

KNOWLEDGE AND ATTITUDE TOWARDS COVID-19 AMONG STUDENTS OF KING ABDULAZIZ UNIVERSITY

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ABSTRACT

Since its discovery in Wuhan, China, in December 2019, Coronavirus (COVID-19) disease is considered one of the fastest spreading viral infections. The virus spreads between humans by droplets or by direct contact with an incubation period reaching up to 14 days, and isolation is the best way to prevent its spread. The symptoms of COVID-19 infection include dry cough, fever, and shortness of breath. No vaccine or treatment is available at the moment. Precautionary measures have been taken by the government of Saudi Arabia to control the spread. This study aimed to assess the knowledge of Male King Abdulaziz University students in Rabigh branch about the new emerging coronavirus COVID-19 by distributing a questionnaire among them. This survey was conducted between March 1 till March 5, 2020, before the suspension of all the educational activities at King Abdulaziz University. Three hundred seventy-five students filled the questionnaire. 51% believed that COVID-19 is the deadliest virus in the world. Around 47% knew about hand washing and COVID-19 symptoms. In conclusion, at the time of the study, our students had average knowledge of the virus with many misconceptions and moderate attitude.

KEYWORDS: Coronavirus, COVID-19, Knowledge, Attitude.

INTRODUCTION

Coronavirus (COVID-19) infection can be considered one of the fastest spreading viral infections. Since it got discovered in Wuhan, China, at the end of 2019, more than one million humans were infected in more than 200 countries in less than four months (1-4). Corona is a Latin word that means crown. It's a large ribonucleic acid (RNA) positive single-stranded enveloped virus, one of Betacoronavirus family (3, 5, 6). After H1N1 in 2009, Polio and Ebola in 2014, Zika in 2016, and Ebola one more time in 2019, COVID-19 was declared as an outbreak, by the World Health Organization (WHO) on January 30th, 2020, becoming the sixth public health emergency of international concern (4, 5).

The virus spreads from one person to another by droplets or by direct contact, and it could take up to 14 days (commonly five days) since the infection by the virus to develop symptoms (1, 5, 7-9). Elderly and people with decreased immunity due to a disease or medication are at high risk of infection (1, 7, 8, 10). The main symptoms of COVID-19 infection are dry cough, fever, and shortness of breath. Other symptoms may include fatigue, body ache, and headache (1, 5, 7, 11).

Patients and suspected persons should be isolated to protect them and others around them. Because it is a

virus, antibiotics are not effective against it, and the first line of treatment is supportive therapy (1, 9). No antiviral medication or vaccine is available to the moment, but a strong effort is being made to develop one (1, 8-9, 11-12).

The Kingdom of Saudi Arabia took Precautionary measures to keep its citizens and others living on its soil safe, including suspending all international and domestic flights, umrah, and visiting the Prophet's Mosque. Schools and universities were closed as a precautionary measure, and online virtual classes have been made.

In this study, we assess the knowledge of King Abdulaziz University (KAU) Male students in Rabigh campus about the new emerging COVID-19 infection between March 1st till March 5th, 2020, before the suspension of all the educational activities at KAU which will give us a clear view on the information our students have, so we can be more precise in deciding the mode of correcting any misconception the students may have.

The study aims to measure the amount of information that KAU students have on the new and fast-spreading virus before it reaches the kingdom, as well as to find out if preclinical phase- medical students have better knowledge regarding the virus.

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METHOD

We conducted a cross-sectional study by designing a questionnaire after reviewing several articles and the WHO website. The questionnaire was formulated in Arabic and measured the knowledge of the students about COVID-19 in 22 questions divided into five groups: six questions to assess their general information about COVID-19, four questions measure the knowledge about its transmission, four questions ask about the ways of prevention against it, three questions evaluate their understanding of its symptoms, and five questions measure the knowledge about COVID-19 treatments (table 1). Another three

questions to assess the students attitude concerning COVID-19 (table 2). It was distributed among KAU male students in Rabigh campus between the 1st and the 5th of March 2020 before suspending the learning process in KSA universities. After a brief explanation of the aim of the study to the participants, a paper copy of the questionnaire was handed to them and filled. The questionnaires were then collected. We used IBM SPSS V26 for the statistical analysis.

RESULTS

A total of 375 participants filled in the questionnaire (figure 1). We found no statistical correlation between the sectors and the answers except for Q15 and Q20 (p-value <0.05).

Appendix:

Knowledge Questions	Correct Answer
Q1. The name Corona is derived from the crown in Latin.	Yes
Q2. Coronavirus COVID-19 is the deadliest virus in the world.	No
Q3. Corona infection means inevitable death.	No
Q4. The virus may affect all age groups.	No
Q5. Children and the elderly are more likely to have complications.	No
Q6. Health workers are among the most vulnerable groups to get infected with the Coronavirus.	Yes
Q7. The virus is transmitted through the air over long distances.	No
Q8. The Coronavirus is transmitted from person to person through a handshake.	Yes
Q9. The virus can transmit by touching paper currencies or metal coins.	Yes
Q10. The virus may be transmitted by parcel from China.	No
Q11. Frequent washing of hands may reduce the chance of infection by the virus.	Yes
Q12. The surgical mask completely protects the person from infection with the virus.	No
Q13. Washing the nose with saline solution helps prevent coronavirus infection.	No
Q14. Eating garlic helps prevent infection with the virus.	No
Q15. The incubation period for the COVID-19 virus ranges from 3 to 5 days.	No
Q16. Coronavirus symptoms include fever, cough, and shortness of breath.	Yes

Table 1: Knowledge Questions

Q17. Diarrhea is a symptom of coronavirus infection.	No
Q18. A vaccine is currently available to protect against infection with Coronavirus.	No
Q20. Coronavirus can be treated with antibiotics.	No
Q21. The infected patient must receive intensive treatment.	No
Q22. Transmission of the virus can be reduced by isolating the infected person.	Yes
Q23. A person with coronavirus infection can recover completely	Yes

Cont. Table 1: Knowledge Questions

Attitude Questions
Q19. If a vaccine is available, will you get it?
Q24. Are you worried that you or someone in your family will get infected with the COVID-19?
Q25. Does Saudi society have sufficient information about the COVID-19?

Table 2: Attitude Questions

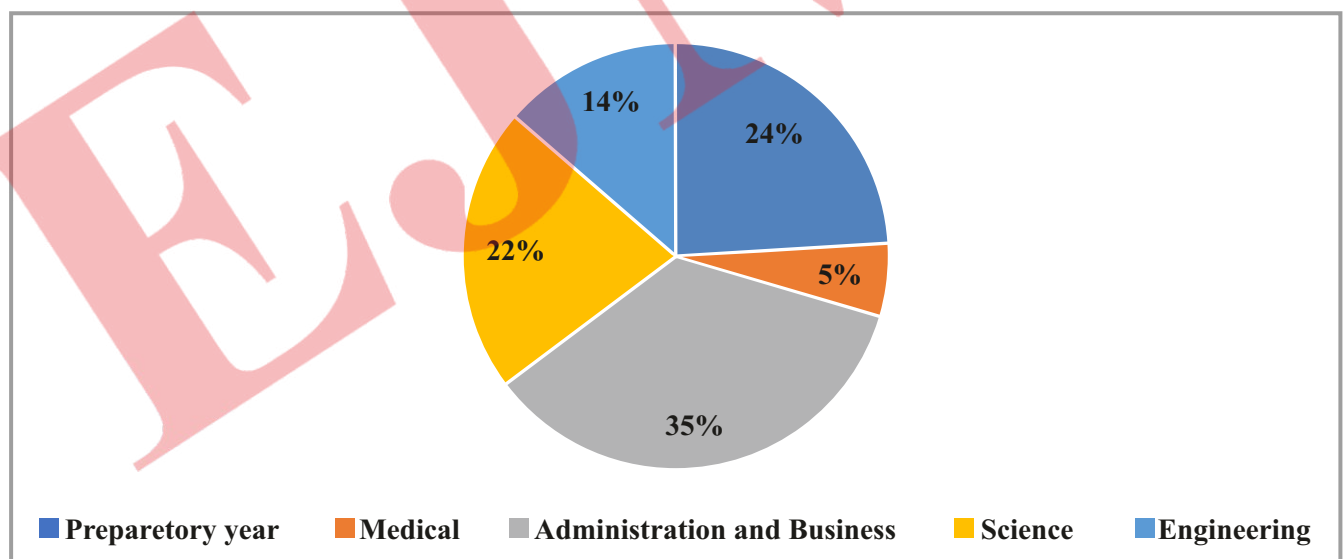


Fig 1: Showing the Percentage of the Students by their Colleges of Participants

Almost half of the students (48.5%) knew that Corona is derived from the crown in Latin, and 51.7% thought that COVID-19 is the deadliest virus, while 31.7% hoped it is not. They couldn't agree if COVID-19 infection leads to inevitable death (39.4% yes and 39.4% no). The majority said that COVID-19 might affect all age groups (51.2%), children and the elderly are more likely to have complications (46.4%), and health workers are among the most vulnerable groups to get infected (49.3%) (figure2).

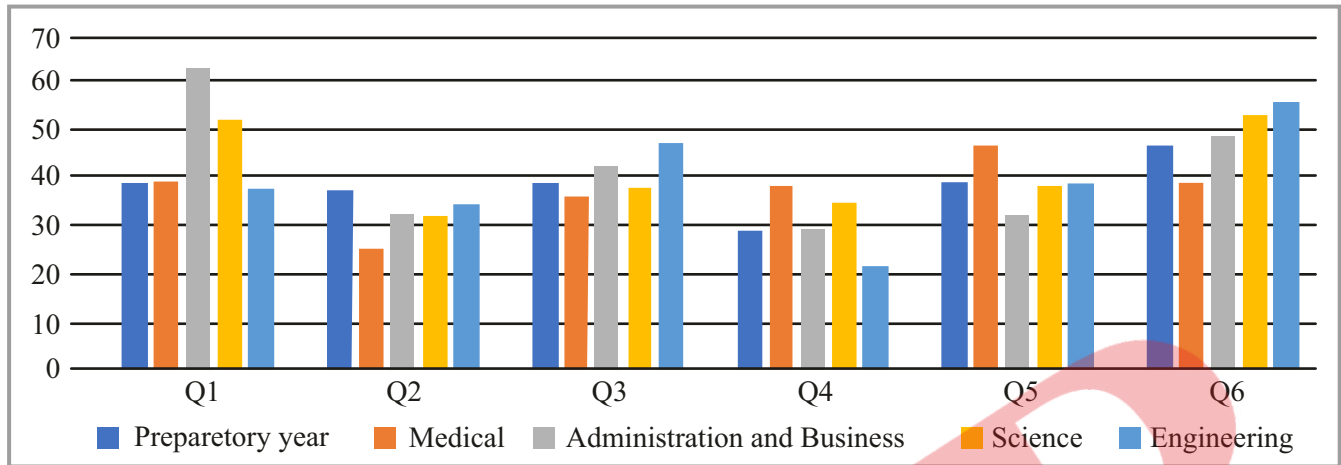


Fig 2: Comparing Student's Knowledge About COVID-19 General Information by Sectors (Percent of Correct Answers)

40.8% believe that the virus is transmitted through the air over long distances, 47.3% knew it could be transmitted from person to person through a handshake. 39.7% don't think that paper money or metal coins may transmit the virus, and 41.3% agreed that the virus might be transmitted by parcel from China (figure3).

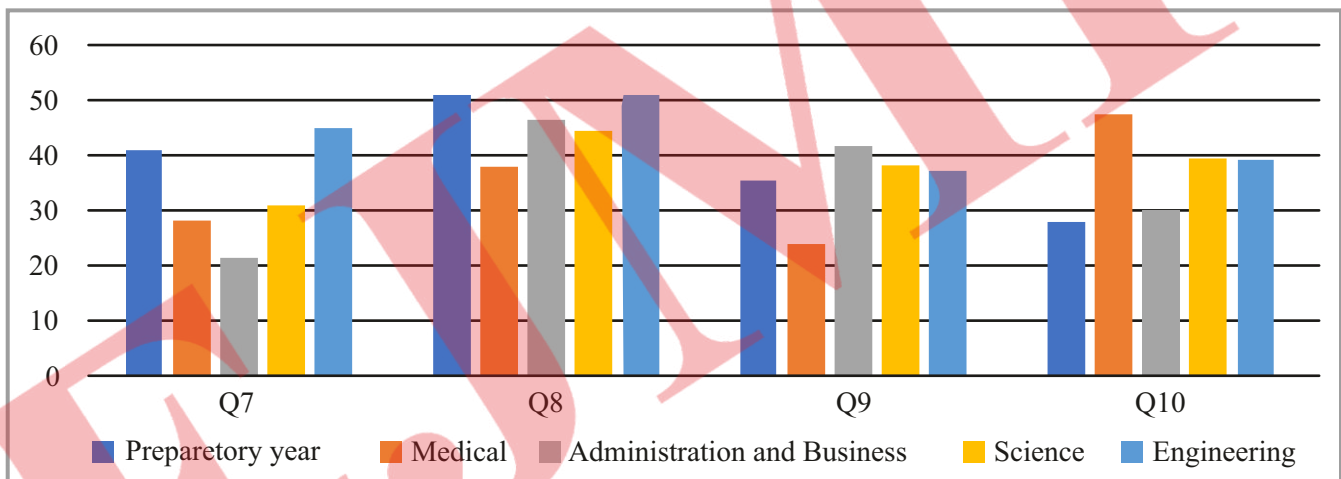


Fig 3: Comparing Student's Knowledge About COVID-19 Transmission by Sectors (Percent of Correct Answers)

47.7% knew that frequent hand wash might reduce the chance of infection. 43.2% hoped that the surgical mask would protect them completely. 42.6% said that washing the nose with saline solution helps in preventing coronavirus infection, and 42.1% believes that eating garlic helps in preventing the disease (figure4).

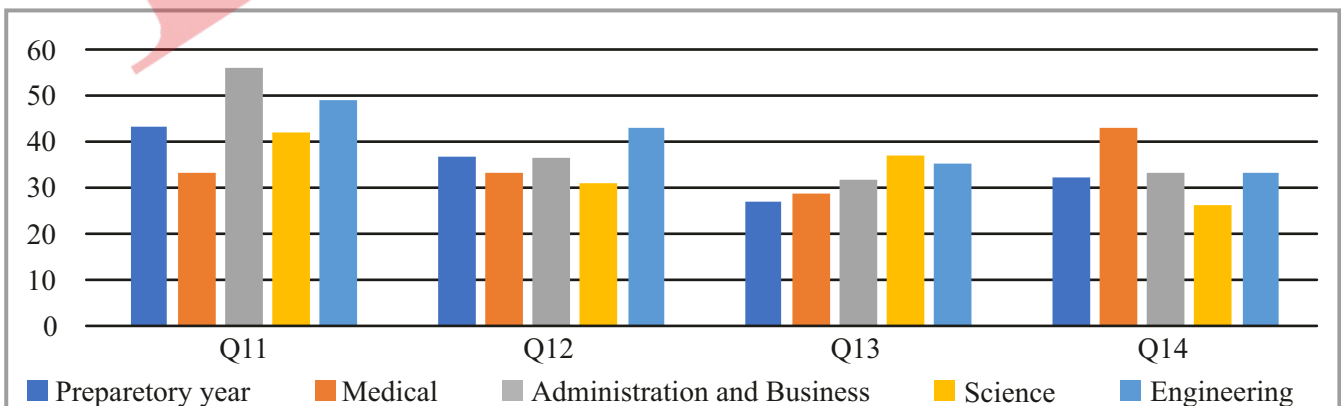


Fig 4 Comparing Student's Knowledge About COVID-19 Prevention by Sectors (Percent of Correct Answers)

38.6% of the students think that the incubation period for the COVID-19 virus ranges from 3 to 5 days, 46.1% agreed that fever, cough, and shortness of breath are among the symptoms of COVID-19 infection, and 42.2% believed that diarrhea is among the symptoms (figure5).

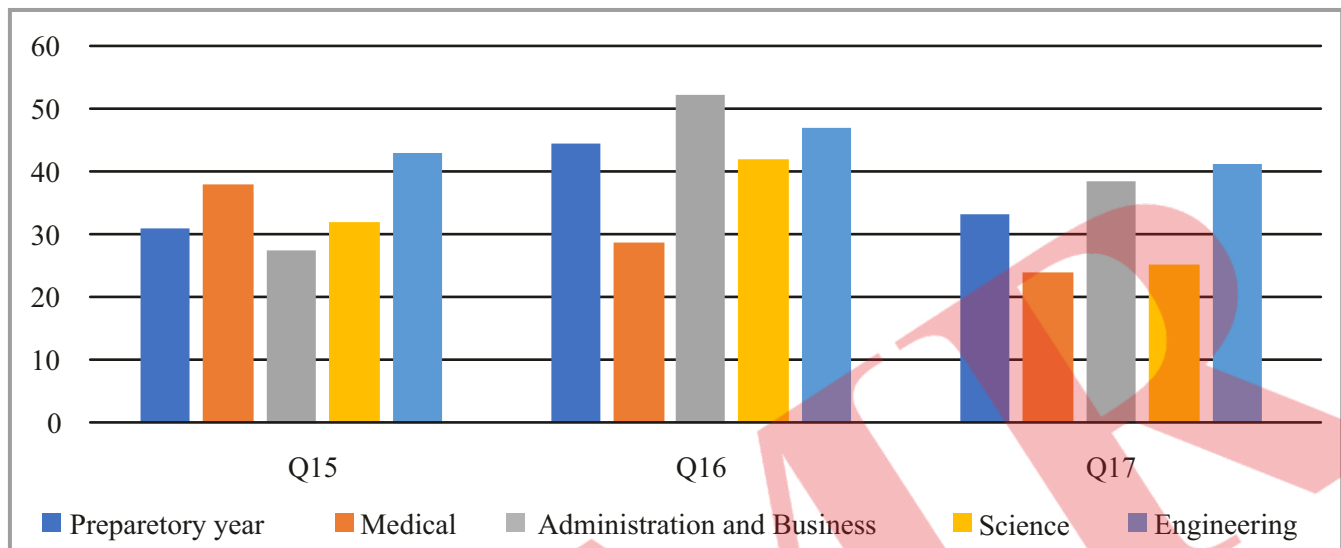


Fig 5 Comparing Student's Knowledge About COVID-19 Symptoms by Sectors (percent of Correct Answers)

The majority think that a vaccine is currently available (39.8%), antibiotics can treat COVID-19 virus (40.9%), the infected patient must receive intensive treatment (47.7%), isolating COVID-19 infected patients can reduce its transmission (42.8%), and that infected patients can recover completely (45.7%) (figure6).

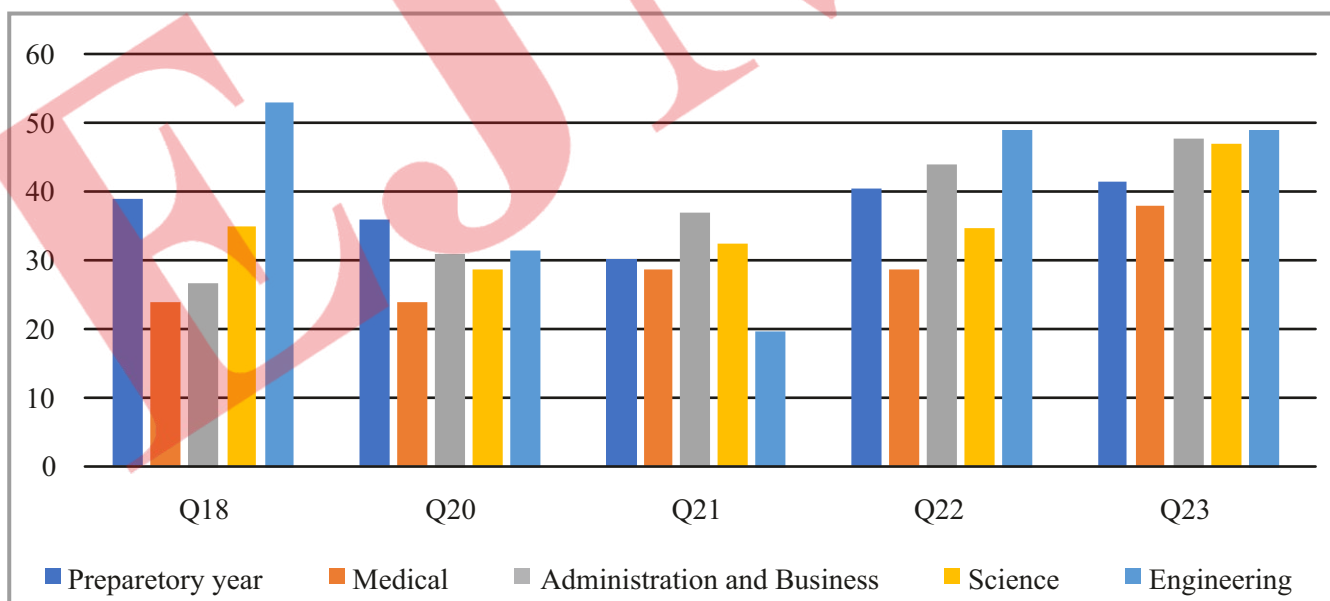


Fig 6: Comparing Student's Knowledge About COVID-19 Treatment by Sectors (Percent of Correct Answers)

Regarding the students' attitude, 41.9% will get vaccinated against COVID-19 if a vaccine is available, 46.1% were worried that he or someone in his family will get infected. 39.8% believed that Saudi society has sufficient information about the Coronavirus COVID-19.

Table 3 shows the answers of the students to all the questions.

	Yes	No	Don't know	Missing
	N%	N%	N%	
Q1. The name Corona is derived from the crown in Latin.	182(48.5)	92(24.5)	101(26.9)	
Q2. Coronavirus COVID-19 is the deadliest virus in the world.	194(51.7)	119(31.7)	62(16.5)	
Q3. Corona infection means inevitable death.	148(39.4)	148(39.4)	7(21)	
Q4. The virus may affect all age groups.	192(51.2)	110(29.3)	73(19.4)	
Q5. Children and the elderly are more likely to have complications.	174(46.4)	128(34.1)	73(19.4)	
Q6. Health workers are among the most vulnerable groups to get infected with the Coronavirus.	185(49.3)	119(31.7)	71(18.9)	
Q7. The virus is transmitted through the air over long distances.	153(40.8)	121(32.2)	101(26.9)	
Q8. The Coronavirus is transmitted from person to person through a handshake.	177(47.3)	110(29.4)	87(23.2)	1
Q9. The virus can transmit by touching paper currencies or metal coins.	142(37.8)	149(39.7)	84(22.4)	
Q10. The virus may be transmitted by parcel from China.	155(41.3)	127(33.8)	93(24.8)	
Q11. Frequent washing of hands may reduce the chance of infected by the virus.	179(47.7)	121(32.2)	75(20)	
Q12. The surgical mask completely protects the person from infection with the virus.	162(43.2)	135(36)	78(20.8)	
Q13. Washing the nose with saline solution helps prevent coronavirus infection.	160(42.6)	120(32)	95(25.3)	
Q14. Eating garlic helps prevent infection with the virus.	158(42.1)	120(32)	97(25.8)	
Q15. The incubation period for the COVID-19 virus ranges from 3 to 5 days.	145(38.6)	120(32)	110(29.3)	
Q16. Coronavirus symptoms include fever, cough, and shortness of breath.	173(46.1)	112(29.8)	90(24)	
Q17. Diarrhea is a symptom of coronavirus infection.	158(42.2)	127(33.9)	89(23.7)	1
Q18. A vaccine is currently available to protect against infection with Coronavirus.	149(39.8)	130(34.7)	95(25.4)	1
Q19. If a vaccine is available, will you get it?	157(41.9)	126(33.6)	91(24.3)	1
Q20. Coronavirus can be treated with antibiotics.	153(40.9)	117(31.2)	104(27.8)	1
Q21. The infected patient must receive intensive treatment.	178(47.7)	118(31.6)	77(20.6)	2

Table 3: Showing all the Students Answers (Correct Answers in Bold)

Q22. Transmission of the virus can be reduced by isolating the infected person	160(42.8)	123(32.9)	90(24.1)	2
Q23. A person with coronavirus infection can recover completely	171(45.7)	110(29.4)	93(24.8)	1
Q24. Are you worried that you or someone in your family will get infected with the Coronavirus COVID-19?	173(46.1)	137(36.5)	65(17.3)	
Q25. Saudi society has sufficient information about the Coronavirus COVID-19	149(39.8)	132(35.2)	93(24.8)	1

Cont. Table 3: Showing all the Students Answers (Correct Answers in Bold)

DISCUSSION

Saudi Arabia is one of the largest countries in the Middle east. With a population of 34 million(13), it is the largest populated country in the Gulf region. Because of that, the chance of the infection spread is very high. Most of the countries around the world took preventive measures to ensure the safety of its citizens and to control the spread of COVID-19 infection. Ministry of Health (MOH) produced and shared Awareness video on how to protect yourself from getting the disease. On top of that, almost a daily awareness emails are sent from KAU to all staff and students to spread knowledge and awareness among them even before the disease reached Saudi Arabia. With all these efforts, our students had many misconceptions and an average knowledge about COVID-19.

Our sample consisted of 375 male students from all the colleges of KAU, Rabigh campus, with the majority of them in administration and business colleges.

Concerning student's general information about COVID-19 in our sample, they don't have enough information. Although the word Corona means crown in Latin (6), almost half of the students knew that information. Around one-third of the students knew that COVID-19 is not the deadliest virus in the world (Ebola virus is the deadliest) (14, 15). 39.4% didn't believe that COVID-19 infection will lead to inevitable death (1), while a higher percentage (70.9%) of university students in Jordan stated that COVID-19 infection would lead to death (16). One-third of the students stated that COVID-19 doesn't affect all ages (1), and 34.1% didn't agree with the statement that children and the elderly are more likely to have complications (1), where almost all the participants in a study done on the general public in Egypt and 73% of Chinese study participants stated that COVID-19 is more dangerous to the elderly (17, 18). Half of the sample were aware that Health workers are among the most vulnerable groups to get infected with the Coronavirus because they are in direct contact with undiagnosed as well as diagnosed patients (1).

We used the WHO website as our reference concerning the ways of transmission of COVID-19 (1). According to the WHO, COVID-19 can travel through the air for short distances (around 1 meter) (1), which was known for 32.2% of our students and 90% of medical students in an Iranian study (19). Almost half of KAU students were aware that handshaking could transmit the virus, where more than 90% of the Iranian students knew that (19). 37.8% of our students understand that the virus can be spread by touching paper currencies or metal coins, while among the general Egyptian population, 87% were aware of this information (17). Parcels from China may not transmit COVID-19 (1). Among our students, only one-third of them were aware of that compared to 96% of the general Egyptian population (17).

According to the WHO, to protect yourself from COVID-19 infection you should frequently wash your hands, maintain social distancing (at least 1-meter between yourself and coughing or sneezing persons), avoid touching your face, cover your mouth and nose when you cough or sneeze, and you don't need to wear a mask unless you are sick or taking care of a suspected COVID-19 infected person (20, 21). While half of the participants knew that frequent handwashing might reduce the chance of infection, only one-third aware that the surgical mask would not protect completely, washing the nose with a saline solution will not prevent coronavirus infection, and eating garlic will not prevent the disease (1, 20, 21). A study conducted on medical students in Iran stated that 94.2% of the participants had a high level of knowledge regarding the ways of prevention of COVID-19 spread, and they are practicing it (19). In another study conducted on the general public in Egypt, almost all of the participants were aware of the role of handwashing in preventing the virus transmission compared to half of our students. On the other hand, 40% were aware that garlic has no part in protection against the virus (17). Compared to the discussed studies, our

students didn't have enough information about the ways of protection against COVID-19.

Only one-third of our sample were aware that the incubation period for the COVID-19 virus reaches up to 14 days (1), while among Iranian medical students, 85% of them were aware of this information (19). Almost half of our students knew that COVID-19 symptoms include fever, cough, and shortness of breath (22) compared to more than 90% of the university students in Jordan, medical students in Iran, and the general population in Egypt and China (16-19). Unlike SARS-CoV, Diarrhea is not a common symptom of COVID-19 infection, as stated by some articles (1, 5, 11), and reported by 33.9% of the participants as well as 61% of the Jordanian university students, and 90% of the Iranian medical students (16, 19).

Currently, there is no available vaccine against COVID-19, and antibiotics cannot treat it (1, 23). This was known to only one-third of our sample, while in Jordan, 89% of the university students were aware that COVID-19 has no vaccine, and 79% stated that no specific treatment is available against COVID-19 and antibiotics have no role in treating COVID-19 infection (16). Among the general population, in Egypt, 82% were aware that no vaccine against COVID-19 is available and 76% knew that no effective treatment other than supportive treatment is available to the moment (17), while in China, 94% were aware that there is no effective treatment (18). Of our students, only one-third were aware that 80% of patients with COVID-19 don't need special treatment (1). While 40% of our students were aware that precautionary measures and isolation reduce virus transmission, and infected patients may recover completely (1), 98% of the Chinese included in a study were aware of that (18).

Regarding attitude, our students had a moderate attitude toward COVID-19, while university students in Jordan had a high level of attitude toward it (16). The general population in Egypt and China had an overall very good and optimistic attitude (17, 18).

CONCLUSION

Although KAU, Ministry of Health, and other governmental and nongovernmental agencies spread the awareness about Coronavirus COVID-19, even before it reached the kingdom, our students had many misconceptions about the virus and below-average knowledge about the virus, and surprisingly, preclinical medical students had the lowest knowledge among the sample. Students must be encouraged to get the correct information from trusted sources. Provide students with proper information about the viruses as early as possible will help control its spread, and it will also help to prevent the spread of other viruses in the future.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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