

# Knowledge, attitudes, and practices towards COVID-19 among hospital staff of West Bengal during COVID-19 outbreak: A hospital based cross sectional study



Amitava Acharyya<sup>1</sup>, Susmita Ghosh<sup>2</sup>, Manas Ghosh<sup>3</sup>, Kalyan Sarkar<sup>4</sup>, Sonali Ghosh<sup>5</sup>, Ambarish Bhattacharya<sup>6</sup>, Kaushik Ghosh<sup>7</sup>

<sup>1</sup>Project Manager, Central Sector Scheme for Promotion of AYUSH Interventions in Public Health Initiatives (PHI)-Ministry of AYUSH (Government of India), New Delhi, <sup>2</sup>Assistant Professor, Department of Anaesthesiology, Murshidabad Medical College, Berhampore, Murshidabad, West Bengal, <sup>3</sup>Assistant Professor, <sup>4</sup>Senior Resident, <sup>5</sup>Junior Resident, <sup>7</sup>Associate Professor, Department of Medicine, Murshidabad Medical College, Berhampore, Murshidabad, West Bengal, <sup>6</sup>Consultant, Nightingale and Monmohini Hospital, Kolkata, West Bengal

Submission: 15-07-2020

Revision: 29-08-2020

Publication: 01-11-2020

## ABSTRACT

**Background:** COVID-19 disease is a highly contagious and totally unknown disease which is caused by SARS-CoV-2. This disease spread throughout the world irrespective of social, economical and political variation. Health care staff are the frontline COVID-19 worrier and their understanding of this disease is very important. **Aims and Objective:** The aim of this study was to assess the knowledge, attitudes and practices (KAP) towards COVID-19 disease among the healthcare staff of a tertiary care hospital of West Bengal. **Materials and Methods:** An analytic cross-sectional study was conducted at Murshidabad Medical College, Murshidabad from 25<sup>th</sup> April, 2020 to 2<sup>nd</sup> May, 2020. A total of 214 health care staff (83 nurses, 75 doctors, 20 para-medical staff, 24 administrative staff, and 12 sweepers) participated in this questionnaire based KAP study. The questionnaire was prepared according to the World Health Organization's on Corona virus disease (COVID-19) "advice for the public". The Systematic random sampling procedure was employed for data collection. The data was analysed using T-test, ANOVA, chi-square test and regression model. The informed consent was taken from each participant. **Results:** Female (62%) participants were more than male (38%) participants. Mean age of the participants was 27.03 ± 7.63 years. About the half participants were unmarried (55%) and studied up to bachelor's degree (49%). The overall knowledge score found to be "medium level" with 77% reporting correct answers. The knowledge score was statistically different among age group, education level, marital status and occupational group of health care staff in this hospital by univariate analysis. The good attitudes and good practices were not related with knowledge score. The majority of the respondents (78%) had confidence on their attitude that "India can win the battle against COVID-19". Only 86% participants wore masks while going out in the lock-down period and 79% participants had not visited any crowded place. Only 18% participants used traditional home remedies for flu like symptoms. In multivariate analysis, doctors were found with better knowledge score and attitude towards COVID-19 than other healthcare staff in this hospital. **Conclusion:** The two preventive practice (social isolation and mask use) and optimistic attitude towards COVID-19 of health care staff were not totally depended on COVID-19 related knowledge score. However, knowledge score was depended on marital status, educational background, age, occupation and place of residence. Government should emphasize more on COVID-19 related health education and health promotion programme at community level.

**Key words:** KAP; COVID-19; Murshidabad; Health care staff

### Access this article online

**Website:**

<http://nepjol.info/index.php/AJMS>

**DOI:** 10.3126/ajms.v11i16.30078

**E-ISSN:** 2091-0576

**P-ISSN:** 2467-9100

Copyright (c) 2020 Asian Journal of Medical Sciences



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

### Address for Correspondence:

Dr. Kaushik Ghosh, Flat no 401, Crystal Apartment, 14/1 Natun Para Road, Murshidabad, West Bengal. **Phone:** +91-9547901343.

**E-mail:** drkaushikghosh@gmail.com

## INTRODUCTION

COVID-19 is a new emerging infectious disease affecting entire World. This disease has changed the life of common people drastically. The World population is in a state of anxiety, panic and uncertainty of the future. This disease was first identified in China in December, 2019. Today this disease has been spread to each and every continent, irrespective of demographic, economic and environmental status of the country.<sup>1</sup> It is one of a deadliest health crisis in the earth after establishment of World Health Organization.

The common sign and symptoms of COVID-19 are almost same like common cold. eg: fever, dry cough, fatigue, myalgia, and dyspnea. But some COVID-19 patients developed severe acute respiratory syndrome, renal failure and coagulopathy disorders which lead to the fatal outcome.<sup>2</sup> The number of death due to COVID-19 is increasing rapidly as well as total number of infectious patients. World Health Organization declared COVID 19 as “public health emergency of international concern” on January 30 and called for collaborative efforts of all countries to prevent the rapid spread of COVID-19.<sup>1</sup> Government of India has also taken numerous steps to prevent and control COVID-19 outbreak in India. In preventive measures, government has suggested different behavioral practices including hand wash with soap, using masks, using alcohol sanitizer, social distancing etc. Additionally, Ministry of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH) has promoting preventive measures. It's included some herbal decoctions, breathing exercise and some natural immunity boosting formulations which are easily available, acceptable and time tested in Indian population.<sup>3</sup>

To deal this pandemic crisis, India needs large number of health care staff and healthcare infrastructures. However, the proportion of healthcare staff and hospital bed are not sufficient as per standard recommendation. So, Government should focus on maximum safety of their health care staff from COVID-19 infection during their duty period. As the health care staff are the main COVID-19 worriers among all essential service providers. It is documented that during the SARS outbreak in 2002, one fifth of all cases were belongs to health care sector.<sup>4</sup> Recently, China's National Health Commission show that more than 3300 health-care workers have been infected with COVID-19 as of early March,2020. In Italy, 20% of responding health-care workers was infected with COVID-19, and some have died.<sup>5</sup> It denotes, that health care staff are in the risk and there need some special attention to protect themselves from COVID-19 infection. Best protection from the COVID-19 infection is to boost up their basic COVID-19 preventive knowledge, attitude and practice. It is also documented that

during SARS outbreak (2003), knowledge and attitudes towards infectious diseases are associated with level of panic emotion among the population, which can further complicate attempts to prevent the spread of the disease.<sup>6</sup>

With the proverb “Prevention is better than cure” the state and central government has promoted the COVID-19 prevention related health messages by different mass-media like radio, television, news-paper, email, local public announcement, telephone, leaflet etc. But there was no evaluation conducted to evaluate the KAP of health care staff on COVID-19 during this time in any hospital of West Bengal. The health care staff's level of understanding and awareness of COVID-19 preventive measures are very essential at this critical time for their own and community health against COVID-19. So, this hospital based study was designed to evaluate the knowledge, attitude and practice of health care providers who are the main COVID worriers.

## MATERIALS AND METHODS

A cross sectional hospital based study was conducted in Murshidabad Medical College in Murshidabad district of West Bengal, India during 25<sup>th</sup> April- 2<sup>th</sup> May, 2020. This district is considered as one of poorest districts of India. This study was conducted during the rising burden of COVID-19 in the World.

All health care staff of this hospital were invited to join in this study. A total 220 health care staffs were participated. Among of them 214 health care staffs 'data were included in this survey by systematic random sampling procedure. Data were collected by face to face interview method. Only health care related staff of this hospital were included. There was no obligation to join in this survey and anybody could withdraw their participation of the survey at any point of data collection. The participation was totally voluntary. The questionnaire was prepared according to suggestion on Corona virus disease (COVID-19) “advice for the public” by World Health Organization.<sup>7</sup>

### Sample size calculation

Assumed the prevalence rate of good practices was 80%. The confidence interval and precision were taken 95% and 5% respectively. The total number of health care staff (population) including PG students in this hospital was 2000. The ultimate sample size was estimated 220, but we only included 214 participants after data collection and data cleaning. Six person's data were incomplete.

### Questionnaire

The questionnaire of this study is the replica of Zhong BL et al study's questionnaire on this matter.<sup>8</sup> The questionnaire

consisted of two sections: Demographic information and KAP. Demographical variables are regarding with age, gender, marital status, education level, occupation, residence. The KAP section (Table 1) consists of 17 questions. Among of them, 13, 2, 2 questions are related with knowledge, attitude and practice respectively. One question was additionally included about the daily practice remedy for flu like symptoms to check the acceptance of Ministry of AYUSH guideline for prevention of COVID-19 by common people. The questionnaire and calculation procedure was based on Zhong BL et al's article on this topic.<sup>8</sup> A correct answer was assigned 1 point and an incorrect/unknown answer was assigned 0 points. The total knowledge score ranged from 0 to 13, with a higher score denoting a better knowledge of COVID-19. Questionnaire was prepared in local language (Bengali) and English language. Both questionnaires were pre-tested before implementation of survey. The knowledge score  $\leq 50\%$ , 51-80% and  $\geq 81\%$  were considered as low, medium and high level of knowledge score respectively.

Attitudes regarding COVID-19 were measured by two questions about the agreement on the final control of COVID-19 and the confidence in winning the battle against COVID-19. The assessment of respondents' practices was composed of two specific behaviors: "going to a crowded place" and "wearing a mask" when going out in recent days.

### Statistical analysis

Statistical analysis was conducted by IBM-SPSS (21 version) software. The demographic characteristics were compared with independent samples *t* test, one-way analysis of variance (ANOVA), or Chi-square test as appropriate. Multiple logistic regression and binary logistic regression were employed as indicated. Unstandardized regression coefficients ( $\beta$ ) and odds ratios (ORs) and their 95% confidence intervals (CIs) were used to quantify the associations between variables and KAP.

### Ethical issue

The ethical clearance was obtained from hospital authority and written informed consent was taken from each participant before participation in the survey.

## RESULT

A total 214 health care staff were participated in this survey. Among of them 62% participants were female. Mean age of the participants was  $27.03 \pm 7.63$  years. Maximum participants were from  $\leq 24$  year's age group. Maximum participants were unmarried (55%) and graduate (49%). The total number of nurse, doctor, para-medical staff (pharmacist, x-ray technician, ECG technician, CT scan technician, dietician, etc),

**Table 1: Questionnaire of knowledge, attitudes, and practice towards COVID-19**

SI	Questions on Knowledge	Options
1	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia.	True, false, I don't know
2	Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	True, false, I don't know
3	There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection.	True, false, I don't know
4	Not all persons with COVID-2019 will develop to severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases	True, false, I don't know
5	Eating or contacting wild animals would result in the infection by the COVID-19 virus.	True, false, I don't know
6	Persons with COVID-2019 cannot infect the virus to others when a fever is not present.	True, false, I don't know
7	The COVID-19 virus spreads via respiratory droplets of infected individuals.	True, false, I don't know
8	Ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus.	True, false, I don't know
9	It is not necessary for children and young adults to take measures to prevent the infection by the COVID-19 virus.	True, false, I don't know
10	To prevent the infection by COVID-19, individuals should avoid going to crowded places such as train stations and avoid taking public transportations.	True, false, I don't know
11	Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	True, false, I don't know
12	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days.	True, false, I don't know
13	Minimum 20-second hand washing with soap remains one of the best ways stop the spread of bacteria and viruses.	True, false, I don't know
Questions on attitude		Options
1	Do you agree that COVID-19 will finally be successfully controlled?	Agree, disagree, I don't know
2	Do you have confidence that India can win the battle against the COVID-19 virus?	True, false, I don't know
Questions on practice		Options
1	In recent days, have you gone to any crowded place?	True, false, I don't know
2	In recent days, have you worn a mask when leaving home?	True, false, I don't know

**Table 2: Demographic information of participants**

	Number of participants (n:214)	Knowledge score (mean±SD)	P value
Gender			
Male	82 (38%)	10.10±1.87	0.833
Female	132 (62%)	10.15±1.91	
Age group (years)			
≤24	104 (49%)	10.75±1.79	0.026*
25-34	85(39%)	9.76±2.06	
35≥	25 (12%)	10.85±1.28	
Marital status			
Married	86( 40%)	10±2.09	0.186
Unmarried	118(55%)	10.64±1.71	
Divorce	10 (5%)	10±1.41	
Education level			
Illiterate	01 (1%)	12±00	0.002**
Up to Class V	00	0	
Class VI-VIII	13 (6%)	8.67±2.88	
Class IX-XII	82 (38%)	10.24±1.64	
Graduate	104 (49%)	10.88±1.60	
Post Graduate	14 (6%)	8.57±2.76	
Occupation			
Doctor	75 (35%)	11.18±1.18	0.001***
Nurse	83 (39%)	10.26±1.95	
Para-medical staff	20 (9%)	9.5±2.12	
Administrative staff	24 (11%)	9.83±1.90	
Group D staff	12 (6%)	8.2±2.95	
Residence			
Urban	148 (69%)	10.51±1.81	0.257
Rural	66 (31%)	10.06±2.09	

\*P&lt;0.05, \*\*P&lt;.01, \*\*\*P&lt;0.001

**Table 3: Attitude towards COVID-19 infection prevention strategy**

Variables	Number of participants	Knowledge score (mean±SD)	P value
Do you agree that COVID-19 will finally be successfully controlled?			0.272
Agree	140 (65%)	10.26±2.04	
Disagree	15 (7%)	10.29±1.7	
No comments	59 (28%)	10.90±1.01	
Do you have confidence that India can win the battle against the COVID-19 virus?			0.103
Yes	168 (78%)	10.28±1.79	
No	46 (21%)	11.00±1.84	

\*P&lt;0.05, \*\*P&lt;.01, \*\*\*P&lt;0.001, (n:214)

**Table 4: Practice regarding COVID-19 infection prevention**

Variables	Number of participants	Knowledge score (mean±SD)	P value
In recent days, have you gone to any crowded place?			
Yes	46 (21%)	11.04±1.30	0.067
No	168 (79%)	10.27±1.89	
In recent days, have you worn a mask when leaving home?			
Yes	183 (86%)	10.41±1.88	0.761
No	31 (14%)	10.57±1.22	
First choice of treatment on flu like symptoms			
Traditional home remedy / Naturopathy	39 (18%)	11.17±0.62	0.000***
Modern Medicine	43 (20%)	10.73±1.32	
Isolation/ Masks use/ Hand washing/Rest	40 (19%)	11.50±1.0	
No such special care	02 (1%)	12:00±1.0	
Blank	90 (42%)	9.29±2.23	

\*P&lt;0.05, \*\*P&lt;.01, \*\*\*P&lt;0.001, (n:214)

administrative staff and sweeper were 83, 75, 20, 24, 12 respectively. Maximum participants were belongs to urban area (Table. 2).

The mean score of knowledge was  $10.37 \pm 1.9$  suggesting overall 79% ( $10.37/13 \times 100$ ) correct rate on the knowledge score. Maximum and minimum knowledge score were 13 and 4 respectively. Knowledge score was significantly differed among age group, education levels and occupation group ( $P < 0.05$ ) (Table. 2). The knowledge score was not significantly differed on attitude and practice towards COVID-19 (Table 3 and 4). But the knowledge score significantly differed according to choice of home remedy for common flu like symptoms ( $P < 0.001$ ) (Table. 4). Multiple linear regression analysis showed that other profession (except doctors) had lower COVID-19 knowledge score than doctors in respect to occupation group ( $p < 0.05$ ) (Table 5).

Majority of participants had positive attitude and agreed that COVID-19 will be successfully controlled (65%). Proportion of “disagree” and “Don't Know” regarding the questions related to attitudes were 6% and 27% respectively. The attitude towards the ‘final success’ in controlling COVID-19 was not significantly differed among different group of health care staffs. Additionally, 78% respondents were confident that ‘India will win the war against COVID-19’. The attitude towards ‘confidence of winning’ was significantly differed among age group, marital status, education level, occupation and place of residence ( $P < 0.05$ ). In multiple regression model, confidence of wining was lower among others occupation participants than doctors ( $P < 0.01$ ) (Table 6 and 7).

Majority of participants had not visited any crowded place (79%) and wore masks (86%) when going out during this time. Near about 21 % participants visited crowded places and 14% participants did not worn mask in crowded places during this time. This practice of “not visiting crowded



place” was not statistically different among different group of health care staffs. But practice of “using masks” was significantly differed among occupation group and place of residence ( $P<0.01$ ). In multiple regression model, practice of using mask was lower among rural residential participants ( $P<0.01$ ) (Table 8 and 9).

**Table 5: Results of multiple linear regression on factors associated with poor COVID-19 Knowledge**

Variables	Co-efficient ( $\beta$ )	Standard error	t	P value
Gender (male vs female)	0.04	0.09	0.50	0.617
Age group (age $\leq 25$ yr Vs $\geq 26$ yr)	0.00	0.11	0.03	0.977
Marital status (married vs unmarried)	-0.03	0.10	-0.26	0.793
Education (Upto class XII vs Graduate and above)	-0.06	0.12	-0.48	0.631
Occupation (Doctors Vs others staff)	-0.29	0.14	-2.09	<b>0.039*</b>
Residence (Urban vs Village)	0.06	0.10	0.59	0.554

\* $P<0.05$ , \*\* $P<0.01$ , \*\*\* $P<0.001$ . (Multivariable linear regression analysis using all of the demographic variables as independent variables and knowledge score as the outcome variable was conducted to identify factors associated with knowledge)

## DISCUSSION

Overall 77% correct rate on the knowledge score which denotes participants had medium level of knowledge about COVID-19. The number of female participants were more and females had slightly better knowledge than male participants. But this knowledge score was not significantly differed on the base of gender. The knowledge score was significantly differed according to age group, education status and occupation level in univariate test. But in Multivariate test, doctors found to have a better knowledge than other occupational level participants.

Regarding attitude, only 65% participants believed that COVID-19 will be successfully controlled. However, 78% participants agreed that ‘India will win’ the COVID-19 battle. It denotes, a large number of participants lost their hope towards COVID-19 battle in respect to current situation. They might be in the state of stress and anxiety due to unprecedented situation, workload and long duration of lockdown in India. However there were no statistically significant differences of knowledge score among “agree” and “disagree” participants regarding their attitude towards successfully control of COVID-19. Government had taken steps to increase confidence of health care staff

**Table 6: Attitudes towards COVID-19 by demographic variables**

Variables	Gender	Attitude n				
		Final success in controlling			Confidence of wining	
		Agree	Disagree	Don't know	Yes	No
Gender	Male	58 (27%)	08 (4%)	16 (7%)	60 (28%)	22 (9%)
	Female	82(39%)	07 (3%)	43 (20%)	108 (54%)	24 (9%)
Age group (years)	$\leq 24$	70(33%)	06 (3%)	28 (13%)	62 (30%)	42 (20%) ***
	25-34	54(26%)	05 (2%)	26 (12%)	81 (38%)	04 (2%)
	$35 \geq$	16(7%)	06 (2%)	03 (2%)	25 (12%)	00
Marital status	Married	61 (28%)	04 (2%)	21 (9%)	80(37%)	06 (3%)*
	Unmarried	75 (35%)	09 (4%)	34 (16%)	78 (39%)	40 (19%)
	Divorce	04(2%)	02 (1%)	04 (2%)	10 (5%)	00
Education level	Illiterate	00	00	01 (1%)	01 (1%)	00*
	Up to Class V	00	00	00	00	00
	Class VI-VIII	09 (4%)	00	04 (2%)	11 (5%)	02 (1%)
	Class IX-XII	54 (25%)	06 (3%)	22 (10%)	73 (34%)	09 (4%)
	Graduate	67(33%)	07 (3%)	30 (14%)	69 (32%)	35 (16%)
	Post Graduate	10 (5%)	02 (1%)	02 (1%)	14 (6%)	00
Occupation	Doctor	51 (24%)	04 (2%)	20 (9%)	40 (19%)	35 (16%)*
	Nurse	55 (27%)	05 (2%)	23 (10%)	78 (37%)	05 (2%)
	Para-medical staff	14 (6%)	02 (1%)	04 (2%)	16 (8%)	04 (2%)
	Administrative staff	12 (5%)	04 (2%)	08 (4%)	22 (10%)	02 (1%)
	Group D staff	08 (4%)	00	04 (2%)	12 (6%)	00
Residence	Urban	88 (41%)	12 (6%)	48 (22%)	106 (49%)	42 (21%)*
	Rural	52(24%)	03 (1%)	11 (5%)	62 (29%)	04(1%)

\* $P<0.05$ , \*\* $P<0.01$ , \*\*\* $P<0.001$ .n:214

by involving common people in an event for expressing gratitude towards frontline COVID worriers. But the fear regarding “COVID-19 patient exposure” in health care centre, loneliness for stay away from family, long duty hour, rapid changing guidelines, insufficient supply of PPE are increasing the mental and physical stress among health-care providers and it will decrease the attitude automatically. Various studies reported about the rising mental health problems among health care providers during COVID-19 era.<sup>9</sup> One Chinese study reported supportive attitude among Chinese population regarding this issue. This attitude may be due to pro-activeness of Chinese government, strict rules and regulation and previous experiences to deal

SARS like outbreak in past.<sup>8</sup> Chinese population has good faith on their existing healthcare facilities and leadership. During the SARS epidemic, 70.1-88.9% of the Chinese residents believed that SARS can be successfully controlled or prevented, and 94.7-100% had confidence that China can win the battle against SARS.<sup>10-12</sup> In reality, China controlled the SARS outbreak very efficiently on 2003.

In this emergency situation people acquired the knowledge regarding COVID-19 prevention from different sources and mass-media. Some differences of knowledge score were noted in this study in different occupation related group of health care staff. But there was no such statistically significant difference was observed regarding the practice towards COVID-19. The practice regarding mask use and avoiding crowded area were not statistically different on the basis of knowledge score. It means the knowledge is not only essential component for good practice. There also need some motivation on good preventive practice on COVID-19. Proportion of mask use was significantly high among urban dweller. It was also noted that using mask was significantly different among different grade of health care staff. The proportion of using mask outside of house was considerable high among doctor, administrative staff and sweeper group. However, nurse and paramedical staff were less using mask outside of house. The cause of

**Table 7: Results of multiple binary logistic regression analysis on factors significantly associated with attitudes towards COVID-19**

Variables	OR (95%CI)	P value
No confidence of winning		
Occupation (Doctors Vs others staff)	0.06 (0.01-0.66)	0.01*
Residence (Urban vs Village)	0.28 (0.03-2.93)	0.277
Education (Upto class XII vs Graduate and above)	0.38 (0.4-4.42)	0.412
Marital status (married vs unmarried)	1.31(0.45-8.74)	0.628

\*P<0.05, \*\*P<.01, \*\*\*P<0.001. (No confidence of winning is dependent variable. education level, marital status, residence and occupation are independent variables)

**Table 8: Practices towards COVID-19 by demographic variables**

Variables	Gender	Practices, n			
		Going to a crowded place		Wearing a mask	
		Yes	No	Yes	No
Gender	Male	22(10%)	60 (28%)	72 (34%)	10 (5%)
	Female	24 (12%)	108 (49%)	111 (52%)	21 (9%)
Age group (years)	≤24	24 (11%)	80 (37%)	96 (45%)	8 (4%)
	25-34	16 (7%)	69 (31%)	68 (32%)	17(7%)
	35≥	06 (3%)	19 (9%)	19 (9%)	6 (3%)
Marital status	Married	18 (7%)	68 (32%)	68 (32%)	18 (8%)
	Unmarried	26 (12%)	92 (43%)	112 (52%)	06 (3%)
	Divorce	02 (1%)	08 (4%)	03 (2%)	07 (4%)
Education level	Illiterate	01 (1%)	00	01 (1%)	00
	Up to Class V	00	00	00	00
	Class VI-VIII	04 (2%)	09 (4%)	09 (4%)	04 (2%)
	Class IX-XII	20 (9%)	62 (29%)	62 (29%)	20 (9%)
	Graduate	21 (10%)	83 (41%)	97 (46%)	07 (3%)
	Post Graduate	00	14 (7%)	14 (7%)	00
Occupation	Doctor	22 (10%)	53 (25%)	71 (33%)	04(2%)*
	Nurse	19 (9%)	64 (30%)	64 (30%)	19 (9%)
	Para-medical staff	00	20 (9%)	12 (6%)	08 (4%)
	Administrative staff	00	24 (11%)	24 (11%)	00
	Group D staff	05 (2%)	07(3%)	12 (6%)	00
Residence	Urban	36 (18%)	112 (55%)	139 (65%)	09 (4%)*
	Rural	10 (5%)	56 (26%)	44 (20%)	22 (10%)

\*P<0.05, \*\*P<.01, \*\*\*P<0.001.n:214

**Table 9: Results of multiple binary logistic regression analysis on factors significantly associated with practices towards COVID-19**

Variables	OR (95%CI)	P value
Not wearing a mask		
Occupation (Doctors Vs others staff)	1.32 (0.21- 8.40)	0.772
Residence (Urban vs Village)	7.05 (1.62-30.62)	<b>0.009 **</b>

\*P<0.05, \*\*P<.01, \*\*\*P<0.001. (Not wearing a mask is dependent variable . Residence and occupation are independent variables)

this difference was not evaluated. But one Chinese study reported the proportion of mask use and avoiding crowded area during COVID-19 era was quite high among Chinese community.<sup>8</sup>

In this study, one question asked about commonly practiced traditional home remedies applied for flu like symptoms in daily life. There 42% participates did not respond on this question. 19% participants reported that they only followed the isolation measures, masks use and hand washing measures. Twenty-two percent participants only used modern medicine for their flu like symptoms. Two participants reported they never applied any home-remedies, modern medicine and preventive isolation measures to treat their flu like symptoms. Only, 18% participants reported that they applied traditional home remedies apart from preventive measures to treat flu like symptoms. Like taking ginger/herbal tea, gargling with warm water, steam inhalation etc. The belief and acceptance of traditional home remedies/ medicine for treatment on flu like symptoms was noted 31% of among all respondents on this question. Chinese government reported success on COVID-19 after utilizing traditional Chinese medicine.<sup>13</sup> Different state government is utilizing traditional medicines for treatment of suspected COVID-19 patients, high risk group and COVID -19 patients (as adjuvant treatment). The belief or awareness on traditional medicine is considerable low in this study population.

As a gross, the participants had medium high knowledge with medium attitude to control the COVID-19 problem in India. The attitude and practice towards COVID-19 were not significantly differed on the basis of knowledge score. Doctors, administrative staff and sweeper had better habit to use mask when they were outside of houses. The knowledge was significantly different according to education level, occupation and age group. Doctors had better attitude regarding “win towards COVID-19”. Other health care provider’s attitude need to be improved by continues health education and health promotion programme associated with supply of protective equipments with mental health care support on COVID-19.

## CONCLUSION

The basic and preventive knowledge score and preventive practice on COVID-19 were not equally observed in all grades of health care staff. There is a need regular health education programme on COVID-19 to increase their preventive knowledge and attitude in the battle towards COVID-19. However the good knowledge was not the only determinants for better attitude and good practice towards COVID-19 prevention.

### Limitation of the study

This study was conducted in one hospital. The findings may not be generalized in other hospital. So there need a large sample size multi-centric study for external validation of this findings.

## REFERENCES

1. World Health Organization. Corona virus disease (COVID-2019) situation reports. 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>. (last accessed 5<sup>th</sup> May 2020 12:59 PM)
2. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet*. 2020; 395: 507-513. [https://doi.org/10.1016/S0140-6736\(20\)30211-7](https://doi.org/10.1016/S0140-6736(20)30211-7)
3. Ministry of AYUSH. Ayurveda immunity boosting measures for self care during COVID 19 crisis (2020). Accessed on 5<sup>th</sup> May 2020 <http://ayush.gov.in/event/ayurveda-immunity-boosting-measures-self-care-during-covid-19-crisis>
4. Chan-Yeung M. Severe Acute Respiratory Syndrome (SARS) and Healthcare Workers, *International Journal of Occupational and Environmental Health*. 2004; 10(4): 421-427. <https://doi.org/10.1179/oeh.2004.10.4.421>
5. Editorial. Covid-19 protecting health care workers. *Lancet* 2020; 395(10228):922 [https://doi.org/10.1016/S0140-6736\(20\)30644-9](https://doi.org/10.1016/S0140-6736(20)30644-9)
6. Tao N. An analysis on reasons of SARS-induced psychological panic among students. *Journal of Anhui Institute of Education*.2003; 21: 78-79.
7. World Health Organization, Advice for Public on COVID-19. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public> last accessed on 5thMay, 2020
8. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci*. 2020; 16(10):1745-1752. <https://doi.org/10.7150/ijbs.45221>
9. Tan BY, Chew NW, Lee GK, Jing M, Goh Y, Yeo LL, et al. Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore. *Ann Intern Med*. 2020; [Epub ahead of print 6 April 2020]. <https://doi.org/10.7326/M20-1083>
10. Zhou X, Xiu C and Chu Q. Prevention and treatment knowledge and attitudes towards SARS of urban residents in Qingdao. *Prev Med Trib*. 2004; 10: 407-408.

11. Liu Z, Gao H and Zhang S. Prevention and treatment knowledge towards SARS of urban population in Jinan. *Prev Med Trib.* 2004; 10: 659-660.
12. Chen S, Qiu Z, Xu L, Chen J, Lin Y, Yang Y, et al. People groups' responses to SARS in the community. *Chinese Rural Health Service Administration.* 2003; 23: 15-18.
13. Ren JL, Zhang AH and Wang AH. Traditional Chinese medicine for COVID-19 treatment. *Pharmacological research* (March,2020);155 accessed on 8<sup>th</sup> April 2020  
<https://doi.org/10.1016/j.phrs.2020.104743>

**Author's contributions:**


**AA-** Concept and design of the study, Statistically analyzed and interpreted the results, prepared first draft of manuscript and critical revision of the manuscript; **SG&MG-** Concept and coordination of the overall study, reviewed the manuscript preparation; **KS&SG-**Data collection, literature review; **AB&KG-** Concept and design of the study; reviewed the literature and manuscript preparation

**Work attributed to:**

Murshidabad Medical College, Berhampore, Murshidabad, West Bengal

**Orcid ID:**

Dr. Amitava Acharyya-  <https://orcid.org/0000-0002-7839-9563>

Dr. Kaushik Ghosh-  <https://orcid.org/0000-0002-2972-6441>

**Sources of support:** None **Conflict of Interests:** None