Awareness of COVID-19 among the Public in Saudi Arabia

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Abstract:
Appearance of COVID-19 in Wuhan city, China in the middle of December 2019 that attacks respiratory system and causes pneumonia and may lead to death among human. The number of new cases in many countries is on rise including Saudi Arabia, United State and other countries. The COVID-19 is more potent than previous coronaviruses and transmitted through droplet and contact from infected person. The incubation period could be up from 2 to 14 days. This study aims to assess the level of awareness toward COVID-19 among the public in Saudi Arabia using questionnaire distributed among public through social media to measure the level of awareness. In this cross-sectional study, the research team included all Saudi communities in Saudi Arabia. The study sample reached to 1361 participants. The average age of the participants was between 20 to 30 years (46.3%) and majority of them was female (88.9%). Ninety nine percent of the participants heard about COVID-19, also 88.6% of participants were aware about the causative agent, sign and symptoms. The majority 97.1% knew about the mode of transmission and less than half (41.5%) were aware of the incubation period. Majority of the participants with an average of (2.48 out of 3) demonstrated good protective practice from COVID-19. In conclusion, the study revealed that the effort of Saudi government had taken against the COVID-19 was effective. This is an emergency concern for public health globally. Therefore, awareness on COVID-19 is an essential to reduce and minimize the spread of the disease.
Key Word*: Corona virus and China, Chinese, Novel coronavirus and china, "COVID-19" and "Coronavirus2019". COVID-19". Incubation period of COVID-19. New corona virus. "COVID-19" OR Coronavirus OR " Corona virus" OR " 2019-nCoV".*

I. Introduction

Coronaviruses are large group of viruses that lead to illness ranging from mild to more severe diseases. It is zoonotic disease means transmitted from animals to human. Recently, a new member of coronavirus appears named COVID-19 that has not identified in humans previously [1]. There are many types of coronaviruses; the most common types are Severe Acute Respiratory Syndrome (SARS-CoV) and Middle East Respiratory Syndrome (MERS-CoV). In addition to novel coronavirus known as COVID-19, which is discovered in December 2019 [2]. There are several similarities between COVID-19 and SARS-CoV in relation to sign and symptoms, mode of transmission and the stability on the surfaces but COVID-19 is more potent and contiguous than other types of corona [3,4]. Many studies showed that patients with COVID-19 experience onset of fever, cough, shortness of breath, diarrhea, vital signs are stable in most of the cases, leucopenia and lymphopenia are common [5,6,7]. The diseases could be progress that lead to aggressive symptoms of pneumonia such as arrhythmia, acute respiratory distress syndrome (ARDS), shock, acute cardiac trauma, and acute kidney injury [8].

Chen et al 2020 stated that the COVID-19 could cause severe complications to patients such as pulmonary edema, severe pneumonia, and multiple organ failure. It is suspected for all ages to develop ARDS but especially those who are vulnerable such as elderly people and who have chronic disease such as diabetes, cardiac diseases and pulmonary diseases lead to death [6,3,4]. The World Health Organization stated that the incubation period ranges from 2 to 14 days[1]. China's National Health Commission (NHC) had initially estimated the incubation period from 2 to 14 days [9]. One of the greatest challenges that when the viruses become pandemic [10]. There is no specific treatment or vaccine for COVID-19 yet. However, it could be prevented through using personal protective precaution [8]. Recent evidence emphasizes washing hands at least 20 to 40 seconds, provide distance at least one and a half meter and quarantine for suspected person who had contact with sick people and who have signs and symptoms of COVID-19 [9].

At the early stage, the initial step for collecting information about the study topic, researchers used systematically reviews on COVID-19. This study systematically reviews the data for COVID-19, aiming to get

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updated information and published articles related to research topic, which is the awareness of COVID-19 among public of Saudi Arabia. For the purpose of the study that focus on level of awareness among public in Saudi Arabia about COVID-19. The researchers searched studies that related to COVID-19 (such as signs & symptoms, incubation period, mood of transmission, prevalence etc.).

The sudden appearance and outbreak of respiratory disease in December 2019 at Wuhan city in China [7]. This disease is caused by new potent virus named COVID-19 [6]. It causes death and transmitted from human to human by droplet [7,9]. The numbers of confirmed cases are increasing globally. It reached to 39,682,622 confirmed cases; recoveries 29,710,903 as well as the mortality numbers reached 1,110,527. Furthermore, the confirmed cases in Saudi Arabia increased 341,854 as well as recoveries 328,165 even more the mortalities reached 5,165 [11]. In addition, the coronavirus appeared in many other countries worldwide [12] such as Japan, Thailand, South Korea, Hong Kong, Australia, etc. [11]. Since the tourism is open to everyone in Saudi Arabia, many travelers from China and returned from China had entered the country during and before the outbreak. During this period, people came from every country in the world for Umrah and Hajj at the holy places in (Mecca and Medina) in Saudi Arabia so there is a great threat in the country. This may put Saudi Arabia at risk for fatal diseases. As nurses, we need to prevent the spread of the diseases by assessing, the public awareness toward the disease would help nurses plan for protection and prevention the diseases campaign. Having enough knowledge among the public may protect people from acquiring the diseases [13]. Therefore, this study may help nurses to identify what the public know about the COVID-19 in Saudi Arabia. There are few studies in Saudi Arabia have shown the association between awareness of people and prevention the outbreak of disease [14,15]. This study aimed to measure awareness of people in relation to method of prevention of spreading of the COVID-19 in Saudi Arabia.

II. Material and Methods

Study design
Cross-sectional study was used in this research, this means observational study that analyzes data from a population at a specific point in time [16]. It was used to assess the awareness of people on COVID-19 in Saudi Arabia.

Study settings
This study approved by Faculty of Nursing at King Abdulaziz University in Jeddah. It was conducted from March to May 2020 through social media. Google form was used to creating the survey and then has been published through What's Up, Instagram, twitter and snapchat.

Sample and sample size
The current population in Saudi Arabia is 34,218,169. Convenient sample method was used to collect 1361 sample size over period of time that extended from 2 to 16 March 2020.

Inclusion criteria
The study included Saudi and non-Saudi who are living in Saudi Arabia aged between 14 to 65 years old, computer literacy and who understand Arabic language.

Exclusion criteria
The study did not assess people age less than 14 and above 65, computer illiteracy and other language than Arabic.

Statistical analysis
Statistical Package for the Social Sciences, Version 25.0 was used for data analysis. Frequencies and percentage proportions were used to present the data. Variables were described using mean and standard deviation. ANOVA and the t-test were used as test of significance at 5% level.

III. Result

This section displays the results of the study. A total of 1361 participants completed the survey questionnaire. Majority of study sample were females (n=1125, 82.7%) and Saudi (n=1210, 88.9%). About half (46%) of the participants were at age between 20-30 years. Half of participants were single (n= 694, 51.0%), more than half of participants were lived in west region of Saudi Arabia (n=1085,79.7%), (n=895, 65.8%) were complete a university education and (n=792, 56.0%) were not working. All demographic data of the participants are presented in Table1.

Table1.
Demographic data of the participant (N= 1361)

Characteristic		Frequency	%
Gender	Male	236	17.3
	Female	1125	82.7
Nationality	Non-Saudi	151	11.1
	Saudi	1210	88.9
Age	Less than 20 Year	109	8.0
	From 20 to 30 Years	629	46.2
	From 30 to 40 Years	256	18.8
	More than 40	367	27.0
Social status	Married	584	42.9
	Single	694	51.0
	Other	83	6.1
City	North	7	0.5
	South	35	2.6
	East	14	1.0
	West	1085	79.7
	Center	75	5.5
	Other	145	10.7
Level of education	Primary	14	1.0
	Preparatory	34	2.5
	Secondary	272	20.0
	Diploma	65	4.8
	University	895	65.8
	Postgraduate	81	6.0
Nature of work	I do not work	762	56.0
	Private business	44	3.2
	government employee	145	10.7
	Private sector	148	10.9
	Educational	111	8.2
	Military	13	1.0
	Health field	138	10.1

Knowledge related to COVID-19

Figure (1) illustrates the frequency of participants heard about COVID-19. The majority of participants heard about COVID-19 (n=1354, 99.5%). Figure (2) shows few of participants (n=4, 0.3%) had a family member who infected with COVID-19. Table2 most of participants (n=1205, 88.6%) reported COVID-19 caused by virus and more than third (n=1282, 27.3%) agreed that COVID-19 can transmitted through droplet.

Moreover, less than half (n=565, 41.5%) knew the incubation period of COVID-19. A significant number of participants (n=1321, 97.1%) knew that COVID-19 transmitted through human to human. In addition to that, a large number of them (n=1299, 95.4%) were aware that COVID-19 could transmitted through contact with infected person and (n=1218, 89.5%) of them knew that COVID-19 transmit when touching contaminated surface and devices and then touching the mouth, nose, or eyes. Also, many of participants (n=1285, 94.4%) knew that fever and cough are signs and symptoms of COVID-19. More than 50% stated that shortness of breath is one of signs and symptoms of COVID-19 (n=1185, 87.1%). The majority 71% of participants recognized that nasal congestion or sore throat are one of the signs and symptoms of COVID-19 and (n=352, 25.9%) of them were aware that diarrhea could be one of the signs and symptoms of COVID-19. Moreover, more than half of participants (n=1039, 76.3%) were aware that COVID-19 could be cured and (n=1040, 76.4%) of them would take vaccine of COVID-19 if it available. The results show that (n=723, 53.1%) of participants agreed regarding to transmission of COVID-19 from animal to human. Less than half (n=645,47.4%) stated that patient could be asymptomatic, n=434, 31.9% of participants represented that COVID-19 transmitted when eating uncooked food, a few numbers of them (n=439, 32.3%) agreed in which COVID-19 could lead directly to death and n=122, 9% of participants were stated that COVID-19 has a vaccine. Overall, the highest score for Knowledge was (2.97 from 3) and the lowest score was (1.55 from 3).
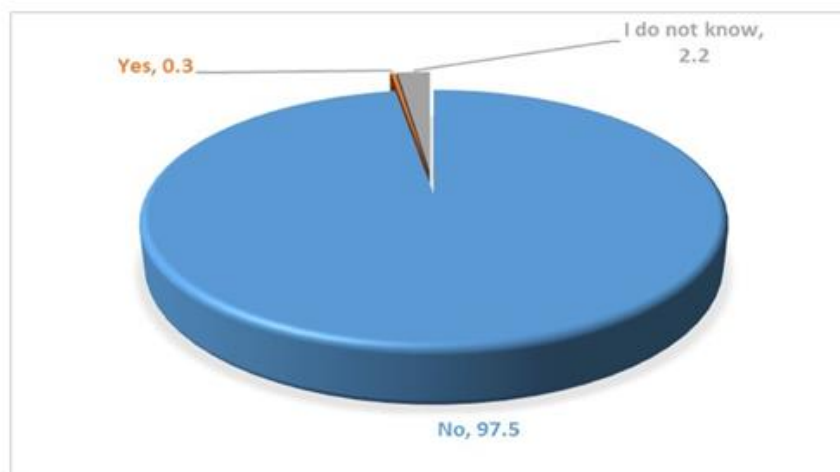
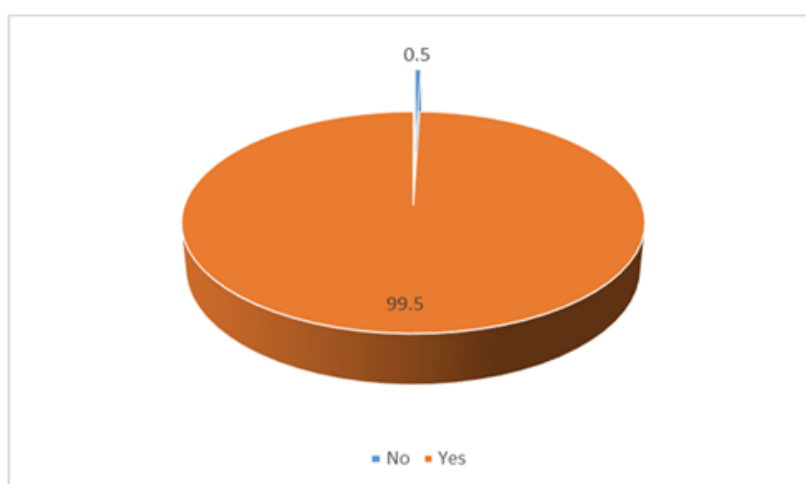**Figure (1)** Distribution of participants who heard about COVID-19

Figure (2) Distribution of participants who has family members with COVID-19

Table 2.
Responses on different question related to epidemiology and clinical knowledge

Questions	Frequency	%
COVID19 caused by virus.	1205	88.6
COVID-19 transmitted through coughing and sneezing.	1282	27.3
Do you know the period when the patient get infected until the symptoms appear.	565	41.5
COVID-19 transmit from person to person.	1321	97.1
COVID-19 transmit from contact with sick people.	1299	95.4
COVID-19 transmit when touching contaminatedsurface, devices, and then touching the mouth, nose, or eyes.	1218	89.5
Fever and cough are sign and symptoms of COVID-19.	1285	94.4
Shortness of breath is sign and symptoms of COVID-19.	1185	87.1
Nasal congestion or throat are sign and symptoms of COVID-19.	966	71
Diarrhea is sign and symptoms of COVID-19.	352	25.9
COVID-19 can be cure.	1039	76.3
If there is a vaccine for COVID-19 will you take it.	1040	76.4
COVID-19 transmit from animal to human.	723	53.1
Patient with COVID-19 can be asymptomatic.	645	47.4
COVID-19 transmit when eating uncooked food.	434	31.9
COVID-19 can lead directly to death.	439	32.3
COVID-19 has vaccine.	122	9

Assessment of practice

Table3. shows the practice level of participants among prevention of new COVID-19 with an average of (4.65 to 5), which is an average that fall in the fifth category scale (4.21 to 5) that indicates an option that I strongly agree with study tool. It is clear from results in Table3. that the participants strongly agree with fourteen features of the prevention of the COVID-19 represented in terms number (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,

12, 13, 14) which were arranged in descending order according to the strong approval of the participants. The item No. (1): "Cover my mouth or nose when coughing or sneezing" came first in terms of the approval of the participants strongly agree with an average of (4.85 out of 5). Moreover, the item No. (14): "I commit annually to take the seasonal influenza virus vaccine," it comes at the fourteenth rank, in terms of strong approval by the participants , on average (4.26 out of 5).It is clear from the results shown above that the most prominent features of prevention of the COVID19 is to put the tissue on mouth or nose when coughing or sneezing. This result explains that putting the tissue in the mouth or nose when coughing or sneezing prevents the transmission of the virus to another person, which increases the prevention of COVID19.

Table3.
Distribution of Good practice of public toward COVID-19

Practice	Frequency	%
Cover my mouth or nose with tissue when coughing or sneezing.	1198	88
I avoid mixing people who suspect have COVI-19.	1196	87.9
Dispose tissues after using it in the trash.	1200	88.2
I wash my hands with soap and water for 20 seconds, especially after using the toilet and before eating.	1186	87.1
I use a mask when I have symptoms like the COVID-19.	1129	83
I avoid going to crowded places.	1035	76
Use hand sanitizer regularly.	1021	75
Going and reporting when have high fever and sore throat.	1016	74.7
Avoid touching the eyes, mouth, and nose.	1016	74.7
Staying at home when I am sick.	1022	75.1
I set a meter and more away when talking to the person.	919	67.5
Meat and eggs should cook well.	882	64.8
I wear mask to be the dark color outside to protect others.	842	61.9
I commit annually to taking the seasonal flu virus vaccine.	777	57.1

Table4.
Distribution of the participants' Source of medical information

Source of information	N	Percent
Internet	225	38%
Books	29	4.9%
Health care worker	125	21.1%
Papers	58	9.8%
Messages	139	23.5%
Other	114	10.2%

Source of information

As presented in Table4 that most of participants (n=225, 38%) used the internet as a source of information, (n=29, 4.9%) few of participants used books as a source of information and (n=114, 10.2%) of participants used other sources than mentioned.

Table5.
The difference between means of knowledge score and practices with nationality and gender

Items	Knowledge	Practice
Gender	0.849	0.127
Nationality	0.454	0.016

Table6.
Analysis of degree of knowledge and practice measure on some independent predictors

Items	ANOVA
Age Knowledge Practice	0.396 0.512
City Knowledge Practice	0.608 0.512
Level of education Knowledge Practice	0.001 0.002

Nature of work	
Knowledge	0.087
Practice	0.006

Factor related to knowledge and practice toward COVID-19

Table5 shows the knowledge indicates that the p-value (0.606) and the nationality (0.454) so there are no significant differences between means in males and females in terms of their knowledge with level of significance 95%. Furthermore, for the practice of gender p-value (0.127) there is no difference with gender while for nationality (0.016) there is different. Table6 Illustrates there is no relationship between knowledge and practice for age, city, nature of work but there is relationship between knowledge and practice for level of education and the nature of work.

IV. Discussion

The present study assesses the knowledge and practice regarding COVID-19 among public in Saudi Arabia. The study was conducted before emerging COVID-19 in Saudi Arabia. Moreover, the findings were unexpected, the participants had shown high level of knowledge, attitude and practice regarding to COVID-19. Participants from public reported in this cross-sectional study were 1361. The participants in the study were from different level of education starting from intermediate level to university level. This may be explained that the questionnaire was distributed electronically only those who were educated will be able to answer the questionnaire. The participants of the study were from Saudi Arabia, the majority of them (n=1210, 79.7%) were from Western region, this may be due to the researchers are from Jeddah and the survey tool was distributed via social media. The findings show that most of participants have good knowledge about COVID-19, on the other hand the prevention practice toward COVID-19 was low in participants with low education level and who are unemployed. This may be due to the distribution of the questionnaire at early stage of appearance of COVID19 in Saudi Arabia. There are similarities between the knowledge and practice toward public in this study and other studies. Three studies have explored the various level of knowledge, attitudes, and practice about communicable disease. The study conducted in China to assess attitude, knowledge and practice of COVID-19, the participants were 6910. In addition, most of participants have a positive attitude toward COVID-19 (n=6282,90.8%). There are corresponding with the previous studies [13]and this study. Both assessed level of awareness towards COVID-19 among public before this virus became a pandemic. This may indicate the readiness of the public about COVID-19. The study showed most of the participants were female (n=4387,63.5%), the level of education was bachelor's degree (n=3881,56.2%) and the source of information was obtained from internet. In addition, there are many differences, high number of the participant wear mask (n=6,771,98.0%) and avoid crowded places(n=6661,96.4%) as a precaution measure. While in current study in Saudi Arabia most of them cover their mouth, nose with tissue when coughing or sneezing(n=1198,88%) and dispose tissue after using it in the trash(n=1200,88.2%) to prevent the spread the virus. Furthermore, the range of participants' age between 16 to 87 years unlike the current study were 14 to 65 years. Beyond pervious reports, showing that different from the study that most of the participants have good knowledge about COVID-19. However, low level of knowledge regarding to incubation period and availability of vaccine[14,16]. Even though this study went further to measure the level of awareness among public regarding to the practice and knowledge that found low level of knowledge about the incubation period and few of the participants agree about availability of vaccine. Another two studies conducted among health care workers shown moderate to good knowledge regarding MERS-CoV. The first study, by Abbag et al, [15] demonstrated significant poor knowledge about mode of transmissions and the other study conducted by Asaad et al, [17]found that poor knowledge about incubation period of MERS-CoV. It seems there is improvement of knowledge in the current study may reflect the health information availability and accessibility in Saudi Arabia. In addition, Asaad et al study showed that the most usable source of information were social media and the Ministry of Health website. In current study, participants had good knowledge about the cause of COVID-19 and mode of transmission, about (n=565, 41.5%) of participants view that incubation period of virus is 14 days. Also, demonstrated good practice regarding COVID-19 that is related to acquire information from social media, advertisements, and the Ministry of Health. This finding has important implications for nursing and public health. This finding has important implications for developing more knowledge and disease prevention practices through planning intervention programs, brochure, educational videos, and courses to reach maximum level of awareness among public. The nurse play an important role for educating the community to prevent further spread of the disease and increase the knowledge of uneducated people. It is very crucial for public health/community health nursing to have knowledge of communicable diseases to prevent infections because diseases typically spread through communities of people.

V. Conclusion

The present study was designed to assess the awareness about the COVID-19. One of the most significant findings emerged from this study is that public awareness about sign and symptoms, mode of transmission, incubation period, causative agent, preventive measures were at acceptable level. The public agreed about covering their mouth and nose when sneezing or coughing and this is an essential good practice to reduce the transmission. This study found that participants in general have good level of knowledge. However, the practice regarding the prevention measures of COVID-19 were low amongst low level of education people and the nature of work. Nevertheless, the research team found that most of the participants lack awareness about the availability of vaccine for COVID-19. The COVID-19 is more serious with vulnerable group, and most cases that infected were male. Furthermore, the Ministry of health in Saudi Arabia had designed and implement advanced health education program to educate the public about COVID-19. These findings have several important implications to maximize the knowledge and practices against COVID-19. In addition, provide the following insights for future research to enhance community awareness of COVID-19 and develop further programs to improve public awareness of the COVID-19 on prevention methods.

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