Comparison of Knowledge and Attitude among Medical and Dental Students Towards COVID-19

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This work was carried out in collaboration among all authors. Author FU designed the study, authors SA and NI performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors ZS and HM managed the analyses of the study. Author MAUK managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: To assess and compare the knowledge and attitude of medical and dental undergraduates towards COVID-19 in current setup.
Study Design: Cross-sectional
Place and Duration of Study: Study was done at Ziauddin university Karachi during the period of October 2020 to December 2020.

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**Methodology:** Medical and dental students from 1st year to final year were enrolled in the study. Cronbach’s alpha was 0.71. The questionnaire was consisting of demographic variables, questions regarding the knowledge towards COVID-19 and the attitude of medical and dental students. Analysis was done by using SPSS version-20. Frequency and percentages was used to present the categorical data. Comparison between demographic variables and knowledge score was done by using the independent t-test and one-way ANOVA test as appropriate. p-value less than 0.05 was considered as significant.

**Results:** About 56% of participants were female and from 3rd year (25.2%). Comparing with socioeconomic status, the upper class of medical students were having higher score. As the year of study upgraded the students reported higher knowledge score with significant p-values among both medical and dental students. Medical students were having higher knowledge about COVID-19 than the dental students but dental students were having more knowledge about the safety measures. Looking over the attitude, majority of medical students were interested in gaining information about COVID-19.

**Conclusion:** It can be concluded that medical students are having more knowledge about the COVID-19 but the dental students were more aware of the protective measure which should be taken. Both groups of medical and dental students having positive attitude towards limiting the spread of COVID-19.

**Keywords:** COVID-19; knowledge; attitude.

**1. INTRODUCTION**

Currently a pandemic viral infection is affecting the global population, named Corona virus disease 2019 (COVID-19). It is a contagious disease, mainly involving the respiratory system leading to severe acute respiratory syndrome (SARS) [1]. Initially it was recognized as a viral infection of animals but later identified in humans and labelled as an important SARS causing pathogen [2]. As it is a contagious disease so route of transmission is through direct contact with an infected person or contact to the contaminated surfaces, beside these another main route is respiratory droplet transmission. Symptoms including fever, cough, sore throat, dyspnea and pneumonia but among some of the patients gastrointestinal symptoms are also noted like diarrhea and vomiting [3]. Who has been reported the incubation period of about 2-10 days [4], while other studies have noted its incubation of more than 2 weeks [5].

It has been declared as an emergency condition globally by WHO because of its life threatening complications [6]. Calculating the viral load in Pakistan, out of total cases tested for COVID-19 till date, about 607,453 are the confirmed cases, among them 13,537 lead to death [7]. The current pandemic has created a depressive situation by increasing morbidity and mortality rates, peoples are having fear of death and pain of losing family members [8]. For the safety purpose, Government has taken some steps like application of strict lockdown to minimize the spread of contagious disease and awareness program for general population including the importance of self-isolation, social distancing, use of surgical mask, hand washing and hand sanitization [9].

During this outbreak, the health care workers are on the front line so they are more exposed to the COVID infection [10] that’s why it is necessary for medical and dental students to update their knowledge about COVID-19. It has been reported that in Lahore medical students have a very good knowledge about COVID-19 [11]. Similarly another analysis of knowledge among medical and dental students in Karachi reported satisfactory results [12], so the aim of current study are to assess and compare the knowledge and attitude of medical and dental undergraduates towards COVID-19 in current setup.

**2. METHODOLOGY**

A cross-sectional study was done at Ziauddin university Karachi during the period of October 2020 to December 2020. Convenient sampling technique was applied. Medical and dental students from 1st year to final year were enrolled in the study. The exclusion criteria for the study were any psychiatric illness, students refused to participate or incompletely filled the questionnaire. Google Docs was used to prepare the questionnaire and was validated. Cronbach’s alpha was calculated to check the reliability of the questionnaire and it was 0.71. the
questionnaire was divided into three parts, the first part was consisting of demographic variables including age, gender, socioeconomic status, field of study and the year of education, the second part including questions regarding the knowledge towards COVID-19 like pathology, signs, symptoms, and routes for transmission while the last part was to assess the attitude of medical and dental students during the pandemic. Because of strict lockdown, the questionnaire was disseminated by using the social media and emails.

Analysis was done by using Statistical Package for the Social Sciences (SPSS) version-20. Frequency and percentages was used to present the categorical data. Comparison between demographic variables and knowledge score was done by using the independent t-test and one-way ANOVA test as appropriate. p-value less than 0.05 was considered as significant.

3. RESULTS

About 250 participants including medical and dental students were enrolled in the study, among them majority were female consisting of 56% while male was 44%. Considering socioeconomic status majority were from middle class (51.6%) and the minimum were from upper socioeconomic class (8.4%). Study participants were from all years of MBBS and dental medical education, among them majority were from 3rd year (25.2%) and very few were from the 1st year (11.6%). All the demographic characteristics of study participants are mentioned in Table 1.

Table 1. Demographic characteristics of study participants

|                         | n =250 | %  |
|-------------------------|--------|----|
| Gender                  |        |    |
| Male                    | 110    | 44 |
| Female                  | 140    | 56 |
| Socioeconomic status    |        |    |
| Upper                   | 21     | 8.4|
| Middle                  | 129    | 51.6|
| Lower                   | 100    | 40 |
| Year of study           |        |    |
| 1st yr                  | 29     | 11.6|
| 2nd yr                  | 53     | 21.2|
| 3rd yr                  | 63     | 25.2|
| 4th yr                  | 44     | 17.6|
| 5th yr                  | 61     | 24.4|

Looking over the knowledge score among both medical and dental students, the medical students were having overall higher score then the dental students while among both groups the female participants were having more knowledge score then their male counterparts. Comparing with socioeconomic status, the upper class of medical students were having higher score followed by middle class and the lowest were among the lower class and the same difference of knowledge among different socioeconomic class was followed by dental students with highly significant p-values. As the year of study upgraded the students reported higher knowledge score with significant p-values among both medical and dental students but with no difference among two groups, the final year students among both groups were having highest knowledge score followed by 4th year, 3rd year, 2nd year and lastly 1st year students. Focusing on the overall COVID-19 score, medical students were having higher score than the dental students with significant p-value as mentioned in Table 2.

Considering specifically the symptoms and protocols for dealing COVID-19, the medical students were having more knowledge about the transmission route and symptoms of COVID-19 while both groups were having almost equal knowledge about the origin of COVID-19. Dental students were having more knowledge about the indications of using surgical mask but were having equal knowledge about the reuse of face mask. In the same way dental students were having more knowledge about the protocols for handwashing after removing gloves while medical students were more aware of duration of quarantine after having exposure to COVID-19 virus as shown in Fig. 1.

Looking over the attitude of medical and dental students towards COVID-19, majority of medical students were interested in gaining information about COVID-19 than dental students, including the underlying disease pathology, mutation strains, mortality and morbidity rates, recovery rate and availability of vaccination. Very few among both groups were tired of listening about COVID-19 and were majority from dental group but students from both the groups were strongly agreed with the statement that COVID-19 is a life threatening condition as presented in Fig. 2.

4. DISCUSSION

COVID-19 cases are increasing day by day by affecting millions of people worldwide because of this depressing situation there is a need to
assess the knowledge and attitude of medical and dental undergraduates towards COVID-19 as they are our future doctors. The current study reported that majority of female students participated in the study and same is reported by multiple studies, conducted on medical and dental undergraduates [13-14]. The reason for this difference is that in Pakistan medical colleges follow open-merit system and female students are more towards study so they compete their male counterparts. This point is also favored by current study which manifested that female students either of medical or dental specialty, having more knowledge about COVID-19 than the male undergraduate students.

Overall comparison of general population with the healthcare workers it has been found out that healthcare workers are having more knowledge [15]. Likewise when comparing medical and dental students, the medical student were superior to dental student with reference to their knowledge [14]. The difference among two groups of medical specialty is because medical students study different diseases in detail and have better concept than the dental undergraduate students. Same is favored by the current study that medical students were having more knowledge about COVID-19 than the dental students. Beside this it was also noted that as the year of education is increasing the students having better understanding about the disease irrespective of field of study either medical or dental. Bhagavathula et.al. is in favor of current finding [16].

|                | Medical Students | p-value | Dental Students | p-value |
|----------------|------------------|---------|-----------------|---------|
| Gender         |                  |         |                 |         |
| Male           | 5.18 ± 1.20      | 0.512   | 4.57 ± 1.08     | 0.001   |
| Female         | 5.25 ± 1.24      |         | 4.82 ± 1.06     |         |
| Socioeconomic status |      |         |                 |         |
| Upper          | 5.95 ± 1.026     | 0.021   | 5.10 ± 0.320    | 0.48    |
| Middle         | 5.75 ± 0.52      |         | 5.02 ± 1.282    |         |
| Lower          | 5.56 ± 1.149     |         | 4.9 ± 1.173     |         |
| Year of Study  |                  |         |                 |         |
| 1st year       | 5.02 ± 1.05      | 0.02    | 4.82 ± 1.282    | 0.003   |
| 2nd year       | 5.05 ± 1.048     |         | 4.9 ± 1.173     |         |
| 3rd year       | 5.17 ± 1.147     |         | 5.1 ± 1.003     |         |
| 4th year       | 5.2 ± 1.149      |         | 5.06 ± 0.915    |         |
| 5th year       | 5.75 ± 0.5       |         | 5.42 ± 1.23     |         |
| Over all COVID-19 score |    | 0.032   |                 |         |
| Medical Students | 5.33 ± 1.113     |         |                 |         |
| Dental Students | 5.05 ± 1.09      |         |                 |         |

**Fig. 1. Percentage of knowledge about COVID-19 among medical and dental students**
Current study reported that dental students were having better understanding about the use of surgical face mask than the medical students because of the fact that they routinely prefer to use surgical face mask in their clinical practice for their protection. Ravi et.al also reported that dental students are more familiar to the use of surgical face mask [17]. Likewise, dental students were more aware of correct protocol for handwashing in the current study because of their frequent habit of hand washing after every dental procedure. Ali S et.al also reported that dental students were more aware of use of surgical face mask and the protocol for handwashing than the medical students [14].

WHO labelled COVID-19 as a pandemic life threatening condition that leads to severe damage to the body systems. Current study also reported that majority of medical students were agreed with the fact that COVID-19 is a life threatening condition while majority of dental students were tired of listening about COVID-19 than the medical students. The finding is consistent with another study by Ali S et.al [14].

5. CONCLUSION

It can be concluded that medical students are having more knowledge about the signs, symptoms, route of transmission and quarantine duration of COVID-19 than the dental students but the dental students were more aware of the protective measure which should be taken including use of surgical mask and correct protocol for hand washing. Both groups of medical and dental students having positive attitude towards limiting the spread of COVID-19.

CONSENT

As per international standard or university standard, Participants’ written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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