

# Knowledge, Attitude, And Practice Of Medical Staff Toward Covid-19: Sample From Baghdad.

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**Abstract:** *Coronavirus disease pandemic 2019 (COVID-19) is the worst global event after the Second World War. No trustable drug or vaccine had been discovered for COVID-19 since the start of the pandemic. The study pointed to determine knowledge, attitude, and practice regarding COVID-19 among employee in Baghdad health facilities. A cross-section study online survey was conducted from 27<sup>th</sup> May -19<sup>th</sup> July 2020, by using of Google-form questionnaire through the emails and social media (Telegram, Viber, WhatsApp, Facebook) or by hand to hand as a hardcopy. Medical-staff in our study had access to the online-link of the questionnaire. The answers Downloaded from the electronic-form of Questionnaire (Google-form) to the computer as an excel file and important to SPSS ver. 23 to be analyzed, frequencies, and percentages calculated. One hundred and seven medical staff (doctors, dentists, and pharmacists) enrolled in this study. The highest percentage of participants was female 72(67.3%), aged 30-39 years 36(33.6%), married 69(64.5%), working in hospital 52(48.6%), family medicine Specialty 30(28.0%), senior 36(33.6). with much-information and good-practice 59(55.1%). A high percentage of the participants had correct information in Droplets Mode of transmission 103(96.3), Old age as risk group 105(98.1%). The participant's attitude toward partial Quarantine; the highest percentage think it's incorrect and must stop completely 44(41.1%). Two-third of them were working in quarantine lounges 68(63.5%). Health workers in Iraq needed further updating education and training programs about COVID-19 disease. There is a shortage of personal protective equipment in health care facilities.*

**Keyword:** *Knowledge; Attitude; Practice; COVID 19; Medical staff, Baghdad.*

## 1. INTRODUCTION:

An emerging respiratory disease was abbreviated as COVID 19, after it has been first reported in December 2019 in Wuhan city of China. The virus is zoonotic which tends to be transmitted between animal to human and human to human. <sup>[1]</sup>

Pharmacists play important roles in transfer accurate information about COVID-19 to the community <sup>[2]</sup>.

Insufficient knowledge and inaccurate attitudes among Health Workers can affect practices and direct to deficient infection control practice and spread of the disease. <sup>[3]</sup>

Coronavirus disease-2019 (COVID-19) appears as a public health issue terrifying the lives of over 2.4 million people globally <sup>[4]</sup>.

Good knowledge of the infection action and control would modify behavioral patterns and strengthen the wish of health care workers to do their duties <sup>[5]</sup>.

If we want to stop the spread of infectious diseases in all healthcare facilities, body sanitation has to be done <sup>[6]</sup>.

The knowledge, attitudes, and practices of the people toward COVID-19 are evaluative to understanding the epidemiological energetic of the epidemic. <sup>[7]</sup>

Healthcare workers may be neglected interface between the healthcare setting and the community for infectious disease transference <sup>[8]</sup>.

Most countries have seen cases of COVID-19 and many are undergoing an epidemic. <sup>[9]</sup>

A faulty understanding of the disease among health care workers may slow down treatment and result in the rapid spread of the infection <sup>[10]</sup>.

## 2. OBJECTIVE:

Medical staff evaluation of their knowledge, attitude, and practice toward COVID-19.

## 3. METHOD:

### Setting and study design:

A cross-section study online survey was conducted from 27<sup>th</sup> May - 19<sup>th</sup> July 2020, by using of Google form questionnaire through the emails and social media (Telegram, Viber, WhatsApp, and Facebook) or by hand to hand as a hardcopy.

### Definition of cases, inclusion, and exclusion criteria:

Any doctor, dentists, and pharmacists have access to the online link of the questionnaire, (which through the researcher e-mails insert in social media sites, and through medical groups) and accepted to enroll in the study.

### Ethical consideration:

A Brief note was sent to all recipients about the e-form of the Questionnaire. We mention the importance of the study and the freedom to participate in it with the privacy of the details.

### Sampling technique:

Convenient samples from doctors, dentists, and pharmacists have access to the online link of the questionnaire, (which through the researcher e-mails insert in social media sites, and through medical groups) and accepted to enroll in the study. The Google form site collecting the answers an excel file which later can be downloaded to the researcher computer for analysis.

### Questionnaire:

The Questionnaire was formed based on the Iraqi ministry of health instructions and world health organization guidelines <sup>[11]</sup>, and the UK National Institutes of Health guidelines <sup>[12]</sup>, and handbook of COVID-19 prevention and treatment <sup>[13]</sup>, and through reviewing many articles and researches. Also, four experts (two community physicians and two epidemiologists) had taken their opinion. A pilot study was done for 15 people and excluded from this study.

The questionnaire contains five sections: the first section consists of six questions about demographic features (age, gender, marital status, workplace, Specialty, and professional level).

The second section consists of knowledge {(subdivided to 9 questions (knowledge about the epidemiological feature of COVID-19 infection & preventions). and eight questions (knowledge about transmission of COVID-19 infection) and five questions (knowledge about the entry of COVID-19 infection). and eight questions (knowledge about High-risk group), 13 questions (Symptoms of COVID 19) and six questions (knowledge about Drugs used for the treatment of COVID 19)},

The third section was about the Attitude about partial Quarantine, sick leave for pregnant colleagues, Feeling during treat patient, and quarantine lounges of COVID-19 infection,

The fourth section about practice (Working in quarantine lounges of COVID-19 infection, If you 'r contact with COVID-19, attended a lecture about COVID-19 and educate clients about COVI-19) and the last question was about his/her information source.

### Coding

The answers for the knowledge parts were (no, I don't know, yes) and consider each correct answer =3, each 'I don't know' =2 and each 'no' =1, as shown in the following table:

| Coding  |                                  |
|---|----------------------------------|
| <b>Total transmission</b><br>No of question =8              | poor knowledge (8-16)            |
|   | accepted knowledge (17-20)       |
|   | good knowledge (21-24)           |
| <b>Total entry knowledge</b><br>No of question =5           | poor knowledge (5-9)             |
|   | accepted entry knowledge (10-12) |
|   | good entry knowledge (13-15)     |
| <b>High-risk group Total knowledge</b><br>No of question =8 | poor knowledge (8-16)            |
|   | accepted knowledge (17-20)       |
|   | good knowledge (21-24)           |
| <b>Symptoms Total knowledge</b><br>No of question =13       | poor knowledge (13-25)           |
|   | accepted knowledge (26-32)       |
|   | good knowledge (33-39)           |
| <b>Drugs Total knowledge</b><br>No of question =6           | poor knowledge (6-11)            |
|   | accepted knowledge (12-15)       |
|   | good knowledge (16-18)           |

### Statistical analysis Outcomes and procedures:

The answers Downloaded from the electronic-form of Questionnaire (Google-form) to computer as an excel file and important to SPSS ver. 23 to be analyzed, frequencies, and percentages calculated.

## 4. RESULTS

One hundred and seven medical staff (doctors, dentists, and pharmacists) enrolled in this study. The highest percentage of participants was female 72(67.3%), aged 30-39 years 36(33.6%), married 69(64.5%), working in hospital 52(48.6%), family medicine Specialty 30(28.0%), senior 36(33.6%) followed by board student 24(22.4). (Table 1)

The study revealed that 59(55.1%) had many information and good practice, and 46(43.0%) had partial information and little practice, most of them had correct information about coronavirus type 95(88.8%), its pandemic 97(90.7%), 2-14 days incubation period 98(91.6%), effective medical Alcohol consternation is 70% was 79(73.8%), 1-2 meters is the safety distance according to WHO 98(91.6%), a golden diagnostic test for the COVID-19 is PCR 49 (45.8%) followed by chest CT 42(39.3%), the COVID-19 death rate is 2-3% in 79(73.8%), and Re-infection can occur post complete recovery 78(72.9%). (Table 2)

Most of the participants had correct knowledge in Mode of transmission Droplets 103(96.3), by Mucous 97(90.7), touch 80(74.8), feces-oral mood 58(54.2), and not through urine 47(43.9), breast milk 48(44.9), while through amniotic fluid they semi equal in three answers yes, no, I don't know 32(29.9%), 36(33.6%), 39(36.4%) respectively.

Regarding the Mode of entry of COVID 19; most of them had correct answers, through the eyes 101(94.4%), the mouth 104(97.2%) and the nose 106(99.1%), and not through the intact skin 90(84.1%), the genitalia 44 (41.1%).

About the symptoms of COVID-19; the majority of the participants has correct answers; cough, fever and dyspnea 107(100%), both fatigue, asymptomatic 105(98.1%), headache 104(97.2%), sore throat 100(93.5%), loss of smell sense 99(92.5%), loss of taste sense 89(83.2%), and to less extend conjunctivitis 56(52.3%), and vertigo 45(42.1%).

Also, the study found that the majority of the participant had a correct answer about risk group (Old age 105(98.1%), cardiac diseases 105(98.1%), DM 102(95.3%), kidney diseases 100(93.5%), hepatic diseases 92(86.0%), Hypertension 88(82.2%), pregnancy 87(81.3%), Patients with Vitamin D deficiency 79(73.8%).

Regarding of drugs used in treating of COVID 19; Azithromycin 87(81.3%), Redmiseriv 79(73.8%), Hydroxychloroquin 68(63.6%), Tamiflu 63(58.9%), Corticosteroids 50(46.7%), plasma antibodies 104(97.2%), foods increase immunity 92(86.0%), while not usage of Anti-TB drugs 72 (67.3%). (Table 3)

After calculating total knowledge about Mode of Transmission they have accepted knowledge 63(58.9%), poor knowledge 28(26.2%), good knowledge 16(15.0%). While good total knowledge about Mode of entry 94(87.9%), High -risk group 94(87.9%), Symptoms 99(92.5%), Drugs used for treatment 67(62.6%), (table 4 and figure 1).

The attitude of the participant toward partial Quarantine highest percentage think it is incorrect and must stop completely 44(41.1%), followed by its correct and must continue 39(36.4%). Their opinion about sick leave for pregnant colleagues, they feel it's correct and must continue 82(76.6%). Their Feeling during treat patient was positive with precaution 46(43.0%), followed by afraid to transmitted to my family 30(28.0%), and quarantine lounges health and hotel (hospitality) service for COVID-19 infection; the highest percentage think poor services 23(21.5%), followed by fair 17(15.9%). (Table 5)

Tow-third of the participants were working in quarantine lounges 68(63.5%) and when asked about their behavior if had to contact with a patient with COVID-19; the highest percentage of them choice to inform immediately and ask for Test 58(54.2%), followed by inform immediately and ask for home staying 35(32.7%),

One-third of the participants 38(35.5%) had not attended any lecture about COVID-19 till the time of answering the questionnaire, 29(27.1%) attended once, and 40(37.4%) attending more than one lecture.

About the education of patients and clients, 64(59.8%) always educate clients about COVID-19, and 37(34.6%) sometimes they did and 6(5.6%) never educate patients. (Table 6)

When the participants asked about the availability of personal protective equipment for them in their institution as shown in figure (2): the highest percentage choice sometimes available 52(48.6%), followed never available but I can't buy them for myself 22(20.6%), then always available by 21(19.6%) and only 12(11.2%) choice never available so they buy it for themselves. (Figure 2)

In regarding the source of information, 71(66.4%) have their information from the world health organization web site, followed by other online researches and medical sites 59(55.1%), and 41(38.3%) had supply information fromboth Iraqi ministry of health(IMOH) and the social media & U-tube. To less extend; medical colleagues hadsupply information for 38(35.5%) but through family & relative 9(8.4%) only. (Figure 3)

Table (1):

Distribution of participants according to their age, gender, marital status, workplace, Specialty, and professional degree

|                |                                   | Frequency(N=107) | Percent |
|----------------|-----------------------------------|------------------|---------|
| Gender         | male                              | 35               | 32.7    |
|                | female                            | 72               | 67.3    |
| Age            | < 30                              | 30               | 28.0    |
|                | 30-39                             | 36               | 33.6    |
|                | 40-49                             | 14               | 13.1    |
|                | 50-59                             | 22               | 20.6    |
|                | ≥60                               | 5                | 4.7     |
| Marital status | single                            | 36               | 33.6    |
|                | Married                           | 69               | 64.5    |
|                | Divorce                           | 2                | 1.9     |
| Work place     | Hospital                          | 52               | 48.6    |
|                | PHC                               | 15               | 14.0    |
|                | health sector & directorate       | 11               | 10.3    |
|                | College                           | 17               | 15.9    |
|                | MOH                               | 6                | 5.6     |
|                | Retired                           | 6                | 5.6     |
| Specialty      | family medicine                   | 30               | 28.0    |
|                | medicine (and its subspecialties) | 20               | 18.7    |
|                | surgeon (and its subspecialties)  | 10               | 9.3     |
|                | Dentist                           | 8                | 7.5     |
|                | pediatrician                      | 7                | 6.5     |
|                | OB/GY                             | 6                | 5.6     |
|                | Psychiatrist                      | 5                | 4.7     |
|                | community medicine                | 4                | 3.7     |
| ENT            | 3                                 | 2.8              |         |

|                     |                     |    |      |
|---------------------|---------------------|----|------|
|                     | pharmist            | 11 | 10.3 |
| professional degree | Rotator             | 10 | 9.3  |
|                     | plane permanent     | 5  | 4.7  |
|                     | board student       | 24 | 22.4 |
|                     | Senior              | 36 | 33.6 |
|                     | consultant          | 16 | 15.0 |
|                     | pharmist            | 11 | 10.3 |
|                     | general praticional | 5  | 4.7  |

Table (2):

Distribution of participants according to their knowledge in the epidemiology of COVID 19:

|  |                                       | Freq. (N=107) | %    |
|--|---------------------------------------|---------------|------|
| Do you know coronavirus?                   | No                                    | 2             | 1.9  |
|  | Partial information & little practice | 46            | 43.0 |
|  | many information & good practice      | 59            | 55.1 |
| coronavirus type                           | DNA                                   | 5             | 4.7  |
|  | I don't know                          | 7             | 6.5  |
|  | RNA                                   | 95            | 88.8 |
| COVID 19 now is                            | Endemic                               | 7             | 6.5  |
|  | Epidemic                              | 3             | 2.8  |
|  | Pandemic                              | 97            | 90.7 |
| Incubation period                          | 2-14 days                             | 98            | 91.6 |
|  | 15-28 days                            | 9             | 8.4  |
| Effective medical Alcohol consternation is | 20%                                   | 11            | 10.3 |
|  | 40                                    | 7             | 6.5  |
|  | 70%                                   | 79            | 73.8 |
|  | 95%                                   | 10            | 9.3  |
| Person safety distance according WHO       | Less than meter                       | 1             | .9   |
|  | One - two meters                      | 98            | 91.6 |
|  | Four meters                           | 8             | 7.5  |
| Golden diagnostic test for covid-19 is     | Complete blood test                   | 3             | 2.8  |
|  | Polymerize chain reaction (PCR)       | 49            | 45.8 |
|  | Chest X ray                           | 1             | .9   |
|  | Chest CT                              | 42            | 39.3 |
|  | COVID 19 antibodies rapid test        | 12            | 11.2 |
| COVID-19 death rate                        | 2-3%                                  | 79            | 73.8 |
|  | 4-5%                                  | 11            | 10.3 |
|  | 6-10%                                 | 11            | 10.3 |
|  | Idon't know                           | 6             | 5.6  |
| Re-infection can be occur                  | No                                    | 29            | 27.1 |
|  | Yes                                   | 78            | 72.9 |

Table (3):

Distribution of participants according to their knowledge about Mode of transmission, Mode of entry of COVID 19; its symptoms, High-risk group & Drugs used for the treatment of Covid-19:

|                      |                      | Yes       | I don't know | No        |
|----------------------|----------------------|-----------|--------------|-----------|
| Mode of transmission | Droplets             | 103(96.3) | 2(1.9)       | 2(1.9)    |
|                      | by Mucous            | 97(90.7)  | 5(4.7)       | 5(4.7)    |
|                      | blood                | 45(42.1)  | 21(19.6)     | 41(38.3)  |
|                      | touch                | 80(74.8)  | 9(8.4)       | 18(16.8)  |
|                      | feces-oral mood      | 58(54.2)  | 17(15.9)     | 32(29.9)  |
|                      | urine                | 23(21.5)  | 37(34.6)     | 47(43.9)  |
|                      | amniotic fluid       | 32(29.9)  | 39(36.4)     | 36(33.6)  |
|                      | breast milk          | 18(16.8)  | 41(38.3)     | 48(44.9)  |
| Mode of entry        | The eyes             | 101(94.4) | 4(3.7)       | 2(1.9)    |
|                      | The mouth            | 104(97.2) | 0            | 3(2.8)    |
|                      | the nose             | 106(99.1) | 0            | 1(0.9)    |
|                      | intact skin          | 10(9.3)   | 7(6.5)       | 90(84.1)  |
|                      | the genitalia        | 25(23.4)  | 38(35.5)     | 44 (41.1) |
| Covid-19 symptom     | cough                | 107(100)  | 0            | 0         |
|                      | fever                | 107(100)  | 0            | 0         |
|                      | dyspnea              | 107(100)  | 0            | 0         |
|                      | headache             | 104(97.2) | 1(0.9)       | 2 (1.9)   |
|                      | vomiting             | 70(65.4)  | 10(9.3)      | 27 (25.2) |
|                      | diarrhea             | 93(86.9)  | 3(2.8)       | 11(10.3)  |
|                      | fatigue              | 105(98.1) | 0            | 2 (1.9)   |
|                      | conjunctivitis       | 56(52.3)  | 21(19.6)     | 30(28.0)  |
|                      | vertigo              | 45(42.1)  | 28(26.2)     | 34 (31.8) |
|                      | sore throat          | 100(93.5) | 3(2.8)       | 4(3.7)    |
|                      | loss of smell sense  | 99(92,5)  | 4 (3.7)      | 4 (3.7)   |
|                      | loss of taste sense  | 89(83.2)  | 9(8.4)       | 9(8.4)    |
|                      | asymptomatic         | 105(98.1) | 0            | 2(1.9)    |
| High risk group      | Old age              | 105(98.1) | 0            | 2(1.9)    |
|                      | pregnancy            | 87(81.3)  | 9(8.4)       | 11(10.3)  |
|                      | DM                   | 102(95.3) | 5(4.7)       | 0         |
|                      | Hypertension         | 88(82.2)  | 6(5.6)       | 13 (12.1) |
|                      | cardiac diseases     | 105(98.1) | 1(0.9)       | 1(0.9)    |
|                      | kidney diseases      | 100(93.5) | 2(1.9)       | 5(4.7)    |
|                      | hepatic diseases     | 92(86.0)  | 11(10.3)     | 4(3.7)    |
|                      | Vitamin D deficiency | 79(73.8)  | 18(16.8)     | 10(9.3)   |
| used for treatm      | Azithromycin         | 87(81.3)  | 3(2.8)       | 17(15.9)  |
|                      | Redmisevir           | 79(73.8)  | 14 (13.1)    | 14 (13.1) |

|                         |           |          |           |
|-------------------------|-----------|----------|-----------|
| Hydroxychloroquin       | 68(63.6)  | 6(5.6)   | 33 (30.8) |
| Tamiflu                 | 63(58.9)  | 8(7.5)   | 36(33.6)  |
| Corticosteroids         | 50(46.7)  | 15(14.0) | 42 (39.3) |
| Anti-TB drugs           | 15(14.0)  | 20(18.7) | 72 (67.3) |
| plasma antibodies       | 104(97.2) | 3(2.8)   | 0         |
| foods increase immunity | 92(86.0)  | 4(3.7)   | 11(10.3)  |

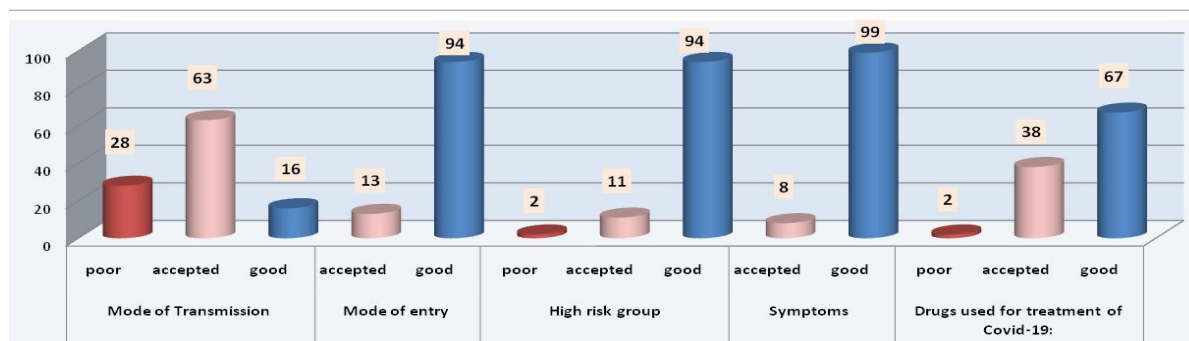


fig. (1): Distribution of participants according to overall knowledge in mode of transmission, Mode of entry of covid 19; its symptoms, High risk group & Drugs used for treatment of Covid-19

Table (4):

Distribution of participants according to their total knowledge score about Mode of transmission, Mode of entry of COVID 19; its High-risk group, its symptoms, & Drugs used for treatment of Covid-19:

|                      |                           | Frequency | Percent     |
|----------------------|---------------------------|-----------|-------------|
| Mode of Transmission | poor knowledge            | 28        | 26.2        |
|                      | <b>accepted knowledge</b> | <b>63</b> | <b>58.9</b> |
|                      | good knowledge            | 16        | 15.0        |
| Mode of entry        | accepted knowledge        | 13        | 12.1        |
|                      | <b>good knowledge</b>     | <b>94</b> | <b>87.9</b> |
| High risk group      | poor knowledge            | 2         | 1.9         |
|                      | accepted knowledge        | 11        | 10.3        |
|                      | <b>good knowledge</b>     | <b>94</b> | <b>87.9</b> |
| Symptoms             | accepted knowledge        | 8         | 7.5         |
|                      | <b>good knowledge</b>     | <b>99</b> | <b>92.5</b> |
| treated Drugs used   | poor knowledge            | 2         | 1.9         |
|                      | accepted knowledge        | 38        | 35.5        |
|                      | <b>good knowledge</b>     | <b>67</b> | <b>62.6</b> |
| Total                |                           | 107       | 100.0       |

Table (5):

Distribution of participants according to their Attitude toward partial Quarantine, sick leave for pregnant colleagues, Feeling during treat patient, and quarantine lounges of COVID-19 infection

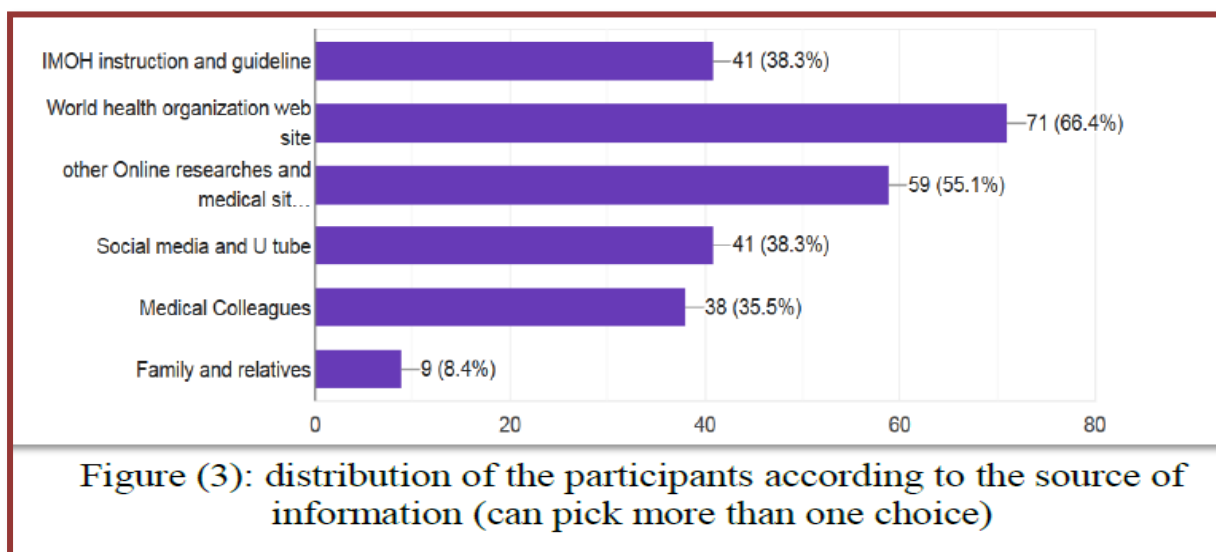
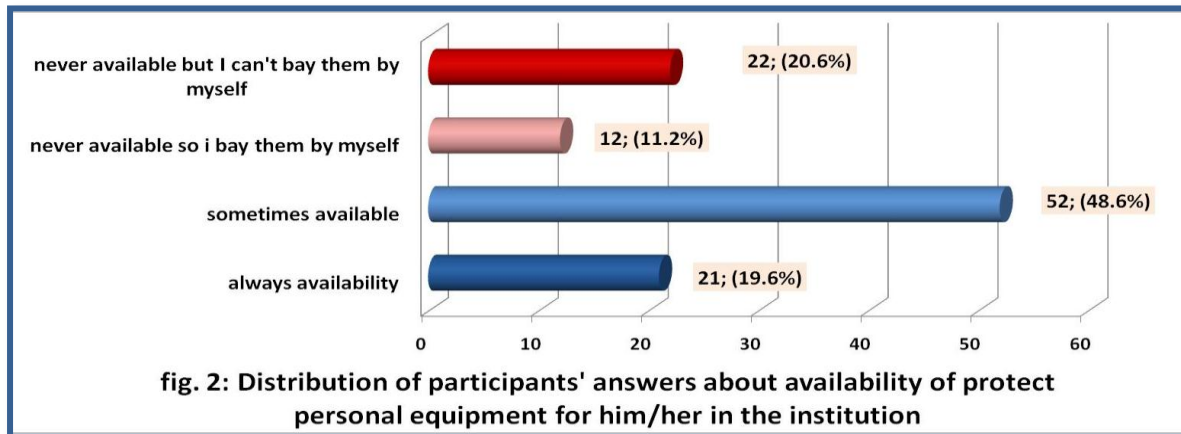


|  |   | Frequency | %    |
|--|---|-----------|------|
| What is your opinion about partial Quarantine                      | Correct and must continue                 | 39        | 36.4 |
|  | Incorrect and must stop completely        | 44        | 41.1 |
|  | Incorrect and must be complete Quarantine | 16        | 15.0 |
|  | I don't care about                        | 8         | 7.5  |
| What is your opinion in sick leave for pregnant colleagues         | Correct and must continue                 | 82        | 76.6 |
|  | Correct but must without payment          | 11        | 10.3 |
|  | Incorrect and unfair decision             | 3         | 2.8  |
|  | I don't care about                        | 11        | 10.3 |
| Feeling during treat patient with Covid-19                         | positive with precaution                  | 46        | 43.0 |
|  | afraid to transmitted to my family        | 30        | 28.0 |
|  | Neutral                                   | 10        | 9.3  |
|  | sad and depressed                         | 9         | 8.4  |
|  | don't treat any covid-19 before           | 7         | 6.5  |
|  | no feeling                                | 5         | 4.7  |
| the quarantine lounges health and hotel (hospitality) service N=68 | Poor                                      | 23        | 21.5 |
|  | Fair                                      | 17        | 15.9 |
|  | Good                                      | 13        | 12.1 |
|  | Very good                                 | 10        | 9.3  |
|  | Excellent                                 | 5         | 4.7  |

Table (6):

Distribution of participants according to their practice Working in quarantine lounges of COVID-19 infection, If you 'r contact with COVID-19, attended a lecture about COVID-19 and educate clients about COVID-19

|   |   | Frequency | Percent |
|---|---|-----------|---------|
| Working in quarantine lounges                     | Yes   | 68        | 63.5    |
|   | No  | 39        | 38.5    |
| If you 'r contact with COVID-19 what you will do? | Inform immediately and ask for Test         | 58        | 54.2    |
|   | Inform immediately and ask for home staying | 35        | 32.7    |
|   | Take medication without test or inform      | 3         | 2.8     |
|   | Wait till symptoms appear                   | 11        | 10.3    |
| attended a lecture about COVID-19                 | no  | 38        | 35.5    |
|   | yes once                                    | 29        | 27.1    |
|   | yes more than one lecture                   | 40        | 37.4    |
| Did you educate clients about COVID-19            | never                                       | 6         | 5.6     |
|   | sometimes                                   | 37        | 34.6    |
|   | always                                      | 64        | 59.8    |



## 5. DISCUSSION

In Iraq, Basic health infrastructure has been demolished, health structures have knocked down, primary healthcare has been tearing down, health professionals have been threatened, and resources have been diverted from public investment to aggressive purposes. This leads to an unreliable health system.<sup>[14]</sup>

One hundred and seven medical staff (doctors, dentists, and pharmacists) enrolled in this study. (Table 1)

This study is concordance with Achistudy<sup>[5]</sup> a total of 300 participants, the mean age of the participants was  $33.6 \pm 9.3$  years most of the age group of 31-40 years which had Similar demographic characteristics.

The current study revealed that most of the participants had correct information about coronavirus. (Table 2)

This finding is consistent with the finding of Huynh.<sup>[15]</sup> (99.1%) of participants knew that COVID-19 is a virus, (98.2%) to prevent infection between individuals, and (98.8%) the infected cases could result in death.

The participants according to their total knowledge score about Mode of transmission, Mode of entry of COVID 19; its High-risk group, its symptoms, & Drugs used for the treatment of COVID-19 had good scores. (Table 3)

This finding is inconsistent with the finding of a similar study conducted in India by Bhagavathula [10] in which healthcare workers had insufficient knowledge about the COVID-19 pandemic. This difference might be due to the difference in educational level between the two study groups.

In the Turkish study<sup>[2]</sup>, participants were choice transmission of the disease by airborne (91.1%), and (92.4%) fever, (84.4%) cough, and (60.3%) dyspnea which is concurrence with our study. A study of healthcare workers in Iraq and Turkey found a good level of knowledge of the modes of transmission and the symptoms of COVID 19.

Regarding the Mode of entry of COVID19 and according to WHO article<sup>[19]</sup> that Preventative measures are the key. The most effective protective measures in the community are avoiding touching your eyes, nose, and mouth. Good knowledge about the mode of transmitting COVID 19 may be due to a good source of information.

Also, the study found that most of the participant had a correct answer about the risk group with good total knowledge about the high-risk group. Grant<sup>[17]</sup> stated that for the treatment of individuals who become infected with COVID-19, higher vitamin D3 doses might be good.

Regarding of drugs used in treating of COVID-19; (table 4). Sanders's study<sup>[18]</sup> stated that at this time there are no medical therapies that have been definitively shown to improve outcomes in patients with COVID-19.

The attitude of the participant toward partial Quarantine highest percentage think it is Incorrect and must stop which Disagree with Iranian study<sup>[15]</sup> which shows that 98.2% agree with COVID-19 patients should be kept with isolation and (97.9%) will accept isolation in the health facility, if getting COVID-19.

One-third of the participants 38 (35.5%) not attended any lecture about COVID-19 till the time of answering the questionnaire, 29(27.1%) attended once at the time of the study.

This finding is consistent with the finding of a related study conducted by the Kingdom of Saudi Arabia<sup>[20]</sup>; participants stated that there was insufficient training in infection control measurements (90.9%).

The availability of personal protective equipment in health institutions as shown in figure (2) was insufficient. A study in the Kingdom of Saudi Arabia<sup>[20]</sup> revealed that the insufficiency of infection control material (80.7%) leads to the risk of spread.

In regarding the origin of knowledge, 71(66.4%) have their information from the world health organization web site (Figure 3). Regarding Egypt's study<sup>[3]</sup> all participants claimed that the main source of information about COVID-19 was physicians (29%), Ministry of health and population website (27%), social media (20.6%).

Our findings showed that Health Care Workers are more interested in the world health organization web site than the official website of the Ministry of Health. This is an important issue for the health authority of Iraq because it is important to consider a variety of channels to update knowledge and learning materials about this epidemic.

## 6. CONCLUSIONS:

Most Health Care Workers at Baghdad city had good knowledge, positive attitude, and appropriate practice toward COVID-19. Health workers in Baghdad needed further updating educational knowledge and training programs about COVID-19 disease. A shortage of personal protective equipment in Baghdad health care facilities is evident.

## 7. RECOMMENDATIONS

1. Health promotion in the execution of lockdown, infection control measures, and supplementation of personal protective equipment.
2. Moreover studies to evaluate the knowledge, attitudes, and practice of Iraqi health professionals.

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