

Knowledge, Attitudes and Safety Practices among Healthcare Workers at a Tertiary Center During Covid 19 Pandemic

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Abstract

Objective: COVID-19 is an ongoing pandemic, for which appropriate infection prevention and control measures need to be adopted. The pandemic caused by SARS-CoV-2 has swept through the world causing unprecedented loss of lives and livelihood. The objective of this study was to evaluate knowledge, attitude and practice regarding COVID-19 among health care worker in Sultania Zanana Hospital.

Methods: This is a observational hospital-based study to asses knowledge, attitude and practice related to COVID-19 among HCWs in the Department of Obstretics and Gynaecology, Sultania Zanana Hospital, Gandhi Medical College, Bhopal, by using a pre-validated questionnaire.

Results 76.3% documented that handwashing, sanitizing hands, using mask and PPE are efficient in stopping the transmission of COVID infection. 73.7% participants showed positive attitude for active participation to reduce COVID 19 infection and 89.5% were willing for vaccination. 81.6% participants were practicing social distancing and among them, 31.5% participants were practicing social distancing for more than 6 meters. About 78.9% participants were using mask with white side in and 21.1% were wearing mask with white side out. All the participants were practicing hand washing with soap and water .42.1% participants answered that surgical mask protect against infection whereas majority i.e. 57.9% participants followed by 34.2% participants were using PPE and mask respectively.

Conclusion: Knowledge regarding COVID-19 protocols plays a key role in prevention and spread of the disease. Proper intervention through training programmes at regular time interval has great influence on various aspect of prevention and spread of the disease. Training programmes not only increase knowledge and awareness among health care professionals but also develops sense of responsibility, which reflects in their attitude and practices.

Keywords: COVID-19, KAP (Knowledge Attitude Practices), healthcare workers (HCW), World Health Organization (WHO)

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Introduction

Coronavirus Disease 2019 also known as COVID-19 was a rapidly expanding pandemic caused by a novel human coronavirus (SARS-COV-2) . SARS-COV-2 is transmitted from person-to-person through inhalation of aerosols from an infected individual. Old age and patients with pre-existing illnesses (like hypertension, cardiac disease, lung disease, cancer, or diabetes) have been identified as potential risk factors for severe disease and mortality.[1,2]

World Health Organization (WHO) recommends prevention of human-to-human transmission by protecting close contacts and health care workers from being infected and stopping infections from animal sources . Primary preventive measures include regular hand washing, social distancing, and respiratory hygiene (covering mouth and nose while coughing or sneezing).[1-4]

Healthcare workers (HCWs) are at the frontline of COVID-19 pandemic response and are exposed to dangers like pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout and stigma, and physical violence Guidelines for healthcare workers and online refresher courses have been developed by WHO, CDC, and various governmental organizations in various countries to boost the knowledge and prevention strategies .[3,4]

Healthcare workers' adherence to control measures is affected by their knowledge, attitudes, and practices (KAP) towards COVID-19.HCWs were at a high risk of getting the virus within medical facilities and also transmission to other patients within the community. Therefore, it is crucial to

understand the knowledge of the medical providers and determine the factors that affect their attitudes and practices to have adequate practices and protection. Thus, this study aimed to assess the KAP among healthcare workers towards COVID-19 infections during the ongoing pandemic.[2-4]

This study aimed to assess the knowledge and attitude toward COVID-19 among HCWs at Sultania Zanana Hospital.The findings will help authorities organize the necessary educational programs in order to provide up-to-date information and deliver the best practice to control the COVID-19 disease.

Materials and methods

The study was carried on the doctors, staff nurses, technicians, working in hospital. Cross-sectional surveys through the questionnaire & discussion were done to assess the knowledge and attitude; the team to assess the practices conducted observational surveys.

Inclusion criteria All health care workers including consultants, residents, interns, sisters and paramedical staff.

Exclusion criteria Healthcare workers not working in sultania zanana hospital.

The questionnaire consisted of questions assessing demographics; information source; knowledge, attitude, and practice towards COVID-19; and perceived barriers to infection control (see online supplementary material). Demographic characteristics included were gender, age, profession and experience, and one item regarding source of information about COVID-19. After noting the responses to the questionnaire, the intervention was made by conducting interactive sessions with audio-

visual aids to provide basic knowledge about COVID-19 protocols. After this intervention, a self-assessment test (SAT) was given followed by the session & finally SAT was reviewed.

Observation chart

The present study was conducted on 38 healthcare providers to assess the knowledge, attitude and practice among them regarding COVID 19 infection.

Table 1: Knowledge regarding covid 19 infections among health care providers

Knowledge about COVID 19		Frequency (n=38)	Percentage
Source	Television	24	63.2
	Newspaper	21	55.3
	Internet	33	86.8
	Medical journal	17	44.7
	Hospital training	24	63.2
	Others	2	5.3
COVID is viral infection	Yes	37	97.4
	No	1	2.6
Mode of transmission	Aerosol	25	65.8
	Feco-oral	2	5.3
	Aerosol and feco-oral	5	13.2
	Aerosol, other	4	10.5
	Other	2	5.3
Sign and symptoms	Fever	37	97.4
	Cough	36	94.7
	Sore throat	35	92.1
	Gastrointestinal	24	63.2
	Breathlessness	36	94.7
Vaccine availability	Yes	6	15.8
	No	28	73.7
	Maybe	4	10.5
Antibiotics availability	Yes	10	26.3
	No	25	65.8
	Maybe	3	7.9
Incubation period	1-14 days	36	94.7
	20 days	1	2.6
	Don't know	1	2.6

Table 2: Attitude of study participants towards covid 19 infection

Attitude towards COVID 19		Frequency (n=38)	Percentage
Probability of getting ill by the COVID infection	Yes	13	34.2
	No	4	10.5
	May be	21	55.3
Worried about family members	Yes	33	86.8
	No	1	2.6
	May be	4	10.5
Mode of stopping transmission	Handwashing	3	7.9
	Handwashing, sanitizing hands and mask	3	7.9
	Handwashing, sanitizing hands, mask and PPE	29	76.3
	Handwashing and mask	1	2.6
	Handwashing, mask and PPE	1	2.6
	Sanitizing hands	1	2.6
COVID 19 can be reduced by active participation of HCW	Yes	28	73.7
	No	8	21.1
	Maybe	2	5.3
Will you get vaccinated if vaccine is available	Yes	34	89.5
	No	2	5.3
	Maybe	2	5.3

Table 3: Safety practices followed by health care providers during pandemic

Safety Practice		Frequency (n=38)	Percentage
Practicing social distancing at work place	Yes	31	81.6
	No	5	13.2
	May be	2	5.3
Distance of social distancing	1 meter	5	13.2
	2 meter	21	55.3
	6 meter	11	28.9
	8 meter	1	2.6
Using surgical mask	White side in	30	78.9
	White side out	8	21.1
Suspect and confirmed patients clinically assigned as mild and very mild should be accommodated in COVID Care Centers(CCC) or Covid quarantine ward	True	33	86.8
	False	5	13.2
Time of handwashing with soap and water	20-30 sec	23	60.5
	40-60 sec	6	15.8
	2 minutes	9	23.6

You are doing rounds with the doctor and you have not touched anything and move on to the next patient. Your colleague told you that you should have used the handrub	True	34	89.5
	False	4	10.5
If you are taking a blood sample and someone calls you for something urgent in the next bed. Will you run without discarding your gloves	True	1	2.6
	False	37	97.4
Surgical mask protect against infection	Yes	16	42.1
	No	22	57.9
Using PPE while sitting at registration desk	Eye Protection	2	5.3
	Gloves	1	2.6
	Mask	13	34.2
	PPE	22	57.9

Results

Most common sign and symptoms of COVID known by participants was fever (97.4%), followed by cough and breathlessness (94.7% each). About 15.8% and 26.3% participants answered that vaccine and antibiotics respectively are available for COVID 19 infection. Knowledge regarding incubation period of COVID 19 was correct (1-14 days) in 94.7% participants. Probability of getting infected was documented by 34.2% participants, and 86.8% participants were worried about their family. Majority of participants i.e. 76.3% documented that handwashing, sanitizing hands, using mask and PPE are efficient in stopping the transmission of COVID infection. In present study, 73.7% participants showed positive attitude for active participation to reduce COVID 19 infection and 89.5% were willing for vaccination.

Our study documented that about 81.6% participants were practicing social distancing and among them, 31.5% participants were practicing social distancing for more than 6 meters. About 78.9% participants were using mask with white side in and 21.1% were wearing mask with white side out. Out of 38 participants, 33 (86.8%) participants accommodated mild and very mild COVID 19

infected cases in Covid care centre or quarantine ward. All the participants were practicing hand washing with soap and water and among them, 23.6% and 15.8% participants were practicing hand washing for 2 minutes and 40 to 60 seconds respectively. When asked by colleague to use hand rub while moving on to the next patient without touching anything at previous patients, majority of participants answered this to be a correct practice (89.5%). However, majority of participants documented that helping someone after taking blood sample without discarding gloves to be incorrect practice (97.4%). About 42.1% participants answered that surgical mask protect against infection whereas majority i.e. 57.9% participants followed by 34.2% participants were using PPE and mask respectively while their work on registration desk.

Statistical analysis:

Descriptive and inferential statistics were applied using SPSS Version 21 (IBM Corp.). Chi-squared test, independent sample t-test and one-way analysis of variance were used to compare differences in knowledge, attitude and practice of HCWs by demographic characteristics. Pearson's rank correlation test was used to identify any correlation between knowledge, attitude and practice. A binary

logistic regression analysis was applied to identify possible determinants of good knowledge and practice, with results expressed as odds ratio (OR) and 95% CI. $P < 0.05$ was considered to indicate significance in all tests. Reliability was calculated using SPSS Version 20 (IBM Corp., Armonk, NY, USA), and Cronbach's alpha was 0.77.

Discussion

A Cross-sectional survey from Pakistan was done by Saqlain M et al regarding knowledge, attitude, practice and perceived barriers among healthcare professionals regarding COVID-19. It was a multi-centric cross-sectional survey-based study, which was conducted in March 2020 during a period of strict lockdown to implement social distancing in order to avoid the spread of COVID-19. A questionnaire was designed on Google forms, and a link was shared to WhatsApp groups of HCWs. [5]

Similar survey on COVID-19 awareness among healthcare students and professionals in Mumbai metropolitan region was done by Modi P D, Nair G et al. It was a questionnaire-based survey. This is the first Indian study that evaluates the awareness of COVID-19 among healthcare students and professionals. In the midst of this crisis, the Indian health ministry has proposed to provisionally permit medical undergraduates of senior grades to treat COVID-19 patients. This move could help plug the shortage of healthcare professionals and potentially provide care to a large number of people. Hence, students from various healthcare professions were included in our study. This study showed that there is a strong need to implement periodic educational interventions and training programs on infection control practices for COVID-19 across all healthcare professions. Conducting periodic webinars for educational intervention for all healthcare students and professionals including non-clinical and administrative staff, paramedical and nursing sub-groups could be a useful and safe tool to create more awareness.[6]

Zhou M, Tang F et al did a cross-sectional survey regarding Knowledge, attitude and practice among health care workers in Henan, China. Huynh G et al did similar studies. Both the studies analysed healthcare workers' (HCWs) knowledge, practices, and attitudes regarding coronavirus disease 2019 (COVID-19). In addition to knowledge level, some risk factors including work experience and job category influenced HCWs' attitudes and practice concerning COVID-19. Measures must be taken to protect HCWs from risks linked to job category, work experience, working hours, educational attainment, and frontline HCWs.[7,8]

Roy D, Tripathy S et al did study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Novel Corona Virus Disease (COVID-19) originating from China has rapidly crossed borders, infecting people throughout the whole world. This study attempted to assess the knowledge, attitude, anxiety experience, and perceived mental healthcare need among adult Indian population during the COVID-19 pandemic. An online survey was conducted using a semi-structured questionnaire using a non-probability snowball sampling technique. The responders had a moderate level of knowledge about the COVID-19 infection and adequate knowledge about its preventive aspects. The attitude towards COVID-19 showed peoples' willingness to follow government guidelines on quarantine and social distancing. The anxiety levels identified in the study were high. There is a need to intensify the awareness and address the mental health issues of people during this COVID-19 pandemic.[9-11]

In various other studies, Assessment of knowledge, attitudes, and perception of health care workers regarding COVID-19 was done and it was found that inadequate knowledge and incorrect attitudes among HCWs can directly influence practices and lead to delayed diagnosis, poor infection control practice, and spread of disease. A positive correlation

between knowledge and attitude scores was detected. Unavailability of personal protective equipment (PPE), fear of transmitting the disease to their families, and social stigma were the most frequently reported reasons for increased risk perception. The overall knowledge level of HCWs was generally good especially among physicians. A positive attitude was detected among allied health professionals more than physicians were. Risk perception was high among HCWs. [10-13]

Elhadi M did assessment of healthcare workers' levels of preparedness and awareness regarding COVID-19 infection in low-resource settings. This was also similar to our study. A significant number of healthcare workers expressed low levels of awareness and preparedness regarding COVID-19. This raises a concern regarding the ability of the Libyan healthcare system and its healthcare workers to combat COVID-19 infection. Despite these concerns, along with the poor local healthcare infrastructure in Libya, healthcare workers continue to work during COVID-19, risking their lives to save their patients. Meanwhile, no official courses or training programs are available, and healthcare workers have to purchase PPE themselves, as they are not provided by the hospitals in adequate amounts. Our study provides considerable insights into the necessity of immediate and determined efforts focused on training programs and providing an adequate supply of PPE to alleviate these challenges during the COVID-19 pandemic.[14]

Wang YX et al studied factors associated with post-traumatic stress disorder of nurses exposed to corona virus disease. This study aimed to investigate the factors potentially involved in the level of PTSD of Nurses. Nurses exposed to COVID-19 from HuBei China with job satisfaction, male and positive coping had low PCL-C scores which necessitate reducing the PTSD level by ways of improving job satisfaction, positive response, and strengthening the psychological counseling of female nurses in order to reduce

the risk of psychological impairment. Rahmanian M et al also did a similar study on anxiety and stress of new coronavirus (COVID-19) in medical personnel.[15,16]

Amin S studied the psychology of coronavirus fear. He investigated if healthcare professionals suffering from corona-phobia. This study used a qualitative and quantitative approach to measure Covid-19 pandemic's impact on psychological well-being. At the moment, the world is fearing from this widespread pandemic, its outbreak and has no idea how it is leaving psychological effects on human well-being. This study suggests the government need to provide medical facilities/equipment with those healthcare professionals who are frontline soldiers in treating quarantine patients.[17]

There is moderate awareness related to transmission and symptoms of COVID-19 among educated population in India. There is adequate awareness among public regarding preventive measures for COVID-19 infection. There is a positive attitude of public towards social-distancing, avoiding party and travel and maintaining hygiene. People report anxiety, worries, and paranoia about acquiring infection and sleep disturbances during this pandemic. More than 80 % people perceive mental healthcare need to deal with their issues during this COVID-19 pandemic.[18,19]

Conclusion

This study found out that there is a positive correlation between knowledge regarding COVID-19 among healthcare workers and appropriate clinical practices. Healthcare workers practice is directly correlated with their attitude. Education and training on protection and protective measures are required to improve positive attitude and better practices at work during the COVID-19 pandemic response. This study provides an overview of healthcare workers preparedness regarding the pandemic. Moreover, educational initiatives, along with more

tangible forms of support, such as the provision of PPE, should be carried out to help developing countries improve their abilities to control and prevent COVID-19 infection.

Declarations:

Funding: None **Conflicts of interest/Competing interests:** None
Availability of data and material: Department of Obstetrics and Gynaecology Gandhi Medical College, Sultania Zanana Hospital, Bhopal **Code availability:** Not applicable **Consent to participate:** Consent taken **Ethical Consideration:** There are no ethical conflicts related to this study. **Consent for publication:** Consent taken

What this study add to existing knowledge

This study showed that there is a strong need to implement periodic educational interventions and training programs on infection control practices for COVID-19 across all healthcare professions. Conducting periodic webinars for educational intervention for all healthcare students and professionals including non-clinical and administrative staff, paramedical and nursing sub-groups could be a useful and safe tool to create more awareness.

Limitation

Sampling for the study was conducted via a convenience, sample as a result, there is a possibility of bias. Additionally, when compared to current population statistics in hospital, the sample of the study were over-representative of women, people below the age of 50, and those employed in the public sector. Therefore, there are limitations to the representativeness of the findings. A further limitation of the present study is the possibility of participants giving socially desirable responses. As this study used self-reported data, it is possible that participants will have answered attitude and practice questions positively based on what they perceive to be expected of them.

Contribution by different authors

First author Dr Shabana Sultan Professor Department of Obstetrics and Gynaecology Gandhi Medical College, Sultania Zanana Hospital, Bhopal Concept and Guidance

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