

Knowledge, Attitude and Practice Associated with COVID-19 among Egyptian House Officers: Online Cross-Sectional Survey

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Background and study aim: House officers' adherence to fight COVID -19, especially after declaration of WHO that coronavirus as a pandemic, is essential. This is markedly influenced by their knowledge, attitude, and practices (KAPs). We aimed to assess the knowledge, attitude and the practice toward (COVID-19) among Egyptian house officers .

Method: A questionnaire-based- online survey by Google Forms was carried out over three months, between March 2020 and May 2020. Answers to all questionnaire items were obligatory, and submission was not allowed till all questions were answered. Each questionnaire consists of two main parts. Personal information (name, age). Additionally, we assess knowledge, attitude, and practice towards COVID-19 pandemic (prevention, diagnosis, lines of treatment, and others) .

Results: One hundred five of house officers participated in this study (64.7% of them were females and 35.3% were males). Regarding the Knowledge of the house officers about COVID-19 infection

61.7% of the participants mentioned that the use of PPE and physical isolation for two weeks must be observed by health care workers who had contact with COVID-19 patients. The total score for House officer's knowledge was 6/7. About 71% of house officers mentioned that they are happy to be a physician despite this; 31.4% only accepted that the physician takes considerable respect from the community and the government. 63.7% said that they could share the responsibility to fight the COVID-19 pandemic with the health care providers. The total score for attitude was 4\7. Precautions during the training courses at the hospital were observed in 81.4% of house officers. The total score of house officer's practice was 2/4.

Conclusion: Most of the house officers had good knowledge and a positive attitude toward COVID-19. However, this was less than we hope for their essential role in this pandemic. We recommend continuous educational courses for COVID-19 diagnoses and management for house officers to be one of the first lines for COVID-19 fighting.

INTRODUCTION

Coronaviruses are a group of viruses that can infect various types of mammals, including man [1].

The coronavirus disease 2019 (COVID 19) is a severe acute respiratory syndrome caused by coronavirus 2 [2]. It was first identified in Wuhan, China, in December 2019 [3,4] and was declared by World Health Organization (WHO) as Public Health Emergency in January 2020 and as a

pandemic in March of the same year [5 & 6]. By June, more than 7.5 million cases have been detected. It causes a significant rise in hospitalizations and multiorgan failure [7].

The main viral transmission methods are respiratory droplets and close contact, as stated by the World Health Organization [8].

Aim of the work: To assess the knowledge, attitude and the practice toward COVID-19 among Egyptian house officers.

METHODS

The study was approved by the Ethics Committee and a cross-sectional questionnaire-as online survey by Google Forms, to cover a wide range of house officers in different Egyptian universities and easy access, was conducted over three months between March 2020 and May 2020.

Participants: The target group was Egyptian house officers.

Pilot testing: The questionnaire was pilot tested on a random sample of house officers, the time to fill in the questionnaire was not limited. Answers to all questionnaire items were obligatory, and submission was not allowed till all questions were answered.

Questionnaire Development: We have developed a questionnaire formed as an online survey by Google Forms to cover a wide range of doctors with easy access.

Each questionnaire consists of two main parts:

1. Personal information (name, age)
2. **Knowledge, attitude, and practice** towards COVID-19 pandemic (Diagnosis, lines of treatment and others).

Score grading:

A grading method was used for each variable in this questionnaire as following. A correct option was assigned one point, zero for the wrong answer in the knowledge section; one for positive, 0 for a negative answer in the attitude section; one for proactive, and 0 for a passive answer in the practice part.

Questionnaire distribution:

A summary of the study, including its aims were shared via email, WhatsApp, and Facebook. We asked the participant to share the questioner within their networks.

Statistical Analyses:

Data were analyzed using Version 16.0 of SPSS. We used descriptive and analytical statistics.

Categorical variables were compared using Chi-square or Fisher exact test, while the numeric variables were analyzed using the 'Mann–Whitney U test. Data are expressed as mean (standard deviation [SD]) or number (%) as appropriate. A P-value of <0.05 was considered statistically significant.

RESULTS

One hundred five online-based questionnaires were received via google form. Response results show that 64.7% of females and 35.3% of males participated in the study (Figure 1).

Table 1 showed that 46.1% knew that Coronavirus could be prevented by following the precautions. Considering all these measurements, such as staying at home, social distancing, avoid mass gatherings, repeated hand washing, and wearing PPE.

According to the precautions, 61.7% of the participants mentioned that, the use of PPE and physical isolation for two weeks must be observed by health care workers who had contact with COVID-19 patients.

According to COVID-19 spread, 91.2% of house officers accepted that traveling is a significant risk factor for disease transmission. 55.9% of house officers knew that the highest risk groups for COVID-19 were patients with comorbidities like cardiovascular disease, hypertension, and immunocompromised patients 39.2% (Table 1).

According to the house office's knowledge, the most crucial suspicion is fever, more than 38°C as 71.5% accepted this answer. According to the imaging study, 70.6% of house officers accepted that radiological study is a cornerstone for the diagnosis of COVID-19.

About 69.6% of house officers accepted that treatment is only symptomatic and supportive treatment, while only 39.2% mentioned that oral anticoagulant treatment must be considered for all COVID-19 cases.

The total score for house officers Knowledge was 6/7.

Items about COVID-19 attitude of house officers, including six single choice questions. Each question with a collected score for house officers' attitude as shown in Table 2.

About 71% of house officers mentioned that they are happy to be a physician despite this; only

31.4% accepted that the physician takes considerable respect from the community and the government. 63.7% said that they could share the responsibility to fight the COVID-19 pandemic with the health care providers. About 61.8% think this outbreak has impacted their training course in the hospital (Figure 2). According to the world fighting against COVID-19 pandemic, 84.3% accepted that the world could eliminate this pandemic. Anxiety symptoms for getting the infection by COVID-19 developed in 68.6% of house officers. Sleep disorder symptoms related to COVID-19 developed in 44.1%.

The total score for house officers' attitude was 4 /7.

We used three single-choice questions for assessing the practice—the total score for proactive practice is shown in Table 3. COVID-19 local or international guidelines are read by 97.1% of house officers.

Precautions during the training courses at the hospital were observed in 81.4% of house officers. 14.7% of the house officers who participated in the study also followed COVID-19 precautions for the general population. About 15.2% only accepted visiting COVID-19 patients who had been cured. The overall score for the house officers practice was 2/4.

Table (1): Assessment of knowledge of the studied house officers about COVID-19 infection.

Knowledge items	House officers (n=102)
What's the most important Precautions for prevention of COVID-19 infections:	
- Stay at home only	13(12.7%)
- Social distance only	11(10.8%)
- Avoid mass gatherings only	15(14.7%)
- Repeated hand washing only	15(14.7%)
- Wearing PPE only	1(1.0%)
- All must be considered	47(46.1%)
Travelling is a major risk factor for disease spreading: -Yes	93(91.2%)
The high-risk group for covid-19 infection:	
-Patients with chronic illness.	4(4.0%)
-Immunocompromised patients.	40(39.2%)
-children.	0(0.0%)
-Obese patient (BMI \geq 40).	1(1.0%)
- Cardiovascular disease and Hypertension.	57(55.9)
Radiological imaging is a corner stone for diagnosis of COVID-19: -Yes	72(70.6%)
Treatment depend only on symptomatic and supportive treatment: -Yes	71(69.6%)
The most important symptoms for suspicion:	
-Fever more than 38.	73(71.5%)
-Generalized fatigue.	9(8.8%)
- Dry cough.	20(19.6%)
-Gastroenterology manifestations.	1(1.0%)
Oral anticoagulant treatment must be considered for treatment of all cases: -Yes	40(39.2%)
Precautions must be done for health care workers who contact with covid-19 patients:	
-Use Full PPE.	35(34.3%)
-Isolation of for two weeks post contact.	4(3.9%)
- Both measures.	63(61.7%)
Knowledge score:	6 (1-7)

Table (2): Assessment of attitude of the studied house officers about COVID-19 infection.

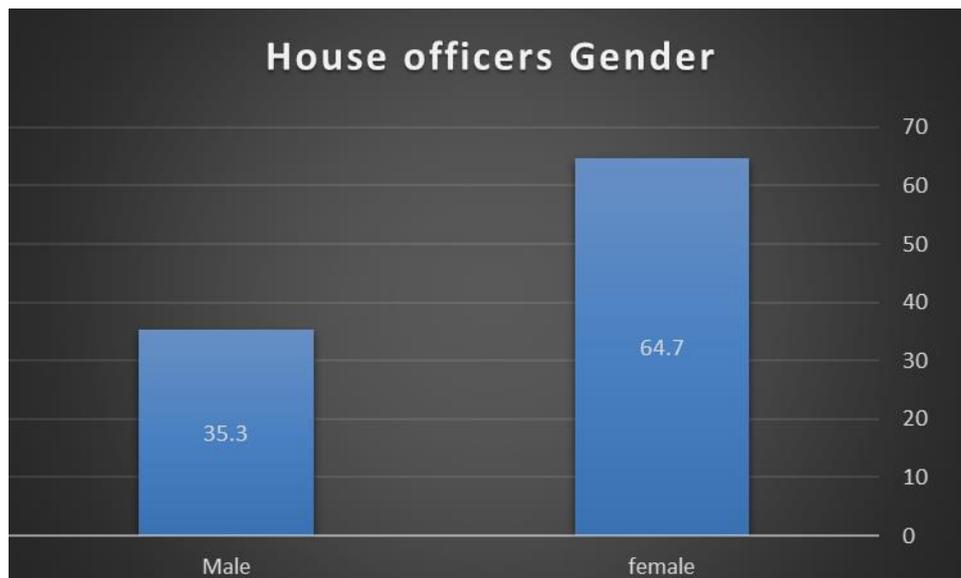
Attitude items	House officers (n=102)
Are you happy to be a physician?	71(69.6%)
Did you suspect that the physician takes his considerable respect from the community and the government?	32(31.4%)
Did you suspect that you are able to share the health care provider the responsibility to fight covid-19 pandemic (frontline rescue) ?	65(63.7%)
Do you think this outbreak has impacted your learning curve?	63(61.8%)
Do you think that the world is able to get rid of covid-19 pandemic?	86(84.3%)
Do you have any anxiety symptoms for getting infection by COVID-19?	70(68.6%)
Did you develop any sleep disorders symptoms related to COVID -19?	45(44.1%)
Attitude score:	5(0-7)

Values are presented as median (minimum-maximum), or number (%).

Table (3): Assessment of practices of the studied house officers about COVID-19 infection.

Practices items	House officers (n=102)
Did you read about COVID -19 infection local or international guidelines?	99(97.1%)
Did you consider Precautions during training course at the hospital?	83(81.4%)
Did you mention the precautions that must be followed to the patients attending health care?	15(14.7%)
Did you accept the visiting of COVID-19 patient who had been cured?	16 (15.2%)
Practice score:	2 (0-4)

Values are presented as median (minimum-maximum), or number (%).

**Figure (1):** Sex of Participant Egyptian House officer.

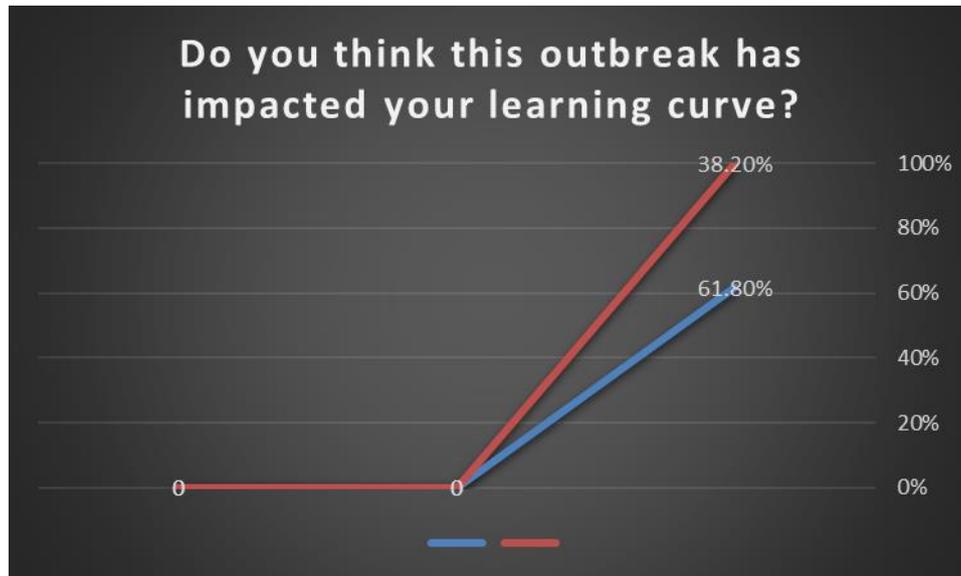


Figure (2): ROC Effect of COVID-19 on House officer training Course.

DISCUSSION

Novel Coronavirus 2019 has become the primary global concern; the physicians are the front lines for virus-fighting. This is the first study in Egypt examining the KAP towards COVID-19 among Egyptian house officers to the best of our knowledge. This online cross-sectional survey on 105 House officers who accepted to contribute from different Egyptian Universities.

We found that the female had a significantly higher contribution to our study than male (64.7% females and 35.3% males). Other studies by Al-Hazmi et al. and Abdelhafiz et al. reported that females had more contribution and knowledge than males [10 & 11].

Our results revealed that the overwhelming majority of Egyptian house officers had the basic knowledge and attitude toward this pandemic. However, their practice not proactive varied towards COVID-19 was significantly different.

According to Infection Control measurements. Our study showed that 46.1% reported that the prevention of COVID-19 infection could be achieved by following precautions considering all these measurements. Stay at home, social distance, avoid mass gatherings, repeated hand washing, and wearing PPE. These findings agree with another KAP study done by Yaling Peng and his colleague on Chinese university students who took higher scores for knowledge about the infection control measures [12].

Participants' knowledge regarding COVID-19 spread and the risk group:

Acceptance of 91.2% of house officers that traveling is a significant risk factor for disease transmission concordant with the modelling study by Drake and his colleagues [13] also showed that transportation obstacles could considerably reduce the transmission.

Liang et al. demonstrated associations of chronic diseases like diabetes with severe COVID-19. Our study noticed that 55.9% of house officers knew that the highest risk group for COVID-19 are cardiovascular diseases and hypertension followed by immunocompromised patients 39.2% [14].

Participants' knowledge regarding COVID-19 Diagnosis and treatment :

According to the house officer's knowledge, the most important symptom is the fever that is more than 38°C as 71.5% accepted this answer and this concordant with another study by Zhu J and his colleagues reported that fever present in about 78.4% of patients [15].

According to the imaging study, 70.6% of house officers accepted that radiological studies is a cornerstone for diagnosis of COVID-19, and this in agreement with Sun and his colleagues who mentioned that abnormal MSCT lesions had been found in about to 97% of hospitalized patients [16]. Another study by Shi et al. reported that CT findings might be present even with minimal or no symptoms [17].

The WHO approved the Solidarity trial, a large international study to various treatments (local standard of care plus remdesivir,

lopinavir/ritonavir, lopinavir/ritonavir plus interferon beta, or hydroxychloroquine/chloroquine) compared with the local standard of care alone. In our study, 69.6% of house officers accepted that COVID-19 treatments are only symptomatic and supportive. Only 39.2% mentioned that oral anticoagulant treatment must be considered to treat all cases [18].

The total score for house officers' knowledge was 6/7. Their training can further explain the significantly higher knowledge gained by house officers. A study by Ejeh and his colleagues showed similar good knowledge among house officers [19].

House Officers Practice attitude towards COVID-19 :

Participants of our study had some excellent attitude towards their job and could fight the virus pandemic. This was also concordant with another study by Zhong and his colleagues, who did KAP for residents as front lines. Most of them took precautions to fight against virus spread as they did not go to crowded areas. Vigorous infection control measures could explain this by the government [20].

Zhou X et al, Liu Z et al and Chen S et al mentioned that 70.1-88.9% of the Chinese believed that successful control of the epidemic is possible during the previous corona epidemic. In our study, 84.3% accepted that the world could get rid of the COVID-19 pandemic [21-23].

Unfortunately, we noticed that some Egyptian house officers might have unfavorable attitude as they thought that the physician, in general, did not take their considerable respect from the community and the government. Also, anxiety symptoms started to develop in 68.6% of participating house officers. This is in agreement with Zhou et al, who showed that about 35.6% of healthcare workers showed anxiety features [24]. Another study by Ejeh and his colleagues demonstrated that anxiety disorders were prevalent among healthcare workers especially at age group (40-50) with odds ratio 8.933 [25].

House Officers Practice related to COVID-19:

To do good practice, you have to study relevant guidelines of COVID-19 diagnosis and management and this practice among the Chinese University Students was reported by Peng et al.

[12], according to our study, local and international are read by 97.1% of house officers.

Precautions during the training course at the hospital were done by 81.4% of house officers. This also mentioned by Imai T et al, Quah et al and Khan et al [26-28]. Our findings are consistent with outcomes of other studies in which healthcare workers showed positive practice and proper use of personal protective equipment and other infection control measures.

We noticed that some of the house officers need to improve on their practice as only 14.7% mentioned the Precautions that must be done toward COVID-19 for the general population, and 15.2% only accepted the visit of COVID-19 patients that had been cured. This also reported by Peng and his colleagues [12].

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Ethical Considerations: According to the Helsinki Declaration principles, the study was approved by the Research Unit, Faculty of Medicine,

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