and friends.

Table 6. Distribution of participants according to happiness by age (N=367).

New habits	Groups	Age		P value
		<20	>=20	

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		No.	%	No.	%	
Felt hopeless	Yes	133	69.3	85	65.9	0.5
	No	59	30.7	44	34.1	
Quarantine affects the level of happiness	Yes	135	68.2	91	68.4	0.9
	No	63	31.8	42	31.6	
If yes	Increase	40	31.3	17	19.3	0.05
	decrease	88	68.8	71	80.7	
Which stage were you the happiest	Before	98	53.3	55	43.7	0.1
	During	33	17.9	31	24.6	
	After	53	28.8	40	31.7	
What kept you happy	Family, friends	87	44.8	45	34.6	0.1
	Video games	37	19.1	30	23.1	
	Social media	43	22.2	28	21.5	
	Movies	15	7.7	16	12.3	
	Self-development	6	3.1	9	6.9	
	None	6	3.1	2	1.5	

In Table 6 the significant value was P=0.05, which highlights if there was an increase or decrease in the level of happiness during the COVID-19 period, and the highest value was 80.7% of the females voted that it decreased their level of happiness.

Table 7. Distribution of participants according to communication and teaching methods by age (N=367).

communication and teaching methods	**Groups**	**Age**				**P value**
		<20		**>=20**		
		No.	**%**	**No.**	**%**	
8. How would you rate your experience with distance digital learning?	Very good	22	11.2	22	16.5	0.074
	Good	122	61.9	63	47.4	
	Bad	38	19.3	34	25.6	
	Very bad	15	7.6	14	10.5	
9. Do you prefer online learning over face-to-face	Yes	41	21	43	33.6	0.012
	No	154	79	85	66.4	

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learning methods?	

In Table 7, the significant value was P=0.012, which highlights the preference of online learning over face-to-face learning, and the highest value was 79% of the people less than 20 years old who voted no.

Discussion

Our study reported 76 students(57.1%) aged 20 years old or more reported that their social relationships were not affected by COVID-19 19 while the students under 20 years old were affected and similar findings were reported in the USA and that's because people under age of 20 have many social relationships that may be new from university or old from school and they have more desire to always talk and communicate with others [4].

Our study found that 91 students (67.4%) aged 20 years or older reported having more contact with their friends, as young adults prefer face-to-face meetings, unlike older adults who are more adaptable to video calling [10]. Our study showed that the highest finding was that 125 students (62.6%) less than 20 years of age reported that social distancing affected their social relationships because as mentioned above, where young adults prefer meeting face-to-face and they lack the adequate experience to manage their relationships so they are more vulnerable to loss of relationships. Our study showed that 54.2% of males and 67.2% of females feared getting sick during COVID-19 amongst Gulf Medical University students, while 85.7% of medical students in Sergipe, Brazil, showed fear of getting sick, mostly due to fear of transmitting the disease [8]. Our study showed that 68.1% of students from Gulf Medical University studied less during quarantine, while another study found that the burnout rate in year 4 medical students decreased dramatically from 40.7% before COVID-19 to 16.7% after COVID-19 ($p = 0.011$). Furthermore, we discovered a statistically significant increase in burnout from 27.6% before COVID-19 to 50% after COVID-19 ($p = 0.010$) [9].

Our study amongst Gulf Medical University students showed that for new habits acquired during the COVID-19 period, the highest was 37.9% for cooking, which was voted by females. This is true in other studies, as another study found that 45 percent of participants said they ate and snacked more, resulting in weight gain in roughly 28% of them. Only 7% of interviewees said they ate restaurant foods, while the majority (73%) said they had home-cooked and healthy meals [5]. 72.5% of females stated that they felt hopeless, exhausted, or emotionally unresponsive during quarantine. Another study found that 7% of people showed anxiety symptoms and 17% showed feelings of anger, but 4–6 months after quarantine had ended, these symptoms had decreased to 3% and 6%, respectively [11].

87 (44.8%) students <20 years of age voted that family kept them the happiest during quarantine. A study done in Italy looked at the parents' assessment of their children's well-being, and, probably, parents who are in a lot of pain (according to themselves) have a harder time judging their children's well-being, regardless of the children's actual well-being [11]. 135 (68.2%) of the age group <20 stated that the quarantine affected their level of happiness. Having a look at media affecting the degree of happiness at some point of quarantine confirmed a poor effect with watching TV, each collection/film, and popular content, with the usage of social networks and creating/sharing content online [12]. 159 females (72.6%) did not prefer online learning over face-to-face teaching methods, while in the USA student responses were 70 % (almost equally males and females) preferred mostly or completely face-to-face learning environments [13].

Numerous research studies have been published regarding the impact of the COVID-19 pandemic on several aspects of students' physical, mental, social, and academic well-being. However, it would be of great interest to assess the post-pandemic impact on these populations after they have

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progressed from being medical students into active healthcare workers, how their perceptions have changed, and to compare the retrospective and prospective data.

Conclusion

University students are at risk for mental disorders. Our study suggests that universities and healthcare providers should take action to continuously assess, prevent, identify, and manage the mental health conditions of university students. Since students' mental health was negatively impacted, females reported being more worried about developing depression compared to males, while both age groups faced similar challenges. Supporting the health, mental health, and well-being of all students should be a high priority during a pandemic and in post-pandemic times. The lockdown impacted students' social relationships, with a majority being negatively affected. Gulf medical university students' perceptions in this study revealed a high to moderate level of agreement concerning the positive and negative impacts on their social lives associated with the COVID-19 pandemic. Staying connected with family members, appreciating life and death, and feeling societal destiny unity were the prominent positive impacts that emerged. Students' happiness was significantly affected, with a high percentage of them reporting feeling hopeless, exhausted, or emotionally unresponsive. Therefore, some recommendations could be scheduling regular virtual meetings with friends or even phone calls, avoiding isolating oneself from the world, finding new hobbies to fill one's time, setting goals for your day, and lastly taking time for yourself.

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