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Original Article

Coronavirus Disease Knowledge and Attitudes of Nursing Students: A Cross-Sectional Study in Saudi Arabia

Ahmed Abdalla Jarelnape

Department of Nursing, Faculty of Applied Medical Sciences, Al-Baha University, Al Baha, Saudi Arabia
ORCID:
Ahmed Abdalla Jarelnape: https://orcid.org/0000-0001-5327-9250

Abstract

Background: The prevalence of coronavirus disease is increasing rapidly all over the world therefore, this study aimed to understand the knowledge and attitudes among the nursing students about the coronavirus disease.

Methods: The design of our study was cross-sectional in the period from January to March, 2020. A survey was conducted by Survey Monkey, the questionnaire link had been shared with the students, according to the inclusion criteria (nursing students in the third and fourth year), the questionnaire included two parts: (i) demographic characteristics of the students and (ii) knowledge and attitudes regarding the coronavirus disease. The number of participants in the study, who completed the questionnaire, was 350.

Results: The findings revealed that the average score for their knowledge is good, (13/17 points) reaching 79%. Total 77% students showed a negative attitude about the coronavirus disease and 79.7% students used the website of Ministry of Health for medical information.

Conclusion: This study showed that nursing students had a good knowledge about the coronavirus disease and a negative attitude. The Ministry of Health website was instrumental in imparting knowledge to the students about coronavirus.

Keywords: coronavirus disease, knowledge, attitudes, nursing student

Corresponding Author: Ahmed Abdalla Jarelnape; email: ahmed3636@live.com

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1. Introduction

In December 2019, coronavirus disease appeared in Wuhan, China [1]. It has been called a novel coronavirus disease by the World Health Organization [2]. The coronavirus was called the Wuhan virus because it first appeared in Wuhan [3,4].

At the time of this research, the coronavirus disease had a significant effect on life of the public in many aspects of daily life, such as the closure of several educational institutions, places of worship, entertainment, tourism, and travel restrictions [5, 6].

Measures were being taken at the personal level, such as quarantining, wearing masks, social distancing, and using hand disinfectants, in order to reduce the spread of the pandemic [7].

Research and scientific experiments have indicated, with the H1N1 influenza in 2009 [8] and the Ebola virus in 2014, that the modern use of technology has led to the control and limitation of the spread of the disease [9–11].

Everyone should follow the prevention methods that limit the spread of coronavirus, like social distancing, washing hands, and wearing face masks [12]. We can control the pandemic and achieve the correct practice by assessing knowledge and identifying weaknesses between groups of society such as students and employees in institutions [13]. A study was conducted with the health care providers in China in the first period of the coronavirus outbreak and its results showed that approximately 92% had adequate knowledge about the methods of controlling and preventing the pandemic [14].

For that, it was necessary to assess the knowledge about coronavirus disease among the students at Al-Baha University, to ensure health information about it and methods of protection.

2. Materials and Methods

2.1. Study design, setting, and population

Cross-sectional survey was conducted between January and March in 2020, the study population consisted of both male and female nursing students in the third and fourth year from Al-Baha University, Faculty of Applied Medical Sciences. All the participants in the study were from the third and fourth years, and the questionnaire was completed by 350 participants. The participating students were selected based on certain criteria, inclusion criterion students were from third and fourth year, and the exclusion criterion were first- and second-year students. A pilot study was carried out on 10 students from third and fourth years to identify the applicability of the tools and ensure reliability and validity of them by expertise, accordingly the necessary modifications were carried out according to the students' understanding and answering of the questionnaire items, participants of the pilot study were excluded from the study sample. The link of the questionnaire was sent through the university email to the students.

2.2. Study variables

To assess the participants' levels of knowledge and attitudes, two sections of the questionnaire were included, the first section assessed the socio-demographic characteristics of the study sample such as sex, age categories (in years), year of study, and special course about coronavirus disease and 17 questions were designed to assess students' knowledge and attitudes about coronavirus disease. For attitudes, there were six questions that assessed the students' attitudes regarding coronavirus, using a Likert scale.

2.3. Scoring standards

Table 1 shows nursing students' general knowledge regarding coronavirus disease that was assessed using 17 questions in the questionnaire ranged from 17 (top score) to 0 (lowest score). A score of 14–17 was considered to represent excellent knowledge, score of 11–13 was considered indicative of good knowledge, score of 8–10 was considered to indicate average knowledge, a score of 4–7 was considered to indicate below average knowledge, and a score of 0–3 was considered to indicate poor knowledge.

2.4. Data analysis

Descriptive statistics, ranges, standard deviations, and means were used to assess the knowledge about coronavirus disease among nursing students, the data were analyzed by a statistical software and then exported to SPSS version 21, and presented in tables using frequencies and percentages. The comparisons of knowledge and attitudes among the basic demographic data of nursing using the *t*-test, nursing student were evaluated, and *p*-values under 0.05 were regarded as statistically significant. In order to evaluate the linear correlations between knowledge and attitudes, correlation analyses were also carried out.

TABLE 1: Interpretation of score according to the knowledge level.

No	Knowledge level	Score	Range (%)
1	Excellent	14–17	82–100 %
2	Good	11–13	64–81 %
3	Average	8–10	45–63 %
4	Below average	4–7	20–44 %
5	Poor	0–3	0–19 %

3. Results

Table 2: Socio-demographic characteristics of the study sample (*n*= 350).

Variable		Frequency	Percentage
Sex	Male	235	67%
	Female	115	33%
Age categories (in years)	18–22 years	53	15%
	22–26 years	251	72%
	26–30 years	46	13%
Year of study	Level three	144	41%
	Level four	206	59%
Special course about coronavirus disease	Yes	52	15%
	No	298	85%

Table 2 shows the demographic characteristics and other variables of the 350 subjects. The majority of the study samples were males i.e., 67%, while females were 33%. Most of the subjects were 22–26 years old, consisting 72% of the total subjects. Regarding the academic level, 59% of the study participants were in level four and 45% of the study participants had specialty in nursing. Total 70% participants had not received training about the method of transmission of respiratory infection.

Table 3: Sources of information on knowledge about coronavirus disease (*n*= 350).

Sources of information regarding COVID-19	Frequency (n)	Percentage (%)
Through the courses (college institute)	13	3.7%
Ministry of Health website	279	79.7%
News media (television and radio)	17	4.9%
Social media	33	9.4%
Other	8	2.3%
Total	350	100%

Table 3 shows the students' sources of information about coronavirus disease. For 79.7% students, the website of Ministry of Health is the most common source of information about coronavirus disease. Social media is the second source of information about coronavirus for 9.4% students.

Table 3 illustrates the students' knowledge about the concepts regarding coronavirus disease, 82% gave correct answers about the definition of coronavirus disease. The participants of the study were asked regarding the signs and symptoms of the coronavirus disease for which 89% of the participants answered correctly. The students' knowledge regarding risk factors and complications of coronavirus disease was average 61% and

Table 4: Knowledge about coronavirus disease among study participants (*n*= 350).

knowledge about coronavirus disease	Correct n (%)	Incorrect n (%)	p-value
Definition of coronavirus disease is?	287 (82)	63 (18)	0.002
What are the causes of coronavirus disease?	317 (91)	33 (9)	0.001
What are the symptoms of coronavirus disease?	311 (89)	39 (11)	0.001
What are the risk factors of coronavirus disease?	190 (54)	160 (46)	0.056
What is the incubation period of coronavirus disease?	331 (95)	19 (5)	0.001
What are the methods of transmission of coronavirus disease?	263 (75)	87 (25)	0.032
What are the preventions of coronavirus disease?	291 (83)	59 (17)	0.001
What is the protective equipment for coronavirus disease?	270 (77)	80 (23)	0.021
What are the vaccines or specific treatments for coronavirus disease?	308 (88)	42 (12)	0.001
What are the complications of coronavirus disease?	214 (61)	136 (39)	0.033
Overall knowledge score about coronavirus disease?	**278 (79)**	**72 (21)**	**0.001**

53%, respectively. The overall level of knowledge about coronavirus disease, and its prevention and control was 79%.

Table 5: Attitudes about coronavirus disease among study participants (*n*= 350).

Variable	Frequency	Percentage
Positive attitude	79	23%
Negative attitude	271	77%
Total	350	100%

Total 350 participants (77%) showed a negative attitude regarding the coronavirus disease while 8 (23%) of the participants had a positive attitude (Table 5).

Regarding attitudes, 350 of the total participants completed the attitudes' part. A total of 88% avoided close contact with people who had acute respiratory infections such as fever and difficulty breathing, 72% washed their hands, especially after direct contact with patients, and 80% kept distance from others. Total 84% of the participants cover their mouth and nose with a tissue during cough or sneeze, 70% of the participants believe that health personnel are more vulnerable to infection than others, and 68% agree that vaccinations play a major role in reducing the spread (Table 6).

4. Discussion

Nursing students play a vital role in spreading health awareness among the community about coronavirus [15,16].

Table 6: Attitudes of students regarding coronavirus disease (*n*= 350).

Items	Strongly agree n %	Agree n %	Don't know n %	Disagree n %	Strongly disagree n %
Do you avoid close contact with people who have acute respiratory infections such as fever and difficulty breathing?	141 (40)	153(44)	44(13)	7 (2)	5 (1)
Do you wash your hands, especially after direct contact with patients or their environments?	201 (57)	53 (15)	13 (4)	41 (12)	42 (12)
Do you keep a distance between you and others?	54 (15)	13 (4)	5 (1)	45 (13)	233(67)
Do you cover your mouth and nose with a tissue when you cough or sneeze?	71 (20)	223(64)	3 (1)	4 (1)	49 (14)
Do you think that health personnel are more vulnerable to infection than others?	87 (25)	12 (3)	9 (3)	51 (15)	191 (55)
Do you agree that vaccinations play a major role in reducing the spread?	55 (16)	181(52)	33 (9)	23 (7)	58 (17)

Regarding the sociodemographic characteristics of the analyzed sample, the majority of the participants were male (67%). This result is inconsistent with the result of another similar study

conducted in Italia where it was found that 64% of the participants were female [17]. In this study, 72% participants were mostly 22–26 years of age.

Regarding a special course about coronavirus, it was found that only 15% of the participants received these courses. This result disagrees with the results of another study which indicated that 88% of the students had attended a training course about the respiratory infection control [18].

Regarding sources of information on knowledge to coronavirus disease, more than half of the participants (58%) obtained knowledge from the Ministry of Health website, as it is considered to be the most reliable source of information about the pandemic. Consistent with this finding, a study conducted at Lahore Medical College reported a strong link between medical undergraduates' knowledge levels and the informational accessibility in the media, for example, approximately 85.5% of the study sample were aware of preventive measures, 95% were aware of a method of spreading, 97% were aware of infecting agents, and 91.9% were aware of the presenting complaints. These results concur with the findings of previous surveys [19,20]. Furthermore, other studies showed that health information from official non-profit media channels is more credible than other means of information via the internet and private news agencies [21,22]. Regarding the definition of coronavirus disease, findings indicate that most

of study participants (82%) have knowledge of the concept of disease, this finding is consistent with other studies conducted in the Saudi Arabia [23,24]. Only 61% of the participants answered correctly about risk factor, these results were similar to a study conducted in Iran [25]. Total 95% of the participants answered correctly about incubation period to coronavirus disease, this result is supported by studies done in Pakistan, China, and Iran and found 95%, 66%, and 86% correct answers regarding the incubation period, respectively [26,27]. Regarding knowledge about the method of transmission of coronavirus disease in this study, it was found that 75% of the participants knew about the method of transmission of coronavirus disease [28-30]. The result indicated that just 39.2% participants correctly recognized the method of transmission of coronavirus disease. In the current study about the prevention method and protective equipment of coronavirus disease, 77% of the participants gave correct answers, and this result was supported by a study conducted in Italian and medical students were found to have a good knowledge of protection methods of coronavirus disease, 88% gave correct answers [31]. Regarding the vaccine or specific treatment for coronavirus disease, 88% of the participants have excellent information and answered correctly; this result is supported by studies conducted in Jordan and found that 88% have information about the vaccine [32]. Total 61% participants had knowledge of disease complications, these results were supported by a large survey conducted in United States and United Kingdom which showed that 96.2% and 97.3% of the elderly and those with chronic diseases are more severe for complication and death [33].

Most of the students had a negative attitude about coronavirus disease, the result was consistent with a similar study in Bangladesh [34]. Furthermore, these results were similar with Basnet *et al.* who found negative attitude in healthcare personnel in Nepal [35]. Another study was found inconsistent with our study [27]. The negative attitudes about coronavirus disease affects the general life.

5. Conclusion

This study showed that the students at Al Baha University, Faculty of Applied Medical Sciences, had excellent knowledge about coronavirus disease. Mostly participants relied on reliable sources of information for coronavirus, like Ministry of Health web-site.

Limitations

The study was conducted at a single educational institute, Al Baha University, in the Kingdom of Saudi Arabia. The results obtained here may not be generalizable to other universities in the country.

Ethical Considerations

The study was approved by the Research Ethical Committee, Nursing Department, College of Applied Medical Sciences, Al Baha University, Kingdom of Saudi Arabia. (Approval No/BU-March, 2020/02). Before administering the questionnaire, researchers obtained informed consent from each study participant after fully describing the study's objectives and giving them the opportunity to withdraw at any time.

Competing Interest

There is no conflict of interest to declare.

6. Availability of Data and Material

All materials of this study are available from the corresponding author upon reasonable request.

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