The Cultural Background and Awareness of People in Asir Region toward the New Coronavirus (COVID-19)

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ABSTRACT

Objective: The recently emerged coronavirus disease (COVID-19), which is caused by the severe acute respiratory syndrome virus-2 (SARS-CoV-2), was declared as a pandemic by the WHO in March 2020. The knowledge and awareness of the general populations about the modes of the disease transmission deemed extremely important in preventing the spread of COVID-19. This study aims to determine the knowledge and awareness of the Saudi population in Asir region towards the COVID-19.

Design and Setting: A cross-sectional, community-based study was conducted by recruiting 715 participants. A self-administered structured questionnaire was distributed to the participants that comprised several sections including the demographics, sources of medical information, acquaintance of mode of the virus transmission, diagnostics and preventive measures of the infection.

Method: Data analysis was executed through SPSS program version 26.

Results: Significant differences in the knowledge and attitude of Saudi population towards COVID-19 based on the differences in marital status (p=0.036), place of residence (p= 0.012), use of electronic devices (p =0.043), and sources of information (p <0.001) were observed. Non-significant variations in the average scores over the genders (p=0.616), age groups (p=0.252), educational level of parents (p=0.685), educational level of children (p=0.822), number of children (p=0.5), employment status (p=0.079), monthly income (p=0.339) and internet access (p =0.227) were noted.

Conclusion: Although, the general knowledge and awareness about the different elements pertaining to COVID-19 among the population in the study area are satisfactory to assist in the control of the infection, more directive measures are to be implemented to improve that awareness.

Keywords: Coronavirus disease, Severe acute respiratory syndrome, Knowledge, Awareness

INTRODUCTION

Coronaviruses constitute a group of viruses that were previously used to cause mild to moderate respiratory infections[1]. In the last few decades, the spread of deadlier coronaviruses from animals to humans has been observed[2]. Examples of these viruses are SARS-CoV, MERS-CoV, and the recently identified SARS-CoV-2 which known to cause the COVID-19[3]. COVID-19 was firstly detected in China, namely in Wuhan city, by the end of 2019[4]. Despite the tremendous efforts of the Chinese authorities towards the early containment of the disease, the global spread of the disease occurred and remained uncontrollable leading the World Health Organization (WHO) to declare the novel coronavirus (COVID-19) as a pandemic in March 2020[5].

The symptoms of COVID-19 range from totally asymptomatic to life-threatening hypoxia and hypoxemia that require mechanical ventilation[6]. The risk of severe symptoms is even higher in the elderly and patients with co-morbid conditions, autoimmune diseases, chronic respiratory conditions such as asthma and chronic obstructive respiratory disease (COPD)[7]. Currently, there is no approved treatment or vaccine to control COVID-19[8]. Therefore, the WHO is focused on controlling the spread of the virus to protect people against the disease[9]. This step is mainly dependent on the awareness of the public towards the modes of disease transmission and ways to limit its spread[10].

At present, major efforts are being made to increase the awareness among general populations in different parts of the world to increase compliance towards social distancing, use of masks and gloves, avoid frequent touch on the face and minimize going out except for necessary purposes[11]. An integral role is played by the knowledge and attitude of people towards COVID-19 determine the readiness of the societies to accept the behavioral measures announced by the respective health authorities. This highlights the importance of assessing the level of understanding in the general populations related to the important preventive measures that help in controlling the spread of virus. Some studies, which were made to determine people's knowledge and attitude towards COVID-19, had concluded that the public possess an average level of knowledge related to COVID-19 and are positive towards overcoming this pandemic situation[11,12]. In the same context, another study was also carried out to evaluate the healthcare professionals' perception and knowledge, and general population towards COVID-19 with non-satisfactory results have been obtained[13]. The figures obtained through similar studies among the Saudi populations are still controversial and not conclusive. Therefore, the present study aims to examine the knowledge and awareness of the general population towards the COVID-19 in Asir, southern region Saudi Arabia as a first report.

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MATERIAL AND METHODS

Study Population: A cross-sectional community-based study was carried out in the Asir region (Southern region of Saudi Arabia) between April and July 2020. The targeted populations were requested to fill a survey questionnaire. Informed consent was obtained from all the participants before conducting the study. It was assured that all the collected data would be kept confidential and will not be used, except for research purposes. From the total targeted population, only 715 participants were actively responded by providing complete responses within the questionnaire.

Inclusion and Exclusion Criteria: Only adult participants, aging between 18 and 70 years old, were selected by a multi-stratified randomized technique. The participants of the study included the general population, while the healthcare practitioners were excluded. Only participants who finished all the questions in the survey were included as a study sample.

Data Collection: A self-developed questionnaire was designed and distributed to the general public in the Asir region of Saudi Arabia. The questionnaire was divided into sections, including questions regarding the demographics of the respondents, the sources of medical information, mode of the virus transmission, diagnostics and preventive measures for the infection, and the population's attitude for limiting the spread of the virus.

Data Analysis: IBM SPSS (Statistical Package for the Social Science; IBM Corp, Armonk, NY, USA) version 26 for Microsoft Windows was used to perform all the statistical calculations. The data were analyzed in the form of frequencies and percentages for categorical variables. Chi-square analysis was used to compare categorical variables among the subgroups. All p-values less than 0.05 were considered statistically significant. ANOVA analysis was also used to compare the mean values among the different groups of participants.

Ethical Approval: The study was approved by the Institutional Research Ethics (IRE) board, and the ethical committee of the College of Medicine, King Khalid University (KKU).

RESULTS

Basic socio-demographic data and cultural backgrounds of the selected participants

Out of the 715 selected participants, 69.5% were females; while, 30.5% were males. The majority of the participants who responded to the questionnaire are in the age group between 20 and 30 years old (36.6%). The retrieved data also showed that the majority of the participants were Saudi nationals (97.6%). A significant number of the participants were married (p= 0.036), with 47% not having children. 57.2% of them were employed. The cohort's number lived in an urban area is significantly higher (p= 0.012) than those who lived in the rural areas. 92.7% of the participants used mobile phones or iPads. The educational levels, health conditions, and access to the internet of the participants were also extracted and summarized in Table (1). The findings showed that 77.2% of the children and 35.4% of the parents were university graduates. Also, 97.6% of the participants had easy access to the internet, and 90.9% were healthy individuals.

Knowledge of the public in the study area about COVID-19

The general knowledge and awareness of the public in the study area about the COVID-19 is demonstrated in Table 2. The results showed that the major source of knowledge about COVID-19 among the participants is social media. A considerable number of them (54.7%) recognized that the causative organism of the disease is a virus. Majority of the respondents believe that the elderly and patients with comorbidities were at the higher risk of developing severe infection. As for the mode of transmission, 73.1% of the participants strongly agreed that COVID-19 is transmitted from one person to another, and 63.5% of them indicated that the rate of transmission is very fast. Additionally, 61.1% knew that the incubation period is between 1 to 14 days. As per the symptoms and diagnosis of the COVID-19, the highest number of participants believed that the symptoms included high fever, severe fatigue, dry cough, and shortness of breath (SOB). The majority of them also think that disease management can be achieved through

Table 1: Educational levels, health conditions and internet access of the participants

Item	Frequency	Percent (%)	p value
The educational level of children			
Primary	15[a]	2.1[b]	0.822
Secondary	125	17.5	
Intermediate	23	3.2	
University	552	77.2	
The educational level of parents			
Illiterate	166	23.2	0.685
Primary	108	15.1	
Secondary	117	16.4	
Intermediate	71	9.9	
University	253	35.4	
Health condition			
Healthy	650	90.9	0.025*
Health problems	65	9	
Do you have easy access to the internet?			
No	17	2.4	0.227
Yes	698	97.6	

[a]Number of the participants for each specified item.
[b]The (%) was calculated from total number of the respondents (715).
[c]Healthy individuals are those who are not suffering chronic diseases (such as diabetes and hypertension).
*p value < 0.05 is considered significant.

Table 2: Knowledge about transmission, diagnosis, and treatment of COVID-19

Questions	Options	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
What is your source of information?	TV	17.3a	45	22.9	10.9	3.4
	Social Media	47.7	44.6	5.2	1.8	0.7
	Doctors	16.1	23.6	26.3	25.6	8.4
	Family and friends	10.8	24.8	31	25.2	8.3
	Other	5.7	23.8	19.6	35.4	15.5
What is the causative organism of COVID-19?	Bacteria	5	15.2	13.6	42.9	23.2
	Virus	54.7	42.2	1.8	1	0.3
	Fungi	3.5	9.7	12.7	48.5	25.6
	Other	3.2	13.4	12.9	46.3	24.2
Who are at the higher risk to severe COVID-19?	Elderly	46.3	46.4	5.2	1.7	0.4
	Patients with comorbidities	49.4	42	6.9	1.1	0.7
	Pregnant females	23.5	37.5	26.3	10.6	2.1
How does COVID-19 transmitted?	Directly from one person to another	73.1	25	1.4	0.1	0.3
	Through droplets of patients during sneezing or coughing	64.1	32.7	1.8	1.1	0.3
	Through touching contaminate surfaces and tools with the virus and then touching the mouth, nose, or eye	67.4	30.2	1.5	0.6	0.3
	Via drinking or eating	16.1	16.8	26	31.3	9.8
	Through air	12.4	17.6	20.8	38.7	10.3
	Options 1 and 2	55.4	31.2	6	5.6	1.8
What is the rate at which the COVID-19 virus is spreading?	Very fast	63.5	30.3	4.5	1.7	
	Fast	27.7	44.9	12.9	10.2	4.3
	Slow	3.9	5.9	8	55.1	27.1
How long between infection and symptoms of the COVID-19 (I.P.)?	1 - 7 days	9.1	21.8	27.6	32.3	9.2
	1 - 14 days	61.1	27.8	4.8	4.8	1.5
	>14 days	16.8	21.5	25.5	28.4	7.8
	I do not know	3.4	8.3	15.2	50.6	22.5
What are the general and characteristic symptoms of COVID-19?	High fever, severe fatigue, dry cough, and SOB	68.8	29.1	1.4	0.4	0.3
	Low fever, runny nose, nasal obstruction, diarrhea	9.4	16.2	21.1	38.3	15
	I do not know	2.9	9.4	15.9	47.3	24.5
How to diagnose COVID-19?	Special analysis under the supervision of the MOH (RT-PCR test)	58.5	34	4.6	2.1	0.8
	Temperature detection in health facilities	28.3	40.3	17.2	10.5	3.8
	I do not know	3.5	10.6	17.8	46.9	21.3
Health care is provided to the infected through:	Alleviation of symptoms and treatment of complications	51.7	41.3	5.6	1.1	0.3
	HIV vaccine	21.4	22	20.1	24.8	11.7
	I do not know	3.1	12.4	21.4	43.8	19.3

[a] Percentage of the responding participants for each specified item.
Abbreviations: I.P. = Incubation period; SOB= Shortness of breath; MOH= Ministry of Health; RT-PCR=Reverse-transcription polymerase chain reaction.

alleviating these symptoms and treating the complications. 58.5% of these responding participants knew that PCR under governmental supervision is used to diagnose COVID-19.

Attitudes of the participants towards COVID-19 management, prevention and control

The attitudes of participants towards disease management and prevention were also investigated in this study. The responses of the participated publics related to the disease prevention concerns were presented in Table 3. The results obtained showed that most of the respondents agreed that the symptoms of COVID-19 are like seasonal flu and should therefore be dealt with them similarly, 31.9% of them admitted that delayed detection of the disease could lead to serious complications and death, and 47.4% believed that the infection could be totally cured. With regard to the disease prevention and control, the responses of the participants indicated that they were optimally aware about the general attitudes and behavior for the internationally recommended disease prevention and control measures. However, they did not show high levels of attention to the isolation and home confinement particularly after returning from another country.

Table 3: Behaviors and attitudes of the selected participants towards COVID-19 prevention

Questions and concerns	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Are the symptoms of COVID-19 similar to those of the seasonal flu and hence the disease should be managed similarly?	24.5a	14.7	42.5	12.3	5.9
Do you think that delayed detection and treatment lead to health complications resulting into death?	31.9	54	10.2	2.4	0.6
Can the COVID-19 disease be totally cured?	47.4	38.3	13	1	0.3
Do you avoid gatherings of more than 50 people (such as events, parties, funerals, and family interviews)?	17.9	80.4	0.8	0.1	0.7
Did you regularly receive visitors at your home?	28.4	62.2	6.9	1.5	1
Do you think it is necessary to isolate yourself at home when returning from another country with the disease reports?	16.1	82.5	0.3	0.4	0.7
Do you think the efforts of the national health authorities in warnings regarding home confinement should be adhered to and applied?	13.8	84.2	1	0.6	0.4

Table 4: Knowledge about protective masks and other preventive measures

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
When do you need to wear a protective mask?	When you sneeze or cough	65.3[a]	29.8	3.5	1.1	0.3
	When entering overcrowded public places	57.3	29.8	8.3	3.8	0.8
	While using public transport	53.7	30.1	10.1	5.2	1
	When caring for a patient	71.7	22.8	3.2	1.4	0.8
What is the right way to wear a protective mask?	Distinguish between the front and the back of the mask	50.8	33.6	9.5	5	1.1
	Put the light-colored side on the face	42.8	31.9	14.1	8.7	2.5
	Make sure the metal tape is at the top of the mask while you're wearing it	52.6	33.7	9	3.6	1.1
	After wearing the mask, press the metal tape on both sides of the nose with both hands to make the top end of the mask adjacent to the nose	54	32.2	8.5	3.5	1.8
	Make sure your mouth and nose are covered together	59	30.8	6.4	2.2	1.5
Can the protective mask be reused?	Yes	4.8	11.2	10.2	47	26.9
	No	52	23.9	6.2	14.1	3.8
	Maybe, if it's clean or not damaged	7.7	14.5	17.3	40.7	19.7
When should the protective mask be replaced?	After 2 hours	19.3	22.2	21	28.4	9.1
	After 3 hours	11.2	16.8	27.8	33.6	10.6
	After 4 hours	27.7	18	19.2	26.9	8.3
	After wearing it for a whole day	14.3	13.8	12.2	40.1	19.6
	I don't know	9.8	17.2	15.8	38.2	19
How do you protect yourself from contracting the causative virus?	By maintaining good personal hygiene, such as covering your mouth and nose with a handkerchief when coughing and sneezing	66.2	30.3	2.8	0.7	0
	Through washing hands thoroughly and don't touch eyes, nose or mouth without washing hands	69.1	27.6	2.9	0.4	0
	Avoiding crowded places	72.3	25.3	1.8	0.4	0.1
	Pay attention to fever, cough and other respiratory symptoms and consult your doctor as soon as possible, if symptoms appear	68.7	28	2.5	0.6	0.3
Are you committed to avoid direct contact with a person who has respiratory symptoms	Very committed	66.4	25.9	5.2	1.8	0.7
	Somewhat committed	15.9	16.2	12	42	13.8
	Not committed	4.8	7.1	6.9	51.9	29.4

[a]Percentage of the responding participants for each specified item.

Table 5: Knowledge towards hand washing and preventive measures

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
When should I wash hands?	After sneezing or coughing in the hand	68 a	28.3	2.7	1	0.1
	After visiting public places	76.9	21.1	1.4	0.4	0.1
	After touching the surfaces outside the house	74.8	22.2	2.2	0.7	
	After communicating with others by touch or handshake	75.5	22.1	1.7	0.7	
	Before and after food preparation and eating	66.2	25.2	5.2	2.4	1.1
Method of hands washing	Wet hands with water and then put enough soap to cover hands together	36.8	30.2	14.3	14.3	4.5
	Rub the palms in a clockwise and interlacing the fingers	58.9	30.8	5.6	3.9	0.8
	Siphoning and interlacing fingers with rubbing the palms with finger grip	67.4	27.6	3.4	1.3	0.4
	Nose the right hand back with the left-hand thumb and vice versa and rinse with water	45	27.1	9.9	13.1	4.8
Duration of hand washing	5 to 10 seconds	7.7	17.3	17.8	44.2	13
	20 to 40 seconds	65.7	21.1	6.3	5	1.8
	1 minute	13.1	21	25.3	31	9.5
	2 minutes	5.7	11.5	17.8	49.8	15.2
	3 minutes	5.6	9.4	13.1	52.2	19.7
How long do you use antiseptic for hand washing?	5 to 10 seconds	24.8	28	14.1	25.7	7.4
	20 to 40 seconds	46.9	25.2	13.7	11.5	2.8
	1 minute	9.1	14.4	22.1	41.5	12.9
	2 minutes	5.2	9.7	15.2	53.4	16.5
	3 minutes	4.5	9	13.3	53.6	19.7
How do you use antiseptic for hand washing?	Put enough sanitizer in the palm of the hand	36.5	34.5	11	14.3	3.6
	Rubbing hands until the sterilizer disappear and absorbed by the skin	55.7	31.6	7	4.9	0.8
	Rubbing the sides of the hands, between fingers, and around the wrists with the sterilizer for long enough	44.6	31.5	11.6	9.1	3.2
When should you use the antiseptic?	When there is no water and soap	48	32.6	9.4	8.3	1.8
	While being outside the house and touching the surfaces	62.4	32.2	3.8	1.3	0.4
	After communicating with others through hands touch or shake	60.1	31.7	5.3	2.2	0.6

[a]Percentage of the responding participants for each specified item.

Special emphasis on the use of protective masks and hand washing as preventive measures against COVID-19 were described in detail in Tables (4) and (5), respectively. The results revealed that the selected participants were endowed with high levels of knowledge of the standard methods of face mask use. Moreover, a significant number ($p< 0.05$) participants believed that crowded places avoidance and indirect contact with infected people are self-protection mechanisms. The results also indicated that a significantly higher number ($p <0.05$) of the participants washed their hands, particularly after visiting public places. Hands washing using antiseptics was also reported as a potential disease prevention tool as described by the participants.

DISCUSSION

The transmission rate of the COVID-19 has rapidly increased throughout the globe, resulting in increased cases and mortality rates[1]. Previously, it has been established that the public attitude to reduce viral transmission is a powerful tool available to control COVID-19 spread[2]. However, this attitude was confirmed mainly dependent on the knowledge and awareness of the general public about the biological, pathological and clinical characteristics of the causative virus and its preventive and control procedures[3]. The present study revealed an above-average level of knowledge and awareness of the public in Asir region of Saudi Arabia towards COVID-19, with a mean score of 27.99±14.074.

Additionally, there were significant differences in the knowledge and attitude levels of participants towards COVID-19 among the different groups of people with regard to the differences in marital status (=0.036), place of residence ($p= 0.012$), use of electronic devices ($p= 0.043$), and sources of information ($p<0.001$). Almost similar comparable results were obtained by Zhong et al.[3], who examined the knowledge, attitude, and practices of the general Chinese population towards COVID-19 through a cross-sectional survey. The similarity was particularly

resided in that females with high socioeconomic levels possessed better knowledge and had a better attitude towards disease prevention. This indicates that the difference in the cultural backgrounds between the different nations had no reflection in the people's awareness levels towards the pandemic.

In the present study, it had also been noted that factors like the gender, age groups, educational level of parents, educational level of children, number of children, employment status, monthly income, and internet access had no observable impacts on the awareness of people in the study area towards COVID-19 prevention and control measures. Conversely, these factors were reported as major determinants of positive attitude factors for people's knowledge and awareness towards the disease in another similar study[14,15]. The use of protective face masks and hand washing behavior and practice among the participants was also evaluated in this study.

In general, the obtained results indicated that the Saudi population had a positive attitude and endowed with a satisfactory level of knowledge for using protective face masks and hand wash practices. This finding is considered significant conclusive remarks as per disease prevention and control. In the same context, almost similar results were previously published by Clements et al.[16], who indicated that people with a higher level of knowledge and awareness towards COVID-19 had a higher incidence of using protective face masks and antiseptics for hands washing. In this study, our investigations also indicated that the source of information had a significant influence on the level of knowledge ($p < 0.001$), among the participants, and the majority of them depend on television as their source of information. This conforms to a previously published data that indicated that media had a significant impact on people's knowledge, perception, and attitude towards the COVID-19[14]. The present study had some limitations. For instance, the outcomes of this study mainly depend on the subjective opinion and honesty of the responders. Moreover, only participants from one area in Saudi Arabia were included, which makes it difficult to extrapolate the results to other areas in Saudi Arabia.

CONCLUSION

In conclusion, the Saudi population's knowledge and awareness as for the various clinical and preventive elements of COVID-19, particularly in the Asir region, seem to be above average. However, further efforts from the health authorities in the region and the country to improve the level of knowledge and awareness of the general public towards COVID-19 are required. This is more likely to augment the other government measures to control the disease. Moreover, further studies in the other Saudi Arabia regions are also required to explore the nationwide knowledge and awareness of the Saudi general public towards COVID-19.

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