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Knowledge and Perception of the Medical and Health Science Students Regarding COVID-19 in Tobruk University, Libya

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Abstract

Background: A coronavirus is a highly contagious virus causing severe acute respiratory diseases in human beings. It is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is a highly pathogenic virus. The virus emerged in China's Wuhan state in December 2019., The aim of our study to assessing the knowledge and perceptions about COVID-19 among medical and allied health science students. Methods: A web-based observational cross-sectional descriptive study was conducted using a "Google Form" to obtain responses from medical and allied health science students during Aguste and September 2021. Results: Out of 221 participants that filled out the web-based survey, 221 participants gave their consent for voluntary participation and completed the questionnaire. The mean age of the study participants was 22 years. The majority of students were from pharmacy (40.7%), medical technology (30.8%), medicine (24.9%) and dentistry (3.6%). Conclusion: The current Study Showed that the students from different institutions have adequate awareness of COVID-19. Also, it has been observed that the majority of participants acquired the information from social media, which is an unauthenticated resource for obtaining evidence about diseases.

Key words: coronavirus, respiratory diseases, knowledge, Perception, Libya.

Introduction

A coronavirus is a highly contagious virus causing severe acute respiratory diseases in human beings. It is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is a highly pathogenic virus (1). The virus emerged in China's Wuhan state in December 2019(2). The novel coronavirus (CoV) named "2019-nCoV" or "2019 novel coronavirus" or "COVID-19" by the World Health Organization (WHO) is in charge of the current outbreak of pneumonia that began December 2019 in Wuhan City, Hubei province, China (3-4). Knowledge, attitude, and practices (KAP) are important in controlling the spread of the disease. Knowing the cause of the disease, the signs and symptoms, the possible methods of prevention can facilitate the proactive application of preventive measures (5-6). The signs and symptoms of the disease may range from asymptomatic to mild (such as fever, dry cough, fatigue, myalgia, dyspnea, and shortness of breath) to severe (such as pneumonia, SARS, kidney failure, cardiac injury, respiratory failure, and acute respiratory distress syndrome) (7-8–9). The elderly and patients who have chronic medical illnesses such as hypertension, cardiac disease, lung disease, cancer, and diabetes are more vulnerable to COVID-19 infection.

Early recognition of symptoms and seeking supportive care is very important for recovery due to the absence of an effective cure (10). The transmission of COVID-19 was very high among university students due to the presence of different contributing factors (11). They live away from their families, who give them an opportunity to make judgments on their own. Furthermore, they may participate in different activities like sports clubs and part-time work, which makes them a good opportunity to contact the COVID-19 pandemic (12). Furthermore, different prevention measures, such as provision of handwashing facilities, face masks on free, alcohol-based hand sanitizer, reducing the number of students by half in dormitories and classes, and temperature measurement, are implemented to divert the transmission of the disease. Prevention and control of the disease requires knowledge, attitude, and prevention practices (KAP) (13).

The virus is spread by small droplets discharged from the cases during coughing, sneezing, and talking. It is also transmittable by contaminating the nose and mouth with contaminated hands or contaminated surfaces containing the virus. The virus has an incubation period that may range from 2 to 14 days with the main clinical manifestations of fever, cough, and shortness of breath. There is no cured antiviral treatment for the virus, so reducing transmission remains the mainstay of prevention (14). Hand hygiene, covering the mouth and nose when coughing or sneezing, avoiding close contact with anyone showing symptoms of respiratory illness, and avoiding unprotected contact with farm or wild animals are all standard recommendations to prevent infection spread (15-16).

Current treatment guidelines of the Center for Disease Control and Prevention (CDC) as well as WHO majorly focus on symptomatic management and the application of infection prevention measures (17). The students from medical and allied health sciences are not directly involved in managing COVID-19 patients, they can serve as information providers. They can sensitize community people about maintaining personal hygiene, symptoms of COVID-19 and how to prevent its spread. Students must possess basic knowledge about novel coronaviruses and be able to clear the myths pertaining to COVID-19. With this background, the aim of our study to assessing the knowledge and perceptions about COVID-19 among medical and allied health science students.

Methods

A web-based observational cross-sectional descriptive study was conducted using a "Google Form" to obtain responses from medical and allied health science students during Aguste and September 2021.

Creating, validating, and distributing a survey questionnaire

A survey with 24 questions (in English language) was formulated by KH Gohel *et al.* (18)The survey covered the domains of student demographics, general awareness, information sources, knowledge, and perceptions related to COVID-19. The survey link was distributed among the students in the form of a "Google Form" via various media platforms such as WhatsApp, Gmail, and Facebook. Ethical approval was obtained from Tobruk University's Research Ethics Committee, ref. No.221102-03.

Data analysis

All the collected data was entered into Microsoft Excel and cross checked for the presence of any errors to maintain its accuracy. Descriptive statistics were applied to calculate proportions and frequencies. Statistical analysis was performed using IBM SPSS software for Windows version 27 (NY, USA).

Results

Out of 221 participants that filled out the web-based survey, 221 participants gave their consent for voluntary participation and completed the questionnaire. The mean age of the study participants was 22 years. The majority of students were from pharmacy (40.7%), medical technology (30.8%), medicine (24.9%) and dentistry (3.6%). The demographic characteristics of participants are detailed in Table 1.

Table 1 Demographic characteristics of study participants (n = 221, 100%).

Characteristics	Participants(n)	Percentage (%)
Gender		
	35	15.8
Male	186	84.2
Female		
Age		
Mean age = 22.0362		
Std. Deviation = 1.99512		
Collage of study		
Medicine	55	24.9
Dentist	8	3.6
Pharmacy	90	40.7
Medical technology	68	30.8

Sources of information

Participants were also asked about the source of valid and reliable information about COVID-19. The main sources of information were social media (Facebook, WhatsApp, YouTube, and Instagram) (62.4%), followed by news media (TV/video) (28.1%) and college (4.5%). The remaining participants reported that they got the information through print media (magazines, newspapers), and other sources. Few students obtained information from their resources, such as newsletters, posters, and guest lectures. Details of the above-mentioned sources of information are represented in Fig 1.

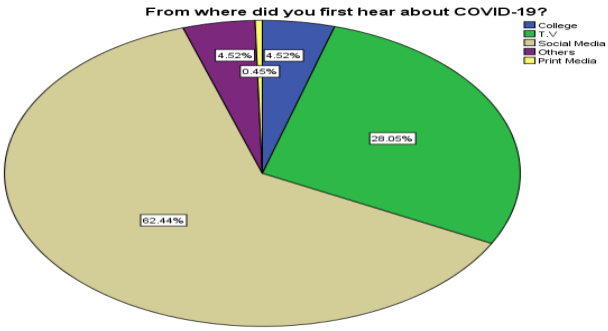

Fig. 1. Sources of information about COVID-19.

Knowledge about novel coronaviruses

The subsequent table (Table 2) illustrates the knowledge of novel coronavirus among the students. The majority of the study participants (61.1%) correctly identified a novel coronavirus, i.e., COVID-19. A high proportion of study participants (98.2%) provided the correct response, while 1.8% did not have any idea of whether COVID-19 is contagious or not. Furthermore, more than half of the participants were not aware of the origin of COVID-19, as many of them gave incorrect answers or had no knowledge of it. More than two-thirds of the participants know about the incubation period of COVID-19. Additionally, more than one third of study participants knew that elderly people or people with comorbidities are more prone to acquiring COVID-19. More than one-third of students were aware that a person infected with COVID-19 can remain asymptomatic, but 15.4% were incorrect. The majority of participants had partial knowledge (those who selected either respiratory symptoms or neurological symptoms) regarding the symptoms of severe COVID-19 cases, while only 0.5 percent had no knowledge about the symptoms. About half of the participants (15.4%) correctly identified the modes of COVID19 transmission. About 44.8% of participants correctly identified that RT-PCR (Reverse Transcriptase Polymerase Chain Reaction) and Immunofluroscent antigen detection assay are the diagnostic tests for COVID-19, while 39.8% had partial knowledge (selected either RT-PCR or Immunofluroscent antigen detection assay).

Table 2. Knowledge about novel Coronavirus among study participants (n = 221).

Question	Correct Response (%)	Incorrect Response (%)	No Knowledge (%)
1. Which of the following is novel Coronavirus?	61.1	38.9	-
2. Is COVID-19 contagious?	98.2	1.2	-
3. What is the origin of COVID-19?	94.6	5.4	-
4. What is the incubation period of COVID-19?	41.2	49.7	9.0
5. Is there any similarity between COVID-19, SARS-CoV and MERS-CoV?	53.8	10	36.2
6. Who are more prone to COVID-19?	51.6	48	0.5
7. Do you know the fatality rate of a person infected with COVID-19?	16.3	41.1	42.5
8. Do you think a person infected with COVID-19 can remain asymptomatic?	81.0	15.4	3.6
Question	**Correct Response (%)**	**Partial Knowledge (%)**	**No Knowledge (%)**
9. What are the symptoms of Severe COVID-19?	23.1	76.5	0.5
10. How does the COVID-19 spread?	15.4	0.9	83.9
11. What are the diagnostic tests for COVID-19?	44.8	39.8	15.4

Prevention of COVID-19

Students were also asked to rate their attitudes toward COVID-19 prevention. The majority of all the students (95.9%) positively agreed to the ways of preventing COVID-19 as prescribed by WHO. These precautionary measures are: cleaning hands with an alcohol-based sanitizer; avoiding personal contact; and maintaining at least 1meter distance (social distancing).

Perception about novel coronavirus

A high majority of the participants (81.4%) believe that wearing a surgical mask is a significant approach to prevent COVID-19, while some (13.6%) of the participants do not agree with the statement. A participant (44.3%) incorrectly believes that it is not safe to receive a package from areas where a case of COVID-19 has been reported. Of the students, 33.5%) were found to have a correct perception that antibiotics are not effective in COVID-19 treatment, as well as 50.7% rightly agreed that vaccines are not sufficient to prevent COVID-19 transmission at present. Notably, the participants did not know that a thermal scanner could help to detect fever in a person infected with COVID-19. Furthermore, participants (48.4%) rightly believed that COVID-19 can primarily occur year-round and the infection is not bound to any specific climatic condition. The rest of the information about the perception of students about COVID-19 is detailed in Table 3.

Table 3. Perception about novel Coronavirus among study participants (n = 221).

Question	Correct Response (%)	Incorrect Response (%)	No Knowledge (%)
1. Do you think wearing a Surgical mask can protect people from COVID-19?	81.4	13.6	5.0
2. Is it safe to receive a package from any areas where a case of COVID-19 has been reported?	38.5	44.3	17.2
3. At present, do you think antibiotics are effective in preventing or treating COVID-19?	33.5	57	9.5
4. At present, do you think vaccines are effective in preventing COVID-19?	62.4	27.1	10.4
5. Are traditional herbal medicines effective for COVID-19?	50.7	29.4	19.9
6. Are hand dryers effective in killing new Coronavirus?	23.1	44.3	32.6
7. Can an Ultraviolet (UV) disinfection lamp kill the new Coronavirus?	13.6	28.1	58.4
8. Are thermal scanners helpful in detecting FEVER in people infected with new Coronavirus?	61.5	15.8	22.6
9. Can spraying Alcohol or Chlorine all over your body kill the new Coronavirus?	38.9	45.7	15.4
10. In your opinion, can eating garlic help prevent infection with the new Coronavirus?	48.4	25.3	26.2
11. In which climatic condition COVID-19 infection can PRIMARILY occur?	41.2	53.8	5.0

Discussion

The current study was designed to assess the knowledge and perceptions of COVID-19 among medical and allied health science students in university of Tobruk, in light of the global burden and media attention surrounding the virus. Our study discovered that the majority of students obtained knowledge about COVID-19 from social media, 62.4%. Another survey conducted in Pakistan reported that social media (87.68%) remained the primary source of information among healthcare professionals (19). Similarly, a study carried out by Bhagavathula AS et al. revealed that the participants' main source of information was official government websites (33%) followed by social media (30%) (20). Presently, a wide range of information is available on the internet, including unverified, biased, and deceptive information, which can easily misguide the public. The emphasis should be on educating and providing authentic information to students so that the appropriate information can be communicated to the community.

A large proportion of study participants were aware and had general knowledge about COVID-19 except for symptoms of severe conditions and the category of people more prone to COVID-19. About 94.6% of participants correctly identified the novel coronavirus and gave the correct answer about its incubation period. whereas a study conducted among health care workers showed that only 36.4% correctly identified the incubation period of COVID-19, i.e., 2–14 days. (19) Other cross-sectional surveys conducted in Pakistan, China, and Iran reported 96.38%, 66.40%, and 85.4% correct responses about the incubation period, respectively (18,20). Information about the incubation period would be useful to identify the suspected cases and provide medical care at an early stage. In this study, (53.71%) of the students knew about the modes of transmission of COVID-19. In contrast to that, studies carried out by Zhong BL et al., Abdelhafiz AS et al., and Bhagavathula AS et al. stated that 98.85%, 95.9%, and 39% of respondents correctly recognized the transmission modes of novel Coronavirus (19,21,23). In our study, nearly 51.4% of participants believed that the elderly or those with co-morbidities were more vulnerable to COVID-19. a study conducted among the Egyptian public also demonstrated that around 95% of study participants believe that COVID-19 is more dangerous for the elderly and patients with chronic diseases (22). According to a summary of a large survey conducted among the general public in the United States (US) and the United Kingdom (UK), 96.3% and 97.5% of people believe that older adults are the most likely to die from the novel coronavirus infection, respectively (24). The majority of participants (76.5%) in our study had partial knowledge (either selected only respiratory, enteric or neurological symptoms) about the symptoms of severe COVID-19 cases. On the other hand, 98.63% and around 90% of respondents of a Chinese and Egyptian survey accurately identified the symptoms of COVID-19, which is higher than our study results (21,23). It is very necessary that people be informed about the most common as well as severe symptoms of COVID-19 infection through validated sources to avoid this misconception. At present, there is no clear evidence about the origin of COVID-19. Recently, a study conducted in Bangladesh reported that 37.22% of participants gave an incorrect response about the COVID-19 origin (25). In contrast to that, 41.2% of participants from our study gave correct responses and were found to have good knowledge of the origin, which is yet unknown as stated by WHO. Considering the asymptomatic behavior of COVID-19, about 81.0% of students in our study rightly believed that a person infected with a novel coronavirus can remain asymptomatic. Also, 81.8% of participants in a survey conducted in Egypt correctly responded that COVID-19 could be transmitted from asymptomatic person to asymptomatic person as well as agreed with our study (23).

Almost all our study participants (95.9%) knew about the measures that should be adopted for the prevention of COVID-19, such as maintaining a 1 m distance, cleaning hands with soap and water, using an alcohol-based sanitizer, and avoiding personal contact. This finding is in line with the reported rates in studies conducted among healthcare workers (85.6% and 98.31%) (17,18) and students (98.6% and 93.8%) (21, 22). A majority of participants (81.4%) believe that wearing a surgical or face mask can protect people from getting infected with COVID-19. Contrary to our results, only 37.8% and 29.7% of people from the US and UK agree with the statement (24). About half of the students rightly stated that, at present, antibiotics (57.0%) and vaccines (27.1%) are not effective in preventing or treating COVID-19 but roughly 84% of the respondents also thought that antibiotics or vaccines might be useful, which is a wrong perception. Likewise, in a survey conducted among healthcare workers, around 90% believed that flu vaccination is not sufficient in preventing COVID-19.17 A cross-sectional study conducted among medical and non-medical students in Jordan reported that 89% and 78.9% of respondents knew that there was no vaccine or specific treatment available

for COVID-19(26). A few discrepancies were also noted in the perception of our study participants. As an example, around 50.7% of students believed that the use of herbal medicines and eating garlic could protect against COVID-19 infection, 33.1% of the Egyptian public also incorrectly stated that eating garlic could prevent the spread of disease (23). Considering the association of climatic conditions and COVID-19 infection, more than half of participants (51.1%) believe that it either occurs in winter or spring/fall, which is an incorrect perception as it could occur round the year as per available evidence.

Conclusion

The current global pandemic situation demands substantial awareness about the clinical presentation, spread, preventive measures, and management of COVID-19. The present study showed that the students from different institutions have adequate awareness of COVID-19. Also, it has been observed that majority of participants acquired the information from social media, which is an unauthenticated resource for obtaining evidence about diseases. Students should be informed about the authentic sources of information as provided by global health authorities and the health ministries of respective countries. Our study findings also highlight specific aspects of knowledge and perception where partial or incorrect responses were observed, and these areas should be addressed in the future through webinars, leaflets, and educational campaigns to improve understanding and dispel COVID-19 myths.

Declaration of competing interests

The authors declare that they have no conflict of interest.

References

1. WHO CO. World health organization. Responding to Community Spread of COVID-19. Reference WHO/COVID-19/Community_Transmission/2020.1. 2020 Apr.
2. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, Liu L, Shan H, Lei CL, Hui DS, Du B. Clinical characteristics of coronavirus disease 2019 in China. New England journal of medicine. 2020 Apr 30;382(18):1708-20.
3. Hui DS, Azhar EI, Madani TA, Ntoumi F, Kock R, Dar O, Ippolito G, Mchugh TD, Memish ZA, Drosten C, Zumla A. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health—The latest 2019 novel coronavirus outbreak in Wuhan, China. International journal of infectious diseases. 2020 Feb 1;91:264-6
4. Fong SJ, Li G, Dey N, Crespo RG, Herrera-Viedma E. Composite Monte Carlo decision making under high uncertainty of novel coronavirus epidemic using hybridized deep learning and fuzzy rule induction. Applied soft computing. 2020 Aug 1;93:106282.
5. Szymona-Pa?kowska K, Janowski K, Pedrycz A, Mucha D, Ambro?y T, Siermontowski P, Adamczuk J, Sapalska M, Mucha D, Kraczkowski J. Knowledge of the disease, perceived social support, and cognitive appraisals in women with urinary incontinence. BioMed research international. 2016 Oct;2016.
6. Kun JF, Klabunde J, Lell B, Luckner D, Alpers M, May J, Meyer C, Kremsner PG. Association of the ICAM-1Kilifi mutation with protection against severe malaria in Lambaréné, Gabon. The American journal of tropical medicine and hygiene. 1999 Nov 1;61(5):776-9.
7. Al-Hanawi MK, Angawi K, Alshareef N, Qattan A, Helmy HZ, Abudawood Y, Alqurashi M, Kattan WM, Kadasah NA, Chirwa GC, Alsharqi O. Knowledge, attitude and practice toward COVID-19 among the public in the Kingdom of Saudi Arabia: a

cross-sectional study. Frontiers in public health. 2020 May 27;8:217.
8. Nallani VR, Nadendla RR, Kavuri NS. Knowledge, attitude and practice among health care professionals regarding COVID-19 and barriers faced by health care professionals in South India. Int J Community Med Public Heal. 2020;7(9):3450.
9. Melchiorre MG, Chiatti C, Lamura G, Torres-Gonzales F, Stankunas M, Lindert J, Ioannidi-Kapolou E, Barros H, Macassa G, Soares JF. Social support, socio-economic status, health and abuse among older people in seven European countries. PloS one. 2013 Jan 30;8(1):e54856.
10. Kun JF, Klabunde J, Lell B, Luckner D, Alpers M, May J, Meyer C, Kremsner PG. Association of the ICAM-1Kilifi mutation with protection against severe malaria in Lambaréné, Gabon. The American journal of tropical medicine and hygiene. 1999 Nov 1;61(5):776-9.
11. Hatabu A, Mao X, Zhou Y, Kawashita N, Wen Z, Ueda M, Takagi T, Tian YS. Knowledge, attitudes, and practices toward COVID-19 among university students in Japan and associated factors: An online cross-sectional survey. PLoS One. 2020 Dec 21;15(12):e0244350.
12. ChenN Z, DongX Q, GongF H. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumoniainWuhan, China: adescriptive study. Lancet. 2020;395(10223):507-13.
13. Bi Q, Wu Y, Mei S, Ye C, Zou X, Zhang Z, Liu X, Wei L, Truelove SA, Zhang T, Gao W. Epidemiology and Transmission of COVID-19 in Shenzhen China: Analysis of 391 cases and 1,286 of their close contacts. medrxiv. 2020 Jan 1.
14. Cascella M, Rajnik M, Aleem A, Dulebohn S, Di Napoli R. Features, evaluation, and treatment of coronavirus (COVID-19). StatPearls. 2022 Jan 5.
15. World Health Organization. Coronavirus disease (COVID-19) advice for the public [Online]. 2020.
16. Sanders JM, Monogue ML, Jodlowski TZ, Cutrell JB. Jama; 2020. Pharmacologic treatments for coronavirus disease. 2019.
17. Gohel KH, Patel PB, Shah PM, Patel JR, Pandit N, Raut A. Knowledge and perceptions about COVID-19 among the medical and allied health science students in India: An online cross-sectional survey. Clinical epidemiology and global health. 2021 Jan 1;9:104-9.
18. Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Conocimientos y Percepciones del COVID-19 entre los trabajadores de la salud: Estudio transversal. JMIR Public Health Surveill. 2020 Apr 30;6(2):e19160.
19. Saqlain M, Munir MM, Rehman SU, Gulzar A, Naz S, Ahmed Z, Tahir AH, Mashhood M. Knowledge, attitude, practice and perceived barriers among healthcare workers regarding COVID-19: a cross-sectional survey from Pakistan. Journal of hospital infection. 2020 Jul 1;105(3):419-23.
20. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, Li Y. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. International journal of biological sciences. 2020;16(10):1745.
21. Taghrir MH, Borazjani R, Shiraly R. COVID-19 and Iranian medical students; a survey on their related-knowledge, preventive behaviors and risk perception. Archives of Iranian medicine. 2020 Apr 1;23(4):249-54.
22. World Health Organization. Coronavirus (COVID-19) events as they happen.
23. Geldsetzer P. Knowledge and perceptions of COVID-19 among the general public in the United States and the United Kingdom: a cross-sectional online survey. Annals of internal medicine. 2020 Jul 21;173(2):157-60.

24. Abdul K, Mursheda K. Knowledge and perception towards Novel Coronavirus (COVID 19) in Bangladesh. MPRA Paper No. 99656. 2020 Apr.
25. Gouda S, Mattoo J, Kotian S, Kukanur FS, Naveen G. Comparison of effectiveness of 70%-isopropanol, 65%-ethanol and 1%-chlorhexidine for stethoscope decontamination. J. Pure Appl. Microbiol. 2020 Sep 1;14(3):2053-62.