



## RESEARCH ARTICLE

### GLOBAL PANDEMIC COVID-19 DISEASE TRANSMISSION AND PREVENTION AWARENESS AMONG THE HEALTH CARE STUDENTS AND PROFESSIONALS IN EASTERN & NORTH EAST REGIONS OF INDIA

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#### ABSTRACT

Coronavirus are a large family of virus which may cause illness in animals and humans. In humans, several coronavirus are known to cause respiratory infections ranging from the common cold to more severe disease such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus causes coronavirus disease Covid19 and it has a global pandemic outbreak from Dec, 2019. Health care workers are at the front line of any outbreak response and such are exposed to hazards that put them at risk of infection with an outbreak pathogen (in this case COVID-19).<sup>1</sup> The awareness about the disease, its sign and symptoms, transmission, conservative treatment, preventive measures etc. should be known to the health care workers. Keeping this point in mind, investigators were interested to gather information from the health care students and working professionals related to awareness of the pandemic COVID-19.

##### Objectives of the Study:

- To collect the baseline information of the health care students and working professionals.
- To assess the knowledge regarding Covid-19, its transmission, progression and prevention.

**Materials and Methods:** A web based descriptive survey research design was used for the study to accomplish the objectives. As it was the lock down period the tool was distributed through the Google forms created for the research data collection. One hundred thirty four (134) health care professionals working in various organization of eastern and north eastern region of India participated in this study from the period of 15<sup>th</sup> April 2020 till 30 April, 2020. The tools used to collect the information from the participants are the demographic data to collect the back ground information and structured knowledge questionnaire (Total no. of items were 22) to collect the information about their knowledge on Covid-19.

**Results:** The overall awareness among health care students and professionals were good and very good respectively. 87% (n=134) knew that the transmission occurred through contact and droplet air route which shows they have good knowledge. 84% could response correctly on the clinical symptoms of Covid 19 which also interprets that they have very good knowledge. Majority (60%, n=134) of health care personnel responded that the individual with COVID -19 can transmit the virus to other individual after only having or developing fever which interprets they have average knowledge. 100% (n=134) responded that the hand hygiene is an important standard precaution for general infection prevention and control which is a very good knowledge score. 73% (n=134), (good knowledge score) responded that PCR is an important diagnostic tool used to diagnose SARS CoV-2.

#### INTRODUCTION

According to the World Health Organization (WHO), viral diseases continue to emerge and represent a serious issue to public health. In the last twenty years, several viral epidemics such as the severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 to 2003, and H1N1 influenza in 2009, have been recorded. Most recently, the Middle East respiratory syndrome coronavirus (MERS-CoV) was first identified in Saudi Arabia in 2012. In a timeline that reaches the present day, an epidemic of cases with unexplained low respiratory infections detected in Wuhan, the largest metropolitan area in China's Hubei province, was first reported to the WHO Country Office in China, on December 31, 2019.

Published literature can trace the beginning of symptomatic individuals back to the beginning of December 2019. On February 11, 2020, the WHO Director-General, Dr. Tedros Adhanom Ghebreyesus, announced that the disease caused by this new CoV was a "COVID-19," which is the acronym of "coronavirus disease 2019".<sup>1</sup> A cross sectional web based study conducted by Akshaya HYPERLINK "[https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor\\_uid=32320381](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor_uid=32320381)" HYPERLINK "[https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor\\_uid=32320381](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor_uid=32320381)" Srikanth HYPERLINK "[https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor\\_uid=32320381](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor_uid=32320381)" HYPERLINK "[https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor\\_uid=32320381](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhagavathula%20AS%5BAuthor%5D&cauthor=true&cauthor_uid=32320381)" Bhagavathula, et al (March 2020) on Knowledge

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and Perceptions of COVID-19 among Health Care Workers. 529 participants, a total of 453 HCWs completed the survey (response rate: 85.6%); 51.6% (n=234) were male, 32.1% (n=147) were aged 25-34 years, and most were doctors (n=137, 30.2%) and medical students (n=134, 29.6%). Most participants (n=276, 61.0%) used social media to obtain information on COVID-19. A significant proportion of HCWs had poor knowledge of its transmission (n=276, 61.0%) and symptom onset (n=288, 63.6%) and showed positive perceptions of COVID-19. Factors such as age and profession were associated with inadequate knowledge and a poor perception of COVID-19.<sup>2</sup> An online cross sectional, descriptive study was undertaken through WhatsApp Messenger among HCWs in four MUTHs by Ronald HYPERLINK "https://www.frontiersin.org/people/u/946826"Olum (April, 2020) et al at Uganda. HCWs aged 18 years and above constituted the study population. KAP toward COVID-19 was assessed by using a pre-validated questionnaire. Bloom's cut-off of 80% was used to determine sufficient knowledge ( $\geq 80\%$ ), positive attitude ( $\geq 4$ ), and good practice ( $\geq 2.4$ ). All analyses were performed using STATA 15.1 and GraphPad Prism 8.3. Of the 581 HCWs approached, 136 (23%) responded. A vast majority of the participants were male (n = 87, n = 64%), with a median age of 32 (range: 20–66) years. Eighty-four (62%) were medical doctors and 125 (92%) had at least a bachelor's degree. Overall, 69% (n = 94) had sufficient knowledge, 21% (n = 29) had positive attitude, and 74% (n = 101) had good practices toward COVID-19. Factors associated with knowledge were age >40 years (aOR: 0.3; 95% CI: 0.1–1.0; p = 0.047) and news media (aOR: 4.8; 95% CI: 1.4–17.0; p = 0.015). Factors associated with good practices were age 40 years or more (aOR: 48.4; 95% CI: 3.1–742.9; p = 0.005) and holding a diploma (aOR: 18.4; 95% CI: 1–322.9; p = 0.046)<sup>3</sup>. Health care students and professional's awareness about the disease, its sign and symptoms, transmission, conservative treatment, preventive measures etc. should be known to the health care students and professionals. Keeping this point in mind, investigators were interested to gather information from the health care professionals related to awareness of the pandemic COVID-19.

### Objectives of the Study

- To collect the baseline information of the health care professionals.
- To assess the knowledge regarding Covid-19, its transmission, progression and prevention.

### MATERIALS AND METHODS

A descriptive survey research design was used for the study to accomplish the objectives. As it was the lock down period the tool was distributed through the Google forms created for the research data collection. One Hundred thirty four (134) health care professionals working in various organization of eastern and north eastern region of India participated in this study from the period of 15<sup>th</sup> April 2020 till 30 April, 2020. The tools used to collect the information from the participants are the demographic data to collect the back ground information and structured knowledge questionnaire (Total no. of items were 22) to collect the information about their knowledge on Covid-19. Rating scale was developed as score of 10-30 = poor knowledge score, 31- 60= average knowledge score, 61- 90 = Good knowledge score and more that 90= very good). Descriptive and Inferential statistics were used to analyse the

data. The frequency and percentage was calculated to assess the knowledge score of the health professionals.

### RESULTS

Table 1 : Majority (54.47%) of health care personals are in the age group of 21-25 years, majority (92.54%) are female ,53% are in the graduate level of education, 62.7% are working / studying in the private organization, 52.4 % are nursing students undergoing their course of studies, 97.7% having 0-4 years of experience as health care professionals, 73.13% are having knowledge of Covid19 pandemic through internet/social media, 97% does not have any experience in treating /assisting or managing Covid -19 patients and 92.54% doesn't have any previous experience of managing SARS/MERS CoV or H1N1 patients.

**Knowledge of health care professionals regarding covid-19, its transmission, progression and prevention:** 42% (n=134) health care professionals know that the disease Covid 19 pandemic was transmitted from bat which interprets that they have average knowledge on disease transmission. 87% (n=134) also know that the transmission occurred through contact and droplet air route which shows they have good knowledge. 84% could response correctly on the clinical symptoms of Covid 19 which also interprets that they have very good knowledge. Majority (60%, n=134) health care personnel responded that the individual with COVID -19 can transmit the virus to other individual after only having or developing fever which interprets that they have average knowledge. 100% (n=134) responded that the hand hygiene is an important standard precaution for general infection prevention and control which is very good knowledge score. 66 % (n=134) professionals responded (Average knowledge score) that the people with contact history with the COVID-19 confirmed case should be immediately quarantined for a period of 7days. 73% (n=134), (good knowledge score) responded that PCR is an important diagnostic tool used to diagnose SARS CoV-2.

Health care personnel's knowledge towards COVID-19 (N=134) 51.49% agreed that the CoVid can be a successfully controlled pandemic, 64.92% agreed on using standard precautions practices and wearing N-95 masks the disease transmission can be prevented. 85.82% agreed on that the authentic and scientific based information should be circulated among the citizens so that the stigma and fear can be reduced. 98.50% health care professionals agreed upon that the suspected COVID cases should be kept in isolation. 94.77% agreed on that the citizen of our country should behave in a civilized manner to prevent the spread of the Covid 19 virus. 100% (n=134) responded that during lock down they have not visited any crowded place and also maintained social distancing and govt. guidelines. 97.77% responded that they have worn mask while leaving from home. 91.05% responded that they have maintained hand hygiene more frequently as compared to earlier days. 86.56% responded towards restricted social visits or calling people at home.

### DISCUSSION

Health workers are at the front line of the COVID-19 outbreak response and as such they are exposed to just below the table no.2.2. Hazards include pathogen exposure, long working hours, psychological distress, fatigue, occupational

**Table 1. Frequency and percentage distribution of participants according to base line variables**

BASE LINE VARIABLES	N=134	
	FREQUENCY (f)	PERCENTAGE (%)
1.Age in years		
15-20	46	34.33
21-25	73	54.47
26-30	15	11.2
2.Gender		
Male	9	6.72
Female	124	92.54
Prefer not to say	1	0.74
3.Qualification		
MBBS/ Graduate	71	53
Diploma	39	29.10
Master's degree	24	17.90
4.Type of health care setting in your institute:		
Government		
Private	30	22.38
Trust/Charity	84	62.70
	20	14.92
5.Occupation		
Nurse	62	46.26
Student	70	52.24
Others	2	1.5
6.Year of experience working as a healthcare professional		
0-4 years	131	97.76
5-10 years	3	2.24
7. What is your primary source of knowledge about COVID-19?		
Internet/Social media	98	73.13
TV/Newspaper	8	5.97
Textbooks/Journals/Institutional lectures	28	20.90
8. Have you ever treated/assisted in managing a COVID-19 patient?		
Yes	3	2.30
No	130	97
Maybe	1	0.70
9. Do you have previous experience in management of SARS/ MERS-CoV or H1N1?		
Yes		
No	10	7.46
	124	92.54

**Table 2.1: Health care personnel's knowledge towards COVID-19 (N=134)**

SL NO.	Items specific to transmission of the disease and its prevention	Agree		Strongly agree		Disagree	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	Do you agree that COVID-19 will finally be successfully controlled globally?	69	51.49	22	16.41	43	32.1
2	Do you agree that transmission of COVID-19 infection can be prevented using standard precautions including wearing N95 mask?	87	64.92	0	-	47	35.08
3	Do you feel that any authentic and scientific related information about COVID-19 should be shared among peers and other healthcare workers?	115	85.82	0	-	19	14.18
4	Suspected or confirmed COVID-19 patients should be kept in isolation.	132	98.50	0	-	2	1.5
5	Do you believe that people should behave in more civilized and responsible way to prevent spread of the transmission in a country?	127	94.77	0	-	7	5.23

Table.2.2 Frequency and percentage distribution regarding COVID-19 (N=134)

SL NO.	General Information	Yes		No	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	During lockdown period, have you gone to any crowded place?	0	-	134	100
2	During COVID-19 outbreak, have you followed the instructions of government authority for social distancing to prevent transmission?	134	100	0	-
3	In recent days, have you worn a mask (any types) when leaving home?	131	97.77	3	2.23
4	In recent days, do you wash your hands more frequently than earlier?	122	91.05	4	8.95
5	In recent days, have you stopped calling other people at your home?	116	86.56	18	13.44

burnout, stigma, physical and psychological violence. They should follow the WHO guidelines for use of PPE, hand hygiene, wearing of N-95 masks etc. A Questionnaire-Based Survey study was conducted by [Pranav HYPERLINK "https://www.cureus.com/users/29877"](https://www.cureus.com/users/29877) D. [HYPERLINK "https://www.cureus.com/users/29877"](https://www.cureus.com/users/29877) Modi, et al on COVID-19 Awareness among Healthcare Students and Professionals in Mumbai Metropolitan Region. The overall awareness for all subgroups was adequate with 71.2% reporting correct answers. The highest percentages of correct responses were from undergraduate medical students and the lowest was from non-clinical/administrative staff. Less than half of the total respondents could correctly define "close contact." More than three-fourths of the responders were aware of the various infection control measures like rapid triage, respiratory hygiene, and cough etiquette and having a separate, well ventilated waiting area for suspected COVID-19 patients. However, only 45.4% of the responders were aware of the correct sequence for the application of a mask/respirator, and only 52.5% of the responders were aware of the preferred hand hygiene method for visibly soiled hands <sup>4</sup>.

### Conclusion

Continued professional education is advised among HCWs in India to improve knowledge of HCWs hence averting negative attitudes and promoting positive preventive and therapeutic practices. We recommend more follow up studies involving teaching and non-teaching hospitals across the country.

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