



## Original article

# Assessing the level of awareness and behaviour among a group of Libyans in Benghazi city during the coronavirus (COVID-19) pandemic

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## ABSTRACT

**Objectives:** The study aimed to assess Benghazi Libyan patients' awareness level and behaviour towards the COVID-19 pandemic at the time of the breakthrough of the disease.

**Methods:** A survey using a questionnaire was conducted on 101 adult patients who visited dental clinic services and diabetic centres in Benghazi at the time of breakthrough of the COVID-19 pandemic.

**Results:** The participants were from different age groups (20 to 79) and comprised of males (72.3%) and females (27.7%) who had different education levels. The majority of participants 90 (89.1%) had enough idea about the symptoms of COVID-19 and (84.2%), were aware enough of the direction of COVID-19. Approximately half (49.5%) of respondents affirmed that they didn't have any of the symptoms of COVID-19. Whereas 3% had muscle pain, 5% had a dry cough, and 4% had strong headaches, 6% of participants complained of multiple symptoms of severe headache, dry cough, muscle pain, and loss of sense of taste and smell, 7% complained of fever for two weeks with muscle pain. 7% of participants did not quarantine themselves when they met patients infected with coronavirus symptoms and 8% never quarantined themselves. (89.1%) wear masks outside of their houses, while 48 (47.5%) removed their masks from time to time outside their houses, and 21% reused their masks. (89.1%) did not see a patient with coronavirus while they were aware of the disease.

**Conclusion:** Most of study individuals had adequate knowledge about COVID-19 and were aware of its symptoms. Their behaviour during the pandemic breakthrough was adequate to protect themselves from cross-contamination.

**Keywords:** Symptoms of COVID-19, public awareness, and behaviour during COVID-19

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## INTRODUCTION

Coronavirus disease is taken into account as a worldwide health emergency which is referred to as (COVID-19) is caused by (SARS-CoV-2) and is known as severe acute respiratory syndrome coronavirus 2. The genus Betacoronavirus is additionally divided into subgenerations: Sarbecovirus, Hibecovirus, Nobecovirus,

Merbecovirus, and Embecovirus.<sup>1</sup> SARS-CoV-2 had been classified as a Betacoronavirus genus subgenus Sarbecovirus.<sup>1,2</sup>

SARS-CoV-2 belongs to the Coronaviridae a family of single-stranded RNA viruses, Coronaviridae family considers an outsized family, it contains a spread of viral species. The coronavirus family is split into two subfamilies: Letovirinae and Orthocoronavirinae, SARS-CoV-2 is assessed as an orthocoronavirus subfamily. The orthocoronavirus also divided into four generations: Alphacoronavirus, Betacoronavirus, Gammacoronavirus and Deltacoronavirus.<sup>3</sup>

The first outbreak of COVID-19 was reported in December 2019 in Wuhan, China. The World

Health Organization (2020) stated the outbreak of COVID-19 as a global pandemic.<sup>4</sup> In spite of preventive measures and control applied steadily, the number of cases increased dramatically. That is why the WHO on January 30 and March 11, 2020, respectively affirmed COVID-19 as a public health emergency of global health crisis and thereafter as a pandemic.<sup>5</sup> WHO had cautioned that countries with poor healthcare systems may not be able to deal with the COVID-19 outbreak with many in the African continent being of particular concern.<sup>6</sup>

COVID-19 is confirmed as a main global health crisis worldwide; this is because it can cause death due to breathing failure.<sup>7</sup> World Health Organization stated some precautions and measures to prevent in spreading of COVID-19. For example, regular hand washing, covering mouth and nose when coughing and sneezing and avoiding touching the face. Besides, mostly avoid close contact (social distance) with anyone who has symptoms of respiratory diseases such as coughing and sneezing.<sup>8</sup> Since the spread of COVID-19 began in Libya in late March, several educational and awareness campaigns have been conducted about it across the country such as lectures, TV, and radio interviews, these campaigns were carried out by professional and expert people particularly from different Libyan universities through active lectures, social media, and online meetings. They had a significant role in influencing the awareness and culture of the Libyan people regarding the spread of COVID-19. However, Libya was one of the last countries in the region to report the first case of COVID-19.<sup>8,9</sup>

On March 18, 2020 the Libyan minister issued the full curfew decision.<sup>10</sup> Whereas, on March 24, 2020, the National Centre for Disease Control in Libya has been reported the first case which has tested positive for COVID-19.<sup>11</sup>

Literature has shown the current level of awareness among doctors and nurses concerning COVID-19 with special consideration for those responsible for caring for patients with COVID-19.<sup>12</sup> In March 2020, the number of cases has increased progressively at the time of the spread of the COVID-19 pandemic. Despite the preventive measures and other safety instructions implemented to stop the spread of COVID-19 in Libya, the number of infected cases continued to increase significantly.<sup>13</sup> This condition mounted unparalleled pressure on the public health systems in many Libyan cities.

The cases reached 166,888 people across the country and this number has been increasing every day. The number of deaths reached 2,807, while the

number of recovered reached 152,328. However, in Libya, the main concern is the limited public knowledge and awareness of COVID-19 along with social and cultural norms of gathering, which can facilitate its transmission through Libya. Awareness and preparedness for the COVID-19 pandemic were low among healthcare workers in low-resource settings in Libya.<sup>11,12</sup>

This study sheds light on the awareness level and behaviours among a random sample of Benghazi Libyan patients towards the COVID-19 pandemic, which was still unknown and unidentified at the time of data collection. For this reason, the researchers formulated the following research questions:

1. What is the awareness level of Benghazi Libyan patients towards the COVID-19 pandemic?
2. What is the behaviour of Benghazi Libyan patients towards the COVID-19 pandemic?
3. How do Benghazi Libyan patients deal with the COVID-19 pandemic?

## METHODOLOGY AND STUDY DESIGN

The study was conducted between October - December 2020 during the pandemic. At that time, the Libyan dental syndicate decided to open dental medical centres and be limited to emergency treatments only and they mandated working according a protocol placed by "The Libyan consultative medical committee to combat the corona pandemic".

The study was approved by the committee of faculty of dentistry at the university of Benghazi - the specialist centre for oral and dental education Benghazi and the diabetic public centre in Benghazi.

The study was conducted on different age groups who visited "the specialist centre for oral and dental education Benghazi" and "the diabetic public centre in Benghazi". And was carried out at the time only emergency treatments were available to the patients by a decision of 'the Libyan consultative medical committee to combat the corona pandemic'. The participants who visited these centres were asked to participate voluntarily in this study, and agreed with a full conviction and consent to taking part in this study and all of them suit the criteria.

The collected data were in the form of a questionnaire filled under the supervision of four dentists to ensure that volunteers understand the question correctly.

The questionnaire was designed in Arabic and English and was pre-validated by some professional academics to determine the adequacy and clarity of the questions, and it was thereafter reviewed accordingly. Questionnaires with unfinished information or missing data were excluded from the analysis.

The questionnaire comprised of three sections, the first section enclosed demographic characteristics such as age, gender, city, and educational level. The second section addressed the awareness level of Benghazi Libyan patients towards the COVID-19 pandemic. The third section included the behaviour of Benghazi Libyan patients towards the COVID-19 pandemic. Data were presented with frequencies and proportions and were analysed using Statistical Package for Social Sciences software (SPSS) software, version 25. Descriptive statistics were used to examine respondents' characteristics and responses using frequencies and percentages. The researchers described categorical variables as frequencies and percentages. The Kolmogorov-Smirnov test revealed that the variables did not follow a normal

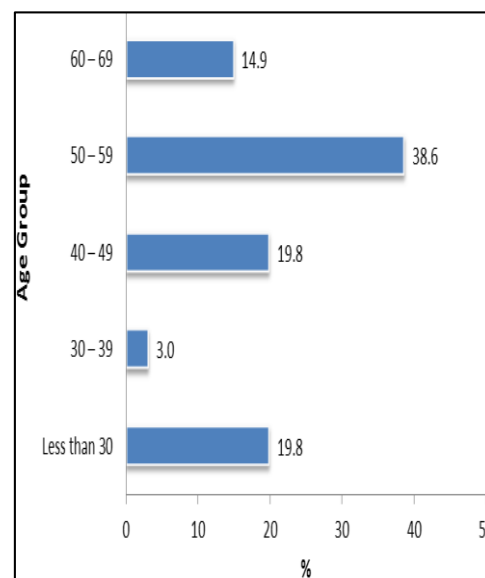
distribution. We conducted the Mann-Whitney U-test to identify differences between two groups of continuous variables.

## RESULTS

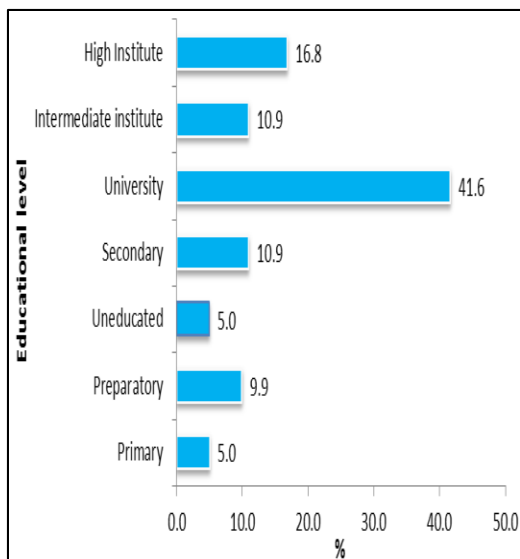
Demographic characteristics of a total of 101 Benghazi Libyan patients completed the questionnaire. Table 1 summarizes the characteristics of the respondents. The age range of the participants was from 20 –79 years divided into 6 groups. The highest group was in the 50-59 category of age (38.6%). Males 73 (72.3%) were more than the females 28 (27.7%). The majority of respondents 93 (92.1%) were from Benghazi city and 8 (7.9%) were from out of Benghazi city who came to Benghazi for their emergency treatment. According to educational level, 42 respondents (41.6%) reported that they were at the university level, high institute (17, 16.8%), intermediate institute and secondary school level (11%), and preparatory (10 %), whereas, the uneducated and primary levels (5%) each.

**Table 1: Demographic Characteristics the participants (n=101)**

| Characteristics          | Frequency  | Percentage% |
|--------------------------|------------|-------------|
| <i>Age (years)</i>       |            |             |
| Less than 30             | 20         | 19.8        |
| 30 – 39                  | 3          | 3.0         |
| 40 – 49                  | 20         | 19.8        |
| 50 – 59                  | 39         | 38.6        |
| 60 – 69                  | 15         | 14.9        |
| 70 – 79                  | 4          | 4.0         |
| <b>Total</b>             | <b>101</b> | <b>100%</b> |
| <i>City</i>              |            |             |
| Benghazi district        | 93         | 92.1        |
| Out of Benghazi          | 8          | 7.9         |
| <b>Total</b>             | <b>101</b> | <b>100%</b> |
| <i>Educational level</i> |            |             |
| Uneducated               | 5          | 5.0         |
| Primary                  | 5          | 5.0         |
| Preparatory              | 10         | 9.9         |
| Secondary                | 11         | 10.9        |
| Intermediate institute   | 11         | 10.9        |
| High Institute           | 17         | 16.8        |
| University               | 42         | 41.6        |
| <b>Total</b>             | <b>101</b> | <b>100%</b> |



**Figure 1. Distribution of age groups of study participants (n=101)**



**Figure 2. Educational level characteristics of study participants (n=101)**

### **Awareness level of Benghazi patients (n=101) towards COVID-19**

Table 2: showed the current status of COVID-19 awareness among Benghazi patients. The descriptions of each item in the questionnaire were shown in this Table. The majority, 85 (84.2%) were aware enough of the direction of COVID-19. The majority of participants 90 (89.1%) had enough idea about the symptoms of COVID-19. Most of the participants 90 (89.1%) did not see a patient with coronavirus while they were aware of the disease. On the other hand, around 50 (49.5%) of respondents affirmed that they didn't have any of the symptoms of COVID-19.

**Table 2: The awareness level among the total sample of 101 Benghazi patients towards COVID-19**

| Characteristics                                                             | Frequency  | Percentage  |
|-----------------------------------------------------------------------------|------------|-------------|
| Do you have awareness of the direction of COVID-19?                         |            |             |
| I have enough awareness                                                     | 85         | 84.2        |
| I do not have enough awareness                                              | 16         | 15.8        |
| <b>Total</b>                                                                | <b>101</b> | <b>100%</b> |
| Do you have enough idea about the symptoms of COVID-19?                     |            |             |
| Yes                                                                         | 90         | 89.1        |
| No                                                                          | 11         | 10.9        |
| <b>Total</b>                                                                | <b>101</b> | <b>100%</b> |
| Have you had symptoms related to coronavirus?                               |            |             |
| Muscle pain                                                                 | 3          | 3.0         |
| Dry cough                                                                   | 5          | 5.0         |
| strong headache                                                             | 4          | 4.0         |
| Severe headache, dry cough, muscle pain, loss of sense of taste and smell   | 6          | 5.9         |
| I had a fever for two weeks, muscle pain, other than that                   | 7          | 6.9         |
| Other than that,                                                            | 6          | 5.9         |
| Loss of the sense of taste and smell                                        | 9          | 8.9         |
| I didn't have any of the symptoms                                           | 50         | 49.5        |
| <b>Total</b>                                                                | <b>101</b> | <b>100%</b> |
| Did you see a patient with coronavirus while you were aware of the disease? |            |             |
| Yes                                                                         | 11         | 10.9        |
| No                                                                          | 90         | 89.1        |
| <b>Total</b>                                                                | <b>101</b> | <b>100%</b> |
| If the answer is yes, have you been subjected to quarantine?                |            |             |
| I never quarantined myself                                                  | 5          | 6.9         |
| Yes, it was committed to 2 weeks                                            | 6          | 7.9         |
| <b>Total</b>                                                                | <b>101</b> | <b>100%</b> |

**Table 3: The behaviour of Benghazi patients towards COVID-19**

| Characteristics                                                                                | Frequency | Percentage |
|------------------------------------------------------------------------------------------------|-----------|------------|
| Do you take precautions such as holding away or covering your nose while coughing or sneezing? |           |            |
| Yes                                                                                            | 83        | 82.2       |
| No                                                                                             | 18        | 17.8       |
| Do you wear a mask when you go out of the house?                                               |           |            |
| Yes                                                                                            | 90        | 89.1       |
| No                                                                                             | 11        | 10.9       |
| Do you remove the mask from time to time outside the home?                                     |           |            |
| Sometimes                                                                                      | 48        | 47.5       |
| Always                                                                                         | 9         | 8.9        |
| I don't do that                                                                                | 23        | 22.8       |
| Do you reuse the mask?                                                                         |           |            |
| Yes                                                                                            | 21        | 20.8       |
| No                                                                                             | 59        | 58.4       |
| When you remove the mask, do you touch the front of the mask?                                  |           |            |
| Sometimes                                                                                      | 11        | 10.9       |
| No                                                                                             | 54        | 53.5       |
| Yes                                                                                            | 15        | 14.9       |
| Have you participated in social activities such as places of worship, weddings, and funerals?  |           |            |
| Sometimes                                                                                      | 44        | 43.6       |
| Always                                                                                         | 23        | 22.8       |
| I've never done this                                                                           | 34        | 33.7       |
| Do you wash your hands when you enter the house for 20 seconds?                                |           |            |
| Sometimes                                                                                      | 8         | 7.9        |
| Wash my hands for 20 seconds                                                                   | 69        | 68.3       |
| Wash my hands for less than 20 seconds                                                         | 21        | 20.8       |
| I don't wash my hands when I enter the house                                                   | 3         | 3.0        |

|                                                                              |            |             |
|------------------------------------------------------------------------------|------------|-------------|
| Do you sterilize your shoes when you enter the house?                        |            |             |
| Sometimes                                                                    | 12         | 11.9        |
| No                                                                           | 69         | 68.3        |
| Yes                                                                          | 19         | 18.8        |
| Do you disinfect your hands or surfaces with alcohol while you are outdoors? |            |             |
| Sometimes                                                                    | 35         | 34.7        |
| Always                                                                       | 28         | 27.7        |
| I don't do that                                                              | 38         | 37.6        |
| Do you disinfect the items stored in the stores when you return home?        |            |             |
| Sometimes                                                                    | 24         | 23.8        |
| No                                                                           | 42         | 41.6        |
| Yes                                                                          | 35         | 34.7        |
| Do you use alcohol to disinfect yourself after entering the house?           |            |             |
| Sometimes                                                                    | 28         | 27.7        |
| Always                                                                       | 35         | 34.7        |
| I don't do that                                                              | 38         | 37.6        |
| <b>Total</b>                                                                 | <b>101</b> | <b>100%</b> |

### Behaviours of Benghazi patients towards COVID-19 & how they deal with the COVID-19 pandemic

The descriptions of each item related to the behaviours of Benghazi patients regarding COVID-19 were presented in table (3). The majority of participants, 83 (82.2%), take precautions such as holding away or covering the nose while coughing or sneezing. Most of the 90 participants (89.1%) wear masks when they had been out of their houses, while, some of the participants 48 (47.5%) remove their masks from time to time outside their homes. A majority of participants 69 (68.3%) wash their hands when they enter their houses for 20 seconds. However, around 69 (68.3%) did not disinfect their shoes with alcohol when they entered their houses.

### DISCUSSION

Coronavirus disease is a global outbreak viral disease that requires emergency health care and

medical facility resources. In this study, the researchers explored the awareness level and behaviours of a group of Benghazi Libyan patients towards the COVID-19 pandemic.

In dental practices, because the risk of cross-infection with COVID-19 may occur between dental practitioners and dental patients, strict and effective infection control protocols are urgently needed. According to WHO definition, droplets are  $\geq 5\text{-}10\text{ }\mu\text{m}$  in diameter and aerosols are  $\leq 5\text{-}10\text{ }\mu\text{m}$  in diameter. However, both can be generated as a continuum of particle sizes during numerous respiratory activities and their behaviours are not distinct. Aerosols are generated during heavy breathing, coughing, talking and singing causing an exhalation plume of respiratory particles of varying sizes, containing potentially infective viral material.<sup>14-20</sup>

The inhalational risk may be reduced by social distancing, limiting interaction indoors, avoiding air recirculation, improving natural and artificial ventilation, and innovative engineering solutions which collect and neutralize aerosols to provide clean air in personal and community spaces.<sup>19-21</sup>

In the early course of COVID-19, there are high loads of the virus in the upper respiratory tract such as the pharynx.<sup>22</sup> It was suggested that the buildings with insufficient indoor ventilation may cause interpersonal aerosol transmission.<sup>23</sup>

Our study revealed that the individuals had enough knowledge regarding preventive behaviours such as holding away or covering the nose while coughing or sneezing, most of them wearing masks when they had been out of their homes, washing their hands when they enter their houses for 20 seconds (83%, 89%, 68.3%). But participants who did not disinfect their shoes with alcohol when they entered their homes formed (68.3%) of the participants. Aleanizy, & Alqahtani, also showed that health workers in Saudi sample were aware of the infection control behaviour measures.<sup>24</sup>

In our study regarding the level of awareness rated high (84.2%), Whereas, (89.1%) had enough idea about the different symptoms of COVID-19. Most of them (89.1%) did not contact a suspected patient with coronavirus while they were aware of the disease. Likely, a study by Sigh et al., 2020 showed that Indian participants had enough knowledge about the awareness, threat, and symptoms of the COVID-19 outbreak and its prevention.<sup>25</sup>

In order to protect the countries from COVID-19 spread with a special focus on poor and weaker health infrastructure in developing countries, effective strategies and funds were set up by WHO globally to control the infection.<sup>26</sup>

The level of awareness about COVID-19 signs, symptoms, and preventive measures among individuals from different Arabic countries in Egypt, Jordan, UAE, KSA, Qatar, and Palestine showed that a good level of awareness of the participants regarding COVID-19 was significantly correlated with older participants those who attended awareness campaigns, secondary school education holders, higher education diploma holders, university degree holders, those who have post-graduate education, and healthcare employees.<sup>27</sup>

## CONCLUSION

In conclusion, this study provides an overview of the awareness level and behaviour of Benghazi patients towards the COVID-19 pandemic. Most Benghazi patients perceived that they had adequate knowledge about COVID-19 and they were aware of the symptoms of COVID-19. Regarding their behaviour towards COVID-19, the majority of participants take preventive measures to prevent the spread of COVID -19. As an example, they wear masks when they go out of their houses and wash their hands when they enter their houses for 20 seconds. According to this sample, the majority knew health practices. According to this study's results, it becomes clear how Benghazi patients coped with the COVID-19 pandemic. That could be due to following high media instructions and adherence to public health measures during the highest pandemic time.

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