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Original Article

Survey of knowledge and attitude of students of Abadan University of Medical Sciences to “COVID - 19”

Mona Ebrahimzadeh¹, Samaneh Abbasi², Mahsa Hazaryan³, Zahra Arizavi⁴, Fatemeh Maghsoudi⁵, Fatemeh Darari⁶, Ziba Hajari⁷, Masoomeh Asadi^{6*}

¹ Clinical Research Development Unit, Taleghani Educational Hospital, Abadan University of Medical Sciences, Abadan, Iran

² Department of Basic Sciences, Faculty of Medicine, Abadan University of Medical Sciences, Abadan, Iran

³ Department of Nursing, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

⁴ Department of Nursing, Abadan University of Medical Sciences, Abadan, Iran

⁵ Department of Public Health, School of Health, Abadan University of Medical Sciences, Abadan, Iran

⁶ Department of Operating Room, Abadan University of Medical Sciences, Abadan, Iran

⁷ Abadan University of Medical Sciences, Abadan, Iran

Abstract

Introduction

“COVID-19” is a dangerous viral disease that has recently become a pandemic. In the meantime, the knowledge and attitude of medical students in caring for patients are very important. Therefore, this study was conducted to investigate the knowledge and attitudes of Abadan medical students about the “ COVID-19 “ disease.

Methods

This cross-sectional study was performed on medical students (n = 255) in 2020-2021 using the convenience sampling method. Data was collected using a personal information questionnaire and a researcher-made questionnaire of knowledge and attitude related to the disease. The total score of students ‘knowledge about “ COVID-19” disease was between 0 and 33, where 0 means minimum knowledge and 33 means between 16 and 80. After confirming the validity and reliability of the questionnaire, the online questionnaire was completed by individuals.

Results

The results showed that the mean and standard deviation of knowledge scores and students’ attitudes toward “COVID-19” disease were 13.42 ± 2.69 and 22.27 ± 3.9 , respectively. The results showed that there was no significant relationship between attitude and demographic characteristics. There was a significant relationship between students ‘knowledge score and field of study ($P= 0.001$) but there was no significant relationship between students’ knowledge score and gender and marital status.

Conclusion

Medical students have an acceptable knowledge and attitude toward “COVID-19”. On the other hand, our information about “COVID-19” disease is increasing every day. Therefore, the educational authorities of medical universities should design and implement programs to increase the awareness and attitude of students toward “COVID-19”.

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*Correspondence: Masoomeh Asadi

Affiliation: Department of Operating Room, Abadan University of Medical Sciences, Abadan, Iran

Email: m.asadi@abadanums.ac.ir

Introduction

There were several reports of pneumonia symptoms similar to viral infections in Wuhan, China, in December 2019. A comprehensive survey on patients revealed a novel form of coronavirus named nCoV-2019 or COVID-19 [1]. Beginning

with shortness of breath at the acute level with a decrease in blood oxygen saturation, it leads to complications such as acute respiratory distress syndrome, kidney failure, heart failure, and even death [2]. Since February 19, 2021, COVID-19



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has 2,319 victims, and over 36,662 people in 41 countries including, Thailand, South Korea, Japan, Taiwan, Australia, Singapore, Nepal, Vietnam, Indonesia, Germany, Russia, France, Iran, and United States have become infected [3].

The coronavirus category defines its transmission. In some cases, the transmission is by respiratory droplets, similar to pneumonia [4]. Several studies introduce human-to-human transmission (HHT) as the most dominant among others. COVID-19 spreads via close contact, especially, through cough and sneeze aerosols by which it transmits 5.6-8 meters. The probability of transmission in outdoor areas is fairly low, and human-to-human transmission is more critical in close contact with infected and non-infected people in an indoor area for a long time, such as medical staff and medical students (all groups of medical sciences) contacting patients at hospitals or clinics [5]. Although there are vaccines produced against this virus, there is no definite cure for this disease, therefore, knowledge and awareness could enhance preventive behaviors, and if this knowledge is accompanied with approaches signifying an individual's beliefs, it could result in proper attitude in them [6].

As mentioned earlier, medical students, as a transitioning age group between adolescence and adulthood, are one of the groups directly contacting COVID-19 patients, and unhealthy behaviors in this period, which may be due to the lack of proper guidance, can end in irreversible damages. Hence, it is crucial to study the health behaviors in this group. Visdina et al. [7] demonstrate enough knowledge about flu in medical students, however, there was a lack of attitude and performance about the disease which shows the insufficient

knowledge to change the behavior. The study on knowledge and attitude of the medical students about COVID-19 by Roghani et al. [2] resulted in acceptable knowledge in this study group. Yet, students scored a lower grade on some questions. Personal protection and health measures taken by all society members, especially the medical staff and students, are the main approaches in such a situation. Since students are the public health coordinators, to have a better performance, it is crucial for them to maintain their health in prior. Thus, the current study aimed to evaluate the knowledge and attitude of the Abadan University of Medical Sciences students in order to improve the knowledge and attitude of the public towards viral diseases.

Methods

In this cross-sectional study, the knowledge and attitude of students of the Abadan University of Medical Sciences and their relation to some other effective factors were investigated. This study was conducted among Abadan University of Medical Sciences Students based on the convenience sampling method (selecting subjects that are either available to you or that are very easy to find) in the second semester of the academic year of 2020-2021. The inclusion criteria in this study were being at the second semester of the academic year with a conscious desire to participate in the experiment. The sample size was calculated using Ranjbar et al.'s article [2]. The minimum sample size required for this study was 97 people, which we considered 257 people due to the availability of students.

Data collection tools include a demographic information checklist and knowledge and attitude



questionnaires developed by the researcher associated with COVID-19. The demographic information form was comprised of such factors as age, sex, marital status, and the field of study. Knowledge and attitude were measured by 11 and 8 items, respectively. The total score of students' knowledge about COVID-19 disease was between 0 and 33, with a score of 0 meaning minimum awareness and a score of 33 meaning maximum awareness. All items were answered on a 3-point scale; yes, no and I do not know. Scores from 0 to 11 were classified as poor knowledge, scores between 11 and 22 as moderate knowledge, and scores as good knowledge were 23-33. The total score of the attitude was 16 to 80. On the other hand, attitude questions included statements such as everyone being in danger, disease prevention difficulty, disease prevention impossibility, acute physical and psychological effects of the disease, disease prevention costs, incurability, infected people informing others, and introducing the disease as a global issue. Items of this questionnaire were answered using a four-point Likert scale; strongly agree, agree, disagree, and strongly disagree. Each attitude question had 4 points, and the total score was 8-32, in which 8-16 was considered poor, 16-24 was average, and scores over 24 were classified as well-attitude.

In addition, the content and face validity of the questionnaires were investigated. To do so, each questionnaire was given to 10 faculty members related to the subject of study to be judged and examined in terms of content, the degree of clarity and simplicity of each of the expressions in the tool. After the implementation of corrective opinions, questionnaires were used for research.

Moreover, the face and content validity

assessment was used to determine the validity of each mean in this study. In this regard, each questionnaire was evaluated by ten faculty members associated with the study subject in terms of content, clarity, and simplicity of each mean and phrase; questionnaires were used to conduct research following the related corrections. To determine the reliability, the internal consistency (Cronbach's alpha calculation) was used. For this purpose, each of the questionnaires was given to fifteen students with sample characteristics and subsequently, they were excluded from the experiment. The Cronbach's alpha value for the whole questionnaire was 0.8 and for the two parts of knowledge and attitude of the questionnaire were respectively 0.7 and 0.8.

To pursue the experiment, following the approval of the project by the research council of the Abadan University of Medical Sciences and also the ethics committee of the faculty, and obtaining the necessary written permits from the vice-chancellor of the university, the researcher attended the research site and began his research after the necessary coordination with the relevant unit officials. Afterward the introduction of the researcher in a virtual letter and providing brief explanations regarding the objectives of the study, obtaining the relevant consent and inclusion criteria, the questionnaires were delivered to the research units. Consequently, after describing the different sections of the questionnaire and the method to answer, the questionnaires were answered by the study samples (via the questionnaire link). Students had the right to refuse to respond as they wished. The required sample size for this study was 257 individuals. However, due to the incompleteness of the provided questionnaire, the



Table 1 : Demographic information of the participants participating in the study

Demographic information	Average means ± Standard deviation	
Age	062. 3± 22.11	
Sex	Female	176 (69%)
	Male	79 (31%)
Marital status	Single	234 (92.1%)
	Married	20 (7.9%)
Major	Surgery room	45 (17.8%)
	Nursing	37 (14.6%)
	Laboratory sciences	81 (32%)
	Medical	42 (16.6%)
	Medical Library	2 (0.8%)
	General Hygiene	14 (5.5%)
	Information Technology	9 (3.6%)
	Environmental Health	6 (1.2%)
	Professional Health	3 (1.2%)
	Other cases	14 (5.5%)

analysis was performed on 255 study samples.

Statistical analysis of Chi-square, Pearson correlation, and t-test was analyzed by SPSS-19. The relation between the quantitative and qualitative variables was also investigated.

Results

A total of 255 subjects were chosen, consisting of 176 (69%) female and 79 (31%) male. Also, 92.1% were single, and 9.7% were married. The age of the students was 18 to 46, with an average of 22.03 ± 11.062 . The highest (32%) and lowest (0.8%) percentages of the study participants were the laboratory science and the librarianship students, respectively. The full report of the descriptive findings is given in Table 1.

The knowledge-scoring range of the participants was between 9 and 24 with an average and standard deviation of 13.42 ± 2.69 and the attitude scores ranged between 9 and 30 with an average and standard deviation of 22.27 ± 3.9 .

The independent t-test was applied to compare the students' knowledge with gender and marital status. The t-test revealed no significant difference in the average score of knowledge between the two levels of the comparison ($P=0.978$). No significant difference between female and male knowledge was

Table 2: Univariate analysis of the relationship between the studied variables and university students in relation to coronary heart disease

	Variable	Mean (SD)	P-value
Sex	Female	13.42± 2.82	0.978
	Male	13.43± 2.40	
Marital status	Single	13.44±2.64	0.949
	Married	13.40± 3.26	
Major	Surgery room	14.15± 2.99	0.001
	Nursing	12.27± 1.91	
	Laboratory sciences	13.79± 2.84	
	Medical	12.76± 2.16	
	Medical Library	12.00± 0.00	
	General Hygiene	12.66± 1.73	
	Information Technology	12.66± 1.73	
	Environmental Health	16.16± 3.43	
	Professional Health	14.66± 3.78	
	Other cases	14.35± 3.22	

observed, as well ($P=0.949$). A one-way ANOVA was used to compare the students' total knowledge with the field type. ANOVA test revealed that the knowledge score in different fields is significantly different ($P=0.001$).

Follow-up tests showed that there is a significant difference between the knowledge score of the operating room field with the field of nursing, medicine, and public health. This test also showed that there is a significant difference between the knowledge of nursing, laboratory sciences, and environmental health. There is a significant difference between laboratory sciences and nursing, medicine, and environmental health in terms of knowledge scores. Medicine was also significantly different from environmental health in terms of knowledge score. There is also a significant difference between public health and environmental health in terms of awareness scores. There was a significant difference between medical information technology and environmental health (Table 2).

To compare the students' total attitude score with the gender and marital status of the subjects, independent t-test was performed. T-test demonstrated no significant difference between the knowledge in two categories of marital status



Table 3: Univariate analysis of the relationship between the studied variables and students' attitudes toward coronary heart disease

	Variable	Mean (SD)	Statistics	P-value
Sex	Female	22.07±4.00	-1.214	0.226
	Male	22.71± 3.67		
Marital status	Single	22.26± 3.85	-0.088	0.93
	Married	22.35± 4.62		
Major	Surgery room	22.22± 3.88	0.837	0.583
	Nursing	22.27± 3.75		
	Laboratory sciences	22.43± 3.78		
	Medical	21.78± 3.91		
	Medical Library	23.5± 4.94		
	General Hygiene	23.71± 3.91		
	Information Technology	19.88± 5.75		
Environmental Health	23.23± 2.94			
	Professional Health	23.66± 2.08		

($P=0.226$). There was also no significant difference between the two groups of females and males based on the knowledge average ($P=0.93$). Moreover, to compare the students' total knowledge score with the field type, ANOVA was used. The ANOVA test proved that the knowledge score between different fields of study has no significant difference ($P=0.583$) (Table 3).

To study the correlation between knowledge and attitude, the Pearson correlation test was conducted. The results indicating no significant difference between scores in the mentioned categories. The Pearson correlation test was also used to investigate the relationship between age, the total knowledge score, and the total attitude

Table 4: Pearson correlation coefficients between knowledge, attitude and age

	Age	Awareness	Attitude
Age	1		
Awareness	0.075	1	
Attitude	0.000	0.102	1

score; results showed no relation between them (Table 4).

Discussion

In this study, the knowledge and attitude of the students of Abadan University of Medical Sciences concerning COVID-19 were investigated. Prevention is the most critical

approach to COVID-19 in the global health system. Unfortunately, due to the lack of reliable and accessible data regarding the key components of the pandemic disease and the change in our information about the disease over time, there are disagreements in societies at risk, in most developing countries. Due to the vast range of information overflow and various news databases, during the time of the pandemic and COVID-19 outbreak, students might get confused due to misleading information. Misleading information gathered from a variety of sources could lead to unpleasant consequences in society. Increasing knowledge, improving attitude, and creating an appropriate belief, is the first effective step in health education. As medical staff and medical, nursing, and allied health professionals students are the most important providers of health services in controlling the corona pandemic, they need to have sufficient knowledge, attitude, and proper function to educate society in disease management [7]. Studies have reported a better performance in older ages, which may be the cause of higher sensitivity of people concerning their health at older ages, as in the study conducted by Lau et al. [8]. Results of an experiment by Zhong et al. [9] on the residents in China showed a relationship between age and female gender factors. Moreover, Ranjbar et al. reported a significant relationship between knowledge score, age, and gender with higher knowledge in young male students in comparison to other students [2]. The findings of these studies [2, 9] are not parallel with the results of this study, indicating no significant relationship between the knowledge level with age and gender factors. Thus, the obtained results from the current study are similar to the results of Adab et al. [4],



demonstrating no significant relationship between the knowledge and attitude of the students' age and gender associated with type A flu disease. Zhong et al. [9] showed a significant relationship between the students' attitudes and gender, age, and education factors. However, the results are not consistent with the results obtained in the current study reporting no relationship between the factors of age, gender, and education with the attitude of students. Some surveys reported that married females with more knowledge, attitude, and function in comparison to men, have more preventative attitudes toward COVID-19 [10-13]. This may be the result of the fact that women can be more responsible for the health of themselves or other members of the family. However, the current study reported an equal knowledge and attitude level for both male and female subjects. In the study conducted on the knowledge and attitude of the medical staff towards COVID-19 in Vietnam, there was a significant relationship among different jobs in terms of knowledge and attitude [14]. Whereas the findings in the current study showed no significant relationship between the attitude and the field of study, hence, a significant relationship between the knowledge and field of study factor was observed. In this regard, students in the field of sanitary engineering have more knowledge according to their field type which makes them more aware of disease prevention and community health promotion. Ranjbar Roghani et al. reported significantly more knowledge about COVID-19 in medical students in comparison to nursing and allied health professions students. As if for the present study, the results indicated a similar knowledge about COVID-19 between the mentioned fields and even a fairly lower

knowledge in medical students in comparison to the two other fields. Considering the close contact between the medical staff and the patients in hospitals and health centers, educating the relevant students is a crucial approach to protecting and preventing infection [2]. The current study represented proper knowledge about COVID-19 in students; which is parallel with the findings of Rahmanian [3] in a similar study at Jahrom University of Medical Sciences [3]. However, the attitude and performance of students of Jahrom University of Medical Sciences towards COVID-19 were low which indicates the inadequacy of knowledge alone to change the behavior. It makes Rahmanian's study consistent with Adab et al.'s research concerning proper knowledge and poor performance towards influenza A (H1N1) [4]. Eddy studied the knowledge and attitude of the students at the University of Medical Sciences about the COVID-19 pandemic and reported proper knowledge, yet due to economic problems and shortcomings of personal protective equipment, had a negative attitude on students towards the government in controlling the disease [15].

Conclusion

The knowledge and attitude towards COVID-19 in the studied students were average. Considering the global emersion of this disease and the outlook expected from the students of the universities of medical sciences, proper educational planning as well as an appropriate intervention to improve the knowledge and attitude of the students about COVID-19 is suggested to promote health in society.

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References

1. WHO. Novel coronavirus – China. Jan 12, 2020. <http://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/> (accessed Jan 19, 2020).
2. Ranjbar Roghani A, Nemati R, Fathi Y, Sheikhnavaaz Jahed S, Ajri Khamloo F, Ajri Khamlou M. Knowledge and Attitude for Medical Students towards COVID-19. *Iran Journal of Nursing*. 2020 Oct;33(126):44-57.
3. Rahmanian M, Dorodchi A, Zarenezhad M, Hatami N, Javdani F, Kalani N. Knowledge, Attitude and Practice of Students of Jahrom University of medical sciences to the new coronavirus (Covid-19). *Medical Journal of Mashhad University of Medical Sciences*. 2020;63(3):2359-69.
4. Adab Z, Azizi M, Solhi M, La M, Irandoost F. Dormitory student's Knowledge and Attitude about influenza A (H1N1) disease. *Rahavard Salamat Journal*. 2016 Sep 10;2(2):10-7.(Persian)
5. Cascella M, Rajnik M, Aleem A, Dulebohn S, Di Napoli R. Features, evaluation, and treatment of coronavirus (COVID-19). *StatPearls*. 2021.
6. Marzban A, Karkhaneh M. Evaluation of knowledge and attitude of students of Yazd University of Medical Sciences to cigarette smoking. *JPM*. 2018; 5(1):55-63.
7. Wisedjinda L, Hengriprasopchoke S, Karucote A, Khaocharee P, Lawantuksin N, Panvatvanich S, et al. Knowledge, attitude, and practices concerning influenza A H1N1 among Thai medical students. *Faculty of Medicine Ramathibodi Hospital, Mahidol University*; 2009
8. Lau JT, Kim JH, Tsui HY, Griffiths S. Anticipated and current preventive behaviors in response to an anticipated human-to-human H5N1 epidemic in the Hong Kong Chinese general population. *BMC Infectious Diseases*. 2007 Dec 1;7(1):18
9. 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. *Int J Biolog Sci*. 2020;16(10):1745.
10. Park JH, Cheong HK, Son DY, Kim SU, Ha CM. Perceptions and behaviors related to hand hygiene for the prevention of H1N1 influenza transmission among Korean university students during the peak pandemic period. *BMC Infectious Diseases*. 2010 Dec 1;10(1):222.
11. Najimi A, Golshiri P. Knowledge, beliefs and preventive behaviors regarding Influenza A in students: a test of the health belief model. *Journal of education and health promotion*. 2013;2:23
12. Tork HM, Mersal FA. Middle East respiratory syndrome-corona virus: knowledge and attitude of Qassim University students, KSA. *Global Adv Res J Med Med Sci*. 2018 Apr;7(4):90-7.
13. Maheshwari S, Gupta PK, Sinha R, Rawat P. Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: a cross-sectional study. *Journal of Acute Disease*. 2020 May 1;9(3):100.
14. Huynh G, Nguyen TN, Vo KN, Pham LA. Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. *Asian Pacific J Trop Med*. 2020;13(6):260.
15. Lincango-Naranjo, Eddy, et al. "Paradigms about the COVID-19 pandemic: knowledge, attitudes and practices from medical students." *BMC medical education* 21.1 (2021): 1-10.

