



Knowledge toward improving immunity against COVID-19 among health care worker in Nineveh health directorate 2020

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Abstract

Background: Healthcare provider are most vulnerable group to contract COVID-19, preventive measures including improve immunity play an essential role in reducing infection rates and controlling the spread of the disease.

Aim: to assess the knowledge of health care worker toward improve immunity regarding COVID-19.

Persons and methods: A cross sectional study among 1290 health care worker in Nineveh Health Directorate was carried out for six-month duration, using electronic data collection form, consist from two-part socio-demographic characters and knowledge about methods of improving immunity toward COVID-19. Three-point Likert-scale and the mean score was calculated.

Result: 70% of participant their age between 25-45 years, 57.9% was male, 79.3% married, 52.4% had university education, 40.1% medical staff, 56.2% were working in hospital. The percentage of participant had knowledge regarding importance of taking Mg and /or Zinc supplement 21.7%, taking Vit B1, B6, D3 supplement or all of them as prophylaxis 21.2%, while only 4.0% Adapting healthy diet. In general, the mean assessment for all items was below the (cut-off point = 2), the grand mean assessment was 1.57

Conclusion: low level of knowledge was seen among health care worker in Nineveh Health Directorate toward improve immunity regarding COVID-19 in Mosul city.

Keywords: COVID-19, immunity, knowledge, health care worker

Introduction

Coronavirus is a single-stranded RNA virus known as Coronaviridae ^[1]. This type of virus are known to be zoonotic ^[2]. Causing emerging respiratory infection that was first discovered in December 2019, in Wuhan city, Hubei Province, China ^[3]. The World Health Organization 26 Feb. 2020, announced that the pandemic of coronavirus, as it is recognized in 34 countries, with a total of with 90,870 laboratory-confirmed cases and over 3,000 deaths worldwide ^[4]. Causing different symptom such as fever, cough, myalgia, fatigue, headache, chest pain, sometime epigastric pain, diarrhea, loss of appetite and vomiting ^[5], ranging from mild to severe symptome ^[6]. The increasing spread of the disease causing fear, anxiety, and panic amongst the community, especially for healthcare provider, as the most vulnerable group at risk of contracting this new disease ^[7]. Preventive measures play an essential role in reducing infection rates and controlling the spread of the disease ^[8]. Nutritional status is very important to maintain a strong immune system against the virus ^[9]. Certain factors such as lifestyle, age, health status, sex, and medications affect the nutritional status of an individual ^[10]. The existing evidence suggests that the only sustainable way to survive in

the current situation is to strengthen the immune system. An adequate intake of zinc, iron, and vitamins A, B 12, B6, C, and E is essential for the maintenance of immune function ^[11].

The aim of present study to assess the knowledge of health care worker toward improve immunity to fight against COVID-19 in Mosul city.

Persons and Methods

All work is approved by the ethical and scientific committee of Nineveh Health Directory / MOH / Iraq by licenses' number (210) in date (10-1-2021) and online informed consent were obtained from participant before proceeding with the questionnaire. Across sectional study design was carried among 1290 health care worker. Researchers were included health care worker from all heath institution in Nineveh Health Directorate. The study period extended for six months from 1st Aug. 2020 – 1st March 2021, using self-reported electronic data collection form modified from standardize data collection form adopted by WHO during COVID-19 crises, the form was distributed to respondents via Facebook and WhatsApp groups, consist from two part

as follow:

Part I- Socio-demographic characters include age group in years (< 25, 25-35, 35-45, 45-55 and ≥ 55), sex (male, female), marital status (single, married, widow and divorce), educational status (primary, secondary, university and higher education), occupational title (medical, para medical, administrative and others), place of working (center of office, hospital, PHCCS, specialist PHCCs)

Part II- of participants’ knowledge regarding methods of improving immunity toward COVID-19 (Take nutritional supplement (Mg or Zinc) or both, Take Vit (B1, B6 or D3) or all of them as prophylaxis, practice sport, sleep enough early at night for 8-9 hrs. a day, avoid all type of smoking, avoidance of angry and anxious, stick to healthy ventilation at home and workplace, increase drinking of warm fluid and adherence to good nutrition rich in fruits and vegetables.

Statistical Analysis

The information regarding each participant was transferred into a code sheet. Data were tabulated, categorized, and analyzed using SPSS (version 23) software program. Simple percentage is used. The answer of part II is scaled according to three-point Likert-scale as (yes, some of time, and no), the mean score was calculated as follows:

(No. of participant said Yes × 3 + no. of participant said sometime ×2 + no. of participant said No × 1) / 1290 which is the total no. of sample size. The deviation of the score using the following formula: cut-off point (3+2+1)/3=2.

Result

The present study conducted among health care worker in Nineveh Health Directorate via electronic data collection form to include 1290 participant.

Table 1: Distribution of study sample according to socio-demographic characters.

Category	Total No. = 1290	
Age groups	NO.	%
< 25	55	4.3
25-35	446	34.6
35-45	457	35.4
45-55	246	19.1
≥ 55	86	6.7
Sex		
Male	747	57.9
Female	543	42.1
Marital status		
single	220	17.1
Married	1024	79.3
Widow	35	2.7
Divorce	11	0.9
Education status		
Primary	20	1.6
Secondary	282	21.8
University	676	52.4
Higher education	312	24.2
Occupational title		
Medical staff	517	40.1
Para medical	467	36.2
Administrative	222	17.2
Others	84	6.5
Place of Working		
Nineveh Health Center and its departments	262	20.3
Hospital	725	56.2
PHCCs	146	11.3
Specialist PHCCs	157	12.2

Table (1) revealed that 70% of participant their age between 25-45 years, 57.9% was male, 79.3% married, 52.4% had university education, 40.1% medical type of occupation, 56.2% were working in hospital.

Table 2: Percentage distribution of participants’ Knowledge regarding methods of improving immunity toward COVID-19.

Category	% of Yes	% of Some time	% of No	Mean assessment
1. Take nutritional supplement (Mg or Zinc) or both.	21.7	32.1	46.2	1.75
2. Take Vit (B1, B6 or D3) all of them as prophylaxis	21.2	34.0	44.8	1.76
3. Practice sport.	19.5	42.4	38.1	1.81
4. Sleep enough early at night for 8-9 hrs. a day	16.4	37.6	46.0	1.70
5. Avoid all type of smoking	16.2	13.6	70.2	1.46
6. Avoidance of angry and anxious.	14.3	39.4	46.4	1.67
7. Stick to healthy ventilation at home.	7.8	18.3	74.0	1.33
8. Increase drinking of warm fluid	7.7	23.4	68.9	1.38
9. Adherence to good nutrition rich in fruits and vegetables	4.0	16.4	79.6	1.24
Total	184 (14.3)	369 (28.6)	737 (57.1)	1.57

Knowledge regarding improve immunity toward COVID19 was seen in Table (2). The percentage of participant had knowledge regarding Take nutritional supplement (Mg or Zinc) or both 21.7%, Take Vit (B1, B6 or D3) all of them as prophylaxis 21.2% ranking the tope of list, while increase drinking of warm fluid 7.7% and adherence to good nutrition rich in fruits and vegetables 4.0% ranking the least items. In general, the mean assessment for all items was below the (cut-off point = 2), the grand mean assessment was 1.57

Discussion

In Mosul city 2020 March, reported 1st cases of COVID-19 and rapidly spreading all over the governorate and the

number of cases is rising within short period, there is a need for immediate action.

There are no vaccines available, there is little evidence on the effectiveness of potential therapeutic agents, no pre-existing immunity in the population against the new coronavirus and damaging infrastructure of health institution during Mosul liberation from Daish control resulted in weaknesses of health care systems which cannot cope with a sudden increase in the number of patients who need treatment. The current pandemic is reducing medical resources requires adaptation of healthy life style, as eating healthy diet, practicing exercise, control body weight, avoidance of smoking and alcohol to fight against the diseases [8, 12, 13].

Socio-demographic characters and practicing personal protection

Two third of study sample aged between 25-35 years, male to female ratio nearly equal, three fourth married, 40% was doctors with different specialty and graduation, three fourth had university and higher education, more than fifty percent of participant working in hospital. It is noticed that most of the sample among young adult because the country's policy is currently delaying the employment of new graduates, and the retirement law has set the age of 60 for the employee in general for all specializations as a result of the financial crisis the country is going through. According central statistical organization 2004, male to female ratio among Iraqi population was 49.7% [14], in Mosul city 2004, the women constituted 49.8% of the total population according to MoH 2005 [15]. In the present study there is more than one third of study sample were doctors and more than two third were having university and higher education but reported very low level of knowledge regarding improving immunity toward COVID-19 as data did not collected during peak of transmission of disease in the community, not all participant were working in emergency department for COVID-19 and the information were collected via a web based survey may be subjected to low reliability and accountability compared to face-to-face interviews, in addition to that there was no formal education program applied to health care worker, the information taken primarily from internet and on personal effort.

Personal protection methods to improve immunity

The current study revealed that only 14.3% of participant had knowledge to improve their immunity. In general, the mean assessment for all items was below the (cut-off point = 2), the grand mean assessment was 1.57. This neglectation due to the un acceptance and denial of the people in Mosul city to the presence of such disease due to past history and facing bad condition under Daish control. Denial is one method of mind protection on crises practice it to overcome the problem [16]. Iraqi Association for Medical Studies and Research, insisted in the importance of practice exercise, eat healthy diet, sleep well, avoid high calorie diet, Increase vegetable to improve personal immunity [5]. To reduce the risks related to the novel coronavirus infection should encourage adoption of healthier lifestyle, decrease stress factors and enhance the immune system help to decrease risk of infection and prevent sever outcome of COVID_19 [17]. Regular practice of adequate intensity is suggested as an auxiliary tool in strengthening and preparing the immune system for COVID-19 [18]. Sleep is normal physiological process in human life and has impacts on well-being and mental health, it should be at least six hours at night, in dark room and keep a regular bedtime and wakeup routine, melatonin can be used when their trouble sleeping, in the last decade research revealed that sleep disorders have a strong influence on the risk of infectious diseases [17]. A review of scientific articles from the last five years revealed that the COVID19 pandemic can promote sleep disturbances and harm the immune system function [19]. COVID-19 pandemic with social isolation a stressful condition for people may lead to strong emotional upset and feeling lonely, center for disease control and prevention revealed that stress during an infectious disease outbreak may cause the following: changes in sleep, eating patterns, concentration, worsening of chronic health problems,

worsening of mental health conditions, increased use of tobacco, and/or alcohol and other substances [20]. To lower stress levels preferable to practice meditation, yoga, gardening, exercising and controlled breathing techniques [17]. An article published by Wiley Periodicals LLC concluded that Plant-based foods increased the intestinal beneficial bacteria which are helpful and make up of 85% of the immune system. Drinking plenty of water, minerals like magnesium and zinc, micronutrients, herbs and food rich in vitamins C, D and E can promote the health and can overcome infection [11]. Another mini review in University of Agriculture Pakistan, showed that Vitamins A, C, and E mainly aid in enhancing the skin epithelium barrier function. With the exception of vitamin C, all the vitamins are claimed to be essential for antibody production [21]. The above finding agreed by study in Pakistan, revealed that Nutritional status is very important to maintain a strong immune system against the virus and maintain the physical and mental health of individuals [9]. An article published by Lange 2020 Nov 9, revealed that high-energy western diets and obesity are major risk factors for a more severe course of COVID-19. Alcohol use and tobacco also have detrimental effects on the immune system [10].

Limitation

1. The researcher used basic scientific research until February 2021, as limited research resources and many facts and information may change in coming months regarding emerging new corona virus.
2. Require to increase sample size and include all sector in community to ensure generalizability.

Conclusion

The present study revealed that low level of knowledge regarding improve immunity toward COVID-19 was seen among health care worker in Ninevah Directorate Health in spite of more than three fourth of study sample were having university and higher education and half of them were medical staff.

Recommendation

We required formal education program to improve knowledge of health care worker to improve their immunity toward COVID-19 by the help of promotion health section in primary health care sector by provision of brochure, educational leaflet, educational video, SMS massage, hot spot in TV program.

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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