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Medical Students Knowledge, Attitude and Practices towards COVID-19

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ABSTRACT— Coronavirus disease 2019 (COVID-19) is an acute respiratory infectious disease, since the reporting of COVID-19 as a pandemic by the world health organization; the attitude, knowledge, and practice towards COVID-19 has been growing day by day. The study aim is to assess the knowledge, attitudes and practice of medical students at university of Tikrit about COVID-19 in order to increase the awareness and help them to correct undesirable measures to limit the spread of COVID-19. This cross-section study was performed on 188 Iraqi undergraduate medical students at university of Tikrit, which was surveyed using an online self- administered questionnaire on google form distributed throughout social media of the college of medicine. The collected data was analyzed and constructed using Microsoft programs and by manual statistical methods. This study revealed that 69.68% of medical students were not infected with COVID-19, while the remaining infected students about 78.95% of them were in the 4^{th}-6^{th} academic year of study. 50% of the students have a doubt about COVID-19 existence, while those who believe in its existence about 79% of them believe that it is highly contagious disease. About 65.95% of the students are committed to practice the preventive measures and only 37.09% of them have been infected with COVID-19. The undergraduate medical students in the university of Tikrit had a good attitude, practice and behaviors of preventive measures towards COVID-19, but some of the students didn't believe in COVID-19, had poor and ineffective preventive methods, so that resulted in infection of some of them with COVID-19.

KEYWORDS: Medical Students Knowledge, acute respiratory infectious disease, COVID-19, SARS-CoV-2, respiratory disorder, pandemic disease.

1. INTRODUCTION

Coronavirus disease 2019 is an acute respiratory infectious disease of due to infection with the Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which is presently spreading worldwide and is regarded a pandemic disease [1].

COVID-19 was recognized in Wuhan, China in December 2019. COVID-19 that resulted due to infection by a new virus in humans lead to respiratory disorder which can be transmitted from person-to-another. Initially in the outbreak, numerous patients were recorded to have a link to a live animal and market large seafood, however, next cases with no relationship to the market proved person-to-person spread of the disease. In addition, travel-related transmission of cases has happened. Later on, COVID-19 come to be a pandemic. The overall mortality rate of COVID-19 is approximately 2% which is much less than that of34% of Middle East Respiratory Syndrome (MERS) and 10% of the SARS [2].

The COVID-19 virus transmit mainly through saliva or secretion from the nose when an infected person sneezes and coughs [3]. Most of people who have been infected with the COVID-19 virus will complain

from mild to moderate respiratory disease and improve without need to special treatment. Elderly, and those with other medical conditions like chronic respiratory illness, cardiovascular problems, cancer, and diabetes are more likely to have serious problems [3].

Presently, care of patients with COVID-19 is mainly supportive. Attention is given to patients to help reduce complains and control respiratory system and other organ failure. There are presently no particular antiviral medications licensed for COVID-19, but many therapies are under study. The most useful way to stop and slow down spread is to be well educated about the COVID-19 virus, how the disease is caused and how it transmits. Protect yourself from the virus by washing your hands or using an alcohol-based rub regularly and do not touch your face [2].

Objectives of the study are to:
1-identify the frequency of infection with SARS-CoV-2 among medical students of university of Tikrit, college of medicine.
2-assess the knowledge about COVID-19 among medical students.
3-analyze the attitude and responsibility of medical students towards the pandemic of COVID-19.
4-demonstrate the practice and behavior of medical students towards the pandemic of COVID-19.
5-assess how medical students educate their relatives and community about COVID-19.

2. Patients and methods

Study population: The study was performed on 188 Iraqi undergraduate medical students.

Type of study: Cross-section study about knowledge, attitudes and practice of Tikrit medical students about COVID-19.

Sampling method: Simple random sampling.

Place: University of Tikrit, college of medicine.

Duration of study: from 1 February 2021 to 14 March 2021.

Data collection instrument: The study was done by using an online self- administered questionnaire on google form administered through social media including Facebook, Instagram and Telegram groups of medical students that used recently for learning through present COVID-19 pandemic period.

The survey questionnaire: composed of an interface and five parts with a total number of 26 questions. The questionnaire includes the aim of the study with emphasis on the confidentiality basis. The first section deal with student's demographic features included gender, age, academic year of study and student infection status. The second part was related to student's knowledge data regarding COVID-19 includes COVID-19 existence, diagnosis of previous infection, infection despite good immunity, contiguity of SARS-CoV-2, symptoms of COVID-19, prognosis and mortality in patients with non-communicable diseases and finally COVID-19 related death existence. The third part was related to students' attitudes regarding COVID-19 includes commitment to preventive measures, efficacy of preventive measures against COVID-19 and responsibility of the student regarding prevention of COVID-19. The fourth part was related to student's practice of preventive applications to protect themselves from infection includes wearing mask, type of mask, how many times using the same mask, visiting crowded places, intensive hand washing, isolation of self when infected and if they would vaccinate against COVID-19. The fifth part was consisting of one

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question related to student's participation in sharing and education of family, friends and community about COVID-19.

Ethical Consideration: Ethical approval was taken by ethical committee in the department of family and community medicine at the college of medicine at Tikrit University. Other ethical needs including participation agreement with participant's right for refusal and privately were highly explicated and assured in interface section of questionnaire.

Statistical analysis: The collected data which obtained from the online survey were abroad into Microsoft Excel, then master table was constructed and the collected data was analyzed by manual statistical methods. Data presented by using tables and charts in Microsoft programs (Word and Excel).

3. Results

Table 1 shows that 131 out of 188 of medical students aren't infected with COVID-19, while 57 students were infected. 32.5% of females were infected, while percentage of infected males were 25.8% of total males in the study sample.

Table 1: Demographic characteristics of medical students in relation to COVID-19 infection.

Characteristics	Infected n=57	Non-infected =131	Total n=188
Age:			
17-20	7 (20%)	28 (80%)	35 (100%)
21-26	50 (32.68%)	103 (67.32%)	153 (100%)
Gender:			
Male	16 (25.8%)	46 (74.2%)	62 (100%)
Female	41 (32.54%)	85 (67.46%)	126 (100%)
Academic year of study:			
1-3	12 (28.88%)	33 (71.12%)	45 (100%)
4-6	45 (31.46%)	98 (68.54%)	143 (100%)

Figure. 1 shows that 50% of medical students don't believe in COVID-19 existence, while only 31% believe in COVID-19 existence and 19% aren't sure about COVID- 19 existence.

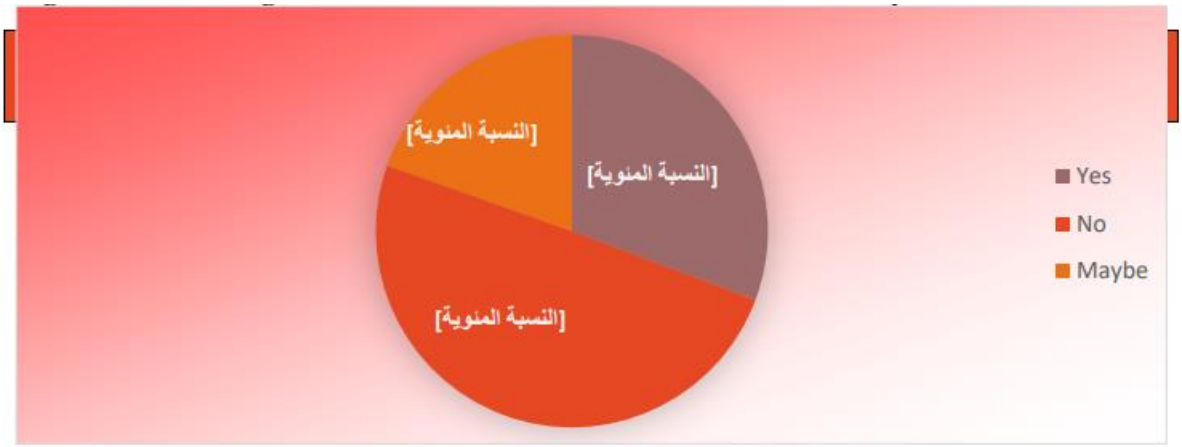

Figure. 1: Percentage of medical students who think COVID-19 really exist.

Figure. 2 shows that 79% of medical students who believe in COVID-19 think that COVID-19 is highly contagious, while only 5% don't think that COVID-19 is highly contagious and 16% aren't sure about contagiousness of COVID-19.

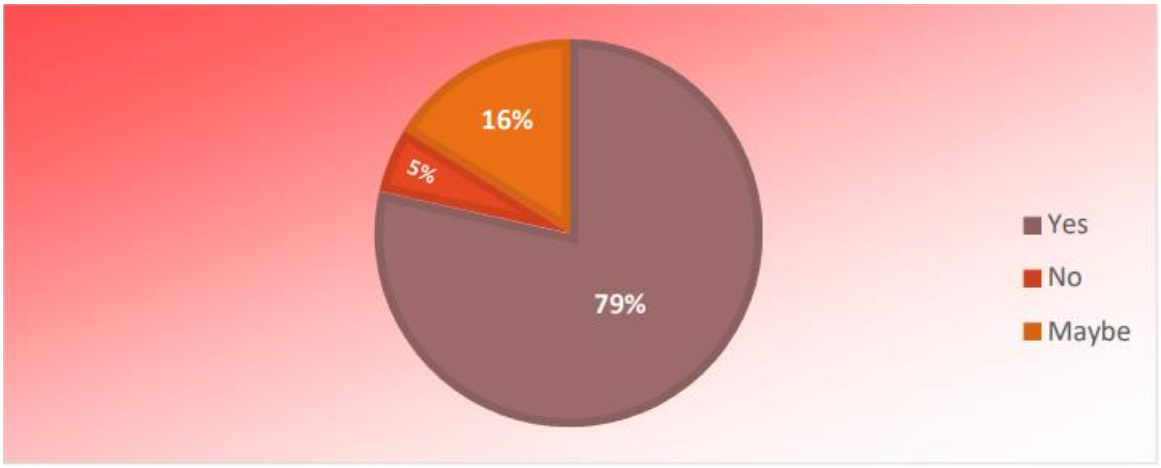

Figure 2: Percentage of medical students who think COVID-19 is highly contagious.

Table 2 shows that 124 (65.9%) out of 188 of medical students are committed to preventive measures and only 46 (37.09%) out of 124 of those were infected, while those who aren't committed to preventive measures about 64 (34.04%) out of 188 and about 27 (42.18%) out of 64 of them were infected with COVID-19.

Table 2: Attitude of medical students toward preventive measures against covid-19

Infected	46 (24.46%)	27 (14.36%)	73 (38.82%)
Not infected	78 (41.48%)	37 (19.68%)	115 (61.17%)
Total	124 (65.95%)	64 (34.04%)	188 (100%)

Table 3 shows that 174 (92.55%), 116 (61.70%), and 75 (39.89%) out of 188 of medical students are practicing the preventive measures which includes wearing a mask; sanitizing hand gel, gloves, glasses; and hand washing respectively. Use of these preventive measures shows marked reduction in infection with COVID-19 infection.

Table 3: Medical students practice of preventive measures against COVID-19.

Characteristics	**Use of mask**		**Use of sanitizing hand gel, gloves and glasses**		**hand washing with soap > 20 seconds**	
	Yes	**No**	**Yes**	**NO**	**Yes**	**NO**
Infected	**54 (28.72%)**	**3 (1.59%)**	**36 (19.14%)**	**22 (11.70%)**	**27 (14.36%)**	**34 (18.08%)**

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Not infected	**120 (63.82%)**	**9 (4.78%)**	**80 (42.55%)**	**51 (27.12%)**	**48 (25.53%)**	**79 (42.02%)**
Total	**174 (92.55%)**	**12 (6.38%)**	**116 (61.70%)**	**73 (38.82%)**	**75 (39.89%)**	**113 (60.10%)**

Figure 3 shows that 43 (69.35%) of males and 103 (81.75%) of females out of 188 are using surgical mask for protection against COVID-19.

Figure 3: Type of mask used by medical students.

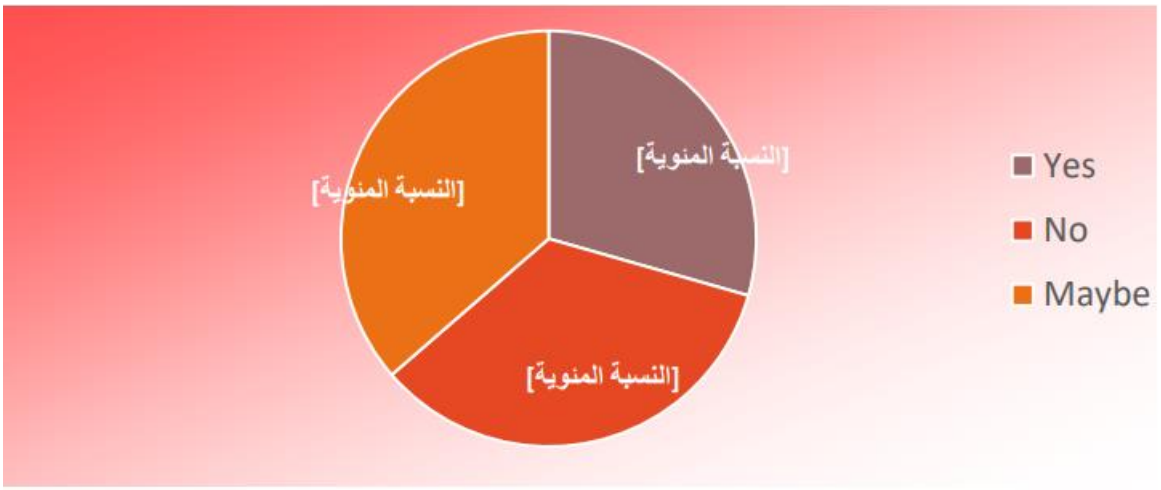

Figure 4: Percentage of medical students who will use COVID-19 vaccine.

Figure 4 shows that 30% of medical student will use the vaccine, while 34% refuse the idea of using vaccine and 36% of students remain confused about using the vaccine of COVID-19.

Table 4 shows that 166 (88.29%), 152 (80.8%) and 61 (61.32%) out of 188 of medical students have participated in education of family, friends and community respectively about COVID-19.

Table 4: Medical student's participation in sharing knowledge and education of people about COVID-19.

Characteristic		Educate family		Educate friends		Educate community	
		Yes	No	Yes	No	Yes	No
Stage	1-3	44 (23.4%)	5 (2.6%)	42 (22.3%)	7 (3.72%)	9 (4.7%)	40 (21.2%)
	4-6	122 (64.8%)	17 (9.0%)	110 (58.5%)	29 (15.4%)	52 (27.6%)	87 (46.2%)
Total		166 (88.29%)	22 (11.6%)	152 (80.8%)	36 (19.1%)	61 (32.3%)	127 (67.4%)

4. Discussion

Concerning the knowledge of undergraduate medical students about COVID-19, the knowledge of the students is reflected by the results which has showed that half of medical students don't believe in COVID-19 existence, this may be related to reasons that most people who died were elderly with chronic disease, COVID-19 is no worse than the influenza since most cases present with mild symptoms especially in young patients, also there are marked economic increase in sales of masks and other drugs, all of these suggested factors maybe the reason that made most of people didn't believe in COVID-19 existence.

Furthermore; most of medical students who think that COVID-19 really exist, think that it is highly contagious and this finding is consistent with the findings in other studies as in a study was conducted in Iran which showed that most of medical students thought that COVID-19 is highly contagious and transmitted through respiratory droplets such as sneeze and cough [4] other study in Uganda also showed that most of medical student think that COVID-19 is highly contagious [5] and another study in Bangladesh showed that most of medical students think that COVID-19 is highly contagious and can be transmitted from person-person [6]. However the knowledge of medical students is greatly affected by their age, academic year of study and education by their professors which maybe the reason of the difference among these studies.

Regarding the attitude of medical students toward COVID-19, our study showed that over half of medical students were committed to preventive measures, which correlate with another study was conducted in Iraq by college of medicine university of al-Iraqia which also showed that nearly two third of the medical students have had positive attitude and are practicing a really good preventive methods towards COVID-19 [7] But the results of our study was proportionally low in compare to two other researches; one of them was conducted in Pakistan, which showed that almost all of the medical students have had positive attitude and were practicing excellent preventive measures [8] other study was conducted in India which showed that almost all of the students have had very good attitude and were practicing effective preventive measures against COVID-19 [9].

In respect to practice of preventive measures toward COVID-19, our study revealed that almost all of the students were committed to wear a mask, over half of them were committed to use of sanitizing hand gel, gloves, and glasses, however only one third of medical students were committed to wash hands with soap for more than 20 seconds. The students most commonly appeared to use surgical masks in both males and females and this may be related to the low- cost of surgical masks, disposable and not causing breathing difficulties in compare to other types of masks. Use of these preventive measures shows marked reduction

in infection rate with COVID-19, which reflect that these medical students were practicing effective measures. In comparison to other study was conducted in Iran had a very high rate of effective preventive measures in prevention of infection with COVID-19 [4]. Other study was conducted in Iraq, Baghdad showed that medical students also significantly had better practices than medical students of our study calling for increased sensitization rates [7]. Other study was conducted in Ethiopia revealed nearly equal results to our study in practicing effective and good preventive strategies [10]. We believe that our medical students were practicing effective measures due to good quality of teaching, sharing knowledge and awareness by professors of university of Tikrit, college of medicine.

However medical students appear to be confused regarding the use of COVID-19 vaccine with only one third of them approved to use the vaccine, this may be related to the recent manufacturing of the vaccine, so that there is no sufficient data and results to comfort them and make them approve to use the vaccine, there is also rumors by non-medical students to not use the vaccine which may affect their decision regarding the vaccine.

Another interesting finding in this study found that almost all of the medical students have participated in sharing knowledge and education of family, friends and community about COVID-19. This is consistent with a similar study was conducted in university of Michigan, United states of America, which found that over half of medical students volunteered in non- curricular community service activities and education during COVID-19 pandemic, of these students who select to volunteer, most of them did not work in patient-facing actions but rather prefer to work remotely to post relief efforts. However, new skills, community service and time commitment were the top 3 influencing elements for students who volunteered, when risk to other, time commitment, and risk to self were top 3 affecting factors for students who select not to volunteer [11].

5. Conclusion

- The knowledge of medical students appears to be of moderate levels with some of them don't believe in COVID-19, however those who believe in COVID-19 appear to be have a good knowledge.
- The attitude of most of medical students is very good and effective, the majority is committed to preventive measures with infection rate less than those who were not committed to preventive measures.
- The practice of appears to has excellent rates regarding wearing a mask with less rates regarding use of other preventive measures, however the majority were not sure regarding the use of COVID-19 vaccine.
- The participation of medical students in sharing knowledge and education of people appear to be very active with high rates especially in regard to family.

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Authors' Contribution: Sample collection, statistical analysis and collection of scientific sources was done with my efforts.

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