



# Media Effect on Saudi Community's Knowledge, Attitude and Practice Towards COVID-19: Comparative Cross-Sectional Study

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## Abstract

**Background:** As public health officials seek to contain the virus and mitigate the deleterious effects on worldwide population health and despite many awareness programs conducted by the governments and other agencies, there are certain false beliefs among the general public towards COVID-19. **Objectives:** To assess the effect of media on Knowledge, Attitude and Practice (KAP) towards COVID-19 among Saudi community with determining factors affecting their level. **Methods:** A comparative cross-sectional study based on online questionnaire was conducted. A voluntary response sample (651) of males and females aged 18-60 years was included using a structured pre-coded closed-ended, pilot tested Arabic questionnaire including demographic data, source of information, knowledge, attitude and practice towards COVID-19. The participants were divided into Group 1 whose source of information with unsatisfactory, but group 2 with satisfactory one. A univariate analysis Chi-square test, independent t-test and Spearman's rank correlation were used. **Results:** The overall mean (SD) knowledge score was 64.9% (5.74); with significant difference between the two groups ( $p = 0.036$ ). The overall mean (SD) attitude score was 62.6% (14.81); with significant difference between the two groups ( $p = 0.039$ ). The overall mean (SD) practice score was 57.8% (7.64); with significant difference between the two groups ( $p = 0.046$ ). **Conclusion:** Two thirds of the study participants with unsatisfactory source of information, although most of them have average knowledge, positive attitudes and good practices toward COVID-19. As infected cases are rapidly increasing worldwide, it is essential to improve the knowledge, attitude and practices among Saudi community to limit COVID-19 spread. Although with the tangible efforts by the Saudi Ministry of Health, there is a need to increase the public awareness about the seriousness of this pandemic situation through trustable sources of information.

**Keywords:** Attitude, COVID-19, Knowledge, Media as a Source of Information, Practice

## 1. Introduction

Coronavirus disease 2019 (COVID-19), is an infectious respiratory disease. It is caused by becoming infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which is a specific type of coronavirus. Common

symptoms include fever, cough, fatigue, shortness of breath or breathing difficulties and loss of smell and taste<sup>1</sup>, The incubation period, which is the time between becoming infected with the virus and showing symptoms, may range from 1-14 days<sup>2</sup>, While most people have mild symptoms, some people develop Acute Respiratory Distress Syndrome (ARDS) possibly

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precipitated by cytokine storm. Older people and those with underlying chronic medical problems like cardiovascular disease, diabetes, respiratory disease and cancer are more likely to develop serious complications like mucormycosis, a rare but dangerous fungal infection<sup>3,4</sup>. The coronavirus disease (COVID-19) has no known cure at present and has affected nations across the globe, spreading at an exponential rate and imposing a major health threat to the population<sup>1</sup>. Further, the COVID-19 pandemic has created a significant challenge for health authorities<sup>2</sup>.

Consequently, different preventive measures have been implemented by governments, such as physical and social distancing, more rigorous hygiene practices, wearing protective facial coverings and lockdowns in affected countries<sup>3</sup>, which have resulted in dramatic changes to peoples' daily lives<sup>5</sup>.

The Center for Disease Control and Prevention (CDC), the World Health Organization (WHO), numerous journals and other health care organizations are regularly posting guidance across a host of platforms and today. In modern times and technology, the media platforms form an important role for disseminating information during the outbreak of Coronavirus 2019 (COVID-19)<sup>6</sup>. As public health officials seek to contain the virus and mitigate the deleterious effects on worldwide population health and despite many awareness programs conducted by the governments and other agencies, there are certain false beliefs among the public community towards the transmission, prevention and treatment of COVID-19 and the cause of this back to misconceptions in social media and internet about the spread of novel Coronavirus and prevention and treatment of COVID-19. False beliefs not only misrepresent the situation but may lead to increased anxiety, heightened stress responses that can lead to downstream effects on health and misplaced health-protective and help-seeking behaviors that can overburden health care<sup>6-8</sup>.

This study was conducted to assess effect of media on knowledge, attitude and practice towards COVID-19 among Saudi community and determine factors affecting their level.

## 2. Methods and Materials

### 2.1 Study Context and Design

A comparative cross-sectional study was conducted using an Arabic online questionnaire through different social media means in different areas of Saudi Arabia to assess the effect of media on knowledge, attitude, and practice towards COVID-19 among the Saudi community during the pandemic starting

from July 2020 through September 2020. A voluntary response sample (651) of males and females aged 18-60 years with Saudi and non-Saudi Nationalities was responded to the online survey all over the Saudi Arabia.

### 2.2 Data Collection Methods

A structured pre-coded closed-ended, pilot tested Questionnaire in Arabic was developed. It included the following sections: Demographic data (age, sex, marital status, education, occupation and lifestyles), source of knowledge, knowledge, attitude and practice toward COVID-19. To determine the suitability of the questionnaire, validity and reliability studies were conducted. Experts' opinion from the medical education specialities was obtained to assess the content validity of the questionnaire items. Before starting data collection, a pilot test of the questionnaire was conducted on 20 participants and their responses were later excluded from the study sample. Each item of the questionnaire was checked for vagueness and appropriateness of the questions. The reliability of the questionnaire was tested using the Cronbach's alpha test (0.86).

### 2.3 Ethical Considerations

Ethical approval of the study was obtained from Ibn Sina National College (ISNC) Research and Ethics Committee (IEC Ref No: H-13-09062020) in accordance with the declaration of Helsinki for Human Studies<sup>9</sup>. There was voluntary online participation in the study after declaration of the aim of the study and their right to refuse participation. Ethical conduct was maintained during data collection and throughout the research process. Privacy of data collection and confidentiality were assured.

### 2.4 Statistical Analysis

Data was collected and entered the SPSS version 22 (SPSS Inc., Chicago, IL). The internal comparison of those who had good source of information and those did not was done. The descriptive statistics was carried out for all variables. A univariate analysis Chi-square test and independent t-test were used. A p-value of less than 0.05 will be considered to be significant. A Spearman's rank correlation was used to study correlation and considered significant at 0.01 levels.

The mean percent scores for source of information, knowledge, attitude, practice (KAP) scores were calculated using the following formula:

**Mean percent score =  $\frac{\Sigma \text{Scores of questions selected}}{\text{maximum possible score for these questions}} \times 100$**

The answers to all questions that were considered in calculation were scored (if binary question, it would be 1 for

**Table 1.** The different items used in calculation of source of information, knowledge, attitude and practice scores

<b>I. Source of Information Score</b>	
1. News channels from TV or radio	2. Trustable health care specialists and consultants
3. Governmental and official websites and news papers	
<b>II. Knowledge Score</b>	
1. Who are the people most at risk of being infected with the Covid-19 virus? (susceptibility)	2. To prevent COVID-19, can a person drink or splash alcohol everywhere in the body? (Prevention)
3. Who is more likely to be infected with COVID-19 virus? (susceptibility)	4. To prevent COVID-19, a person can take antibiotics? (Prevention)
5. What place of the body would be most affected or affected by COVID-19? (susceptibility)	6. If a person has COVID-19, if drinking or spraying chlorine everywhere in the body can kill the new coronavirus? (Prevention)
7. What are the symptoms of COVID-19? (Agent)	8. If a person has COVID-19, if drinking or spraying chlorine everywhere in the body can kill COVID-19? (Prevention)
9. How is COVID-19 virus infection transmitted? (Mode of transmission)	10. Ordering products or shipments from China can cause the person to get COVID-19? (Source of infection)
11. Is the COVID-19Virus transmitted during the incubation period of a person with the disease? (Mode of transmission)	12. Eating garlic helps prevent or treat COVID-19? (Prevention)
13. Is the COVID-19Virus transmitted from the person with the disease who has only minor symptoms? (Mode of transmission)	14. Eating honey bees to help prevent or treat COVID-19? (Prevention)
15. What is the incubation period for COVID-19virus? (Mode of transmission)	16. Al Baraka pill helps in preventing or treating COVID-19? (Prevention)
17. What should be done if a healthy person has had contact with a person with COVID-19? (Control)	18. Fresh Vegetables and Fruits Can Prevent COVID-19 infection? (Prevention)
19. Hot weather can kill COVID 19? (Agent)	20. Drinking warm water or a warm question, can it prevent COVID-19? (Prevention)
21. Cold weather can kill COVID 19? (Agent)	22. Rinsing the mouth with warm water, water, salt or bleach can prevent COVID-19? (Agent)
23. Taking a hot bath can he prevent Covid-19 infection? (Agent)	24. Can UV sterilizers kill COVID-19? (Agent)
25. Can the new COVID-19 be transmitted by mosquitoes? (Mode of transmission)	26. Hand dryers can kill COVID-19? (Agent)
27. Can the COVID-19 be transmitted through flies? (Mode of transmission)	28. Can the COVID-19 be transmitted through food delivery? (Mode of transmission)
<b>III. Attitude Score</b>	
1. Did you consider wearing a mask?	2. Did you consider knowing what's new about COVID 19?
3. Did you consider wearing gloves?	4. Did you consider collecting information about COVID -19 from its trusted sources?
5. Did you consider taking immune-stimulating drugs?	6. Do you have the desire to follow the instructions of the concerned authorities regarding COVID- 19 accurately?
7. Did you consider eating healthy food such as vegetables and fruits?	
<b>IV. Practice Score</b>	
1. Do you track information about COVID- 19 daily?	2. Do you regularly sensitize purchases products continually?
3. Do you promote and share what you hear about COVID- 19?	4. Do you eat healthy food?
5. Do you take preventive measures seriously?	6. Do you take medicines and dietary supplements to increase immunity?
7. Are you wearing a mask?	8. Do you get enough sleep hours?
9. Do you wear gloves?	10. Do you exercise?
11. Do you regularly sensitize surfaces that you came in contact with?	12. Do you avoid social gatherings?

No and 2 for Yes) and the actual answers for that questions were summated. Then, the maximum possible score that could be obtained for those questions was calculated. Using the above formula, the scores were calculated and to calculate the mean percentage score, the mean value  $\pm$  SD was multiplied by 100.

For source of information, knowledge (elements of the infectious process is considered namely agent, reservoir, mode of transmission, susceptibility, prevention and control), attitude and practice, the cutoff point for unsatisfactory score was determined to be  $<60\%$ .

The study participants were divided into two groups: Group 1 whose source of information with unsatisfactory level and Group 2 whose source of information with satisfactory level. The variables that were included in calculation of source of

information, knowledge, attitude, and practice mean percent scores were presented in Table 1.

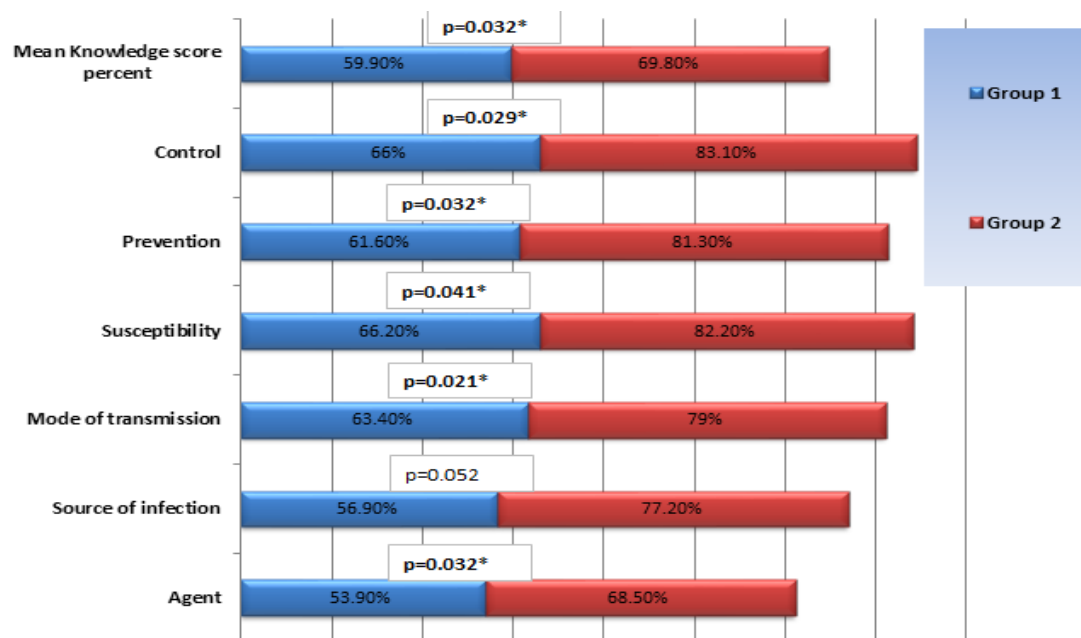
### 3. Results

The total number of participants was 651; there were 432 (66.4%) in group 1 (with unsatisfactory source of information) and 219 (33.6%) were in group 2 (with satisfactory source of information). Nearly one third of participants suffered from COVID-19 (30.4%); with significant difference between the two groups ( $p = 0.036$ ). Nearly two thirds (62.4%) were females ( $p = 0.021$ ), 46.5% were working ( $p = 0.049$ ), 61.3% were ever married ( $p = 0.036$ ) and 47.6% were Saudi ( $p = 0.025$ ) (Table 2).

**Table 2.** Socio-demographic characters of the studied population (n = 651)

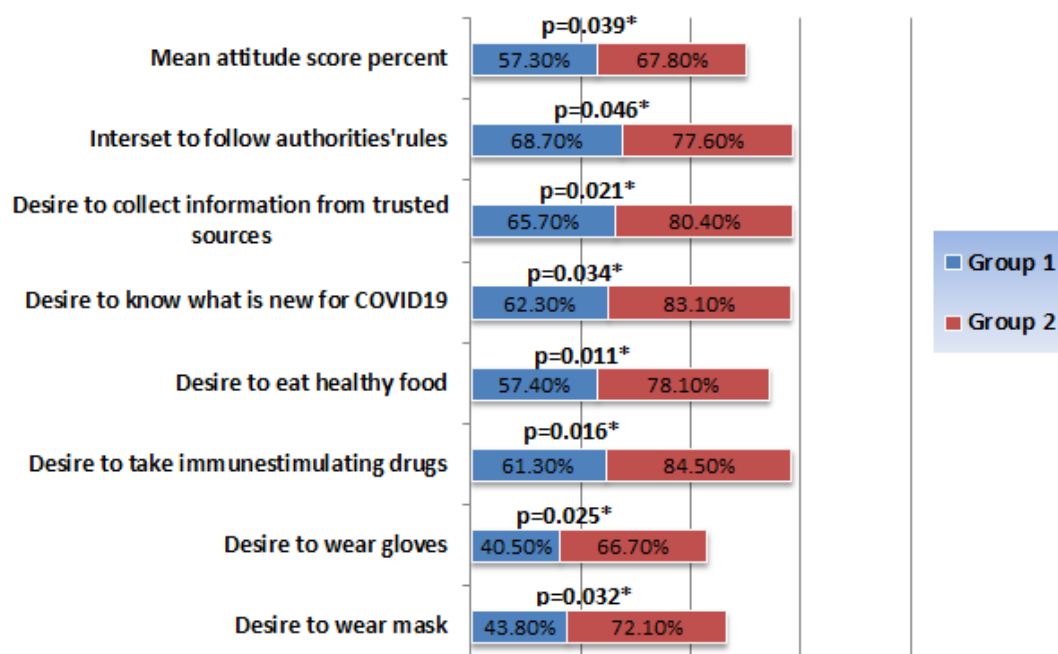
Items	Group 1		Group 2		Total		p-value
	N (432)	% (100.0)	N (219)	% (100.0)	N (651)	% (100.0)	
<b>Age</b> Mean (SD)	35.6 (8.67)		34.8 (9.35)		35.2 (4.89)		0.365
<b>Gender</b>							
Male	183	42.4	162	74.0	345	37.6	<b>0.021*</b>
Female	249	57.6	57	26.0	306	62.4	
<b>Education</b>							
Basic	98	22.7	51	23.3	149	22.9	0.536
Secondary	199	46.1	92	42.0	291	44.7	
University and more	135	31.2	76	34.7	211	32.4	
<b>Work status</b>							
Not working	254	58.8	94	42.9	348	53.5	<b>0.049*</b>
Working	178	41.2	125	57.1	303	46.5	
<b>Monthly outcome</b> Mean (SD)	5094.2(1046.80)		5198.5(943.27)		5146.4 (859.24)		0.672
<b>Marital status</b>							
Never married	169	38.7	83	37.9	252	38.7	<b>0.036*</b>
Ever married	263	61.3	136	62.1	399	61.3	
<b>Nationality</b>							
Non Saudi	165	38.2	176	80.4	341	52.4	<b>0.025*</b>
Saudi	267	61.8	43	19.6	310	47.6	

\* P-value is significant at  $\leq 0.05$  level



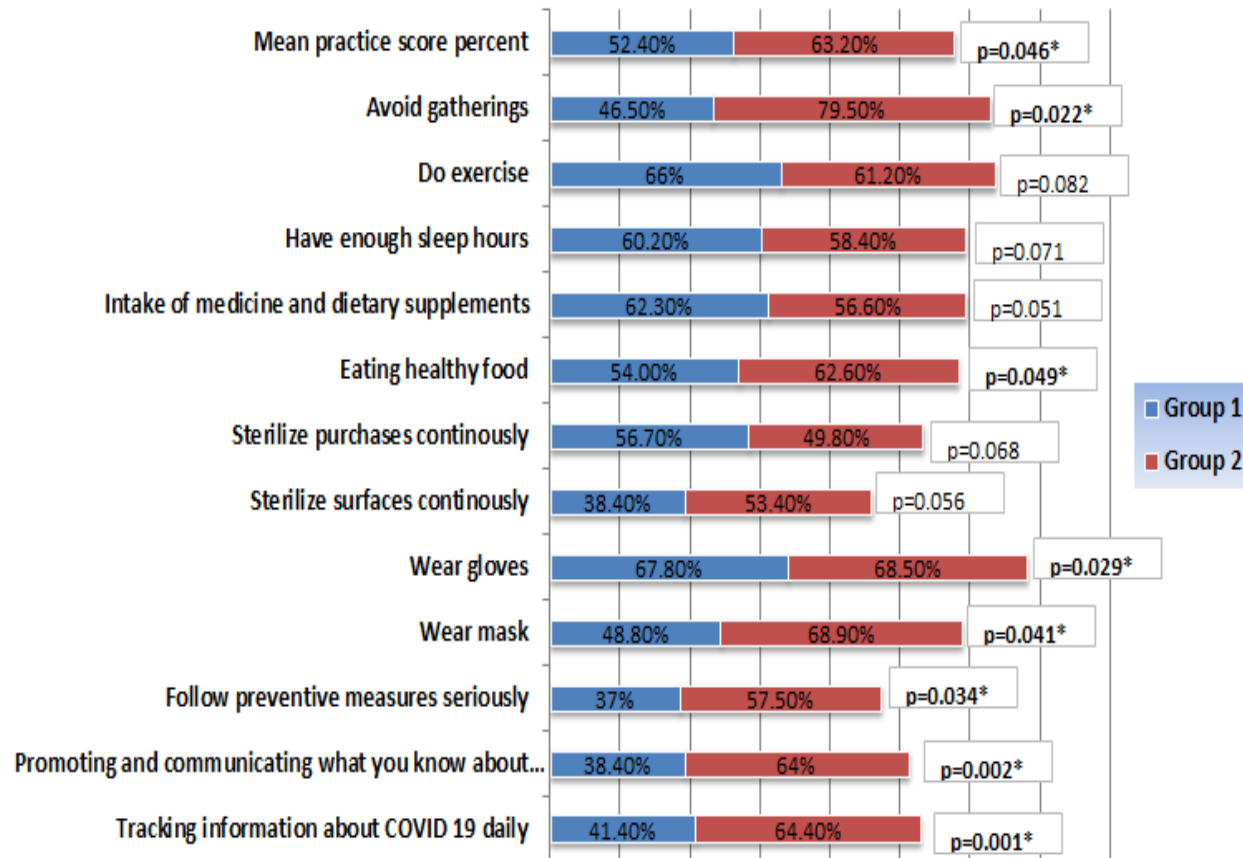
**Figure 1.** Knowledge of the study participants compared to source of information (n = 651).

The overall mean (SD) knowledge score percent was 64.9% (5.74); with significant difference between the two groups ( $p = 0.036$ ). There were significant differences between both groups regarding knowledge related to virus, mode of transmission, susceptibility and control ( $p = 0.032, 0.021, 0.041$  and  $0.029$  respectively) (Figure 1).



**Figure 2.** Attitude of the study participants compared to source of information (n = 651).

The overall mean (SD) attitude score was 62.6% (14.81); with significant difference between the two groups ( $p = 0.039$ ). There were significant differences between both groups for all aspects related to attitude (Figure 2).



**Figure 3.** Practice of the study participants compared to source of information (n = 651).

The overall mean (SD) practice score was 57.8% (7.64); with significant difference between the two groups (p = 0.046). The significant differences between groups were obtained for tracking information (p = 0.001), promoting and communicating what is known about COVID-19 (p = 0.002), follow preventive measures (p = 0.034), wear a mask (p = 0.041), wear gloves (p = 0.029), eating healthy food (p = 0.049) and avoid gatherings (p = 0.022) (Figure 3).

**Table 3.** Correlation between source of information and socio-demographic factors

Socio-demographic factors	Correlation coefficient (r)	Sig.
<b>Gender</b>	3.12	0.003**
<b>Work status</b>	4.65	0.006**
<b>Marital status</b>	3.05	0.004**
<b>Nationality</b>	2.09	0.008**

\*\*Correlation is significant at 0.01 (two tailed)

Significant positive correlation was encountered between source of information and gender (r = 3.12, sig. = 0.003), work status (r = 4.56, sig. = 0.006), marital status (r = 3.05, sig. = 0.004) and nationality (r = 2.09, sig. = 0.008) Table 3.

## 4. Discussion

As far as the media is concerned, with the COVID-19 virus and its transmission during the period of the pandemic, we aimed to assess the media effect on knowledge, attitude and practice of people who lived in the Saudi community during pandemic. Our study classified the participants according to the sources of information they used during the pandemic time into two groups; 1) unsatisfactory and 2) satisfactory sources of gaining COVID-19 information and data. Number of respondents in group 1 (unsatisfactory) is two-thirds (62.4%) which is similar to an Indian study that discovered that most of its sample gained knowledge about COVID-19 (65.17%) from social media as an unsatisfactory source<sup>10</sup>. Also, another study conducted in Pakistan revealed social media was the primary source of information among healthcare professionals (87.68%)<sup>11</sup>. These media platforms enable a huge of biased, unreliable information that needs to be validated by the officials' health authorities, yet it's the most public source that can be used because of its rapid accessibility.

Most of the female respondents were among the group who used unreliable source of information (57.6%) unlike to another Saudi study revealed that most of the respondents were mainly male (59.9%)<sup>12</sup>. There were a statistical significant difference between the two groups in terms of, occupation, marital status and nationality  $p < 0.05$ . Other previous study done among the Syria population showed generally moderate awareness level about COVID-19 and it was significantly correlated with their sample socio-demographics data<sup>13</sup>. Another cross-sectional study conducted in Jordan revealed in its results that the older ages are more likely to have better knowledge, attitude and practices than younger people<sup>14</sup>.

A review study was conducted in multiple developed countries as US, UK, Italy and China but no data from the Gulf countries were encountered in 2020. It was revealed that the level of COVID-19 panic is correlated with knowledge and attitude among the population. This review runs through the knowledge, attitude and practice during the COVID-19 pandemic among healthcare workers, medical students and populations. Its analysis showed that the level of the knowledge was positive in general with optimistic attitudes and good practices were taken<sup>15</sup>. In this research work, the study population showed that the knowledge was sufficient with encouraged attitude yet the practice mean score was 57.8% with significant difference between the two groups ( $p = 0.046$ ) and less than the satisfactory score.

As COVID-19 continues to wreak havoc across the world, the Saudi Arabia recognizes the pandemic as a serious

humanitarian, health and development crisis. Part of the strategies to share data about the nation's progress in handling this pandemic was the development of a COVID-19 website <https://covid19.moh.gov.sa/>. This website has been of great aid in briefing the citizens about the condition of COVID-19 in Saudi Arabia<sup>16</sup>.

## 5. Conclusion

This study concludes that two thirds of the study participants with unsatisfactory source of information, although most of them have good knowledge, positive attitudes and good practices toward COVID-19. As infected cases are rapidly increasing worldwide, it is essential to improve the knowledge, attitude and practices among Saudi public community to limit its spread and new mutations. There is a need to increase the public awareness about the seriousness of this pandemic situation through trustable sources of information. Since the emergence of the COVID-19 pandemic, countries such as Saudi Arabia have initiated web-based solutions to communicate with the public community. The COVID-19 website by Ministry of Health, Saudi Arabia provides abrupt and all-time valid and reliable data. This information is playing a crucial role in increasing the public awareness.

## 6. Recommendation

The study showed the good knowledge and attitude in the population yet the practice of following preventive measures seriously was not efficient. Awareness programs with high restrictions' rules to aid the population in the practice that will lead to shorten the pandemic period time.

## 7. Study Limitations

The Data collection method was through online questionnaire and not a community-based survey due to COVID 10 restrictions; with the use of this sampling technique (voluntary response sampling) both will limit the generalization of this study results.

## 8. Conflicts of Interest

The authors declared that there is no conflict of interest between them.

## 9. Acknowledgments

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