

# Assessment of COVID-19 Related Misinformation among the Community in Basrah, Iraq

Al-Rubaye Ali Kadhim<sup>1</sup>, Dhurgham A Abdulwahid<sup>2</sup>, Albadran Aymen<sup>3</sup>, Ejbari Abbas<sup>4</sup>, Alrubaiy Laith<sup>5</sup>.

<sup>1</sup> Research unit in Basrah Health Directorate, Basrah, Iraq

<sup>2</sup> Iraqi Association for Medical Research and Studies

<sup>3</sup> Al-Razi primary health care center / Basrah Public Health Department

<sup>4</sup> Basrah first primary health care sector / Basrah Public Health Department

<sup>5</sup> St Mark's Hospital and Academic Institute, London, UK

## ABSTRACT

**Background:** There has been a rapid rise in cases of COVID-19 infection and its mortality rate since the first case reported in February 2020. This led to the rampant dissemination of misinformation and rumors about the disease among the public.

**Objectives:** To investigate the scale of public misinformation about COVID-19 in Basrah, Iraq.

**Methods:** A cross-sectional study based on a 22-item questionnaire to assess public knowledge and understanding of information related to the COVID-19 infection.

**Results:** A total of 483 individuals completed the questionnaire. The most frequent age group was 26–35 years (28.2%); there were 280 (58%) males and 203 (42%) females. Of the participants, 282 (58.4%) were with an education level below the Bachelor's degree, 342 (70.8%) were married, and 311 (64%) were living in districts in Basra other than the central district. Overall, 50.8% (11.8/ 22 \* 100%) of individuals had the correct information regarding COVID-19. There was a significant association between the level of COVID-19 related misinformation and participants' educational levels and occupation ( $p < 0.05$ ). However, there was no significant difference found across sex, age group, marital state, and area of residence.

**Conclusions:** Misinformation related to COVID-19 is widely spread and has to be addressed in order to control the pandemic.

**Keywords:** COVID-19, misinformation, knowledge, Iraq

**Corresponding author:** Al-Rubaye Ali Kadhim; E-mail: [akq.alrubaye@gmail.com](mailto:akq.alrubaye@gmail.com)

**Disclaimer:** The authors have no conflict of interest.

**Copyright** © 2020 The Authors. Published by Iraqi Association for Medical Research and Studies. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial License 4.0 (CCBY-NC), where it is permissible to download and share the work provided it is properly cited.

**DOI:** 10.37319/iqnmj.2.CSI.2

Received: 2 April 2020 Accepted: 29 May 2020 Published online: 30 July 2020

## INTRODUCTION

The coronavirus disease 2019 (the COVID-19) is a respiratory disease first detected in December 2019 in Wuhan, China.<sup>(1)</sup> It is caused by a novel coronavirus, the Severe Acute Respiratory Syndrome CoronaVirus 2 (SARS-CoV-1). The disease is highly infectious, with clinical symptoms that include dry cough, dyspnea, fever, fatigue, and myalgia.<sup>(2)</sup> The disease quickly spread to many countries around the world and, by January 30, 2020, the World Health Organization (WHO) had declared it a public health emergency on a global level and demanded the collaborative efforts of all countries around the world to prevent its rapid spread. On February 15, 2020, there were 51,857 confirmed cases of COVID-19 and a total of 1669 deaths in 26 different countries.<sup>(1, 3)</sup> Despite the various measures taken against the outbreak, the number of cases as well as the number of countries reporting their first cases, continued to increase. On March 11, 2020, WHO announced that the disease had become a pandemic and could affect all countries and people around the globe.<sup>(1)</sup> The Republic of Iraq officially reported its first confirmed case of COVID-19 on February 22, 2020 in the Al-Najaf Governorate.<sup>(4)</sup> By April, there were confirmed cases in all 18 Iraqi Governorates, and the total number of confirmed cases had exceeded one hundred.<sup>(4)</sup> The Basrah Governorate has been seriously hit by the COVID-19 epidemic. From the beginning, the authorities adopted some unprecedented measures to control transmission of the virus in Basrah city as well as its districts. These measures included actions ranging from broadcasting educational material in social media to closing down public spaces and enforcing a

curfew on March 16, 2020.<sup>(5)</sup> At the time of writing this manuscript, the battle against COVID-19 is continuing in Iraq. In order to guarantee success against the current epidemic, it is essential that people adhere to preventive measures. This is largely dependent on their background knowledge towards the COVID-19 infection. However, it is also important to prevent the spread of misinformation regarding COVID-19 among the public, as it hinders the progress of control measures taken. WHO has dedicated a section in its website to clarifying such false information regarding COVID-19.<sup>(6)</sup> To effectively implement a successful control plan, it is important to assess the public's awareness regarding COVID-19. In this study, we tried to investigate the level of COVID-19 related misinformation among the community in Basrah and discover possible factors that may be associated with it.

## METHODS

### Participants

This cross-sectional study was conducted in the Basrah Governorate between the April 1 and May 10, 2020, around two months after the first confirmed case was reported in Iraq. The participants were local people living in Basrah city and the Basrah districts. Because of the curfew enforced by the authorities early on, the movement of people was restricted to certain areas such as food stores, bakeries, and health institutions (primary health care centers present in almost every area in Basrah). The research team visited these facilities, introduced themselves, and provided a brief summary of the research. Individuals who showed a willingness to participate in the research were given a brief explanation, in which they received a brief introduction to the background, procedures,

and objective of the research. They were informed about the voluntary nature of participation, declarations of anonymity and confidentiality, and were provided notes on how to fill in the questionnaire. Individuals of Iraqi nationality, aged 15 years or more, who could understand the information given during the meetings, and who showed willingness to participate, received the self-report questionnaire and instructions on how to complete it. Ethical approval for this study was obtained from the Ethical Committee at the Basrah Health Directorate (No.189 in April 16, 2020).

### Measures

The questionnaire consisted of two parts: demographics and information. Demographic variables included age group, gender, marital status, level of education, type of occupation, and place of residence.

The information variables included 22 questions about common misinformation spread in the community during the COVID-19 outbreak. Most of this misinformation was spread all over the world, mainly through social media, and was highlighted in the section named “Coronavirus disease (COVID-19) advice for the public\Myth busters”, which is still available on the WHO website.<sup>(6)</sup> For each question, the participant had to answer (Yes), (No), or (Maybe). Another question in the survey asked the participant to select the most common source of information that they usually used to get information about the outbreak.

### Statistical analysis

The frequency of the correct answers is shown using frequency tables. Answers were collected for each participant and one final score was calculated for each. Multivariable

linear regression analysis using the demographic variables as independent variables and the final score as the dependent variable. The unstandardized regression coefficients ( $\beta$ ) and their 95% confidence intervals (CIs) were used to quantify the associations between variables and the participants' final scores. Data analyses were conducted with SPSS version 25. The statistical significance level was set at  $p \leq 0.05$ (two-sided).

### RESULTS

A total of 492 participants completed the questionnaire. After 9 questionnaires were excluded because the respondents had selected more than one option or did not complete the questionnaire, the final sample size became 483 participants. Among the final sample, the largest age group was 26–35 years (28.2%); there were 280 (58%) males and 203 (42%) females. Of the participants, 282 (58.4%) were with an education level below the Bachelor's degree, 342 (70.8%) were married, 172 (35.6%) lived in Basrah city and 311 (64.4%) lived in other Basrah districts. Regarding occupations, 280 (58%) were not employed (students, un-employed, or retired), 164 (34%) worked in the government or private sectors, and 39 (8.1%) were employed in the health sector (Table 1).

**Table 1:** Demographic features of the participants (N=483)

| <b>Gender:</b>                                   | Number (%)  |
|--|-------------|
| Male   | 280 (58%)   |
| Female   | 203 (42%)   |
| <b>Age group:</b>                                |             |
| 15–25 years old                                  | 120 (24.8%) |
| 26–35 years old                                  | 136 (28.2%) |
| 36–45 years old                                  | 127 (26.3%) |
| 46–55 years old                                  | 69 (14.3%)  |
| more than 55 years old                           | 31 (6.4%)   |
| <b>Area of Residence</b>                         |             |
| In Basrah City                                   | 172 (35.6%) |
| In other Basrah Districts                        | 311 (64.4%) |
| <b>Education Level</b>                           |             |
| Education level below Bachelor’s degree          | 282 (58.4%) |
| Education level equal or above Bachelor’s degree | 201 (41.6%) |
| <b>Marital Status</b>                            |             |
| Married  | 342 (70.8%) |
| Other (single, divorced, or widow)               | 141 (29.2%) |
| <b>Working status</b>                            |             |
| Not employed                                     | 280 (58%)   |
| Working (in governmental or private sectors)     | 164 (34%)   |
| Employed in the health sector                    | 39 (8.1%)   |
| <b>Total</b>                                     | 483 (100%)  |

22 COVID-19 misinformation-related questions in the survey and number and percentage of individuals who managed to correctly identified them as false information are shown in (Table 2).

Each participant was awarded one point if they had correctly identified the misinformation by choosing “No”, whereas zero points were awarded if they chose “Yes” or “Maybe”. The points from correct answers were added to obtain one final score. The final scores for correct answers for the participants ranged from (0) to (22), with mean equal to (11.18, SD= 4.29), suggesting an overall 50.8% (11.8/22 \* 100%) accuracy rate for the entire sample. While the final scores for correct answers were significantly different across education levels and type of occupation (  $p < 0.05$ ), there was no significant difference found across sex, age group, marital state, and current residence (Table 3).

**Table 2:** COVID-19 misinformation related questions and the number and percentage of individuals who identified them as false information ( N= 483)

|     | <b>The misinformation</b>   | <b>Number of participants who correctly identified it as false information</b> |
|-----|---|--|
| 1.  | There is no outbreak of COVID-19 disease in Iraq and what is happening now is just a media scare                                      | 379 (78.5%)  |
| 2.  | SARS-CoV-2 virus was manufactured in another country  | 147 (30.4%)  |
| 3.  | Daily ablution for prayer is enough to prevent the disease from spreading   | 230 (47.6%)  |
| 4.  | Exposure to the sun and heat is recommended because it is useful in preventing the transmission of the disease to you                 | 129 (26.7%)  |
| 5.  | SARS-CoV-2 virus is not spread in hot and sunny countries   | 237 (49.1%)  |
| 6.  | If you recover after suffering from COVID-19 disease, you will remain the carrier of the disease in your body for life                | 297 (61.5%)  |
| 7.  | If you can hold your breath for 10 seconds without feeling suffocated or distressed, you are not infected with the coronavirus        | 181 (37.5%)  |
| 8.  | Drinking alcoholic drinks reduces the possibility of coronavirus infection, as it works to sterilize and kill the virus               | 339 (70.2%)  |
| 9.  | Taking a hot bath will protect you from the COVID-19, as hot water kills coronavirus  | 184 (38.1%)  |
| 10. | Coronavirus can be transmitted through bug bites, flies, or mosquitoes  | 295 (61.1%)  |
| 11. | The hot air dryer is useful for hand sanitization, killing the virus, and is recommended for prevention                               | 192 (39.8%)  |
| 12. | Coronavirus infection can be detected by using a thermometer, as it is currently used in airports                                     | 141 (29.2%)  |
| 13. | if you get infected with COVID-19, it is advised to spray chlorine, iodine, or alcohol on the body to speed up your recovery process. | 210 (43.5%)  |
| 14. | The chances of you getting coronavirus decrease if you are vaccinated against influenza or pneumonia                                  | 190 (39.3%)  |
| 15. | Regularly washing the nose with water or water and salt protects you from coronary diseases   | 161 (33.3%)  |
| 16. | Eating garlic regularly will prevent coronavirus  | 194 (40.2%)  |
| 17. | Using Alhraml at home is useful in preventing coronavirus   | 316 (65.4%)  |
| 18. | Coronavirus affects only the elderly  | 374 (77.4%)  |
| 19. | Coronavirus does not affect children  | 357 (73.9%)  |
| 20. | The use of antibiotics contributes to the prevention of coronavirus   | 164 (34.0%)  |
| 21. | A specific treatment that eliminates COVID-19 disease has been discovered   | 330 (68.3%)  |
| 22. | A specific vaccine against the COVID-19 disease has been discovered   | 355 (73.5%)  |

Table 4: The mean and the SD of the final score for the participants (N=831)

| Gender :   | Number (%)  | Mean  | SD    |
|--|-------------|-------|-------|
| Male   | 280 (58%)   | 10.89 | 4.345 |
| Female   | 203 (42%)   | 11.60 | 4.196 |
| Age group :  |             |       |       |
| 15–25 years old                                      | 120 (24.8%) | 11.39 | 4.159 |
| 26–35 years old                                      | 136 (28.2%) | 11.06 | 4.606 |
| 36–45 years old                                      | 127 (26.3%) | 11.02 | 4.294 |
| 46–55 years old                                      | 69 (14.3%)  | 11.17 | 4.029 |
| more than 55 years old                               | 31 (6.4%)   | 11.61 | 4.153 |
| Area of Residence                                    |             |       |       |
| In Basrah City                                       | 172 (35.6%) | 11.17 | 4.582 |
| In Basrah Districts                                  | 311 (64.4%) | 11.19 | 4.132 |
| Education Level *                                    |             |       |       |
| Education level below Bachelor degree                | 282 (58.4%) | 10.44 | 4.160 |
| Education level equal or above Bachelor's degree     | 201 (41.6%) | 12.22 | 4.270 |
| Marital Status                                       |             |       |       |
| Married  | 342 (70.8%) | 11.04 | 4.381 |
| Other (single , divorced or widow)                   | 141 (29.2%) | 11.55 | 4.063 |
| Current Occupation *                                 |             |       |       |
| Not working currently (students, retired, housewife) | 280 (58%)   | 10.77 | 4.278 |
| Working (in government or private sectors)           | 164 (34%)   | 11.29 | 4.076 |
| Employed in the health sector                        | 39 (8.1%)   | 13.72 | 4.495 |
| <b>Total</b>   | 483 (100%)  | 11.18 | 4.293 |

\* p value &lt; 0.05

Multivariable linear regression analysis showed that healthcare workers (vs. workers in other sectors or non workers,  $\beta$ :0.9,  $p<0.05$ ), and participants with education level equal or above Bachelor's degree (vs. education level below Bachelor degree,  $\beta$ : 1.432,  $p< 0.05$ ) were significantly associated with higher final scores (Table 4).

Table 3: Results of multiple linear regressions on factors associated with the level of misinformation about COVID-19 (N=831, R Square.066)

| Variable               | Coefficient | Standard error | P value |
|------------------------|-------------|----------------|---------|
| <b>Sex</b>             | .663        | .392           | .091    |
| <b>Age group</b>       | .076        | .181           | .675    |
| <b>Marital state</b>   | .745        | .478           | .120    |
| <b>Place of living</b> | .623        | .413           | .133    |
| <b>Education *</b>     | 1.432       | .426           | .001    |
| <b>Current work*</b>   | .909        | .337           | .007    |

\* P value &lt; 0.05

Regarding the single most common source of information that the participants depended on to obtain information about COVID-19, 41% of the respondents mentioned the internet and Facebook, whereas 30.6% preferred television (Table 5).

Table 5: The most common source of information used by the participants (N =831)

| Source of information      | Frequency | Percentage |
|----------------------------|-----------|------------|
| <b>Facebook</b>            | 98        | 20.3 %     |
| <b>TV</b>                  | 148       | 30.6%      |
| <b>Radio</b>               | 3         | .6%        |
| <b>WhatsApp</b>            | 46        | 9.5%       |
| <b>Tweeter + Instagram</b> | 45        | 9.3%       |
| <b>Friends and family</b>  | 31        | 6.4%       |
| <b>Websites</b>            | 100       | 20.7%      |
| <b>OTHER</b>               | 12        | 2.5%       |
| <b>Total</b>               | 483       | 100.0      |

## DISCUSSION

This is the first study examining the misinformation spread in a community in Iraq. There was an overall correct answer rate of 50.8% among the 483 participants in the study, reflecting a high level of misinformation spread in the community. A study conducted to assess knowledge in the Middle East regarding COVID-19 also found that participants possessed relatively poor knowledge about the disease<sup>(7)</sup>, whereas another study on Chinese citizens found an overall accuracy rate of around 90%, indicating that most respondents were knowledgeable about COVID-19.<sup>(8)</sup> Finding a low overall correct rate among the participants in this study was expected as the study was conducted during the very early stages of the outbreak. The serious nature of the pandemic and numerous news reports may have also been a factor in the spread of misinformation, as people often try to help others by sharing information they receive even before it is verified by health experts.

The study showed that the final scores increased as the education level increased ( $p < 0.05$ ). Other studies also reported similar findings about the association between the population's knowledge about COVID-19 and education level.<sup>(7,8)</sup> This study also showed a significant relationship between working status of the participants and the scores for in the questionnaire. Being employed in the health care sector (compared with those currently non-working) was also significantly associated with a high score in the questionnaire ( $p < 0.05$ ). This finding was consistent across different studies.<sup>(9-11)</sup> The study also showed that the internet was the key source of information for around half the

participants., whereas the TV and radio channels were primary sources of information for a third of the participants. This finding is especially beneficial for the authorities as they can prioritize their effort in the fight against the misinformation.

## CONCLUSION

the best possible way of fighting against COVID-19 is through preventive behavioral measures. However, these measures are significantly dependent on the level of correct information the people hold. The findings suggest that there is a high rate of misinformation spread among the population in Basrah. The most important recommendation to the authorities would be to develop an effective plan to target the sources of such misinformation as part of their effort against the misinformation outbreak.

## ACKNOWLEDGEMENTS

The authors would like to express their special thanks and gratitude to the Basrah Health Directorate and the Iraqi Association for Medical Research and Studies (IAMRS), who gave them the golden opportunity to undertake this project under their joint scientific research initiative.

## REFERENCES:

1. World Health Organization. Coronavirus disease (COVID-19) - events as they happen [Internet]. [cited 2020 Jun 19]. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>
2. The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. *Chin J Epidemiol.* 2020;41:145-51.
3. World Health Organization. 2019-nCoV outbreak is an emergency of international concern [internet]. [cited 2020 Apr 16]. Available from: <http://www.euro.who.int/en/health-topics/emergencies/pages/news/news/2020/01/2019-ncov-outbreak-is-an-emergency-of-international-concern>
4. The Minsitory of Health in Iraq - Posts [Internet]. [cited 2020 Jun 19]. Available from: <https://www.facebook.com/MOH.GOV.IQ/photos/a.860171854037214/2840429512678095/?type=3>
5. Basrah Governoarte Councel - Posts [Internet]. [cited 2020 Apr 21]. Available from: [https://www.facebook.com/permalink.php?story\\_fbid=2804399066348906&id=194415907347248](https://www.facebook.com/permalink.php?story_fbid=2804399066348906&id=194415907347248)
6. WHO Myth busters [Internet]. [cited 2020 Apr 21]. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters>
7. Naser AY, Dahmash EZ, Alwafi H, Alsairafi ZK, Al Rajeh AM, Alhartani YJ, et al. Knowledge and practices towards COVID-19 during its outbreak: a multinational cross-sectional study [Internet]. *Infectious Diseases (except HIV/AIDS)*; 2020 Apr [cited 2020 Jun 19]. Available from: <http://medrxiv.org/lookup/doi/10.1101/2020.04.13.20063560>
8. Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci.* 2020 Mar 15;16(10):1745-52.
9. Azlan AA, Hamzah MR, Sern TJ, Ayub SH, Mohamad E. Public knowledge, attitudes and practices towards COVID-19: A cross-sectional study in Malaysia. *PLOS ONE.* 2020 May 21;15(5):e0233668.
10. Giao H, □ N, Thi N, Thi Ngoc Han N, Khanh T, Ngan V, et al. Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. *Asian Pac J Trop Med.* 2020 Apr 3;13.
11. Zegarra A, Chino B, Ames R. Knowledge, perception and attitudes in regard to COVID-19 pandemic in Peruvian population. *ResearchGate.* [Internet] [cited 2020 Jun 19]. Available from: [https://www.researchgate.net/publication/340694053\\_Knowledge\\_perception\\_and\\_attitudes\\_in\\_Regard\\_to\\_COVID-19\\_Pandemic\\_in\\_Peruvian\\_Population\\_org](https://www.researchgate.net/publication/340694053_Knowledge_perception_and_attitudes_in_Regard_to_COVID-19_Pandemic_in_Peruvian_Population_org)