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ORIGINAL ARTICLE

Assessment of Knowledge and Preparedness of Healthcare Worker Regarding Current COVID-19 Crisis

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ABSTRACT

Background: COVID 19 has become a major health issue and has globally affected masses and increased mortality in all parts of the world. Therefore, with limited information available healthcare workers faced a multitude of problems and challenges in managing the affected individuals globally and to no surprise with developing information database regarding this disease; many lost their lives.
Aim: To assess the understanding of healthcare worker regarding COVID-19 pandemic and their competence in dealing with the current situation and to ascertain whether HCWs are actively participating in activities that hell them deal with the outbreak.
Study design: Descriptive cross sectional survey
Place and duration of study: Department of Medicine, Shaikh Zayed Hospital, Lahore from 26th September 2020 to 30th May 2020.
Methodology: Three hundred and sixty eight individuals participated in survey throughout Pakistan. The questionnaire consisting of four parts designed according to available data on coronavirus and study participants were tested for their knowledge and preparedness through multiple questions. All healthcare workers from different designation, specialties and hospitals participated for this research.
Results: Two hundred and eighty seven aged less than 35 and rest were above 35.68.5% were from public sector and rest worked in private hospitals.340 people participated from hospitals in Punjab and remaining were from other parts of Pakistan. Internet was major source of information. Study participants stated themselves as prepared in dealing with COVID 19 matters however, knowledge based questions were not answered correctly by many individuals.
Conclusion: This research was meant to identify the gaps in information and take measures to provide better health practices. The correct answers percentage was higher for more experienced individuals and who are acutely dealing with Covid infection. Also, the people who had prior exposure to some other outbreak made the right choices most of time.
Keywords: COVID-19, Coronavirus, Knowledge, Preparedness, Healthcare workers, Attitude, Awareness

INTRODUCTION

Coronavirus also known as COVID-19 has gained global attention by affecting many countries worldwide. In late 2019, a novel coronavirus, now designated SARS-CoV-2, was identified as the cause of an outbreak of acute respiratory illness in Wuhan, a city in China. In February 2020, the World Health Organization (WHO) designated the disease COVID-19, which stands for coronavirus disease 2019.[1] Since 31 December 2019 and as of 28 June 2021, 33270049 cases of COVID-19 have been reported, including 740809 deaths.[2]

Healthcare workers (HCWs) come in front line in fighting this illness. Their major role is to keep themselves updated with the recommended plan of action to be taken in hospital settings for COVID-19. WHO has designed strategies for infection prevention and control (IPC) IPC strategies to prevent or limit transmission in health care settings include ensuring triage, early recognition, and source control (isolating patients with suspected COVID-19) applying standard precautions for all patients, implementing empiric additional precautions (droplet and contact and, whenever applicable, airborne precautions) for suspected cases of COVID-19, implementing administrative controls while using environmental and engineering tools[3].

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A healthcare worker is one who delivers care and services to the sick and ailing either directly as doctors and nurses or indirectly as housekeepers, technicians, or medical waste disposal.[4]Severe Acute Respiratory Syndrome (SARS)[5] and Middle East Respiratory Syndrome (MERS)[6] have been previous pathogens responsible for outbreak. Coronavirus disease 2019 (COVID-19) or SARS COV is the novel respiratory virus responsible for current pandemic[7]. During infectious disease outbreaks, triage is particularly important to separate patients likely to be infected with the pathogen of concern[8]. A coronavirus infected individual is triaged into suspected or confirmed case based on symptoms.[9]personal protective equipment (PPE) works as a barrier between an individual's skin, mouth, nose, or eyes and viral and bacterial infections. In order to be used in a medical setting, most PPE i.e. medical gloves, gowns, and N95 respirators, is regulated by the Government. According to current evidence, COVID-19 virus is primarily transmitted between people through respiratory droplets and contact routes[11]. People with COVID-19 have had a wide range of symptoms reported i.e. ranging from mild symptoms to severe illness. These symptoms may appear 2-14 days after exposure to the virus and include fever, cough, shortness of breath, loss of taste and smell, muscle pains etc[12].

Similarly, healthcare staff is also exposed to various hazards which include pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout, stigma,

and physical and psychological violence. Health care workers should be aware of use, putting on, taking off and disposal of PPE also familiarize personnel with technical updates on COVID-19 and provide appropriate tools to assess, triage, test, and treat patients. It is also their duty to share IPC information with patients and the public; advise health workers on self-assessment, symptom reporting, and staying home when ill. They should be provided with protocols to assess, triage, and treat patients. It is HCW responsibility to treat patients with respect, compassion, and dignity and maintain patient confidentiality[13].

Healthcare workers, like everyone else, are vulnerable both to the disease itself and to rumors and incorrect information that definitely increase their anxiety levels. To counterforce the potential decline in HCW availability because of fear, anxiety, and the potential rise of nosocomial infection, it is critical to strengthen their safety and trust in the system they work. Overworked and under resourced frontline workers face real challenges and may rely on misleading information about an escalating epidemic, leading to avoidance or inability to work[14].

In Pakistan, the no. of COVID-19 cases is steadily rising and has been reported to be 969476 till July 9, 2021 with 22520 deaths[15,16]. Therefore, it is mandatory to assess the knowledge of a HCW about the COVID-19 disease, symptomatology, management and measures to be taken for their own safety. It is imperative that they are adequately prepared to deal with this health issue and can play their part in stopping its spread.

Purpose of study is to see whether or not our healthcare workers have sufficient knowledge to deal with deadly corona infection and do they have proper equipment to protect themselves from this infection.

MATERIALS AND METHODS

This descriptive cross sectional survey comprised 368 healthcare workers after approval from Ethical Committee. The health care providers who are working in different hospitals such as doctors, nurses, pharmacist, paramedical staff, ward boy, sanitation workers, etc. participated in this study. We also collected responses from staff members who are or will be handling suspected/ confirmed cases in settings such as Emergency Department, Intensive Care Unit, Outpatient Department, Infectious Disease Clinic, Respiratory Disease Clinic, or any department designed to treat COVID-19 patients after taking ethical approval.

A questionnaire containing close ended questions keeping in view of previous studies[17,18] was used. Sufficient time was given to respondents to read, comprehend, and answer all the questions after giving informed consent. For participants with insufficient knowledge about this method of attempting the questionnaire like house keepers, the researcher explained the questions and got answers from them directly and entered answers for them. The questionnaire is divided into four parts. The first part was about demographic details. The second part was to identify source of respondent's knowledge of COVID-19. The third part assessed knowledge of healthcare worker regarding corona virus for which participants were made to choose single best option of the MCQ. The last part asks questions regarding preparedness of HCW in COVID 19 crisis and the respondent was expected to tick one of the three options provided. Data for basic characteristics of responders, their knowledge based on response to questions, there awareness and preparedness regarding COVID-19 is described by using frequency and percentages. The association of experience, specialty and previous experience to outbreak etc. with knowledge and awareness is assessed by using appropriate test where $p \leq 0.05$ is considered significant.

RESULTS

Two hundred and twenty (61.4%) females and 142(38.4%) healthcare workers participated in the study. The people who were under 35 had more number of responses. A significant no. of selected population was from medicine and allied department with experience less than 5 years. The average number of correct answers for knowledge based questions is 61.9% and for preparedness is 73.9% respectively (Table 1). The questions were divided in two sets one for knowledge assessment and the other to check the preparedness of healthcare workers (Tables 2-3).

Table 1: Demographic details of study participants along with their major source of information about COVID-19 crisis (n=358)

Variable	No.	%
Age (years)		
< 35	293	79.6
>35	75	20.4
Gender		
Male	142	38.6
Female	226	61.4
Type of Hospital		
Public	252	68.5
Private	116	31.5
Province		
Punjab	340	92.3
AJK	8	2.2
KPK	8	2.2
Sindh	12	3.3
Experience (years)		
<5	278	75.5
>5	90	24.5
Department		
Medicine & allied	203	55.2
Surgery & allied	43	11.7
Infection control unit	12	3.3
Emergency	23	6.3
Others	87	23.6
Previous experience		
Dengue outbreak	172	46.7
SARS	45	12.2
MERS	9	2.4
Bird flu	23	6.3
Other	34	9.2
None	85	23.1
Sources of information		
Internet	300	81.5
People or colleagues	193	52.4
Television	182	49.5
Conferences	92	25.0
Journals	86	23.3
Newspaper	85	23.0
Databases	64	17.4
Books	55	14.9
Other	22	6.0
Magazine	18	4.9
Library	15	4.1

It is observed that people working in public sector on average were able to perform better than those working in private sector. The experience in years was checked against the accuracy of answers only to find that for part 3 i.e. knowledge the answers were roughly the same but for preparedness the more experienced individuals claim themselves to be better (Table 4). In respect to specialty the front lines from emergency and infection control unit performed superiorly to the medicine and allied healthcare departments (Table 5). It is also seen in results that HCWs who had previous experience in dealing with SARS, MERS and Bird flu performed better than those who had experience in fighting Dengue or no prior

experience. Overall, doctors, pathologists and physiotherapists chose correctly in part 3 than nurses, technicians and housekeepers. However, nurses, doctors and physiotherapists showed more readiness in this crisis.

Table 2: The correct answers percentage for the questions of knowledge about COVID-19 among healthcare team

Knowledge of Healthcare workers	Accurate answers
What is the incubation period of Novel coronavirus (SAR-COV-19)?	35.3%
Do you know the route of transmission? How the virus does spreads?	76.6%
Do you know what the common symptoms except?	71.2%
Novel Coronavirus is thought to be originated from?	90.4%
How to reduce risk of transmission?	90.2%
What medicines are available as treatment option for this disease?	70.1%
Disinfectants used?	50.8
What is PPE? Do you know the correct order of donning and doffing of PPE?	50.0

Table 3: The correct answers percentage for the questions of preparedness for COVID-19 for the HCWs

Preparedness of healthcare worker	Accurate answers
Had you attended any of the lectures/discussions about Novel Coronavirus disease?	65.4%
Do you know the protocols for triage and isolation of suspected cases?	75.5%
Are you confident in managing COVID- 19 outbreak?	58.9%
Do you know how to properly use PPE?	72.4%
Do you know how to report a COVID-19 case?	69%
Do you know what to do if you develop signs of COVID-19 infection?	55.2%
Do you know the safety precautions to use while working in aerosol transmission areas?	91.2%
Do you know the criteria to guide the evaluation of persons under investigation?	78.8%
Do you know how to educate a person who is caring for a relative affected with this illness?	89.9%

Table 4: Experience of healthcare workers and their accuracy of answers: A and B are the responses which reflects their knowledge and preparedness respectively (n=368)

Experience (years)		Correct responses								
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
<5 (n= 278)	A	105 (37.7%)	51(18.3%)	213 (76.6%)	269 (96.7%)	265 (95.3%)	209(75.2%)	154(55.4%)	145(52.2%)	-
	B	187 (67.3%)	214 (77%)	167 (60.1%)	207 (74.5%)	192 (69.1%)	155(55.8%)	264 (95%)	229 (82.4%)	212(76.3%)
> 5 (n=90)	A	28 (31.1%)	18 (20%)	58 (64.4%)	76 (84.4%)	78 (86.7%)	64 (71.1%)	54 (60%)	45 (50%)	-
	B	61 (67.8%)	76(84.4%)	60 (66.7%)	69 (76.7%)	72 (80%)	55 (61.1%)	87(96.7%)	71 (78.9%)	70(77.8%)

Table 5: Details of different departments where the healthcare workers worked in relation to their accuracy of answers: A and B are the responses which reflects their knowledge and preparedness respectively (n=368)

Department		Correct responses								
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Medicine & allied (n=203)	A	87(42.9%)	35(17.2%)	151(74.4%)	190 (93.6%)	197 (97%)	155(76.3%)	114 (56.2%)	115(56.7%)	-
	B	142(70%)	166(81.8%)	129(63.5%)	153(75.4%)	153(75.4%)	118(58.1%)	196(96.6%)	173(85.2%)	212(57.6%)
Surgery & allied (n=43)	A	11(25.6%)	11(25.6%)	35(81.4%)	41(95.3%)	38(88.4%)	32(74.4%)	19(44.2%)	20(46.5%)	-
	B	27(62.8%)	34(79.1%)	23(53.5%)	33(76.7%)	28(65.1%)	22(51.2%)	41(95.3%)	35(81.4%)	32 (74.4%)
Infection control unit (n=12)	A	5(41.2%)	3(25%)	8 (66.7%)	10(83.3%)	9 (75%)	4 (33.3%)	8 (66.7%)	9 (75%)	-
	B	5(41.7%)	7(58.3%)	4 (33.3%)	10(83.3%)	10(83.3%)	10(83.3%)	11(91.7%)	7 (58.3%)	10 (83.3%)
Emergency (n=23)	A	9(39.1%)	2 (8.7%)	17(73.9%)	23(100%)	23 (100%)	18(78.3%)	12(52.2%)	15(65.2%)	-
	B	18(78.3%)	21(91.3%)	18(78.3%)	19(82.6%)	19(82.6%)	17(73.9%)	23 (100%)	19(82.6%)	20 (87.0%)
Others (n=87)	A	27(31%)	18(20.7%)	60 (69%)	81(93.1%)	76(87.4%)	64(73.6%)	45(52.7%)	31 (35.6)	-
	B	56(64.4%)	62(71.3%)	53(60.9%)	61(70.1%)	54(62.1%)	43(49.4%)	80 (92%)	66(75.9%)	62 (71.3%)

DISCUSSION

Success in fighting this ongoing pandemic relies on the healthcare workers knowledge, attitude and readiness towards the infection. The caregivers are under immense pressure to stay uptodate and handle workload which leads to mental and physical exhaustion. They are also at risk of infecting themselves; 70 HCWs died and 5367 were infected in Pakistan[19]. The information gained from the study will be useful to take measures to improve the current standards of practice that is widely affected by healthcare workers knowledge about pandemic protocols. This will also help us identify the lack of knowledge in our settings and take necessary steps to bridge this gap.

There is a large knowledge gap among the healthcare professionals which can be mended by regular teaching and training sessions in proper academic settings without putting extra burden on them. In this crisis, there is a need to set and follow principles on which a COVID 19 case should be approached which can be counterchecked by mortality meetings and clinical audit. This can ensure proper and organized healthcare system practices. Many prior studies have reported lack of knowledge and readiness in attempting to deal with this infection around the globe which necessitates the need of this study[20].

Some prior work in this regard shows; in UAE on health care workers to assess knowledge about the pandemic crisis yielded poor results. Of 529 participated, regarding COVID-19, most of them used social media to obtain the information; a considerable proportion of HCWs had poor knowledge of its transmission and symptoms and showed a positive perception of COVID-19 prevention and control[16]. In another study done in Saudi Arabia, who studied knowledge, attitudes and behaviors of HCW revealed that only half of the physicians, one third of the nurses and other HCWs were aware of asymptomatic MERS-CoV[21]. Similarly, internet which is an unreliable mean was the primary source of information and HCWs were unaware about some aspects of knowledge based questions. The good transmission of evidence based information can be emphasized.

The knowledge part was very well performed (93%) in another study which was done in Pakistan which is in agreement with the findings of this study with some difference (73%) overall. The certain parts of information among HCWs was lagging such as regarding proper concentrations of disinfectants used and the use of personal protective equipment compared to good practice 88.7% seen in the other study[22].

A few limitations include small study group which cannot be generalized to all health care workers globally. Also, the preparedness part was checked by yes and no questions where participants which puts a large bias on whether they were answered. The questions were not individualized to a person's experience and educational background which could

have resulted in skewing of data. The small no. of direct questions could not reflect on all caregivers.

CONCLUSION

To conclude, this study shows that the healthcare providers have moderate knowledge regarding current COVID 19 crisis however they oddly consider themselves to be fully prepared in managing pandemic situations. The assessment of knowledge revealed that majority had no idea about proper disinfection techniques and donning/ doffing of Personal Protective Equipment. But the knowledge about the basic pandemic entities is unquestionably good. Over half the study participants were confident in dealing a COVID situation and were familiar about how to report on acquiring signs of infection. The skilled individuals with previous experience in dealing with outbreak and vast experience performed superiorly. Regular academic sessions and setting local hospital guidelines can ensure safe practices in Pakistan rather than relying on undependable means such as internet and colleagues which was predominantly used by Healthcare workers. Setting local educational programs and workshops can ensure adherence to infection control guidelines and effective management of COVID 19 patients.

Conflict of interest: Nil

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