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Knowledge, Attitudes, and Practices of COVID-19 Among Medical Staff Doctors at Tripoli University Teaching Hospitals

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الملخص

أعلنت منظمة الصحة الدولية أن مرض فيروس كورونا 19 (كوفيد -19) هو جائحة عالمية، ويعتبر الاطباء العاملين في مجال الرعاية ..أن كوفيد -19 يمثل حالة طوارئ صحية عامة تثير قلقًا دوليًا. وبما أن موظفي الصحية هم الفئة التى تتعامل مع المرضى المشتبه بهم عند دخولهم المستشفى، وبالتالي فإن معرفة مواقف وممارسات الاطباء في مجال الرعاية الصحية تجاه (كوفيد -19) تظل غير واضحة. تهدف الدراسة إلى التحقيق في معرفة ومواقف وممارسات الأطباء حول (كوفيد -19) في مستشفيات جامعة طرابلس التعليمية. تم إجراء هذه الدراسة المستعرضة في الفترة من 30 أبريل إلى 29 مايو وهو الأسبوع الذي تلا مباشرة أول حالة إصابة بـ (كوفيد -19) في ليبيا. تم توزيع استبيان مسبق التصميم باستخدام SPSSوملؤه. بأخذ المعلومات ذات الصلة من الأطباء العاملين في مختلف الوحدات الطبية والجراحية وتحليلها

Abstract: -

The Corona virus disease 19 (COVID-19) is a new global pandemic. World Health Organization (WHO) declared COVID-19 a public health emergency of international concern. Health Care Works (HCWs) are the primary sectors in contact with suspected patients. Thus, the knowledge, attitudes and practices of HCWs towards COVID-19 remain unclear. **The objectives**: To investigate the knowledge, attitudes and practices of Medical doctors about COVID-19 at Tripoli University Teaching Hospitals. **Methods:** This cross-sectional survey was conducted from April 30 to 29 May, the week immediately after first case of COVID-19 reported in Libya. A pilot trail questionnaire was distributed and filled by taking the relevant information from medical staff doctors working at various medical and surgical units. The data coded according to variable and analysed by SPSS. **Results:** Of (250) participants, a total (100) of Medical staff doctors completed the survey (response rate 40%). The participants' qualification was (64%) MBBS, (14%) Master degree, (16%) PhD and (6%) professors. the mean age 35 years. (42%) were male and (58%) female

participants. Most of the medical staff doctors (70%) were GPs, (22%) were specialists, (6%) were internship doctors and (2%) were consultants. Questionnaire survey revealed that (18%) of the respondents reported working experience of >20 years. The survey was considered if the Medical doctor in frontline healthcare workers (FLHCWs), our results demonstrate that, only 30% of medical staff doctors was provided care of COVID-19 patients while 70% was not in the FLHCWs. Most participants (79%) reported that no specific treatment of COVID-19. A significant proportion of medical doctors (68%) had good knowledge of the transmission, diagnostic method & prevention of COVID-19. According to the case report definition of WHO and ECDC, the survey results showed (69%) of the respondents reported that, the test should be repeated if the first RT-PCR results were negative from the patient represent the typical clinical symptoms of COVID-19. Our questionnaire survey revealed that (68%) of the medical staff doctors' participants agree that wearing face masks prevent the infection while (32%) reported that wearing face masks could not prevent the infection.

Overall, Medical staff doctors in Tripoli University Teaching Hospital showed expected level of knowledge and attitudes about COVID-19. The findings survey suggests that due to the limited medical staff doctor's representative, it must be cautious when generalizing these findings to other medical doctors residing in other regions of the country. As intentional threat of COVID-19 continuous to emerge, the results survey highlights the importance of continuous health educational programs from the government and national health authorities that well improve and updated knowledge of the HCWs regarding COVID-19, which also result in increasing their attitudes and practices towards COVID-19. Further studies are warranted to confirm our findings.

Keywords: - Medical Doctors, Corona virus, COVID-19, Attitude, Knowledge, Practices.

Introduction: -

Corona viruses (CoVs) are a large family of single-stranded RNA (+ssRNA) viruses that were first discovered in the 1960s (Caldaria , *et al* 2020) . On February 11, 2020, the World Health Organization (WHO) raised the threat to the (CoVs) epidemic to the "very high" level, that the disease caused by this new (CoVs) was a "COVID-19," which is the acronym of "corona virus disease 2019".This new virus is very contagious and has quickly spread globally. The COVID-19 is a new worldwide pandemic. It is now clear that human-to-human transmission of (CoVs) has been rising dramatically and has been confirmed through droplets or direct contact (Zhu *et al* 2020 ; Velavan and Meyer 2020). It is reported that person-to-person transmission of this novel corona virus in hospital settings (Giao *et al* 2020; Yang *et al.* 2020). The medical staff doctors are among high risk Health Care Works (HCWs) for exposure to infections during direct suspected patient contact (Nelsing *et al* 1997; Kim *et al* 2001; Chan *et al* 2002). Previous studies from different developing countries showed that HCWs had a lack of knowledge and attitude toward Corona virus and other emerging infectious diseases (Abdullah & Allen, 2016; Sameer *et al.* 2018; Saqlain *et al.* 2020). Due to the obscurity of various aspects of this novel corona virus infection,

including epidemiology, transmission, pathogenicity, diagnosis and treatment, there are still gaps in the level of the knowledge, attitude and practices of COVID-19 among medical staff doctors in the various health sectors remain unclear. Therefore, in developing countries of weak health systems, surveillance and periodical investigation of this emerging virus infection among HCWs seems to be essential. Therefore, the purpose of our study was conducted to investigate the knowledge, attitudes & practices of medical staff doctors about COVID-19 at Tripoli University Teaching Hospitals.

2- Methods

This cross-sectional study was conducted during April-May 2020, the week immediately after first case of COVID-19 reported in Libya at three different health care centres in Tripoli. A pilot trail structural questionnaire was designated to exploiting basic data and information regarding the COVID-19. The designated questionnaire was subjected to pre-test in one medical centre.

Ethical respects

The ethical considerations were conducted throughout the study to obtaining all the relevant information by informed consent from all potential staff participants prior to the starting of the study. Nevertheless, during this study we followed all the criteria considering basic ethical principles in the questionnaire survey, like, providing anonymity and confidentiality.

Questionnaire Survey

This cross-sectional survey was conducted from April 30 to 29 May, the week immediately after first case of COVID -19 in Libya. Questionnaire was distributed among medical staffs doctors. The questionnaires were filled by taking the relevant information from doctors working at these units. Due to administrative instability of the country, therefore, the questionnaire was distributed only where the hospitals accessible, and the questionnaire was distributed inside the hospitals, and all the relevant information was filled for various parameters to evaluate HCWs regarding COVID-19.

Statistical analysis

All obtained questionnaire data was analysed by SPSS version 24. Descriptive analyses frequency, means and standard deviations (SD) were measured for numerical data and number and percent for qualitative data. Chi-square test was used to investigate the level of association among variables at the significance level of $p<0.05$.

3- Results

Demographic characters

Of the (250) participants, a total (100) of medical staff doctors returned completed survey (response rate 40%). The participants' qualification were (64%) MBBS, (14%) MD, (16%) PhD and (6%) professors. the median age 35 years. This study enrolled (42%) male and (58%) female doctors. The participants were (70%),(22%),(6%) and (2%) GPs, specialist, internship doctors and consultants respectively (Table.1). (18%) of respondents reported working experience of more

than 20 years (CL 95%: 10.47%, 25.53%).The survey was consider if the HCWs in frontline healthcare workers (FLHCWs), the results revealed that, only 30% (95% CI: 21.02%, 38.98%) of HCWs was provided care of COVID-19 patients while 70% (95% CI: 61.02%-78.98%) was not in the FLHCWs.

Clinical aspect

Concerning the clinical manifestation (symptoms) of (COVID-19), the results of the clinical aspects, in respect to the most symptoms represents by the (COVID-19) patients, only (17%) (95% CI: 9.64%-24.36%) of the respondents gave the right answers. In regards age group (COVID-19) greater at risk (46%) (95%CI: 36.23%, 55.77%) of medical staff doctors match the right answer (Table 2). It is well know that COVID-19 in older adults is more severe and might be critical increased risk of severe disease following infection.

Case Processing Summary			
Categories		No.	Marginal Percentage
Gender	Male	42	42.0%
	Female	58	58.0%
Graduation time	<10	61	61.0%
	11-20	21	21.0%
	>20	18	18.0%
Qualification	MBBS	64	64.0%
	MD	14	14.0%
	PhD	16	16.0%
	Professors	6%	6.0%
Specialization	GPs	70	70.0%
	Specialist	22	22.0%
	Internship doctors	6	6.0%
	Consultant	2	2.0%

Concerning the knowledge of transmission & source of novel coronavirus SARS.2 infection, (58%) of the medical doctors reported the correct answer (Table.2.). In fact, at beginning of the COVID-19 pandemic there was robust information and data regarding to the route of transmission of the COVs SARS.2. Regarding the most people at risk, (8%) (Co-morbidity patients) of the respondents.

Table 1. Demographic characteristic of the Medical Staff Doctors participants.
Table 2. The COVID-19 level of Knowledge among the Medical Staff Doctors.

Knowledge & Attitudes	No.	Marginal Percentage
(1) most COVID-19 cases present		
fever and difficult breath	54	54.0%
cough sneezing and nasal discharge	1	1.0%
asymptomatic	17	17.0%
fever fatigue and dyspnoea	15	15.0%
I do not know	13	13.0%
(2) provide care COVID-19 patients		
Yes	30	30.0%
No	70	70.0%
(3) COVs. SARS.2 is		
Zoonotic disease	41	41.0%
self-limiting disease	6	6.0%
small group of viruses	39	39.0%
I do not know	14	14.0%
(4) age group risk		
0-15	2	2.0%
35-55	11	11.0%
>55	17	17.0%
70	46	46.0%
all age	24	24.0%
(5) source of infection		
Bats and human	58	58.0%
feline	5	5.0%
Air	13	13.0%
I do not know	24	24.0%
(6) Most people at risk		
Neonate	4	4.0%
Adult	1	1.0%
Elderly	87	87.0%
Co-morbidity patients	8	8.0%
(7) Case fatality rate		
5-7%	9	9.0%
8-10%	1	1.0%
2-3%	36	36.0%
8-12%	5	5.0%
I do not know	49	49.0%

Diagnosis of CoV-SARS.2

The survey revealed that, approximately, (66%), (31%) and (3%) of the medical doctors considering the RT- PCR, CT and X-ray respectively as golden standard for diagnosis of the CoV-SARS.2. Regarding the knowledge about patients presenting negative to RT-PCR should needs to repeat the test, nearly (69%) (95%CI: 59.94%, 78.06%) of the respondents reported that, according case report definition of WHO and ECDC, the test should be repeated, if the first RT-PCR results negative from the patient represent the typical clinical form of COVID-19. Concerning the evaluation of knowledge about what should have of specimen from suspected cases of SARS-C-2, (95%) nasopharyngeal swab while

other answers, (1%) saliva, (1% blood), (1%) sputum and (2%) they do not know. Concerning the high viral (SARS-CoV.2) loads and best part of the body from which successful isolation could be performed, the survey participants reported that (52%), (33%), & (3%) from throat swab, lower respiratory and they do not know respectively. Concerning the serological tests that gives more reliable and reproducible results in diagnosed of COVID-19, unexpectedly, the responses were (57%) of the medical doctors do not know, (27%) Enzyme Immunosorbent Assay (ELISA), (13%) Fluorescent Antibodies test (FAT) and (3%) serum neutralization test (SNT). And (71%) of medical participants report that, the late or very early collection of specimens for RT-PCR testing could lead to negative result in infected individual while (29%) they do not expect the negative results of the test (Table 3).

Prevention and Control

In this regard our questionnaire survey makes a snap shot about the prevention and control practice of the HCWs in the hospitals, however, the results revealed that, approximately, (29%) of the medical staff responses regarding the considering the vaccination as a main criteria for control strategy of COVID-19. In regards the drug of choice for prevention of novel SARS-CoV.2, the responses were estimated to be (14%) choloquine & (6%) Ivermectin, (1%) BCG and (79 %) reported that no specific treatment (Table 4). Concerning the wearing mask could be prevent (COVID-19) infection, about (68%) of the medical doctors agree that wearing mask prevent the infection while (32%) they think that wearing mask could not prevent the infection. In regarding quarantine measure for suspected COVID-19, only (74%) (95% CI: 65.40%, 82.60%) of the participants was correct answer.

Table 3. The Participants level of Knowledge of diagnostic procedure about COVID-19.

The Questions	No.	Marginal Percentage
(**D1) Golden standard of diagnosis by**		
RT-PCR	66	66.0%
X-ray	3	3.0%
Chest CT scan	31	31.0%
I do not know.	4	11.42
(D2) Negative RT.PCR need to repeat test		
Yes	69	69.0%
NO	2	2.0%
if they presented fever, cough, and dyspnoea	24	24.0%
I do not know	5	5.0%
(**D3) specimen for suspected should have**		
saliva	1	1.0%
Nasopharyngeal swab	95	95.0%
Blood	1	1.0%
Sputum	1	1.0%
I do not	2	2.0%
(D4) Concerning the serological tests		
SNT	3	3.0%
FAT	13	13.0%
ELISA	27	27.0%
I do not know	57	57.0%

(D5) one or more negative do not exclude infection		
Yes	81	81.0%
No	19	19.0%
(D6) late or early collection of specimen effect on RT-PCR		
Yes	71	71.0%
No	29	29.0%
(D7) The type of flexible shaft of nasopharyngeal swab is made from		
plastic	34	34.0%
wood	9	9.0%
fibre	17	17.0%
I do not know	40	40.0%
(D8) Viral culture is a routine diagnostic procedure		
Yes	12	12.0%
No	88	88.0%

Table 4. Demographic characteristics of participants and Prevention & Control of COVID-19.

The Questions	No.	Marginal Percentage
(PC1) aim of triage station to identify early cases		
Yes*	95	95.0%
No	5	5.0%
(PC2) control criteria is vaccination		
Yes*	32	32.0%
No	68	68.0%
(PC3) the choice for treatment of COVID.19		
Chlorquine	14	14.0%
Ivermectin	6	6.0%
BCG	1	1.0%
None*	79	79.0%
(PC4) wearing Mask prevent infection		
Yes*	69	69.0%
No	31	31.0%
(PC5) Quarantine of suspected cases		
5-10 days	5	5.0%
28 days	12	12.0%
14days*	74	74.0%
I do not know	9	9.0%
(PC6) transmission can be reduced by		
antiviral treatment	2	2.0%
antimicrobial therapy	4	4.0%
Social distance	90	90.0%
I do not know	4	4.0%
(PC7) molecular testing of COVID-19 required		
Biosafety level-1	17	17.0%
Biosafety level-2	15	15.0%
Biosafety level-3	18	18.0%
Biosafety level-4	34	34.0%
No need any Biosafety Level	16	16.0%
(PC8) Mode of transmission of COVID-19		
Contact and airborne	16	16.0%
Contact and Droplet	78	78.0%
Vector Borne	2	2.0%
Airborne	2	2.0%

I do not know	2	2.0%
(PC9) Control measures to reduce HCWs exposure to COVID-19		
administrative control	4	4.0%
PPEs	16	16.0%
Hands hygiene	6	6.0%
All the above	74	74.0%
(PC10) Aerosol generating procedures are performed under which precaution		
Droplet precaution	29	29.0%
Contact precaution	15	15.0%
Airborne precaution	32	32.0%
I do not Know	24	24.0%
(PC11) Designate dedicated HCWs#		
Yes	75	75.0%
No	25	25.0%

#: **teams only for COVID-19 patient care, telemedicine, physical barriers & Postpone elective procedure & admissions are useful to minimize the need for PPE in health care settings.**

4- Discussion

This year on February. WHO declared COVID-19 a public health emergency of international concern. According to the WHO, COVID-19 situation Report on 8th November 2020, 3 307 41 confirmed cases and 84 305 deaths has occurred in the Eastern Mediterranean Region. (Situation report2020.www.WHO.int.). In Libya, since the first case was confirmed officially on 24th March 2020 in Tripoli city, rising panic and anxiety extended to other cities from the possibility of COVID -19 outbreak. Although all precautions were taken rapidly, the number of corona virus cases identified has increased throughout the country (Libya NCDC).

This study reports highly valuable information regarding the COVID-19 basic knowledge of the medical staff doctors at Tripoli University Teaching Hospitals. Clearly, that our study revealed variable in the knowledge, data and information about COVID-19 of the medical doctors. This study, in line with other studies reported expected level of knowledge and attitudes of HCWs toward COVID-19 (Elhadi *et al.* 2020; Alrubaiee *et al.* 2020; Al-Hanawi *et al*. 2020). HCWs are the primary defence line during COVID-19 pandemic, however, the prevention and control are main tolls for the combating the COVID-19, nevertheless, there are many strategies have been established on national and international levels that has been approved by WHO and other authorized international health organization, however, some of these strategies was conducted under circumstance of emergence situation to minimize the risk of infection (Kim *et al*. 2001). Based on the results presented above which demonstrated that the majority of respondents (68%) wearing the face masks to prevent the COVID-19 spread infection in the hospital, however (32%) reported that wearing face masks could not prevent the disease infection. In the current study, the findings are in line with the results of other studies showing that the proper practices and optimistic attitudes is highly correlated with a good level of knowledge about COVID-19 (Rahman & Sathi, 2020; Reuben *et al*. 2020; Alrubaiee *et al*. 2020; Zhong *et al*.2020). In spite well-constructed strategies

approved by WHO for combat of pandemic and have been applied by many countries, still, prevention of the HCWs from the infection and death, special those being working in the frontline is crucial in healthcare facilitates therefore, the assessment and evaluation of the HCWs knowledge and practice about COVID-19 is considered of a major public health concern and need to be put in place and planned special in developing countries that facing significant challenge during ongoing increases and unpredictable COVID-19 cases in their territories. The lacking of the principle knowledge as well as inadequate attitudes of HCWs toward COVID-19 lead to potential impacts and increase the likelihood of COVs. SARS.2 transmission and spread among HCWs (Saqlain *et al*. 2020). Regarding the preventive measures towards COVID-19, the current study revealed that females medical doctors participants were found to exhibit a higher performance level in the control and preventive behaviour compared to males doctors, these results are consistent with the results of a previous studies which reported that females healthcare workers demonstrated more precautionary behaviours compared to males health care workers (Saqlain *et al*.2020 ; Taghrir *et al*.2020).

Conclusion:

In summary, the present study demonstrated that the overall the medical staff doctors in Tripoli University Teaching Hospital showed expected level of knowledge and attitudes about COVID-19. Our findings survey suggests that due to the limited medical doctors' representative, it must be cautious when generalizing this finding to other medical staff doctors residing in other regions of the country. In spite, well-constructed strategies that approved by WHO for combating of the COVID-19 pandemic and have been applied by many countries, still prevention of the HCWs from the infection special who work in the frontline, is crucial in healthcare facilitates. Therefore, the evaluation of the HCWs knowledge and practice about COVID-19 is considered of a major public health concern and need to be put in place and planned in this country to prevent deaths among the medical staff doctors. As intentional threat of COVID-19 continuous to emerge, the results survey suggest that continuous health educational programs well improve HCWs COVID-19 knowledge which also result in increasing their attitudes and practices towards COVID-19. Therefore, future research should be carrying on and involve a more diverse health care workers at private and public hospitals within the country.

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