

COVID-19 appropriate behavior: Are the health care workers of Arunachal Pradesh competent enough to fight the pandemic?



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ABSTRACT

Background: COVID-19 is caused by coronavirus, first identified in Wuhan, China in December 2019, spread rapidly across international borders, and was declared pandemic on March 11, 2020. Occupation hazards such as close patient contact, suboptimal hand washing, inadequate use of personal protective equipment (PPE), and breach in infection control measures pose higher risk to health care workers (HCWs). **Aims and Objectives:** The objectives of the study are as follows: (1) To assess knowledge, beliefs, and practices of HCWs of a tertiary care hospital in Arunachal Pradesh regarding COVID appropriate behavior. (2) To create awareness and thereby prevent the spread of infections. **Materials and Methods:** A stratified sampling technique was applied to identify the study participants. A pre-tested and semi-structured questionnaire was administered to assess their knowledge, beliefs, and practices toward COVID-19. All departments (study units) were enlisted, all the HCWs were stratified according to their profession, for example, doctors, nurses, pharmacists, laboratory technician, and other HCWs. From each stratum, HCWs were randomly selected using simple random sampling and interviewed. **Results:** We found, 96.18% wore mask properly, 74.81% maintained physical distancing, and 55.34% greeted without physical contact while only 24.05% maintained respiratory hygiene. Mask was observed to be the most commonly known preventive measure (85.5%), followed by hand hygiene (69.47%), physical distancing (56.49%), and PPE kits (17.56%). It was observed that 53.44% of HCWs relied on government source of information. **Conclusion:** Most of the HCWs were practicing COVID appropriate behavior and the vaccination coverage was high among the HCWs (up to 2nd dose).

Key words: Covid appropriate behaviour; Health care workers; Arunachal Pradesh; Covid-19

INTRODUCTION

Coronavirus disease 2019, an infectious disease, is caused by severe acute respiratory syndrome-corona virus-2 (SARS-CoV-2), a novel coronavirus.¹ First identified in Wuhan, China, in December 2019, it spread rapidly across international borders and was declared a Public Health Emergency of International Concern (PHEIC) by the WHO on January 31, 2020 and subsequently declared as a pandemic on March 11, 2020.²

As of May 15, 2022, over 518 million confirmed cases and over six million deaths have been reported globally.³

Healthcare workers (HCWs) are at highest risk due to the nature of their work,⁵ such as close person-to-person contact, suboptimal hand washing, inadequate use of Personal Protective Equipment (PPE), and breach in infection control measures.

A retrospective study revealed that 12.5% of COVID-19 cases were among HCWs in Saudi.⁶

Between January 2020 and May 2021, surveillance data reported to the WHO showed that out of the 3.45 million COVID-19-related deaths, only 6643 were in HCWs. On further evaluation through a population-based estimate,

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it appears that around 1,15,500 HCWs (ranging between 80,000–16,00,001) out of the global health care workforce of 135 million people could have lost their lives.⁷

Health work force is a valuable and irreplaceable resource of a nation playing a significant role in control and management of pandemic. Numerous researches have been done to gauge preventive practices of HCWs but there is dearth of studies evaluating profuse aspects of such practices comprehensively.⁸ As of Arunachal Pradesh, there is negligible number of studies done regarding this matter.

This study was done to fill this gap and evaluate the adherence of various HCWs to preventive practices against COVID-19 in a medical college, and to identify the loopholes in the system so that they can be acknowledged by the policymakers to take correct and optimal steps to promote the workplace safety of HCWs.

Research question

Are the health care workers (HCWs) in Arunachal Pradesh competent enough to fight the pandemic?

Aims and objectives

The objectives of the study are as follows:

1. To assess the knowledge, perceived beliefs, and practices of HCWs of a tertiary care hospital in Arunachal Pradesh regarding COVID-19 appropriate behavior.
2. To create awareness among HCWs and thereby prevent the spread of infections in all healthcare settings.

MATERIALS AND METHODS

A stratified sampling technique was applied to identify the study samples. After HCWs were selected from each study unit, a pre-tested and semi-structured questionnaire was administered to assess their knowledge, beliefs, and practices toward COVID-19.

Using prevalence of 81.5%⁹ as the correct response rate for the mean knowledge score on COVID appropriate behavior among HCWs and with 95% confidence level, sample size was calculated to be 231. Assuming a non-response rate of 10%, total sample size was calculated to be 253 which was rounded off to 250 for convenience.

Since there is only one tertiary care hospital in Arunachal Pradesh, that is, TRIHMS, it was selected as the study area. All the departments were then enlisted (study units). From each study unit, all the HCWs were stratified according to their profession, for example, doctors, nurses, pharmacists, laboratory technician, and other HCWs. From each stratum in each study unit, HCWs were proportionally selected

using simple random sampling and interviewed. The process was continued equally in every study unit until the desired sample size was acquired. A flow chart showing the sampling design is given in Figure 1.

Inclusion criteria

All HCWs who were willing and gave consent to take part in the study were included in the study.

Exclusion criteria

All HCWs who did not wish to participate or did not give consent for the study were excluded from the study.

Data collection

After HCWs were selected from each study unit and after obtaining informed consent, a pre-tested and semi-structured questionnaire was administered to assess their knowledge, beliefs, and practices toward COVID-19.

Study instruments

A pre-tested and piloted semi-structured questionnaire was used for observation (10 min observation per participants) and interview of HCWs.

The questionnaire included a observational checklist and interview developed from the GOI guideline “An illustrated Guide on COVID Appropriate Behavior.”¹⁰

The participants were observed for 10 min each during their work environment and after that the sociodemographic and k-p assessment part of the questionnaire was filled up by one-to-one interview.

Data analysis

Data entry, compilation, cleaning, and analysis was done in Microsoft Excel software.

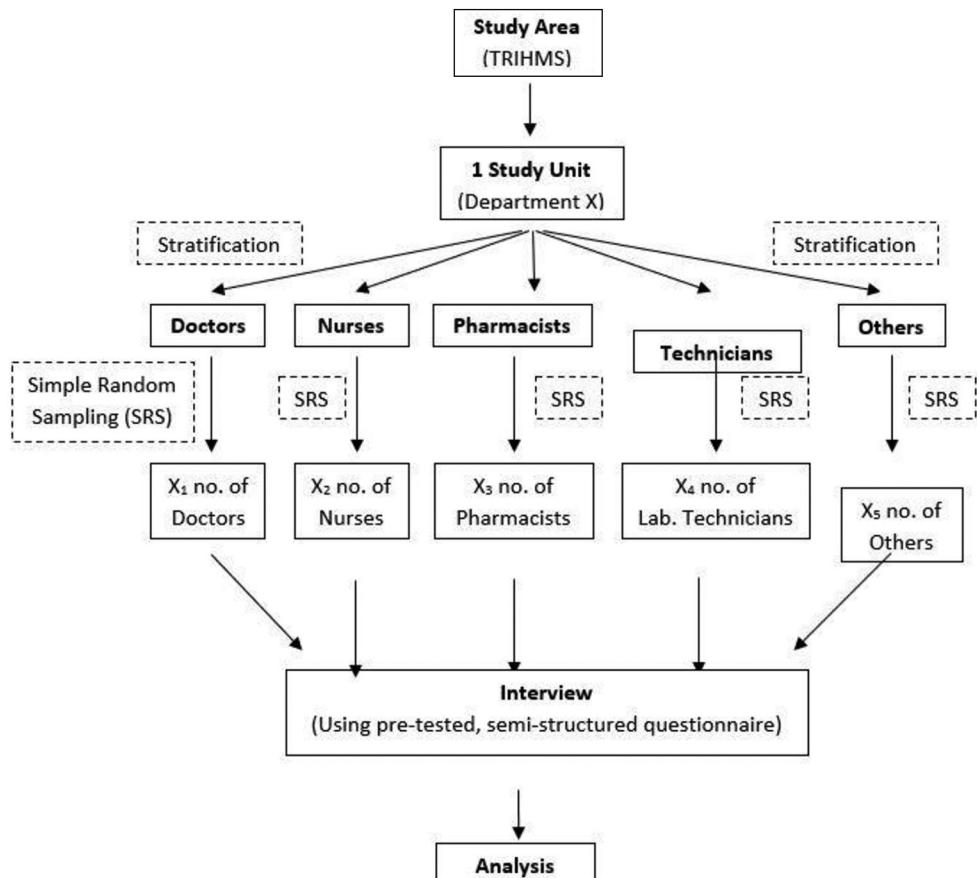
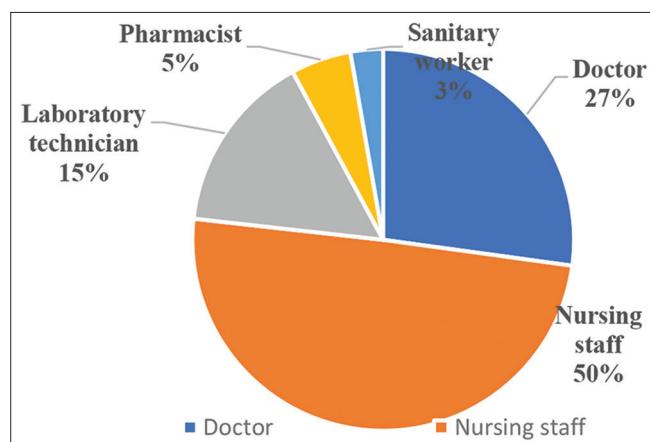
Ethical clearance

Ethical clearance was obtained from the Institutional Ethics Committee (Human) and Institutional Review Board before the start of study (letter no. TRIHMS/ETHICS/01/2019-31, dated May 7, 2022). Informed consent was obtained from the participating HCWs before data collection.

RESULTS

The total number of subjects participated in the study was 262. Median age was 28.5 years with a range of 18–60 years. Median work experience was 3 years with a range of 2 months–35 years (Table 1).

Among all HCWs, 27% were doctors, 50% nursing staffs, 15% laboratory technicians, 5% pharmacists, and 3% sanitary workers (Figure 2).

**Figure 1:** Flowchart showing the sampling design technique used for the study**Figure 2:** Assessment of knowledge of health care workers regarding prevention of COVID-19**Table 1: Demographic characteristics (N=262)**

Parameter	Variable	Count	Percentage
Gender	Male	79	30.15
	Female	183	69.85
Marital status	Married	104	39.69
	Unmarried	158	60.31

The majority of the HCWs were vaccinated with the second dose (66.41%) while 3.82% remained unvaccinated (Table 2).

From the observed checklist, 74.81% maintained physical distancing (> 6 feet), 96.18% wore mask properly, and 55.34% greeted without physical contact, while only 24.05% maintained respiratory hygiene (covered nose and mouth while coughing or sneezing with tissue or handkerchief or bent elbow and washed hands immediately) (Table 3).

Regarding assessment of knowledge, mask was observed to be the most commonly known preventive measure (85.5%), followed by hand hygiene (69.47%), physical distancing (56.49%), and PPE kits (17.56%). About 5.34% of the HCWs were aware of the correct hand washing duration for prevention of infection (Figure 3).

Enquiring about routes of transmission of the disease, a variable amount of confusion was seen among different strata of HCWs. About 72.52% HCWs admitted aerosol to be the mode of transmission and 55.34% to be physical contact (Table 4).

About 21.76% of the HCWs attended mass gathering even during these times of social distancing (Figure 4).

It was observed that 53.44% of HCWs relied on government source of information. Although 39% of

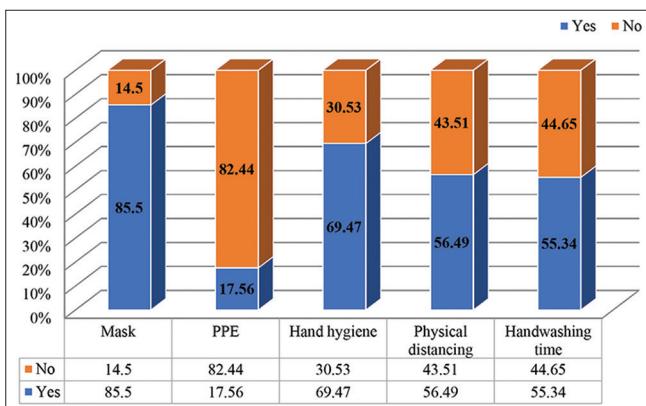


Figure 3: Assessment of knowledge of health care workers regarding prevention of COVID-19

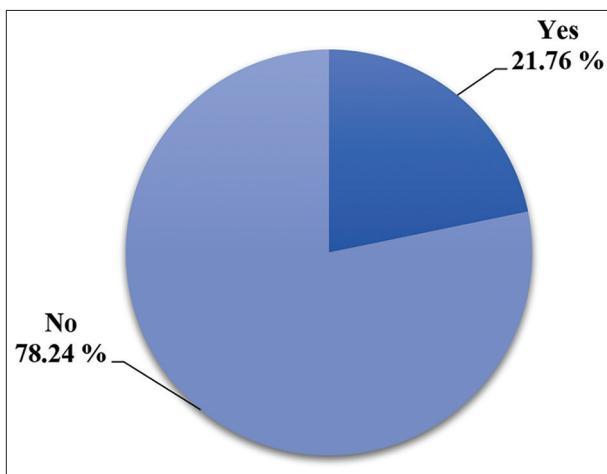


Figure 4: Attended mass gathering in times of social distancing

health workers cross-checked the information for reliability, only 11.83% cross-checked from reliable sources such as MoHFW, WHO, and CDC (Table 5).

DISCUSSION

In the present study, 55.34% greeted without physical contact, that is, "Namaste" and "Smile" which helps in reducing the transmission of infection.¹⁶ Physical distancing helps limit the spread of COVID-19, that is, keeping a distance of at least 1 m from each other and avoid spending time in crowded places or in groups.¹⁷ Our study revealed that 74.81% HCWs maintained physical distancing.

Observed mask use in the present study (96.18%) is comparable to Agarwal et al., (86.92%),⁸ Maleki et al., (96.7%),¹¹ and Tien et al., (96.81%).¹² The prevalence of not touching eyes/nose/mouth in the study by Tien et al.,¹² was much higher (95.4%) as compared to the present study (76.34%). This probably could be explained by the better health infrastructure of a developed country and the lack

Table 2: Vaccination status (N=262)

Variable	Count	Percentage
Booster dose	69	26.34
Second dose	174	66.41
First dose	9	3.44
No vaccine	10	3.82

Table 3: Assessment of observation checklist (N=262)

Parameter	Variable	Count	Percentage
Greet without physical contact	Yes	145	55.34
Physical distancing	Yes	196	74.81
Wear mask	Yes	252	96.18
Wear mask properly	Yes	253	96.56
Avoid touching eyes/nose/mouth	Yes	200	76.34
Maintain respiratory hygiene	Yes	63	24.05
Avoid spitting in the open	Yes	252	96.18
Discourage crowd gathering	Yes	160	61.07

Table 4: Knowledge about modes of disease transmission (N=262)

Mode of transmission	Variable	Response	Percentage
Physical Contact	Yes	145	55.34
Fomite	Yes	41	15.64
Aerosol	Yes	190	72.52
Do Not Know	Yes	11	4.19

Table 5: Source of knowledge/information (N=262)

Parameter	Variable	Count	Percentage
Source of information			
Government source	Yes	140	53.44
	No	122	46.56
Social media	Yes	190	72.52
	No	72	27.48
Authenticity/cross checking of information	Reliable	31	11.83
	Unreliable	71	27.10
	No	160	61.07
Aware of national toll free helpline no.	Yes	130	49.62
	No	132	50.38
Aware of psychosocial toll free helpline no.	Yes	77	29.39
	No	185	70.61

of COVID serious regulations in India. Touching one's face can significantly increase the risk of infection with flu or cold viruses and the new coronavirus. A study on hand-to-face contact rate and associated respiratory tract infection revealed that study participants touched their faces 15.7 times on an average per hour.¹⁸

Regarding social distancing by HCWs, another study in Nepal by Limbu et al.,⁹ showed 75% against 56.49% in the present study. Tien et al.,¹² found 96% HCWs maintained respiratory hygiene, while the present finding shows only

24.05%. In the study by Almohammed et al.,¹³ the practice of frequent hand sanitizing by HCWs was found to be 89.2% compared to 57.63% found in the present study.

In a study by Agarwal et al.,⁸ the attitude of HCWs in cleaning and disinfecting frequently touched objects was 41.74% compared to 33.59% found by us. The same study found that 53.14% HCWs wash or sanitize their hands for at least 20 s as compared to 36.26% in the present study.

In the study by Limbu et al.,⁹ 96.1% of the respondent's state that COVID-19 virus spread through respiratory droplets as compared to 55.34% in our study. The present study found that 79.39% HCWs were confident to work in hospital during the pandemic while Limbu et al.,⁹ found 45.6% confident responses.

In the study by Dalky et al.¹⁴ the social discrimination perception of HCWs was found to be 24.8% compared to 35.88% in our study. Domènec-Montoliu et al.,¹⁵ found that 80.5% HCWs attended mass gathering events against only 21.76% in our setting.

In the study done by Tien et al.,¹² the source of information for COVID-19 from government source was found to be 45.7% and from social media was 65.06% as compared to 53.44% from government source and 72.52% from social media as found in our study.

Limitations of the study

Study was done in short period of time. Furthermore, the knowledge at different levels of health workers were not compared in the study.

CONCLUSION

It was observed that the most of the HCWs were practicing COVID appropriate behavior in the form of physical distancing, respiratory hygiene, and hand hygiene, mask being the most common one. The most of the HCWs relied on the government source for information regarding COVID-19. The majority of the HCWs were immunized (two doses) against the SARS-CoV-2.

Based on the findings, the HCWs of AP are competent enough to fight the current pandemic.

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Authors Contribution:

PB- Concept and design of the study, Interpreted the results, and prepared first draft of manuscript; **DP-** Design of the study, reviewed the literature, and manuscript preparation; **MPK-** Concept, coordination, statistical analysis, and interpretation; **KO-** Preparation of manuscript and revision of the manuscript, and **AD-** Design of the study and revision of the manuscript.

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