

## Original Research Article

### Awareness, Seeking Behaviors and Preventive Practices towards COVID-19 among Najran University Students

#### Abstract

**Background:** New corona virus (COVID-19), as an international health threat poses a challenge to physical as well as psychological resilience in the affected countries.

**Objective:** The aim of this survey is to explore the level of awareness, health seeking behaviors and preventive measures towards COVID19 among Najran University students.

**Methodology:** By adopting a convenient sampling technique, an observational and cross-sectional study was carried out at Najran University, Najran city, Kingdom of Saudi Arabia. A self-reporting electronic questionnaire had been utilized for collecting data.

**Results:** A total of 684 students voluntarily completed the questionnaire. The mean age of the participants was  $20.2 \pm 4.1$ . The most cited source for obtaining information about COVID-19 was the social media (51%). Females showed higher level of knowledge and awareness about the symptoms of the disease than males (74.3% vs 69.9%) respectively, although the difference was not significant with ( $P$ -value  $> 0.05$ ). Concerning compliance with preventive measures, medical students were significantly aware and complying with various preventives measures towards COVID-19 ( $P$ -value  $< 0.05$ ). Moreover, females seem to be significantly more keen in seeking medical advice when needed than males ( $P$ -value  $< 0.05$ ). Almost more than two-third of the respondents know the recommended general precautions in terms of wearing masks, not to touch outdoors surfaces directly without gloves and avoiding crowded places. 556 (81.3%) of the participants believe that they should wear face-masks outdoors. Interestingly, 6% of the participants thought that they prefer to take some herbs daily in different forms to avoid being infected with COVID-19. Additionally, females had an overall higher Mean tension level towards being infected than males (Mean  $\pm$  SD was  $5.61 \pm 1.65$  vs  $4.55 \pm 1.63$ ) respectively.

**Conclusion:** It was concluded that the students have high level of knowledge and awareness about COVID-19, beside positive attitudes to preventive measures and acceptable health seeking behaviors. It is highly recommended that the entire Najran University community level of awareness be assessed to design and implement educational programs when needed.

**Key words:** COVID-19, University Students, Awareness, Health Seeking Behaviors

## **Introduction**

Starting from December 2019, the number of Novel Corona-virus (nCOV-2019) cases are increasing dramatically especially in Middle East countries, although they are declining in some countries worldwide including China which is the original source of this pandemic<sup>1,2</sup>. Corona-virus is a highly contagious disease, which is caused by group of viruses with different genetic compositions that are invading the respiratory system and therefore, causing numerous respiratory health problems ranging from mild common cold symptoms to fatal pneumonia<sup>3</sup>.

It had been reported that people who are at greater risk for developing severe symptoms are elderly people besides those with chronic health disorders such as hypertension, diabetes, cardio-vascular diseases, chronic respiratory disorders and cancers. Although, for children it appears to be relatively rare and mild<sup>4,5,6</sup>.

However, the underlying pathological mechanisms that let some infected people to get seriously sick while others get mild symptoms are still unknown<sup>7</sup>. This disease of unknown etiology and source let WHO and most countries to adopt strict international precautions to stop spreading of the disease<sup>8,9</sup>. These strict precautions beside social media speculations and closing of all out-door places including academic institutions as well as increasing deaths anywhere put people in psychological distress that generates negative emotions for individuals, families and entire communities<sup>10</sup>.

Moreover, the disease is still spreading widely with various variants despite available vaccines for this disease<sup>11,12</sup>. Therefore, it is very important for people to be aware about this pandemic in terms of its etiology, signs and symptoms, mode of transmission and obviously how to prevent spreading of the disease beside how and when to seek and ask for medical advice and assistance.

Saudi Arabia has had a relatively a large numbers of infected cases with COVID-19 among Middle East countries. The cases ranged from asymptomatic contacts, being suspected, positively diagnosed up to manifestations of pulmonary damaged cases<sup>13,14</sup>. This outbreak can put significant psychological stress on people, which may lead to unfavorable effects on the overall physical, psychological as well as emotional stability<sup>15</sup>.

Numerous studies documented that fear from death and pervasive feelings of anxiety, loneliness, sadness, irritability, and other serious concerns may arise among healthy people during pandemics<sup>16,17</sup>. Despite the importance of physical as well as psychological problems during this pandemic occurrence, so much contradicted information is available about COVID-19 in various social media and internet sites. Therefore, public awareness about the nature of this virus and how to prevent it may decrease such unpleasant and other unfavorable problems. Moreover, good, right and reliable information would be useful in improving preventive strategies besides aiding in designing proper health education programs for controlling the disease.

Accordingly, it is necessary to conduct surveys for assessing the awareness level among populations. The aim of this study was to explore the awareness, health seeking behaviors and preventive measures towards COVID-19 among Najran University students during this outbreak.

### **Materials and Methodology**

By adopting a convenient sampling technique, an observational and cross-sectional study was carried out at Najran University, Najran city, Kingdom of Saudi Arabia during the period from March – to- June 2020. 684 students' voluntary participated in the current study.

For collecting data, a self-reporting electronic questionnaire was utilized. The questionnaire was reviewed for validity by experts at the Faculty of Nursing which shows an acceptable internal consistency (Cronbach's alpha,  $r= 0.895$ ). Additionally, the questionnaire was pilot tested on 20 subjects from the target population, who were excluded in this study. Besides that, the questionnaire explains the aim of the study along with assuring the participants' confidentiality.

## Statistical Analysis

Continuous variables were expressed in term of Means (M), and Standard Deviation (SD). While the categorical variables were calculated as numbers and percentages. Associations between students' characteristics and responses about COVID-19 awareness, health seeking behaviors and preventive measures were assessed by bivariate analysis using  $\chi^2$  tests and *t*-test. Comparison of scores between groups was based on analysis of variance chi-square and one-way ANOVA test. *P*-value was set at <0.05.

## Results.

684 participant's voluntary completed the current survey. Table 1 shows the demographic characteristics of the participants. In terms of gender, female students were 405 that represents 59.2% of the participants. The mean age of the studied subjects was 20.21  $\pm$ 4.1, the minimum was 19 years, and the maximum was 26 years old. With respect to the respondents' college affiliation, the majority of them are currently enrolled in non-medical colleges 398 (58.2%). Regarding level of education, the vast majority of the surveyed sample 516 (75.44%) are currently studying in Bachelor degree programs.

Medical colleges include Medicine, Nursing, Dentistry, Pharmacy, and Radiology. While non-medical colleges include College of Art, Computer Sciences, Community Preparatory College, College of Sharia and College of Education.

**Table 1: The demographic characteristics of the sample (n=684)**

Characteristics	Results	
Age ( <i>mean <math>\pm</math>SD</i> ) years	20.21 $\pm$ (4.1)	
	Frequency	%
Sex		
Males	279	40.8%
Females	405	59.2%
Level of education		
Diploma	168	24.56%
Bachelor's degree	516	75.44%
Colleges		
Non-medical colleges	398	58.2%
Medical colleges	286	41.8%

As displayed in Figure 1, the most cited source for getting information and news about COVID-19 was social media (51%), followed by news from TV channels (38%), while the least cited source was the families (29%).

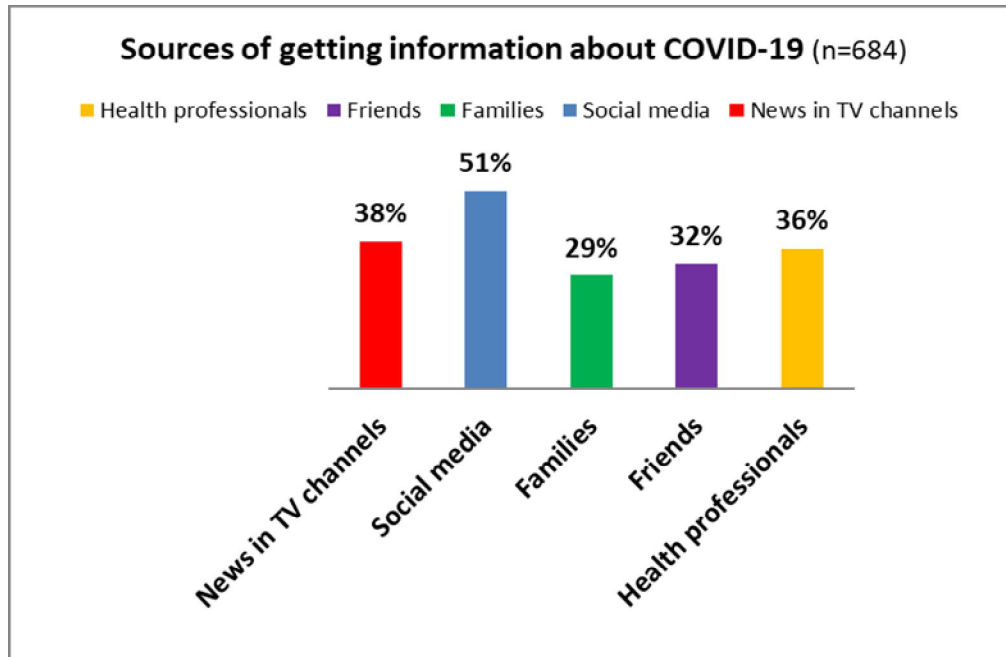


Figure 1: Sources of getting information about COVID-19 (n=684)

### Awareness about COVID-19 symptoms and rout of transmission

In general, the responses to the awareness questions regarding symptoms and route of transmission of COVID-19 were displayed in Table 2. It shows that the majority of the respondents 496 (72.51%) correctly identified its typical symptoms. While regarding routes of transmission, most of the participants 524 (76.6%) show awareness about the disease's route of transmission correctly, and the differences between males and females regarding the awareness were not statistically significant ( $P$ -value  $>0.05$ ).

Almost all respondents had heard that the numbers of infected individuals are increasing worldwide. The majority of the studied subjects (75.1%) were satisfied with the quality and quantity of information that is available and accessible for them at Saudi ministry of health official website. Regarding knowledge about route of transmission of COVID-19, the most cited route of transmission by participants was through sneezing or coughing and personal contact (46%), followed by through

contaminated objects outdoors (31%), and airborne transmission route was cited by (18%) of the participants, while only 5% don't know.

**Table 2: Respondents' awareness about COVID-19 symptoms & route of transmission (n=684)**

Gender	Symptoms of COVID-19			P-value	Route of transmission			P-value
	Yes (correct)	No (incorrect)	Not sure		Yes (correct)	No (incorrect)	Not sure	
Male	195 (69.9%)	63 (22.6%)	21 (7.5%)	0.103	203 (72.8%)	58 (20.8%)	18 (6.5%)	0.211
Female	301 (74.3%)	60 (14.8%)	44 (10.9%)		321 (79.3%)	68 (16.8%)	16 (4%)	

The results of the one-way ANOVA as shown in Table 3 reveals a significant difference between the Means of students' health seeking behaviors according to their levels of information about COVID-19 [ $F_{(3-277)} = 4.286$ ,  $P$ -value  $< 0.05$ ] based on their own perceptions respectively.

**Table 3: One-way ANOVA results of the participants' health seeking behaviors towards COVID-19 based on their own perceptions according to level of awareness information (n=684)**

Source of the variance	Sum of squares	SD	Mean of squares	F	P	Significant categories
Between groups	5782.641	3	1978.816	4.286	0.004*	Insufficient information
Within groups	136410.251	277	528.526			Sufficient information
Total	142192.892	290				

$P$ -value  $< 0.05$ \*

Table (4) reflects the overall significant predictors of awareness, preventive measures and health seeking behaviors towards COVID-19. It shows that medical students were significantly have higher level of awareness, compliance with preventive measures and of course for health seeking behaviors ( $P$ -value  $< 0.05$ ). In comparison between males and females about health seeking behaviors, the results surprisingly reveal that females have positive behaviors towards health seeking attitudes than males.

### **Behaviors towards precaution and preventive measures**

Almost two third of the studied respondents knows the recommended general precautions in terms of not to touch outdoors' surfaces and objects with hands directly. 556 (81.3%) of the subjects believe that they should wear face masks when going outside their homes, while 6% agree that they should take some herbs daily to avoid getting infected with the virus. Female students had an overall higher mean of tension level than males (Mean $\pm$  SD was 5.61  $\pm$ 1.65 vs. 4.56  $\pm$ 1.63) respectively.

**Table 4: Overall Significant predictors of awareness, preventive measures & health seeking behaviors towards COVID-19 (n=684)**

Independent variables	P	OR	95% CI	
			Lower	Upper
<b>Awareness about causes, symptoms &amp; mode of transmission</b>				
Age	0.061	2.580	1.330	4.502
Females (reference: males)	0.103	1.846	1.157	3.015
Medical (reference: non-medical group)	0.001*	0.960	0.915	0.997
<b>Compliance with preventives measures</b>				
Age	0.056	1.946	1.182	3.464
Females (reference: males)	0.051	0.608	0.467	0.995
Medical (reference: non-medical group)	0.003*	1.052	1.110	1.212
<b>Health seeking behaviors</b>				
Age	0.055	1.437	1.671	2.241
Females (reference: males)	0.001*	1.267	1.301	1.844
Medical (reference: non-medical group)	0.002*	1.857	1.284	3.103

P-value <0.05\*

## Discussion

COVID-19 pandemic in Saudi Arabia as in other countries around the globe had been considered one of the most challenging threats to national public health. Therefore, the main goal of the current study was to assess the level of awareness, health seeking behaviors and preventive measures towards COVID-19. The findings reveal that, although some variability was noted in knowledge concerning COVID-19 causes, symptoms and route of transmission, 72.51% of the participants in the current study have good knowledge and they correctly identified the causes, symptoms, and route of transmission of the disease.

The high level of awareness among the university students could be due to the effectiveness of different awareness campaigns that were conducted by Saudi Ministry of Health around the country beside the abundant information that available in social media. This finding was in accordance with what had been reported by Pranav et al. who concluded that 71.2% of their studied students in Mumbai (India) were reporting correct answers regarding the awareness about COVID-19<sup>18</sup>. Although, it is a bit less than what had been reported by Alzoubi et al who stated that the level of awareness about symptoms of COVID-19 among their studied sample in Jordan which was more than 90%<sup>19</sup>.

In contrast, our obtained result regarding awareness is higher than what had been concluded by Rhea et al in India (48%) and higher than what had been reported by

Chesser et al in USA at Wichita State University, which was only 18% of their sample, identified the symptoms correctly<sup>20,21</sup>.

The possible explanation of the differences between these results could be because the data collection processes performed by different measurement instruments as well as the different sample sizes and different populations with different cultures.

Regarding source of information for the students about COVID-19 issues, the majority of the participants in the current study, 51% cited that social media was their main source. Interestingly, this obtained result supports the evidence published in numerous studies, indicating that the most cited source of getting information regarding COVID-19 was the social media<sup>22,23,18</sup>. This could be because this age generation are called techno-generation in most countries.

In terms of health seeking behaviors, our study discovered that 556(81.3%) of our studied participants believe that they should wear facemask when leaving their homes. The highest percentage of positive responses were significantly noticed among medical students. The findings of the current study in this specific matter are similar to those from other studies that conducted in India, Jordan and China<sup>18,19,24</sup>. Additionally, college affiliation significantly has an impact on the total knowledge and behavior scores among the students which was high among those at medical colleges.

### **Conclusion and Recommendation**

In conclusion, COVID-19 outbreak can be avoided by adopting certain precautions that include frequent hand washing with soap and water at least for 20 seconds, avoiding unnecessary going outside homes, besides wearing masks in public places. The current study shows that the undergraduate students in different colleges at Najran University have adequate knowledge and awareness about the different aspects of COVID-19 in terms of recognizing its symptoms, beside the recommended preventive precautions that should be taken seriously. Although, the students showed adequate knowledge with an overall percentage of 72.51% correct answers, but more emphasis should be put on updating their knowledge regarding the upcoming events about COVID-19 periodically for controlling the spreading of the disease.

Moreover, raising the level of awareness and knowledge about this pandemic will help not only the University students, but also can encourage the suspected and those

at-risk individuals to seek medical help as early as possible and thus to be treated properly and timely.

### **Limitation of the Study**

The current study adds to the growing evidence that to explore the level of awareness, health seeking behaviors and preventive measures towards COVID19. However, future studies are needed to be conducted with a larger population including consideration of guidelines, knowledge and recommendation about COVID-19 such as the level of awareness about this pandemic among Najran University teaching staffs and those at high risk including the medical team at Najran University Hospital. The potential of awareness, health seeking behaviors as a strategy for preventing or reversing COVID-19 need to be investigated.

### **References**

1. Wu F, Zhao Su, Yu B et al. A new coronavirus associated with human respiratory disease in China. *Nature J.* 2020; 579(7798): 265-269.
2. Fauci AS, Clifford L A, Redfield RR. COVID-19- Navigating the uncharted. *N Engl J Med.* 2020. 382(13): 1268-1269.
3. Suman R, Javaid M, Haleem A, Vaishy R, Bahl S, Nandan D. Sustainability of Coronavirus of Different Surface. *J ClinExpHepatol.* 2020. Retrieved 2020 from the following web site: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7201236/>
4. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y. Epidemiological and clinical characteristics of 99 cases of 2019 Novel Coronavirus pneumonia in Wuhan, China: A descriptive study. *LANCET.* February 2020. 395(10223): 507-513.
5. Fang L, Karakiulakis G, Roth M. Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection? *Lancet Respir. Med.* 2020; 395(10224): 35-36.
6. Ayesha M, Mary L W, John A, David J C. Coronavirus Disease 2019 (COVID-19) in Children. *Medscape.* 2020. Retrieved May 2020 from the following website: <https://emedicine.medscape.com/article/2500132-overview>.
7. Strindhall J, Nilsson BO, Lofgren S, Ernerudh J, Pawelec G, Johansson B, Wikby A. No Immune Risk Profile among Individuals who reach 100 Years of Age: Findings from Swedish NONA immune longitudinal study. *ExpGerontol.* 2007; 42(8): 753-761.

8. World Health Organization (n.d). Coronavirus disease (COVID-19) outbreak, Retrieved June, 2020 from the following website: <https://www.who.int/emergencies/diseases/novelcoronavirus-2019>.
9. WHO Coronavirus Disease (COVID-19) Dashboard: cited from the following web site: <https://covid-19.who.int/?gclid=cj0KCQ.jwuJz.3BRDTARIsAMg-HxW3y-CHJcxqu5D3Vlp5vnb2Ylaqftp-08YAKPZlgoJluBxR3oce-R8aArlaEALW.wcB>.
10. Cao W, Fang Z, Hou G et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res J.*2020. 278:112934. Cited June, 2020 from the following website <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7102633/>
11. OWJI H, Manica N, Nasim H. Immunotherapeutic approaches to curtail COVID-19. *Int. Immunopharmacol.* 2020, 106924.
12. ROME B N, AVORN J. Drug evaluation during the Covid-19 pandemic. *N Engl J Med.* 2020, 382.24: 2282-2284.
13. Saudi Ministry of Health (MOH) website: <https://www.moh.gov.sa/en/HealthAwareness/EducationalContent/PublicHealth/Pages/corona.aspx>
14. World Health Organization. (nd.). Coronavirus Disease Situation Reports. Retrieved March, 2020 from the following website: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
15. Shigemura J, Ursano RJ, Morganstein JC, Kurosawa M, Benedek DM. Public responses to the novel 2019 coronavirus (2019-nCoV) in Japan. Mental health consequences and target populations. *Psychiatry ClinNeurosci.* 2020; 74(4): 281-282.
16. Garfin DR, Silver RC, Holman EA. The novel coronavirus (COVID-19) outbreak: Amplification of public health consequences by media exposure. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association.* 2020; 39(5):355-357.
17. Mental health and psychological considerations during the COVID-19 outbreak. Retrieved 2020 from the following website: <https://www.who.int/docs/default-source/cprpnaviruse/mental-health-considerations.pdf>
18. Pranav MPD, Nair G, Uppe A. COVID-19 Awareness Among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. *Cureus.* 2020; 12(4): 1-18.

19. Hamed A, Nedal A, Al-Mnayyis A, Abu-Lubada M, Algel A, Al-Shagahin H. COVID-19 Knowledge, Attitude and Practice among Medical and Non-Medical University Students in Jordan. *J Pure Appl. Microbiol.* 2020; 14(1): 17-24.
20. VivekKashid R, Asawari Ae, MukhitKazi M, Patil S. Awareness of COVID-19 amongst undergraduate dental students in India- A questionnaire based cross-sectional study; May, 2020. Retrieved June, 2020 from the following website: <https://www.researchsquare.com/article/rs-27183/v1>
21. Chesser A, Drassen Ham A, Keene Woods N. Assessment of COVID-19 Knowledge among University Students: Implications for Future Risk Communication Strategies. *Health Educ. Behav.* 2020; 47(1): 1-4.
22. Labban L, Thallaj N, Labban A. Assessing the level of Awareness and Knowledge of COVID-19 Pandemic among Syrians. *Arch Med.* 2020; 12(2): 1-8.
23. Ali MY, Bhatti R. COVID-19 (Coronavirus) Pandemic: Information Sources Channels for the Public Health Awareness. *Asia Pacific Journal of Public Health.* May 2020; 1-2. Retrieved June 2020 from the following website: <https://journals.sagepub.com/dol/full/10.1177/1010539520927261>.
24. Peng Y, Peiz C, Zheng Y, Wang Y, Zheng K, Zhu P. Knowledge, Attitude and Practice Associated with COVID-19 among University Students: A Cross-Sectional Survey in China. *BMC-Research square J.* April 2020 Retrieved June, 2020 from the following website: <https://www.researchsquare.com/article/rs-21185/v1>.