PERCEPTION AND THE ASSOCIATED APPREHENSION STEMMING FROM NOVEL COVID-19 AMONG PAKISTANI STUDENTS

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ABSTRACT

Objective: To highlight Pakistani Students anxieties and their attitude towards the circumstances created by the COVID-19 pandemic and to bring forth this data for better policy revisions in the country.

Study Design: Cross-sectional study.

Place and Duration of Study: Different cities of Pakistan, from May to May 2020.

Methodology: A structured self-administered questionnaire was prepared, based on other surveys conducted in the past. Questionnaire was made available online and shared across social media sites with students. All students of Colleges and Universities who had access to internet were included in the study.

Results: Total study population was 731 students. We found that around 320 (44%) of students felt anxious daily due to COVID-19 while 438 (60%) of them were not content with the current measures to stop the spread of the virus. 636 (87%) of the students feared for the health of their family members while 584 (80%) felt anxious for their academic future due to the unprecedent circumstances created by the disease. 387 (53%) had decided not to go to hospitals in case of any illness other than COVID-19. Approximately 400 (55%) believed that the situation was worse than actually being portrayed. Females generally were found to be more anxious than males regarding their health and health of their family members (*p*-value 0.001 and 0.003 respectively).

Conclusion: There is a dire need of establishing mental health services in educational institutions. Despite the students' generally correct approach towards curbing the spread of COVID-19, they are still much apprehensive regarding the situation surrounding the pandemic due to the disturbance of their academic and everyday life.

Keywords: Attitude, COVID-19, Mental health services, Pandemic, Survey.

INTRODUCTION

Corona virus belongs to a sizeable group of viruses with some strains causing minor diseases, for example the common cold and others more severe like SARS (2002) and MERS (2012). Some transmit faster from person to person while others simply don't[1]. Around December 2019, an outbreak of unusual pneumonia was reported in the city of Wuhan, situated in the province of Hubei in China. In few weeks Chinese scientists managed to isolate a novel corona virus named COVID-19 from those patients[2]. Commonly the symptoms include fever, dry cough and tired-ness. Some infected people might only show very mild symptoms in response to the COVID-19 however 1 out of every 5 people contracting the virus develop serious illness characterized by difficulty breathing. The incubation period which is the time from exposure to the pathogen till the patient starts to develop signs and symptoms of the disease is around 5 to 6 days but can extend up to 14 days[3].

Due to the required emergency lockdown measures established by governments across the globe in this time of crisis, anxiety and stress levels have drastically increased and ultimately taken a toll on our mental health, for which WHO has highlighted certain measures like limiting the use of social media and seeking information only from authentic sources like itself[4]. Healthcare workers fighting at the forefront just like in previous epidemics are under pressure due to long hours of work under high risk environ-ments[5]. With many businesses shutting down subsequent to borders being closed, economic

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anxiety due to the current economic fallout has substantially increased as well[6].

As COVID-19 continues to spread and its repercussions felt on a global scale, it's quite common for people to experience a broad range of emotions including feeling over whelmed, helpless, upset, anxious and stressed[7]. The present research was planned to identify the perception and the associated apprehension stemming from Novel COVID-19 among Pakistani students and to bring forth this data for better policy revisions in the country. To our knowledge no such study has been conducted specifically to cater the anxieties among students in Pakistan.

METHODOLOGY

This cross-sectional survey was approved from Ethical review committee of Armed Forces Institute of Dentistry, Rawalpindi, Pakistan. The study was conducted on students from all over the country from May 14 to May 16, 2020. Sample size was calculated using Raosoft calculator and it was found to be 377 assuming the margin of error was 5%, confidence level at 95%, response distribution being 50% and population size 20000. The forms were kept open for 3 days; however, the number of participants were not limited to 377 so as to increase the statistical power of the study. Subsequently the number was increased to a sample size of 731 as these were the total number of responses received.

Consecutive sampling technique was used to include the participants which mainly consisted of college and University students. Inclusion criteria were students with access to smart phones and internet who are residents of Pakistan. Anyone below 18 years and above 40 years were excluded from the study. Anonymity was retained as no names or addresses were inquired and the survey contained a consent portion that stated study objectives, volunteer participation, declaration of confidentiality and anonymity.

A structured self-administered questionnaire was created through google forms and an online link generated was shared on social media. The questionnaire was slightly modified and customized from the two online questionnaires (Cronbach alpha=0.77) which were available for free and related to student perception and apprehension regarding COVID-19[8,9]. The questionnaire consisted of two parts and 16 items primarily focusing on the extent to which students were cognizant of COVID-19 and their attributed anxieties related to the pandemic. In the first part individual characteristics of the students were sought. In second part, the first 5 survey items focused on the perception while the latter 11 items were involved in investigation of apprehension and anxiety concerning the pandemic. Questions were related to the anxiety and delved into the fear of students contracting the virus and the fear of their parents getting contracted as well whenever they leave the house hold. The survey also inquired about the changing attitudes and following protocols like wearing a mask and

Table-I: Descriptive statistics of study participants.

Variables	n (%)
Gender	
Male	202 (27.6)
Female	527 (72.1)
Other	2 (0.3)
Age	
<20	316 (43.2)
>20	415 (56.8)
Qualification Level	
College	265 (36.3)
University	466(63.7)

washing hands, adopted by the students. Five-point Likert scale with 1=Strongly disagree, 2=Disagree, 3=Neutral 4=Agree and 5=Strongly Agree was used to record the responses. The questionnaire was first sent to a group of 10 participants as a pilot study in order to check feasibility of questions before distributing it online on a large scale and conducting inferential analysis. Reliability coefficient was calculated and the value of Cronbach's alpha was found to be 0.73.

Data was analyzed using SPSS version 26.0. Frequencies and percentages were calculated for categorical variables. Chi-Square test was used to compare the collected samples based on age, gender and level of qualification to test for any

relationship between categories and their total. The *p*-value ≤0.05 was considered as statistically significant.

RESULTS

A total of 731 responses were recorded out of which majority were females (n=527, 72.1%). Age range was 18-40 years with mean age 0f 20.93 ± 3.03 years however the number of participants

A large numberof students i.e., 433 (59%) believed that they could protect themselves against Corona Virus. Similarly, majority 400 (55%) of them were also confident that they could protect themselves better than others. 622 (85%) students limited physical contact with other people. Likewise, a great numberof 607 (83%) students had avoided or reduced going to prayer places. 491 (67%) students had genuine fears upon leaving

Table-II: Responses of students regarding perception about COVID-19.

Questions	R#	n (%)	Variables					
			Gender		Age		Qualification	
			Female	Male	<20/	>20	College Students	Uni. Student
I believe I can protect myself against the novel coronavirus	1	82 (11.22%)	11 (2.1)	4 (2.0)	4 (1.3)	11 (2.7)	2 (0.8)	13 (2.8)
	2	351 (48.02%)	38 (7.2)	21 (10.4)	20 (6.3)	39 (9.4)	24 (9.1)	35 (7.5)
	3	224 (30.64%)	177 (33.6)	47 (23.3)	92(29.1)	132 (31.8)	91 (34.3)	133 (28.5)
	4	59 (8.07%)	246 (46.7)	104 (51.5)	165 (52.2)	186 (53)	125 (47.2)	226 (48.5)
	5	15 (2.05%)	55 (10.4)	26 (12.9)	35 (11.1)	47 (11.3)	23 (8.7)	59 (12.7)
Statistical Significance			0.156		0.181		0.084	
I believe I can protect myself against the novel coronavirus better than others.	1	76 (10.4)	10 (1.9)	3 (1.5)	2 (0.6)	11 (2.7)	2 (0.8)	11 (2.4)
	2	324 (44.3%)	56 (10.6)	22 (10.9)	33 (10.4)	45 (10.8)	31 (11.7)	47 (10.1)
	3	240 (32.8%)	188 (35.7)	52 (25.7)	91 (28.8)	149 (35.9)	75 (28.3)	165 (35.4)
	4	78 (10.7%)	229 (43.5)	94 (46.5)	154 (48.7)	170 (41)	132 (49.8)	192 (41.2)
	5	13 (1.8%)	44 (8.3)	31 (15.3)	36 (11.4)	40 (9.6)	25 (9.4)	51 (10.9)
Statistical Significance			0.047*		0.043*		0.070	
My health will be severely damaged if I contract novel coronavirus.	1	150 (20.5%)	13 (2.5)	4 (2.0)	6 (1.9)	11 (2.7)	2 (0.8)	15 (3.2)
	2	244 (33.4%	62 (11.8)	45 (22.3)	43 (13.6)	64 (15.4)	41 (15.5)	66 (14.2)
	3	213 (29.1%)	159 (30.2)	54 (26.7)	84 (26.6)	129 (31.1)	74 (27.9)	139 (29.8)
	4	107 (14.6%)	181 (34.3)	62 (30.7)	119 (37.7)	125 (30.1)	88 (33.2)	156 (33.5)
	5	17 (2.3%)	112 (21.3)	37 (18.3)	64 (20.13)	86 (20.7)	60 (22.6)	90 (19.3)
Statistical Significance			0.061		0.271		0.220	
I have limited my physical contact with people	1	350 (47.9%)	13 (2.5)	7 (3.5)	4 (1.3)	16 (3.9)	2 (0.8)	18 (3.9)
	2	283 (38.7%	5 (0.9)	8 (4.0)	4 (1.3)	9 (2.2)	4 (1.5)	9 (1.9)
	3	65 (8.9%)	49 (9.3)	16 (7.9)	25 (7.9)	40 (9.6)	25 (9.4)	40 (8.6)
	4	13 (1.8%)	211 (40.2)	70 (34.7)	100 (31.6)	183 (44.1)	89 (33.6)	194 (41.6)
	5	20 (2.7%)	248 (47.1)	101 (50)	183 (57.9)	167 (40.2)	145 (54.7)	205 (44.0)
Statistical Significance			0.261		0.000*		0.011*	
I have recent-ly avoided / reduced going to prayer places.	1	404 (55.3%)	12 (2.3)	11 (5.4)	4 (1.3)	19 (4.6)	2 (0.8)	21 (4.5)
	2	203 (27.8%	10 (1.9)	7 (3.5)	3 (0.9)	14 (3.4)	0 (0)	17 (3.6)
	3	84 (11.5%)	66 (12.5)	18 (8.9)	28 (8.9)	56 (13.5)	29 (10.9)	55 (11.8)
	4	17 (2.3%)	155 (29.4)	48 (23.8)	74 (23.4)	129 (31.1)	58 (21.9)	145 (31.1)
	5	23 (3.1%)	248 (53.9)	118 (58.4)	207 (65.5)	197 (47.5)	176 (66.4)	228 (48.9)
Statistical Significance			0.165		0.000*		0.000*	

*#R= Responses, 1=strongly agree, 2=agree, 3=Neutral, 4=Disagree, 5=Strongly agree, *Statistically significant*

under 20 years and over 20 years were almost equal. Majority of them were university students (n=463, 63.8%). The demographics are listed in table-I.

their houses because of COVID-19 outbreak. Simultaneously most of students were not satisfied with the current infection control measures 439 (60%) and a large majority had taken certain precautions like wearing masks and washing hands

more frequently. Regarding the statement that the situation was not as bad as it was being portrayed, 234 (32%) students disagreed while 175 (24%) strongly disagreed. Students strongly agreed in majority to showing fear for the health of their family members. Nevertheless, a large majority 584 (80%) students were anxious about their academic future due to the situation created by the pandemic.

found to be more anxious than males regarding their health and health of their family members (*p*-value 0.001 and 0.003 respectively).

DISCUSSION

COVID-19 brings a plethora of problems associated with it. As a greater number of researches continue to delve into these with regards to the general population, we aim to specify it fur-

Table-III: Responses of students regarding apprehension concerning COVID-19.

Questions	R#	n (%)	Gender		Age		Qualification	
			Female	Male	<20/	>20	College Students	Universality Student
I fear leaving my house because of COVID-19	1	208 (28.5%)	21 (4.0)	19 (9.4)	14 (4.4)	26 (6.3)	11 (4.2)	29 (6.2)
	2	283 (38.7%)	45 (8.5)	29 (14.4)	32 (10.1)	42 (10.1)	24 (9.1)	50 (10.7)
	3	126 (17.2%)	82 (15.6)	44 (21.8)	54 (7.1)	132 (17.3)	51 (19.2)	75 (16.1)
	4	74 (10.1%)	215 (40.8)	67 (33.2)	129 (40.8)	154(37.1)	115 (43.4)	168 (36.1)
	5	40 (5.5%)	164 (31.3)	43 (21.3)	87 (27.5)	121 (29.2)	64 (24.2)	144 (30.9)
Statistical Significance			0.002*		0.751		0.098	
I fear for the health of my family members	1	367 (50.2%)	21 (2.1)	4 (2.0)	3 (0.9)	13 (3.1)	3 (1.1)	13 (2.8)
	2	269 (36.8%)	6 (1.1)	6 (3.0)	4 (1.3)	8 (1.9)	6 (2.3)	6 (1.3)
	3	67 (9.2%)	40 (7.6)	26 (12.9)	28 (8.9)	39 (9.4)	31 (11.7)	36 (7.7)
	4	12 (1.6%)	195 (37.0)	74 (36.6)	119 (37.7)	150 (36.1)	99 (37.4)	170 (36.5)
	5	16 (2.2%)	275 (52.2)	92 (45.5)	162 (51.3)	205 (49.4)	126 (47.5)	241 (51.7)
Statistical Significance			0.000*		0.322		0.157	
I have recently started to Avoid watching, reading or listening to news because it made me anxious	1	146 (20.0%)	51 (9.7)	46 (22.8)	44 (13.9)	54 (13.0)	43 (16.2)	55 (11.8)
	2	183 (25.0%	90 (17.1)	57 (28.2)	78 (24.7)	70 (16.9)	63 (23.8)	85 (18.2)
	3	156 (21.3%)	114 (21.6)	42 (20.8)	77 (24.4)	79 (19.0)	67 (25.3)	89 (19.1)
	4	148 (20.2%)	148 (28.1)	35 (17.3)	68 (21.5)	115 (27.7)	54 (20.4)	129 (27.7)
	5	98 (13.4%)	124 (23.5)	22 (10.9)	49 (15.5)	97 (23.4)	38 (14.3)	108 (23.2)
Statistical Significance			0.000*		0.003*		0.001*	
I wash my hands more frequently	1	246 (33.7%)	12 (2.3)	7 (3.5)	6 (1.9)	14 (3.4)	4 (1.5)	16 (3.4)
	2	317 (43.4%	19 (3.6)	17 (8.4)	21 (6.6)	15 (3.6)	18 (6.8)	18 (3.9)
	3	112 (15.3%)	81 (15.4)	30 (14.9)	56 (77.7)	56 (3.5)	46 (17.4)	66 (14.2)
	4	36 (4.9%)	241 (45.7)	76 (37.6)	126 (39.9)	191 (46.0)	108 (40.8)	209 (44.8)
	5	20 (2.7%)	174 (33.0)	72 (35.6)	107 (33.9)	139 (13.9)	89 (33.6)	157 (33.7)
Statistical Significance			0.000*		0.077		0.135	
I have started wearing a mask because of COVID-19	1	286 (39.1%)	14 (2.7)	12 (5.9)	6 (1.9)	20 (4.8)	6 (2.3)	20 (4.3)
	2	283 (38.7%	27 (5.1)	12 (5.9)	19 (6.0)	20 (4.8)	15 (5.7)	24 (5.2)
	3	97 (13.3%)	75 (14.2)	22 (10.9)	43 (13.6)	54 (13.0)	38 (14.3)	59 (12.7)
	4	39 (5.3%)	205 (38.9)	76 (37.6)	108 (34.2)	175 (42.2)	96 (36.2)	187 (40.1)
	5	26 (3.6%)	206 (39.1)	80 (39.6)	140 (44.3)	146 (35.2)	110 (41.5)	176 (37.8)
Statistical Significance			0.335		0.021*		0.454	

#*R= Responses, 1=strongly agree, 2=agree, 3=Neutral, 4=Disagree, 5=Strongly agree *Statistically significant*

Chi Square tests was carried out between responses and different groups like gender (male /female/other), age groups (<20 and >20) and level of education (College/University) shown in table-II, III & IV. *p*-values ≤0.05 were considered statistically significant. Females generally were

ther into the category of students who have to face their academic burdens alongside the pandemic. It is significant to highlight the attitude of students in this crisis while acknowledging their fears and distresses so that they could be dealt with accordingly. As Pakistan has a median age

of 22.8 years[10], therefore, this research aims to give importance to the psychological and behavioral consequences in the student division so that in the future any important decisions could be made without putting such a large population

virus (59%) which is likely due to ease of access of internet and education level, however around 30% still remained neutral/undecided which is concerning as despite the advancements in some technologies they still seemed underconfident with themselves. Interestingly the graph showed

Table-IV: Responses of students regarding anxiety concerning COVID-19.

| Questions | R# | n (%) | Variables | | | | | |
| | | | Gender | | Age | | Qualification | |
			Female	Male	<20/	>20	College Students	University Student
I feel anxious when a family member goes outside the house	1	279 (38.2%)	14 (2.7)	13 (6.4)	11 (3.5)	16 (3.9)	8(3.0)	19 (4.1)
	2	253 (34.6%	24 (4.6)	21 (10.4)	23 (7.3)	22 (5.3)	17 (6.4)	28 (6.0)
	3	127 (17.4%)	84 (15.9)	43 (21.3)	64 (20.3)	63 (15.2)	60 (22.6)	67 (14.4)
	4	45 (6.2%)	186 (35.3)	65 (32.2)	108 (34.2)	145 (34.9)	93 (35.1)	160 (34.3)
	5	27 (3.7%)	219 (41.6)	60 (29.7)	110 (34.8)	169 (40.7)	87 (32.8)	192 (41.2)
Statistical Significance			0.001*		0.236		0.035*	
I feel anxious on a daily basis because of COVID-19.	1	116 (15.9%)	31 (5.9)	25 (12.4)	28 (8.9)	29 (7.0)	17 (6.4)	40 (8.6)
	2	208 (28.5%)	82 (15.6)	46 (22.8)	58 (18.4)	70 (16.9)	58 (21.9)	70 (15.0)
	3	222 (30.4%)	164 (31.1)	58 (28.7)	103 (32.6)	119 (28.7)	92 (34.7)	130 (27.9)
	4	128 (17.5%)	163 (30.9)	44 (21.8)	88 (27.8)	120 (28.9)	67 (25.3)	141 (30.3)
	5	57 (7.8%)	87 (16.5)	29 (14.4)	39 (12.3)	77 (18.6)	31 (11.7)	85 (18.2)
Statistical Significance			0.003*		0.173		0.007*	
I feel under-confident with the current infection control measures	1	184 (25.2%)	27 (5.1)	10 (5.0)	18 (5.7)	19 (4.6)	12 (4.5)	25 (5.4)
	2	255 (34.9%	46 (8.7)	30 (14.9)	26 (8.2)	50 (12.0)	30 (11.3)	46 (9.9)
	3	179 (24.5%)	127 (24.1)	51 (25.2)	81 (25.6)	98 (23.6)	64 (24.2)	115 (24.7)
	4	76 (10.4%)	193 (36.6)	61 (30.2)	109 (34.5)	146 (35.2)	87 (32.8)	168 (36.1)
	5	37 (5.1%)	134 (25.4)	50 (24.8)	82 (25.9)	102 (24.6)	72 (27.2)	112 (24.0)
Statistical Significance			0.378		0.490		0.780	
I feel the situation is not as bad as it is being portrayed.	1	52 (7.1%)	128 (24.3)	45 (22.3)	86 (27.2)	88 (21.2)	79 (29.8)	95 (20.4)
	2	100 (13.7%	174 (33.0)	59 (29.2)	103 (32.6)	131 (31.6)	89 (33.6)	145 (31.1)
	3	171 (23.4%)	129 (24.5)	42 (20.8)	58 (18.4)	113 (27.2)	55 (20.8)	116 (24.9)
	4	234 (32.0%)	59 (11.2)	41 (20.3)	46 (14.6)	54 (13.0)	26 (9.8)	74 (15.9)
	5	174 (23.8%)	37 (7.0)	15 (7.4)	23 (7.3)	29 (7.0)	16 (6.0)	36 (7.7)
Statistical Significance			0.138		0.057		0.011*	
Even if i fall ill with another disease, I will not go to hospital because of risk of getting novel coronavirus in hospital.	1	157 (21.5%)	42 (8.0)	17 (8.4)	25 (7.9)	34 (8.2)	19 (7.2)	40 (8.6)
	2	233 (31.9%)	95 (18.0)	41 (20.3)	60 (19.0)	76 (18.3)	53 (20.0)	83 (17.8)
	3	146 (20.0%)	98 (18.6)	46 (22.8)	61 (19.3)	85 (20.5)	60 (22.6)	86 (18.5)
	4	136 (18.6%)	186 (35.3)	47 (23.3)	103 (32.6)	130 (31.3)	82 (30.9)	151 (32.4)
	5	59 (8.1%)	106 (20.1)	51 (25.2)	67 (21.2)	90 (21.7)	51 (19.2)	106 (22.7)
Statistical Significance			0.020*		0.990		0.491	
I feel anxious about my academic future due to the unprecedented circumstances created by COVID-19	1	395 (54.0%)	16 (3.0)	16 (7.9)	11 (3.5)	22 (5.3)	10 (3.8)	23 (4.9)
	2	191 (26.1%	16 (3.0)	12 (5.9)	11 (3.5)	17 (4.1)	11 (4.2)	17 (3.6)
	3	84 (11.54%)	58 (11.0)	25 (12.4)	39 (12.3)	45 (12.8)	33 (12.5)	51 (10.9)
	4	28 (3.8%)	143 (27.1)	48 (23.8)	75 (23.7)	116 (28.0)	58 (21.9)	133 (28.5)
	5	33 (4.5%)	294 (55.8)	101 (50.0)	180 (57.0)	215 (51.8)	153 (57.7)	242 (51.9)
Statistical Significance			0.001*		0.413		0.301	

*#R=Responses, 1=strongly agree, 2=agree, 3=Neutral, 4=Disagree, 5=Strongly agree *Statistically significant*

in significant distress.

Generally majority of the students believed they could safeguard themselves against corona

similar results upon asking if they could protect themselves better than other people. It could also be noted that students here are generally middle class with access to better facilities hence it

would be a fair estimate that they could do better than the majority of lower-class population of Pakistan.

There were a decent number (53.9%) of students agreeing that their health could severely be affected due to COVID-19 which shows that the students are aware of the risks surrounding the pandemic, which is why many students have limited their own physical contact with other people and adopted social distancing as advised (87%) which is slightly higher than a study conducted in Karachi and China[8,11]. This result could be due to increased awareness associated with the time passed during the pandemic. A definitive majority had started wearing masks as well (78%). Cumulatively around 83% of them reduced or avoided going to prayer places which shows that efforts in encouraging praying at home by the government are starting to bear fruit, however 11.5% were still undecided which shows that the problem must be addressed at grass root level and support should be garnered by the spiritual leaders in local communities as they could influence the population further if there is any distrust with the government.

Moving forward towards the apprehension side, around two thirds of the students feared leaving their houses because of COVID-19 which is especially because preventive measures are not being fully implemented in their environment. Since most of the population is lower class who are either making their ends meet out of their meagre monthly salaries or their day to day lives depend on working outside, this is why the lockdown is not fully effective, which conseq-uently increases the anxieties of all other people. This data (67%) was slightly higherth an a study conducted earlier on the residents of Karachi (64.3%)[8]. There were equally varied responses on if people avoided news because it made them anxious with only a slight majority agreeing, this could be because most students of this generation are aware of some media sensationalizing the news so they might be accustomed to the daily ruckus brewed by these news agencies. The strongly agreed response increased from 16% to

38% students when questioned from their own fear to leave the house to their fear of any family member leaving the house, which considering the statement of WHO regarding old people being at higher risk of infection seems plausible[12]. It can also belooked at the unfortunate case of Italy (Second highest oldest population) as their num-ber of cases soured exponentially due to their higher older population demographics[13].

Around 44% of the student population felt anxious on a day to day basis because of COVID-19 which is distressing as this could highly impact their academic as well as their day to day lives. Sudden lifestyle disturbances and changes in social interaction could further increase levels of anxiety especially due to the sheer uncertainty of the circumstances created by the pandemic. The absence of any medical treatment also exace-rbates anxiety especially among those that are infected. Regarding infection control measures, 60% felt underconfident while 25% of the stron-gly agreed with this statement. This could be due to already increased levels of anxiety further creating mistrust and distrust between the gover-nment as supported by Jin *et al*[14]. It could also be due to the government trying to balance lock-down with cutting losses for the economy. Simi-larly, more than half (56%) believed that the situation is worse off than actually being port-rayed which was correct since currently, the lock-down measures are ineffective and the country does not have enough testing kits to make an accurate prediction of infected people. Again, more than half also believed that they would not go to the hospital if they had any other illness to prevent risking corona virus infection as was pointed out by Bernstein L, Sellers F, Sin Washington post[15]. This clearly show how true the fear is that even in any debilitating condition students ironically fear going to the place which can treat them. An overwhelming majority of students (80.7%) were anxious about their acade-mic future as most exams had to be cancelled and several other ambiguous methods have to be implemented now for creating a final grade. Due

to this uncertainty, anxiety levels are easily elevated.

In light of this research certain pre-cautionary measures can be taken to tackle this outbreak in a more effective manner. Firstly, this pandemic highlights the absolute urgency of strengthening medical health services. A serious restructuring of the education system is also required. Since young students are generally more proficient in using cell phones and the internet, they should be provided with online courses and lectures for more independent studying and certain measures should be considered for unprecedented circumstances like these where an exam might not be able to be conducted[16].

Government future endeavours should be clearly laid out and their response time be accelerated for a faster and coordinated effort. There should be an effective method to curb the spread of false information to prevent widespread panic and fear. Medical reserve forces should be deployed when hospitals become severely under staffed. Medical teams should also coordinate with the military personnel for effective logistics across the country. At an interpersonal level helping friends and relatives is an effective method in coping with the pandemic[17]. Certain actions could be carried out at a community level by adopting a process known as behaviour modification which involves adapting to the existing lifestyle in such a way that it alleviates any adverse effects brought forth by COVID-19. Practicing mindfulness, striving for personal growth, incorporating coping strategies and cultivating a healthy environment through positive emotions all come under the process of behaviour modification. Government of Pakistan should allow psychological interventions to be an integral part of the healthcare system, especially among students[18].

A generalization of the results discussed may be limited in diversity as it mostly garnered responses from the urban population and the responses in rural areas might have differed considerably. Any pre-existing psychiatric conditions were not considered among the responses recorded. The results could also be easily influenced by the time the study was conducted as much further into the pandemic the people might become adapted to the new lifestyle changes and eventually show lesser signs of stress.

CONCLUSION

The results have given significant insight towards the need to provide mental health consultancy in educational institutions as a high number of students are anxious and prolonged anxiety can lead to detrimental effects to their mental and physical health. Similarly, our study highlights that despite the students' generally correct approach towards curbing the spread of COVID-19, they are still overly apprehensive regarding the situation surrounding the pandemic. This is also attributed to the fact that they believe that current infection control measures are insufficient in the country and plenty more must be done to deescalate the severity of this situation.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

REFERENCES

1. World Health Organization. WHO Statement regarding cluster of pneumonia cases in Wuhan, China. Geneva: World Health Organization. 9 Jan 2020 [Cited 2020 June 5]; Available from:https://www.who.int/china/news/detail/09-01-2020-who-statement-regarding-cluster-of-pneumonia-cases-in-wuhan-china.
2. Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. Lancet 2020; 395(10223): 470-73.
3. World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report – 73. Geneva: World Health Organization. 5 June 2020 [Cited 2020 June 5]; Available from:https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200402-sitrep-73-COVID-19.pdf?sfvrsn=5ae25bc7_4.
4. World Health Organization. Mental health and psychosocial considerations during the COVID-19 outbreak; Geneva: World Health Organization. 5 June 2020 [Cited 2020 June 5]; Available from:https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf
5. Abolfotouh MA, AlQarni AA, Al-Ghamdi SM, Salam M, Al-Assiri MH, Balkhy HH. An assessment of the level of concern among hospital-based health-care workers regarding MERS outbreaks in Saudi Arabia. BMC Infec Diseases 2017; 17(1): 4-8.
6. Fetzer T, Hensel L, Hermle J, Roth C. Perceptions of Coronavirus Mortality and Contagiousness Weaken Economic Sentiment: 2003.03848:2020.https://arxiv.org/abs/2003.03848v1?utm_sourc

e=feedburner&utm_medium=feed&utm_campaign=Feed%3A+CoronavirusArXiv+%28Coronavirus+Research+at+ArXiv%29.

7. Coronavirus (COVID-19): managing stress and anxiety. Counselling & psychological services. [Cited 2020 June 5]. Available from:https://services.unimelb.edu.au/counsel/resources/wellbeing/coronavirus-COVID-19-managing-stress-and-anxiety.

8. Balkhi F, Nasir A, Zehra A, Riaz R. Psychological and Behavioral Response to the Coronavirus (COVID-19) Pandemic. Cureus 2020; 12(5): e7923-28.

9. Mc Fadden SM, Malik AA, Aguolu OG, Willebrand KS, Omer SB. Perceptions of the adult US population regarding the novel coronavirus outbreak. PloS one 2020; 15(4): e0231808-11.

10. Worldometer [Internet]. Pakistan Population; [Cited 2020 June 5]. Available from: https://www.worldometers.info/world-population/pakistan-population/.

11. Jang WM, Cho S, Jang DH, Kim UN, Jung H, Lee JY, et al. Preventive Behavioral Responses to the 2015 Middle East Respiratory Syndrome Coronavirus Outbreak in Korea. Int J Environ Res Public Health 2019; 16(12): 2161-65.

12. Jordan RE, Adab P, Cheng KK. Covid-19: risk factors for severe disease and death. BMJ 2020;368:m1198 Available from: https://pubmed.ncbi.nlm.nih.gov/32217618/.

13. United Nations [Internet]. New York City: 2019. Department of Economic and Social AffairsPopulation Dynamics; [Cited 2020 June 5]. Available from: https://population.un.org/wpp/Download/Standard/Population/.

14. Jin Z, Zhao K, Xia Y, Chen R, YU H, Tamutana TT, et al. Psychological responses to the Coronavirus Disease (COVID-19) outbreak. China Xiv 2020; 1(1): 1-6.

15. Bernstein L, Sellers FS. Patients with heart attacks, strokes and even appendicitis vanish from the hospital. The Washington Post [serial online]. 2020 [cited 2020 19 April at 11:50 pm GMT+5]. Available from: https://www.washingtonpost. com/health/patients-with-heart-attacks-strokes-and-even-appendicitis-vanish-from-hospitals/2020/04/19/9ca3ef24-7eb4-11ea-9040-68981f488eed_story.html

16. Do TT, Le MD, Van Nguyen T, Tran BX, Le HT, Nguyen HD, et al. Receptiveness and preferences of health-related smartphone applications among Vietnamese youth and young adults. BMC public health 2018; 18(1): 764-68.

17. Centers for Disease Control and Prevention [Internet]. 2019. Outbreaks can be stressful [Cited 2020 June 5]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html

18. Mukhtar S. Pakistanis' mental health during the COVID-19. Asian J Psy 2020; 51(1): 102127-29.

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