ORIGINAL ARTICLE

Knowledge and Attitude of Health Care Workers (HCW) about Covid-19 Pandemic in the Department of Pathology

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ABSTRACT

Objective: To assess the knowledge and attitude of healthcare workers about COVID-19 in the department of Pathology.

Study Design: A cross sectional study.

Place and Duration of Study: Pathology Department of Fauji Foundation Medical Hospital and Pakistan Institute of Medical Sciences from 3rd March 2020 to 3rd May 2020.

Materials and Methods: Out of 210 health care workers,183 responded to the questionnaire. Sampling technique was consecutive and non-probable. Data was collected through a pretested questionnaire comprising of 3 parts including demographic data, questions to assess the knowledge and attitude. T-test and ANOVA was used to analyze the relationship between the dependent variables (Knowledge and Attitude), and the independent variables (demographic characteristics). Pearson correlation was used to assess the relationship between the knowledge and attitude (mean). The level of significance was taken as $p \leq 0.05$.

Results: Overall the survey had a good response of 77%. Males 58% were with highest percentage of HCWs being post graduate trainee (50%). Out of 183, 94% had heard about the COVID-19 outbreak. Having knowledge that fever, cough, sore throats and shortness breath are symptoms of COVID-19 (97%, 98%, and 100%, respectively). However, there were some negative attitudes; only 58% participants thought that they would accept isolation in a health care facility if infected with COVID-19 and less than 60% of the participants were of the view that 'transmission of COVID19 can be prevented by frequent hand washing. Overall, the study participants possessed negative attitude of 31%.

Conclusion: It is concluded from our study that the overall knowledge of HCWs about COVID-19 pandemic is good but there is lack of knowledge on its management, A negative attitude is detected among HCWs. Additional educational campaigns and workshops are needed for HCWs in the setting of laboratory to improve their knowledge and attitude towards this pandemic.

Key Words: *Attitude, COVID-19, Healthcare Worker, Knowledge, Pakistan.*

Introduction

WHO declared COVID-19 as a public health emergency of international concern (PHEIC) on 30th January 2020.[1] Surprisingly, an alarming number of cases were reported in March globally making covid-19 an emerging pandemic? According to the updated data by WHO [6th March 2020] there were 98,192 confirmed cases and 3,380 deaths worldwide.[1] First outbreak of covid-19 was reported in Wuhan, China in December 2019 and now has become an unprecedented public health concern [1]. Coronaviruses are a huge group of enveloped viruses. They are named so because of their outer protein envelope resembling a crown.[2] Their primary target is the human respiratory tract. Symptoms appear after the incubation period of 2-14 days with death occurring within 6-41 days of symptoms [2]. Most common symptoms are cough, fatigue, and fever with clinical presentation of pneumonia. Virus spreads to human through feco-oral, air droplet and personal contact [4]. Various outbreaks occurred in the past such as Severe acute respiratory syndrome-coronavirus (SARS), with reported 8096 confirmed cases 774 deaths in 2003 and Middle East

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Funding Source: NIL; Conflict of Interest: NIL
Received: December 29, 2020; Revised: April 22, 2021
Accepted: April 27, 2021

Respiratory Syndrome (MERS-CoV) in 2012 with 2494 confirmed cases 858 deaths.[5] These two viruses had an 80% (SARS) - 50% (MERS-CoV) genomic and transmission similarity with covid-19.[5] Be it a medical emergency or a situation like pandemic the HCWs are on the front-line of cover against any disease or an infection.[6] In order to treat these patients, they are in close proximity with the patients making them vulnerable of contracting the disease and extremely difficult to protect them.[6] Although vaccine is now available still the most critical intervention is the application of preventive measures for the containment of this disease.[7] In the past during an epidemic of SARS and MERS-CoV many HCWs were contracted with this disease.[7] A study showed that an astounding 9,400 number of HCWs got COVID-19 in Spain with fear of collapsing the health care system.[8] The situation in Pakistan is rather grim with scarcity of resources and unpreparedness for this pandemic. Despite various national guidelines on prevention of emerging COVID-19, the knowledge and attitude of HCWs are still uncertain. To our knowledge, there is paucity of research that evaluated the knowledge and attitude of health care workers in the setting of pathology laboratory in Pakistan. Laboratory personnel are the ones handling specimen of suspected cases of covid-19. It is crucial they have sound knowledge of this disease for their personal safety as well as the coworkers. The aim of this prospective cross-sectional study was to identify the gaps in their perceived knowledge about the pandemic and their attitude regarding it with the purpose to fill in those gaps by providing adequate training and imparting knowledge to ensure they are well educated and informed to reinforce good practices. Therefore, a study was planned to assess the knowledge and attitude of healthcare workers (HCW), including the doctors and laboratory technicians about Covid-19 pandemic in the setting of Pathology.

Materials and Methods

It was a cross sectional study. This study was conducted among healthcare workers (HCWs) in Pathology Department (including microbiology, hematology, histopathology, and chemical pathology) of two tertiary hospitals named as Pakistan Institute of Medical Sciences and Fauji Foundation Medical Hospital. Duration of study was 03 months i.e from 3rd March 2020 to 3rd May 2020. Sample size was 210 healthcare workers. It was a consecutive and non-probable sampling technique. The ethical approval was taken from the ethical review committee of the hospitals. All healthcare workers (Assistant Professor, post graduate trainee, Medical technologist, Lab technologists) were included in this study. The sanitary workers and other staff were excluded from this study. The data was collected through pretested questionnaire.[2] Therefore; it was a "pilot study". It was assured to the participants that their information would remain anonymous. This questionnaire comprised of three parts. The first section included the demographic characteristics of the participants (age, gender, occupation, years of experience, and source of information on COVID-19). The second part had 10 questions concerning the knowledge on COVID-19, and the last part included the attitude towards COVID-19 comprising of total 8 questions. In this section the answers were assessed through a 5-points Likert scale of agreement. One point was given to each correct answer in relation to knowledge. A cut off level of <7 was taken d as poor knowledge, and< 7 meant good knowledge. The total knowledge scores for the healthcare workers (pathology department) were between 0 (given no right/correct answer) and 10 (for giving all right/correct answers). Based on the 5-points Likert scale attitude was given from 1-5 on strongly agree to strongly disagree. A mean score of < 2 (strongly agree or agree) was taken as a positive attitude. A score of 3 to 5 as a taken negative attitude (strongly disagree or disagree or undecided). Therefore, lower the attitude scores gives greater the probability of positive attitudes and the reverse was applied for a high score. Data was entered and analyzed in SPSS 21.0 software. The Descriptive analysis as was reported as frequency, percentage and mean. T-test and ANOVA[2] were used for analyzing the relationship between the dependent (knowledge and attitude), and independent variables (demographic characteristics) of the participants. Pearson correlation was used to assess the relationship between mean of knowledge and attitude scores.[2] The level of significance was taken as $P \leq 0.05$.

Results

Out of 210 HCWs, 183 (87%) of participants

completed and returned the questionnaire. Mean age of the participants was (37.79±11.19) years, most of them being male participants (58%), the highest percentage of HCWs were post graduate trainees (28%) & lab technicians (50%) and most of the staff had more than 10 years' experience (74%). There were 94% of participants had knowledge of COVID-19 outbreak. Social media and television (78% and 51% respectively) was the main sources of COVID-19 information [Table I]. Most of the participants had the knowledge that COVID-19 is a virus and is transmitted by being in close contact with the infected person. Having knowledge that fever, cough, sore throats and shortness of breath are symptoms of COVID-19 (97%, 98%, and 100%, respectively). Ninety percent participants were of the view that healthcare workers (HCWs) have a greater risk of infection, whereas only 25% of the participants were of the view about the 'availability of COVID-19 vaccine in markets. This survey had an overall good response with 77% of the participants had sufficient knowledge [Table II].

However, about two-third of participants knew that 'participants were concerned for their family members might get infected' and 'participants think that 'they too would probably get illnesses (75% and 65% respectively). However, there were some negative attitudes; only 58% participants thought that they would accept any isolation in health facilities if getting COVID-19. Another negative attitude finding showed that less than 60% of the participants were of the view that 'transmission of COVID19 can be prevented by frequent hand washing. Overall, study participants possessing less sufficient attitude 31% recorded as in [Table III]. The association between the demographic characteristics and knowledge and attitude of HCWs is shown in [Table IV]. Occupation was correlated with the knowledge and Attitude scores. According to which Assistant Professor, Post Graduate Trainees showed who had greater levels of knowledge were also found to have a higher level of a positive attitude towards COVID-19 in contrast to the lab technologist (lab technician & lab attendants) (9.75 vs. 10.36, 9.78 vs. 10.84, 7.00 vs. 12.67), and (7.17 vs.12.11, 9.75 vs. 11.57, $P < 0.05$).

Besides, Pearson's correlation analysis showed a significant positive correlation between the scores of mean knowledge and attitude among healthcare workers towards COVID-19 ($r=0.249$, $P<0.05$). The higher the attitude scores, the higher the probability of positive attitudes; while the greater the knowledge scores, higher is the probability of good knowledge. Hence having a good knowledge on COVID-19 was associated with a positive attitude.

Table I: Demographic Characteristics of Healthcare Workers (n=183)

Characteristics		Participants (n=183)
Age	(Mean ±SD)	37.79±11.19
	20 - 40 years	111 (61)
	41 - 60 years	72 (39)
Gender	Male	106 (58)
	Female	77 (42)
Occupation	AP (Assistant Professor)	11 (06)
	PG (post graduate trainees)	51 (28)
	Medical technologist	9 (05)
	Lab tech	92 (50)
	Nurse	20 (11)
Years of Experience		17.02±4.2
	≤ 10 years	47 (26)
	> 10 years	136 (74)
Know the COVID-19 Outbreak is appening globally in 2020		172 (94)
Source of COVID-19 Information		
	Television	93 (51)
	Social Media	143 (78)
	Websites of Hospitals/Health Ministry	42 (23)
	Friends, Relatives	25 (14)
	Unheard	0 (0.0)

Table II: Knowledge of Health Care Worker on COVID-19

Questions	Correct Answer n (%
COVID-19 is a viral infection	178 (97)
Transmission is through close contact with infected person	180 (98)
Symptoms are fever, cough, sore throats, and shortness of breath	183 (100)
2 weeks is its isolation period 2-14 days is the incubation period	171 (93)
COVID-19 vaccine is available	46 (25)

first line treatment is antibiotics	20 (11)
Hand washing can prevent its transmission	183 (100)
Patients with chronic disease have higher risk	168 (92)
Healthcare workers have a higher risk	165 (90)
It is fatal	165 (90)
Knowledge toward COVID-19	8.66±0.73
sufficient	141 (77)
Insufficient	42 (23)

Table III: Attitude of Healthcare Workers toward COVID-19 in Pathology Department

Items	Positive Response n (%)	Negative Response n (%)
You think you will get the illness	119 (65)	64 (35)
You are worried your family will get the infection	137 (75)	46 (25)
Will you accept isolation in health facilities if infected with SARS- CoV-2	106 (58)	77 (42)
Transmission of COVID-19 can be prevented by frequent hand washing	106 (58)	77 (42)
Will hospital infection control programs reduce its prevalence by active participation	167 (91)	16 (9)
Will you have covid-19 vaccine if available	148 (81)	35 (19)
Patients of covid-19 should be kept in isolation.	168 (92)	15 (8)
Medical staffs are willing to participate in anti-epidemic in the community	142 (78)	41 (22)
Attitude	11.57±1.59	
Sufficient	56 (31)	
Insufficient	127 (69)	

Table IV: Knowledge and Attitude Scores of Health Care Workers in Pathology Department

Characteristics	Knowledge	P-value	Attitude	P-value
Age				
20 - 40 years	8.78±0.57	0.116	11.40±1.58	0.042*
41 - 60 years	8.48±091		11.85±1.58	
Gender				
male	8.59±0.83	0.403	11.69±1.43	0.254
female	8.75±0.58		11.42±1.79	
Occupation				
AP (Assistant Professor)	9.75±0.50	0.221	10.36±2.46	0.000*
PG (post graduate trainees)	9.78±0.64		10.84±1.47	
Medical technologist	7.00±0.00		12.67±0.50	
Lab Technician	7.17±0.83		12.11±1.32	
Years of experience				
≤ 10 years	8.71±0.84	0.775	11.51±1.64	0.754
> 10 years	8.65±0.69		11.60±1.58	

p value < 0.05 is significant*

Discussion

By looking at the worldwide trend it can be clearly stated that health workers are increasingly being infected with covid-19. The situation in Pakistan is no different. According to the latest WHO report until now 509 HCWs got tested positive for covid-19.[8] Our study showed good knowledge of HCWs towards covid-19. There were [94%] HCWs who knew that covid-19 is a pandemic and for majority [78.1%] this source of information was social media. In contrast to this a study conducted in Vietnam showed the major source to gather information on covid-19 was media such as television [79.2%] and social media [91.1%] [9] In our study only a minority [23%] got this information from the website of health ministry and hospitals with the other study showing good response rate [82.6%] of gathering this information from the website of hospital/Health Ministry.[10] This is also another concern for the government of Pakistan as it is imperative to consider specialized channels to update correct knowledge to the HCWs. Social media being the major source [91.1%] of information can either support or hinder the efforts of public health.[11] A study coined the term 'infodemic' to social media platform to outline the peril of misinformation through social media aggravating the psychological impact of covid-19.[11] In our study HCWs had a sound knowledge of disease transmission and symptoms. There were 97.3% of HCWs that knew it is a virus with 98.4% -100% had knowledge of its correct mode of disease transmission and symptoms. They [93.4%] knew that the incubation period of the disease was 2-17 days. However, our results were not in agreement with other studies conducted on HCWs. A study was conducted in Jordan showed poor knowledge of HCWs with only 34.1% knew the

correct incubation period of covid-19.[12] A similar study was conducted on HCWs which also showed poor knowledge. It was found that only 39% and 36.4% knew the source of transmission and the incubation period of covid-19.[13] Having correct knowledge of its transmission and the incubation period are crucial to HCWs for the prevention of this disease. As prevention is the most critical intervention for the containment of this disease since no vaccination is currently available to treat this disease.[14] According to the results 58% of HCWs thought that washing hands with soaps and detergent and wearing of mask can prevent this disease. These results were not same as the above study where 97% had the same finding and another study on MERS showing 94% knowing the prevention of the infectious disease.[15] Our study showed meager knowledge of HCWs in the management of covid-19. Only 10.9% thought that the first line treatment was antibiotics and with 25% stating that the vaccine for covid-19 is available. This result is same as of other studies conducted on MERS and SARS where the respondents did not have knowledge of its management.[16]In our study 75% of HCWs raised their concern for contracting the disease with 67% feared for their families of getting the disease from them. The results were in accordance with another study where 67% of HCWs feared that their family members might get the disease.[17] This perceived anxiety for getting the disease by HCWs is common in any pandemic. Feared that their family members might harbor the disease is contributed to the resource scarcity of ventilators and treatment modalities in under resourced country like Pakistan. We feel the need to address the significant fear of HCWs for spreading the disease to the family members. This can be achieved by implementing stringent infection control measures in the hospital through making local SOPs based on the national guidelines and through provision of psychological support by proper counseling. Our study did not show an optimal attitude of HCWs towards the pandemic. Majority [91%] thought that the transmission of this disease could be prevented by active contribution of HCWs in the infection control program in the hospitals through participation but only 78% of the medical staff was willing to take part in an anti-epidemic activity. Our findings showed that only 58% of the respondents agreed for isolation in case of symptoms. These findings were not like other studies where 96% of the participants agreed to isolate themselves.[17] We feel the need to further probe into the cause of this lack of positive response. Our study had certain limitations. It is a cross sectional study on HCWs in the pathology department therefore it cannot be generalized to all the health care professionals. Additional studies need to be done at a larger scale on all HCWs to assess the need to educational interventions at a national level. Despite these limitations we feel our study provides valuable and genuine information of the knowledge and attitude of healthcare workers of pathology department during the peak time of covid-19 pandemic.

Conclusion

It is concluded from our study that the overall knowledge level is good among HCWs but there is lack of knowledge on the management of COVID-19. However, a negative attitude is detected among HCWs. Additional educational campaigns and workshops are needed for HCWs in the setting of laboratory to improve their knowledge and attitude towards this pandemic.

REFERENCES

1. Aiello F, Afflitto GG, Mancino R, Li JP, Cesareo M, Giannini C, Nucci C. Coronavirus disease 2019 (SARS-CoV-2) and colonization of ocular tissues and secretions: a systematic review. Eye. 2020;34(7):1206-11.
2. Huynh G, Nguyen TN, Vo KN, Pham LA. Knowledge, and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. Asian Pacific Journal of Tropical Medicine. 2020;13(6):260.
3. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, Qiu Y, Wang J, Liu Y, Wei Y, Yu T. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. The lancet. 2020;395(10223):507-13.
4. Jin YH, Cai L, Cheng ZS, Cheng H, Deng T, Fan YP, Fang C, Huang D, Huang LQ, Huang Q, Han Y. A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version). Military Medical Research. 2020;7(1):1-23.
5. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. Jama. 2020;323(13):1239-42.
6. Kratz T, Roddy P, Tshomba Oloma A, Jeffs B, Pou Ciruelo D, de la Rosa O, Borchert M. Ebola virus disease outbreak in Isiro,

Democratic Republic of the Congo, 2012: signs and symptoms, management, and outcomes. PloS one. 2015;10(6).

7. Oboho IK, Tomczyk SM, Al-Asmari AM, Banjar AA, Al-Mugti H, Aloraini MS, Alkhaldi KZ, Almohammadi EL, Alraddadi BM, Gerber SI, Swerdlow DL. 2014 MERS-CoV outbreak in Jeddah—a link to health care facilities. New England Journal of Medicine. 2015;372(9):846-54.
8. Giao H, Han NT, Van Khanh T, Ngan VK, Van Tam V, Le An P. Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. Asian Pac J Trop Med. 2020;13.
9. Cinelli M, Quattrociocchi W, Galeazzi A, Valensise CM, Brugnoli E, Schmidt AL, Zola P, Zollo F, Scala A. The covid-19 social media infodemic. arXiv preprint arXiv:2003.05004. 2020; 10.
10. Yousef Khader SC, Al Nsour M, Al-Batayneh OB, Saadeh R, Bashier H, Alfaqih M. Dentists' Awareness, Perception, and Attitude Regarding COVID-19 and Infection Control: Cross-Sectional Study Among Jordanian Dentists. JMIR Public Health Surveill. 2020;6:e18798.
11. Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Knowledge and perceptions of COVID-19 among health care workers: cross-sectional study. JMIR public health and surveillance. 2020;6(2):e19160.
12. Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. Jama. 2020;323(15):1439-40.
13. Khan MU, Shah S, Ahmad A, Fatokun O. Knowledge, and attitude of healthcare workers about middle east respiratory syndrome in multispecialty hospitals of Qassim, Saudi Arabia. BMC Public Health. 2014;14(1):1-7.
14. Quah SR, Hin-Peng L. Crisis prevention and management during SARS outbreak, Singapore. Emerging Infectious Diseases. 2004;10(2):364.
15. Bai Y, Yao L, Wei T, Tian F, Jin DY, Chen L, Wang M. Presumed asymptomatic carrier transmission of COVID-19. Jama. 2020;323(14):1406-7.
16. Benmarhnia T. Linkages between air pollution and the health burden from COVID-19: methodological challenges and opportunities. American journal of epidemiology. 2020;189(11):1238-43.
17. Qadah T. Knowledge and attitude among healthcare workers towards COVID-19: a cross sectional study from Jeddah city, Saudi Arabia. The Journal of Infection in Developing Countries. 2020;14(10):1090-7.