MEASURING PREPAREDNESS OF MBBS STUDENTS TO THE CLINICAL EXPOSURE DURING COVID-19 PANDEMIC

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ABSTRACT

Objective: To measure the level of preparedness of MBBS students to clinical exposure to COVID-19 pandemic.
Study Design: Cross-sectional online questionnaire survey.
Place and Duration of Study: Physiology department, Islamic International Medical College, Riphah University, from July to July 2020.
Methodology: Medical students from first to final year were included. Data was collected through a validated questionnaire measuring knowledge, attitude and practice of medical students regarding COVID-19. Statistical analysis was done on Microsoft Excel. Frequencies, percentages, mean, and standard deviation were calculated.
Results: A total of 315 students were included in the final analysis. The mean age of the students was 21± 3.2. Social media were the main sources of information for 45.5% of the students. The overall level of knowledge of students about COVID-19 was good in 88% and 12% had poor knowledge. The attitude had a mixed response of 55.5% being confident that the disease would be controlled while 93.3% and 87% of the students wanted to help and educate the society. Regarding practice 91% of the students had good practice and used face masks though poor practice were the application of hand sanitizer and going out of home 68%.
Conclusion: The level of preparedness of MBBS students before clinical exposure to the COVID-19 Pandemic was satisfactory. The students had good knowledge, a mixed attitude and good practices regarding COVID-19. Gaps in knowledge and the practice which were highlighted need to be addressed by the educational institutes through awareness programs before interaction with the patients is initiated.

Keywords: Attitude, COVID-19, Knowledge, Medical students, Practice, Preparedness.

INTRODUCTION

COVID-19 emerged as a severe respiratory disease in late 2019 in China which quickly spread throughout the world and turned into a pandemic by March 2020[1]. It is a highly infectious disease that spreads from person to person through droplets. At present, only supportive treatment is available and precautionary measures are recommended to limit the spread of the disease[2]. The first case in Pakistan was reported in February and, since then, it has affected people in all walks of life, including health care professionals[3]. The healthcare professionals are the first line of defense against any outbreak. Despite guidelines recommended by the World Health Organization (WHO) and steps taken by the Pakistani government, there seems to be inadequate implementation of the recommended guidelines with regards to patient interaction[2].

Medical education was halted when educational institutions were closed to ensure social distancing and to avoid close contacts[4]. Though online teaching continued after a while, but there was no patient interaction. Upon the resumption of on-campus teaching, the chances of medical students being affected will be more as they will have direct contact with patients in clinical rotations. Special consideration should be given to the medical students considering that they are the nation's future health workforce[5].

To win the battle against corona virus, control measures are essential which are largely influenced by knowledge, attitude and practices of health professionals[6]. It is reported in the literature that the knowledge, practice and attitude

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regarding highly infectious diseases are related to the level of adherence to control measures, which can limit the spread of a disease[7].

Despite increased media campaigns and other awareness programs regarding COVID-19, it is still unclear to what extent knowledge has been put into practice[8]. Currently, there is scarce information regarding the awareness level of medical students in Pakistan[9]. Surveys based on knowledge, attitude and practice can provide a suitable format to measure behavior change[4].

The findings from this study can be used to identify the gaps in the knowledge, attitude, and practices of future healthcare professionals in the specific context of COVID-19 pandemic in Pakistan. Alternatively, the compliance of the students in adopting the precautionary measures will also create awareness among patients. Thus, the urgent need is to understand the awareness and adherence to guidelines by medical students in this critical moment. This study aims to measure the level of preparedness of MBBS students to the clinical exposure during the COVID-19 Pandemic.

METHODOLOGY

This cross-sectional survey was conducted on undergraduate medical students at Islamic International Medical College, Islamabad, from July to July 2020. Considering the target population of Islamic International Medical College students, the sample size was calculated as 313 using Rao Soft software with 95% CI and 5% Margin of Error[10]. After approval from the ethical review committee (ERC no Riphah/ IIMC/IRC/ 121) data were collected online on Google software form through convenience sampling. Medical students from 1st to final year, who were willing to participate in the study and gave consent, were included. Recently graduated students were excluded. Data were collected through a validated questionnaire measuring knowledge, attitude and practice of medical students regarding COVID-19[11]. The questionnaire was modified and revalidated by clinicians and medical educationists of the institute who modified some questions. For example in the knowledge section the second item was modified by adding breathing difficulties and antiviral treatment was added in the fourth item. The sixth item was deleted and the seventh item move upto sixth place in the questionnaire. Overall the questionnaire consisted of demographics and three sections addressing variables of knowledge, attitude and practices regarding COVID-19. The questionnaire was piloted on n=6 students after which it was asked to be filled by the students of the college. The link to google forms was sent to the class coordinators who distributed it to the class representatives.

The knowledge section consisted of 15 questions regarding COVID-19 infection, symptoms, mode of transmission, risks and prevention were included. The level of participant's knowledge and practice was calculated by assigning scores to answers; 1 for correct and 0 for neutral and do not know. In attitude section questions assessing perceptions of participants regarding prevention and control measures were recorded on 3 points Likert scale. In the third section 10 questions regarding their practices including the use of personal protective measures and social distancing were measured on 3 point Likert scale. Statistical analysis was done using Microsoft Excel. Frequencies, percentages, mean, and standard deviation were calculated.

RESULT

A total of 322 student sresponded to the online questionnaire. Out of which 315 were completely filled questionnaires. Out of these 74 (23.5%) were males and 241 (76.4%) were females. Class wise 57 (18.2%) of first year responded. Seventy three (23.3%) students of second year and 50 (15.7%) of third year participated. From fourth year and final year the number of students who participated were 63 (20.1%) and 72 (22.6) respectively. Figure summarizes the sources of information that were used by the students to seek information regarding COVID-19. Most students gained information via social media which was followed by the television, newspaper

and magazines, and then from senior colleagues.

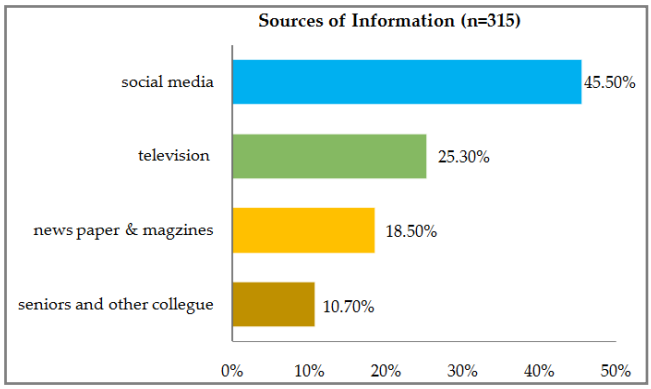

Figure: Sources of information regarding COVID-19.

The overall knowledge of students about COVID-19 was good which was 277 (88%) and 38 (12%) had poor knowledge.

The responses about the various aspect of the knowledge regarding COVID-19 are shown in the table-I. The Percentage of students knowing that COVID is a viral infection originating in bats was 247 (78.3%). Most students had good knowledge of the clinical symptoms 312 (99.1%), prevention 313 (99.4%), possible treatment 309 (98.1%), isolation of the infected people 313 (99.4%) and maintaining a minimum distance guidelines 309 (98.1%). However, the weak area observed was information regarding differentiation of symptoms from common flu 214 (67.9%). Knowledge regarding whether the public can wear a cloth mask while going out was also deficient 191 (60.6%).

The attitude regarding COVID-19 (table-II)

Table-I: Knowledge among undergraduate medical students regarding COVID-19 (n=315).

Questions	Knowledge	
	Good, n (%)	Poor, n (%)
COVID-19 is a viral infection which originated in bats	247 (78.3%)	68 (21.7)
The main clinical symptoms of COVID-19 include fever, fatigue, dry cough, difficulty in breathing and myalgia.	312 (99.1%)	3 (0.7%)
Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	214 (67.9%)	101 (32.1%)
Currently, there is no effective antiviral treatment for COVID-19, but early symptomatic and supportive treatment can help inmostpatients recover from the infection.	309 (98.1%)	6 (1.9%)
Not all persons with COVID-19 will develop in to severe cases.	310 (98.4%)	5 (1.6%)
People who are elderly, have chronic illnesses, pregnant ladies and areobese are more likely to be severe cases.	296 (94%)	19 (65%)
Asymptomatic cases can also transmit infection.	270 (85.8%)	45 (14.2%)
The COVID-19 virus spreads via respiratory droplets of infected individuals.	304 (96.5%)	11 (3.5%)
Health-care students can wear general medical masks to prevent infection by the COVID-19 virus.	221 (70%)	94 (30%)
It is not necessary for children and young adults to take measures to prevent infection by the COVID-19 virus.	274 (87%)	41 (13%)
To prevent the infection by COVID-19, individuals should avoid going to crowded places such as public transportation, congregational prayers andmarkets.	313 (99.4%)	2 (0.6%)
Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread ofthe virus.	313 (99.4%)	2 (0.6%)
People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a properplace.	309 (98.1%)	6 (1.9%)
The maximum observation period for corona is 14 days.	292 (93%)	23 (7%)
General public can wear a cloth mask to avoid infection with corona when going outside their house	191 (60.6%)	124 (39.4)
While attending the patients, the minimum distance guideline to be maintained is 6 feet	280 (89%)	35 (11%)

showed that only 175 (55.5%) of the students were confident that it will be controlled world-wide. Only 149 (47.3%) had a positive attitude that Pakistan will be able to successfully control the diseases. On the other hand 294 (93.3%) of the students educated their family members/friends and community on prevention of this disease and 273 (87%) of the students wanted to help the community in this situation.

Table-IV represents the practices of the students regarding COVID. The table shows that

Table-II: Attitude among undergraduate medical students regarding COVID-19 (n=315).

	Question	1 (Agree) n (%)	3 (Neutral) n (%)	4 (Disagree) n (%)
Positive Attitude	COVID-19 will be successfully controlled worldwide	175 (55.5%)	93 (29.5%)	81 (26%)
	Confidence that Pakistan can win the battle against the COVID-19 virus.	149 (47.3%)	92 (29.3%)	74 (23.4%)
	Educate family members/friends and community on the prevention of this disease.	294 (93.3%)	18 (5.7%)	3 (0.3%)
	Help the community during this challenging situation?	273 (87%)	35 (11%)	6 (2%)

Table-III: Practice among undergraduate medical students regarding COVID-19 (n=315).

Domain	Question	Good, n (%)	Poor, n (%)
	Wearing maskwhile going outside	288 (91%)	28 (9%)
	Reuse face mask	78 (25%)	238 (75%)
	Share your face mask with others	291 (92.7%)	23 (7.3%)
	Apply sanitizer to your hands when out of home	213 (68%)	102 (32%)
	Go out of home for any purpose	213 (68%)	102 (68%)
	Maintain appropriate social distancing	250 (79%)	65 (21%)
	After coming back to home how often you apply the following measures: Wash hands	291 (92%)	24 (8%)
	Change clothes	172 (54%)	144 (46%)
	Take bath	139 (44%)	177 (56%)
	Maintain social distance	129 (41%)	187 (59%)

91% of students wore a mask when going out and only 78 (25%) of the students reused the face mask. Seventy-nine percent of the students maintained appropriate social distance. While 291 (92%) of the students washed hand after coming home from the outside. Only 172(54%) of them changed clothes and 139 (44%) took a bath and 129 (41%) maintained social distance.

DISCUSSION

The study sought to assess the state of readiness of undergraduate medical students to clinical exposure in Pakistan by measuring the knowledge, attitude and practice towards COVID-19. All these factors play a vital role in ensuring that medical students deal with patients in an effective manner with minimum risks to their health[12].

The results of this study show that 88% of the students had good overall knowledge about COVID-19. The findings for knowledge are the same as reported by Huynh *et al* from China[8]. But the study population for this study are only medical students. These findings can be used as an indicator of preparedness of students as they are now being reintroduced back into clinical rotations. The present study gives us confidence that the students have satisfactory background knowledge about COVID-19 and this will translate into adherence to recommended guidelines for patient interaction. Since currently there is no definite treatment available or vaccine, taking precautions is the only way which can prevent medical students from getting infected as can be seen from other studies of other diseases[1]. When

the individual question items were examined it was seen that the students were not very certain about the differences in allergic flu and symptoms of COVID-19 in which they scored 67%. This is consistent with a study by Saqlain *et al*, from Pakistan but that study was on health care workers[13]. The students were also unclear regarding whether the public should wear a cloth mask to avoid infection and in this item, they scored 60%.

The findings of this study regarding the attitude report a mixed outlook towards the disease. Only 55.5% of the study population were confident that COVID-19 will be successfully controlled worldwide and an even less percentage of students 47.3% were confident that Pakistan would be able to win the battle against the disease. This is in contrast to a Nepalese study where the participants were more confidant that COVID-19 will be controlled[14]. The participants of the present study might be of this view because of the poor health facilities in the country. However, a very high percentage of 93.3% had a positive attitude and educated their families, friends and local community about the COVID-19. Also 87% of the students wanted to help the society in this challenging period. Studies show that students might be scared of the disease, but they want to help the patients and society as they want to make a difference[15].

Regarding the practice the medical students were assessed by measures such as regular hand washing, paying more attention to personal hygiene and staying at home. Results revealed that most medical students were following good practices. Approximately 91% of the students wore masks when going out and 92% declared that they washed hand regularly. Seventy-nine percent said that they maintained an appropriate social distancing. The statistics of these responses are similar to a study from Jordan by Khasawneh *et al*[4]. Students gave a mixed response to measures such asregularly changing clothes and taking baths. The weak area of practice was the application of sanitizer when unable to wash hands and the frequency of going out the home[5]. Besides wearing a mask as recommended by the World Health organization, the act of washing hand is the best way to prevent the spread of disease and to use hand sanitizers if soap and water are unavailable[17]. Assessing the practices regarding the prevention of COVID-19 is an important step in combating the transferability of the disease when the wards open[16,17].

The source of information regarding COVID-19 were mostly social media. This is in accordance with a study by Ahmad *et al*, which researched the impact of social media on panic during the COVID-19 pandemic. However, the impact of media on people can be negative as it can spread anxiety and panic[18].

Literature suggests that lack of knowledge and misunderstandings among health care professionals could lead to delayed diagnosis, spread of disease and poor control practice. This has resulted in a very high rate infection amongst health-care professional[19]. The present study is first of its kind in Pakistan in which the readiness of students to attend wards is being measured after the COVID-19 pandemic. Recent data shows that the spread of COVID has declined, however, there is fear that non-adherence to safety measures could lead to a surge in cases[20,21].

LIMITATION OF STUDY

The sampling of students was limited to a single health science college, so the results should be generalized with caution. A future study could be aimed towards assessing the knowledge, attitude, and practice in students of social sciences.

RECOMMENDATION

Guidelines should be made on how medical students should interact with patients in clinical rotations. These guidelines maybe tailored to meet the requirements of individual medical universities. Awareness programs and workshops ought to be conducted on a regular basis to disseminate and reinforce the afore mentioned guidelines in order to ensure maximum adherence to them.

CONCLUSION

Findings of the study provide confidence that our medical students are prepared to attend the wards. They have good knowledge, apositive attitude, and good practices regarding COVID-19. However, specific gaps in knowledge and the practice which were highlighted needs to be addressed by the educational institutes through awareness programs before the students are allowed face to face interaction with the patients as the disease has not disappeared but is still ongoing.

CONFLICT OF INTEREST

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

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