Knowledge and Attitudes of University Students' toward COVID-19 Outbreak at Misan Governorate/Iraq: An Online Cross-Sectional Study

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Abstract

Materials and Methods: Online cross‑ sectional study was performed in November 2020 to assess knowledge and attitudes about coronavirus infection among university students in Misan Governorate, Iraq. A total of 796 students were recruited in this study and ages ranged from 18 to 40 years old.

Results: Among the respondents, 66% were female, the majority of participants 96.6% were undergraduate students, more than half of sample have contact to coronavirus patient 52.2%, and 78.1% of them were not infected. Majority of the participants showed moderate level of the knowledge 67.5%. About 74.6% of students demonstrated positive level of attitudes towards COVID-19. The study found a significant difference in knowledge scores across age, study field, contact to infected patient, and sources of information ($p < 0.001$). There was no significant difference found between the students' attitudes with their all of demographic data (p value > 0.05).

Recommendations: Therefore, these results can help in assessing the actual health situation and thus work on implementing preventive education programs and measures within the community in a more aggressive manner.

Key words: Attitude, COVID‑ 19, Knowledge, University Students.

Introduction:

Coronavirus pandemic 2019 (abbreviated "COVID‑ 19") is a highly contagious respiratory disease that is caused by a novel coronavirus. The disease was first discovered in late December 2019 in China in Wuhan, and then it spread widely around the world[1]. The battle against COVID-19 is still continuing in many parts of the world including Iraq. The virus is a member of the coronavirus family that was a zoonotic pathogen that transmits between humans and many animal species such as camels, cattle, bats and cats [2].

The main clinical symptoms of COVID-19 may range from a very mild effect (fever and respiratory symptoms such as coughing and shortness of breath) to severe life-threatening risks such as: severe acute respiratory syndrome, pneumonia and kidney failure, thus leading to a high mortality rate in most countries of the world [3]. **About 200 countries** around the world have reported various numbers of cases; however, the disease has drastically expanded in the United States, United Kingdom, Germany, France, Spain, Italy, China, Iran, Turkey, and Iraq. COVID-

19 had caused more than 3.7 million confirmed cases and killed at least 260,000 worldwide from April 2020, and these numbers are expected to increase dramatically in the next few months [2]. In Iraq, the first case of pandemic coronavirus disease was confirmed in Al-Najaf City on February 14th 2020. The Iraqi ministry of health (MOH) at the end of March, declared that the total of confirmed cases of coronavirus is 64, 101 person. Therefore, started to respond and take action to prevent and control the infection [4]. While, the number of COVID-19 infections increased in (October) to 3, 808 new cases of disease, 382, 949 confirmed and 9, 464 deaths recorded in Iraq [5]. In Misan, the number of confirmed COVID-19 was rising from 430 on the 1st June to 14229 cases with 357 deaths on 6th October. This rapid increase in cases is overstretching the poor health infrastructure and places added stress on a healthcare system [6].To ensure success in control on epidemic, people's adherence to the preventive measures is essential such as self-quarantine and applies hygienic measures, such as frequent hand washing, respiratory etiquette and physical distancing. This strategy requires a high level of knowledge about COVID-19 with fostering attitudes among people to recognize these measures properly [7]. As a result, this study aimed to assess the knowledge and attitude of undergraduate and postgraduate students at College of Misan University toward COVID-19 infection. Thus, their awareness levels will roughly reflect the population knowledge about coronavirus, which will constitute a general reference to guide the local authorities in planning the required educational and healthy interventions.

Objective of the study:
1. Assess the level of student knowledge about COVID-19.
2. To assess the level of attitude for student toward COVID-19.
3. To find out association between level of student knowledge and attitude with theirsocio-demographic data.

Methodology:
This cross‑ sectional study was conducted in November 2020 at the University of Misan, Iraq with a total number of 796 undergraduate and postgraduate students recruited. Participant's ages ranged from 18 to 40 years old. Data collected online due to the lockdown and annual vacation of the students. An online multiple questionnaireswere sent to students via Telegram, Facebook and Whatsapp groups in university. Such groups were used as a platform for announcements and delivering notes to the students. Inclusion criteria of the study included university students, older than 18 years old, living in Misan governorate and agreement to be recruited in the study. The survey questionnaire was composed of three parts: First socio-demographic data included age, gender, marital status, educational level, field of the study, contact to COVID-19 patient, infected with Coronavirus and sources of information, second part included (15) items related to knowledge toward COVID‑ 19 disease. While the third part included the students' attitudes towards infection with the Coronavirus, they were assessed through nine questions. A common scoring method was used for the knowledge and attitudes questionnaire as follows: (1) 1 point for correct and 0 for incorrect answers in the knowledge section, (2) 3 for positive, 2 for neutral and 1 for negative options in the attitude section. Tool reliability was determined by Cronbach's alpha ($\alpha = 0.85$ and $\alpha = 0.87$) for knowledge and attitudes respectively and validity was achieved by a panel of (6) experts. To conduct the study, permission was obtained from the deans of the

selected colleges. Students had to answer a yes or no question to confirm their willingness to participate in the study voluntarily and after confirmation of the question, the participant was directed to complete the questionnaire. Data were analyzed using SPSS 18.0 software, by applying two statistical approaches. (1) Inferential statistic that include Chi-Square test. (2) Descriptive approach that includes Frequency, Percentage and Mean of Score. The results were confirmed as significant at P≤0.05 and non-significant at P>0.05.

Study results:

Table (1): Assessment of students' Knowledge Regarding prevalence of COVID-19

Items of Knowledge Related to COVID-19	I Know		I don't Know		M. S.	S. D.	Ass.
	F	%	F	%			
1. What type of infectious disease is Coronavirus?	782	98.2	14	1.8	**1.98**	0.132	**H**
2. The incubation period is 1 ~ 14 days.	579	72.7	217	27.3	**1.73**	0.446	**H**
3. The main transmission route is respiratory droplets and close contact.	789	99.1	7	0.9	**1.99**	0.093	**H**
4. Diagnosis of Coronavirus is done by PCR	194	24.4	602	75.6	**1.24**	0.430	**L**
5. The most common manifestations of an infectious individual is fever and dry cough	495	62.2	301	37.8	**1.62**	0.485	**M**
6. Ideal distance between individual is 1 miter	327	41.1	469	58.9	**1.41**	0.492	**M**
7. People are generally susceptible to COVID-19?	349	43.8	447	56.2	**1.44**	0.497	**M**
8. Ideal hand washing should be done with soap and water for 30 second	314	39.4	482	60.6	**1.39**	0.489	**M**
9. Coronavirus disease leads to acute respiratory distress syndrome	631	79.3	165	20.7	**1.79**	0.406	**H**
10. Suspected treatment is antiviral	704	88.4	92	11.6	**1.88**	0.320	**H**
11. Individuals with COVID-19 need to have an increased oxygen saturation of the blood in the event that the proportion is low	344	43.2	452	56.8	**1.43**	0.496	**M**
12. An prone posture is appropriate for patients to improve ventilation	143	18.0	653	82.0	**1.18**	0.384	**L**
13. A patient with COVID-19 should be isolated 14 days	608	76.4	188	23.6	**1.76**	0.425	**H**
14. To prevent infection, individuals should avoid going to public transportation, religious places and hospitals.	721	90.6	75	9.4	**1.91**	0.292	**H**
15. A nasopharyngeal swab testing used to confirm the diagnosis.	484	60.8	312	39.2	**1.61**	0.488	**M**

F= Frequencies, %= Percentages, M.S. =Mean of score, SD = Standard , Ass.= assessment,

Level of assessment: (1.00 -1.33) = Low ;(1.34-1.66) = Moderate; (1.67-2.00) = High.

Results of table-1- presents that most items related students' knowledge regarding prevalence of COVID-19 have mean of score were high and moderate level, based on the answers of students, except items (4&12) demonstrated mean of score were low level.

Table (2): Assessment of students' attitudes related to prevalence of COVID-19

Items of Attitudes Related to COVID-19	Agree		Neutral		Disagree		M. S.	S. D.	Ass.
	F	%	F	%	F	%			
1. Do you hope people will get rid of COVID-19 soon?	417	52.4	326	41.0	53	6.7	**2.46**	0.618	**H**
2. Do you believe that hand hygiene	472	59.3	248	31.2	76	9.5	**2.50**	0.664	**H**

	F	%	F	%	F	%	M.S.	SD	Ass.
and wearing a mask can help to prevent getting the infection?									
3. Do you agree that practicing quarantine by staying at home and avoiding crowded places can prevent getting infection?	644	80.9	93	11.7	59	7.4	**2.73**	0.586	**H**
4. Are you conscious about the guideline given by WHO?	587	73.7	137	17.2	72	9.0	**2.65**	0.640	**H**
5. Is it necessary to keep your distance from others to prevent COVID-19?	757	95.1	28	3.5	11	1.4	**2.94**	0.294	**H**
6. Is it necessary to rub hands with alcohol for at least 20 seconds?	302	37.9	375	47.1	119	14.9	**2.23**	0.690	**H**
7. Can fraternity, empathy and humanity to one another help us fight against COVID-19?	636	79.9	116	14.6	44	5.5	**2.74**	0.549	**H**
8. Do you believe that focusing on improving immune power is a good option to prevent getting infection?	694	87.2	85	10.7	17	2.1	**2.85**	0.412	**H**
9. Do you think that COVID-19 will remain in the world forever?	65	8.2	259	32.5	472	59.3	**1.49**	0.643	**L**

F= Frequencies, %= Percentages, M.S. =Mean of score, SD = Standard Deviation, Ass.= Assessment, Level of assessment: (1-1.66) = Low ;(1.67-2.33) = Moderate; (2.34-3.00) = High.

Findings of above table demonstrated that all items related students' attitudes concerning prevalence of COVID-19 have mean of score were high level, based on the responses of participants, except item (9) showed has low level of mean of score .

Table (3): Assessment of participants' level toward the knowledge and attitudes concerning prevalence of COVID-19

Participants' Level	Knowledge		Attitudes	
	Frequency	Percent	Frequency	Percent
Low	13	1.6	0	0.0
Moderate	537	67.5	202	25.4
High	246	30.9	594	74.6
Total	796	100.0	796	100.0
$\underline{x} \mp Std.Dev.$(%)	**1.63 ∓ 0.117 (81.5%)**		**2.51 ∓ 0.234 (83.7%)**	

$(\underline{x})$ =Arithmetic Mean; (Std. Dev.) = Standard Deviation; %= percent.

This table reveals that the majority of the students' participants have moderate level of the knowledge 537(67.5%), while an attitudes of COVID-19 have high level 594(74.6%), with mean and standard deviation (1.63∓ 0.117), (2.51 ∓ 0.234) respectively.

Table (4): Distribution and association between knowledge and attitudes of the students with their demographic characteristics:

Variables	Groups (n=796)	Freq.	%	Students' Knowledge					Students' Attitudes				
				Mean	Std. Dev.	df	F	Sig.	Mean	Std. Dev.	df	F	Sig.
Age (years)	≤ 20	219	27.5	1.63	0.108	791	3.928	0.004 HS	2.50	0.232	791	0.906	0.460 NS
	21- 25	486	61.1	1.62	0.119				2.51	0.231			
	26-30	62	7.8	1.61	0.113				2.51	0.250			
	31-35	17	2.1	1.72	0.140				2.61	0.252			
	36- 40	12	1.5	1.69	0.137				2.54	0.263			
Gender	Male	271	34.0	1.62	0.120	794	0.018	0.894 NS	2.50	0.244	794	1.215	0.271 NS
	Female	525	66.0	1.63	0.116				2.52	0.228			
Marital Status	Single	648	81.4	1.63	0.114	794	0.000	0.991 NS	2.50	0.231	794	2.740	0.098 NS
	Married	148	18.6	1.63	0.132				2.54	0.243			
Level of Education	Bachelor's degree	769	96.6	1.63	0.117	793	1.051	0.350 NS	2.51	0.235	793	2.422	0.089 NS
	Master's degree	17	2.1	1.58	0.126				2.54	0.158			
	Doctorates ' degree	10	1.3	1.63	0.123				2.67	0.189			
Field of the study	Human sciences	271	34.0	1.61	0.115	792	11.097	0.000 HS	2.49	0.237	792	1.135	0.334 NS
	Engineering	30	3.8	1.59	0.108				2.54	0.192			
	Agriculture &sciences	312	39.2	1.62	0.116				2.52	0.238			
	Medical sciences	183	23.0	1.67	0.114				2.52	0.228			
Contact to COVID-19 patient	No	379	47.6	1.61	0.112	794	13.935	0.000 HS	2.51	0.230	794	0.244	0.621 NS
	Yes	417	52.4	1.64	0.120				2.51	0.237			
Infected with COVID-19	No	622	78.1	1.62	0.113	794	6.825	0.009 HS	2.52	0.228	794	1.607	0.205 NS
	Yes	174	21.9	1.65	0.129				2.49	0.254			
Sources of information	Book	6	0.8	1.77	0.145	793	5.273	0.005 HS	2.54	0.340	793	0.042	0.959 NS
	Television	73	9.2	1.61	0.130				2.51	0.258			
	Internet	717	90.1	1.63	0.115				2.51	0.231			

ANOVA=Analysis of Variance, d.f.= degree of freedom , F= f-test, Sig.=Significant.

Distribution of study sample according to demographic data oftable -4- revealed that there is a two-third of the participants 486(61.1%) of study sample are within the age group (21–25 years). While 525(66%) of students were female, and the majority of participants are single 648(81.4%). Concerning to the level of educational is showed the majority of students 769(96.6%) were bachelor's degree. Regarding the subject of field of the study represented the more of one-third of students are studying in agriculture and sciences 312(39.2%), more than half of students have contact to COVID-19 patient are 417 (52.2%). Concerning the infected with coronavirus showed that there is a three quarters of the participants 622(78.1%) were not infected, the majority using internet as sources of information 717(90.1%).Statistically, showed that there is highly significant association between the students' knowledge about coronavirus pandemic with their demographic characteristics at (p value < 0.01), except (gender, marital status and level education) were showed that there is a non- significant difference. While the students' attitudes showed that there is non-significant relationship with their all of demographic characteristics at (p value > 0.05) concerning prevalence of COVID-19.

Discussion:

To the best of our knowledge, this is the first study conducted at university of Misan in Iraq investigating the knowledge and attitudes toward COVID‑ 19 among postgraduate and undergraduate from different fields of study. The novelty of the disease, and its uncertainties, make it difficult for health authorities to plan appropriate strategies to prevent the disease. It is therefore of important to assess the knowledge and attitudes of the student to guide these efforts. Regarding knowledge questions among colleges student, this study found that 67.5% of them were moderately aware of COVID-19. This study showed that the knowledge scores of females, not married within bachelor's level, and agriculture & sciences students were significantly higher than others. Our findings were un agree with the results obtained from the study on COVID‑ 19 in China which showed that the majority of participants had good knowledge about the treatment, vaccine unavailability, main clinical symptoms, methods of prevention and control [8].In a study conducted in Jordan during the outbreak of the Coronavirus epidemic, where nearly 2,083 university students participated in the study, so the results showed that one-third of the participants, 40.5%, have moderate knowledge [2].In addition, our findings regarding the differences in responses according to age, gender, marital status, educational level and field of the studyrelated to knowledge and attitudes concerning COVID‑ 19 were greatly similar to previous studies conducted in Kurdistan Region, Iraq[9]. It was observed that most participants obtained heir information about COVID-19 from the social media and internet as well as mass media including TV. Supported this result by Alzoubi et al. [10] stated that social media was the most common source of information for Mutah university students. Thus, the knowledge category was significantly associated with the age, major discipline, and contact to patient and infected with Coronavirus. Unsurprisingly, other variables had no significant effect on the knowledge of students since the disease is considered as a serious threat worldwide. Students also were knowledgeable regarding incubation period and transmission mode of COVID-19 with a range of correct answers from 72.7 to 99.1%, respectively. The finding showed high knowledge of the actual route of disease transmission such as nasal drip and saliva during coughing, sneezing kissing and talking by infected individuals or shaking hands with COVID-19 carriers. This indicated that students were knowledgeable of these routes and could take steps to avoid getting sick.

In our study, the results showed that 74.6% of students had positive attitudes toward controlling the COVID-19 virus. In study conducted in China by Peng et al., [11] reported 73.81%

subjects have positive attitudes. The optimistic attitude of students attributed to the unprecedented COVID‑ 19 control measures to stop the spread of infection by the local government in Misan. Such measures included the shutdown of cities, closure of educational institutions, mall, workplaces, shopping and roads [9]. A similar study carried out in China and showed that 98.0% wore masks upon departing their homes and 96.4% of the recruited sample avoided crowded places during the outbreak of COVID‑ 19 [12].

Our study has limitations. First, the results of this study were based on a self‑ reported online questionnaire, not developed via in‑ depth interview. Second, this study was conducted mainly among university students who possibly do not reflect the knowledge of general population, particularly in rural and remote areas. As COVID‑ 19 infection is novel, this study gives the first insight into the knowledge and attitudes of people in Misan governorate. Besides, our results should be utilized by health care professionals and public‑ health policymakers to recognize target populations for health education activities on the COVID‑ 19 outbreak.

Conclusion and recommendation:

The overall assessment level of the knowledge questions toward COVID‑ 19 was 67.5 % moderate level. This study demonstrated that the knowledge scores of females, not married within bachelor's degree level, and agriculture & sciences students were significantly higher than others. The majority of the recruited sample avoided attitudes that increase the risk of infection such as avoiding crowded area. Furthermore, a moderate COVID‑ 19 knowledge level was significant associated with some socio-demographic data for students, in contrast to their attitudes, which did not show a significant relationship with all variables. The results of this study may be utilized as a baseline for planning awareness campaigns in the future.

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