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Knowledge, attitude and practice regarding COVID-19 among frontline workers attending selected vaccination center of West Bengal, India

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ABSTRACT

Background: Corona virus disease (COVID-19) is an infectious disease caused by the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). On 11th March; the WHO announced this disease as a global pandemic. Individuals' knowledge, attitude and practice (KAP) towards preventive and precautionary measures of COVID-19 are essential to control the spread of the disease. The aim of the study was to assess the knowledge, attitude and practice of frontline workers towards the pandemic.

Methods: Descriptive survey research design was used. Sample comprised of 100 frontline workers who are working in different government sector during this pandemic situation and involved in election duty. Non-probability purposive sampling technique was used. Demographic data sheet, semi structured knowledge questionnaire, attitude scale, practice questionnaire was used to collect data. Tool was pretested before final data collection. Institutional Ethics committee approval was taken for the study.

Results: Study findings show that 56% participants had good knowledge and 44% had poor knowledge regarding COVID-19. 70% participants had positive attitude and 30% had negative attitude regarding COVID-19. 85% participants followed good practice and 15% followed poor practice regarding COVID-19. There was a positive correlation between knowledge and attitude score (r=0.54) and positive correlation between knowledge and practice score (r=0.73). There was also a positive correlation between practice and attitude score (r=0.48).

Conclusions: This study also found a significant association between knowledge score and demographic variables like education level and job status and also an association between practice score and job status. So, the study results can be used for enhancing KAP to combat this pandemic situation.

Keywords: COVID-19, Frontline workers, Knowledge, Attitude, Practice

INTRODUCTION

The novel Corona virus diseases 2019 (COVID-19) is the major public health burden in the world. Corona viruses are a group of large enveloped viruses with single stranded, positive-sense RNA genome. It can cause variety of respiratory diseases in human.

The morbidity and mortality of this disease is dramatically increasing from time to time. The SARS-CoV-2 is a

contagious virus and spread from human to human primarily through respiratory droplets and potentially aerosol transmission. COVID-19 is an infectious disease caused by the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). The virus was first reported to the WHO country office in Wuhan, China on 31st December 2019 and on 30th January 2020, it was announced as a health emergency. On 11th March, the WHO announced this disease as a global pandemic. As of 9th January, 2021, there have been more than 87.3 million confirmed cases of COVID-19 with more than 1.89 million deaths globally.

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The pandemic affects the majority of human activities including the economy and health systems. There is no effective treatment for COVID-19. Some containment measures, such as increased testing, contact tracing, isolation of confirmed cases, quarantine of contact and suspected cases and non-pharmacological interventions like social distancing, staying in home, working from home, self-monitoring, public awareness, self-quarantine are likely to slow down the actual epidemic growth, but will not stop it. WHO has recommended personal hygiene (respiratory hygiene, using face masks, washing hands with warm water and soap, use of alcohol-based hand sanitizers, avoid touching mouth, eyes & nose, cleanliness), social distancing and careful handling of purchased products as an effective preventive measure for COVID-19 disease.^{5,6} The growing pandemic of COVID-19 disease requires social distancing and personal hygiene measures to protect public health. But this message is not clear and well understood among people.⁷

Though government has taken different measures in combating the outbreak, the success or failure of these efforts is largely dependent on public behavior. Specifically, public adherence regarding preventive measures is of prime importance to prevent the spread of the disease. Adherence is likely to be influenced by the public's knowledge and attitudes toward COVID-19. So, the researcher chosed the topic with the intention that the study results help to identify the knowledge, attitude and practice of the frontline workers regarding COVID-19.

METHODS

Descriptive survey research design was used in this study. A non-probability purposive sampling was used to select the subjects. 100 frontline workers who are working in different Government sectors in this pandemic situation and involved in election duty (W. B. Bidhan Sava election, 2021), who are attending vaccination centers for vaccination were included for this study. The frontline workers who were not attending vaccination centers were excluded. Structured self-administered demographic performa for each subject was used. Semi structured knowledge questionnaire, structured attitude scale and structured practice questionnaire were used for assessing the knowledge, attitude and practice of frontline workers regarding COVID-19. KAP questionnaire was developed on the basis of WHO and CDC⁸ guidelines.

These questioners were validated by 7 experts. Reliability of the tool was found by test-re-test method and Split half method. Reliability of the knowledge questionnaire was r=0.75, reliability of attitude scale was r=0.85 and reliability of practice questionnaire was r=0.78. Permission taken from Institutional Ethics committee. Informed consent was taken from subjects. Data were collected during waiting period for vaccine or waiting period after vaccination. Data collected during the period of March 2021-May 2021. Knowledge was measured by using 20 items of questions consisted of mode of

transmission, clinical symptoms, treatment, risk groups, isolation, prevention and control. Respondents were asked to respond to knowledge items as either true or false, with an additional 'not known' option. Incorrect or uncertain (not known) responses were given a score of 0, and correct answers were assigned a score of 1. The total score for knowledge ranged from 0-20 and cut-off level of >14 (70% and above) was considered good knowledge while ≤13 (70%) was considered as poor.

Attitudes was measured by using 10 items of questions about precautions measures for preventing COVID-19and scores were calculated based on the respondents' answers to each attitudinal statement, strongly disagree (1 point), disagree (2 points) neutral (3 points), agree (4 points) and strongly agree (5 points). The score of attitude varied from 10-50 and cut-off level >35 (70% and above) was considered as a positive attitude and \leq 35 (70%) as negative attitude.

Practice score was assessed by calculating average of respondents' answers to the 8 statements. In the section on practices, respondents were asked to respond to practice items as either yes or no. 'No' responses were given a score of 0, and 'yes' answers were assigned a score of 1. The total practice score ranges from 0-8 and a score with a cut-off >6 (70%) was considered as good practice while ≤ 6 was considered as poor practice.

Frequency and percentage were calculated to describe the demographic variables of the participants. Correlation was calculated by using Pearson correlation and association was calculated through Chi square test. Statistical descriptions and test above were performed using SPSS version 17.0.1(SPSS Inc; Chicago, IL, (USA), p value of less than 0.05 was considered significant.

RESULTS

From Table 1 it is evident that majority of subjects (62%) belong to the age group ≥40-60 years, (38%) belong to the age group ≤40 years. (67%) were male, 99% were Hindu and only 1% is Muslim. Maximum of subjects (91%) were married and only (9%) were unmarried. Maximum participants (45%) had education graduation level, majorities (54%) are belonging to upper division clerk (UDC), (34%) were officer level.

The data presented in Figure 1 show that 56% had good knowledge regarding COVID-19 and 44% had poor knowledge regarding COVID-19. The data presented in Figure 2 shows that 70% have positive attitude regarding COVID-19 and (30%) have negative attitude regarding COVID-19. Figure 3 reflects that 85% had good practice regarding COVID-19 and 15% have poor practice regarding COVID-19. Table 2 shows that there was a significant relationship between knowledge of COVID-19 and attitude towards preventive measures, knowledge of COVID-19 and attitude towards preventive measures. Figure 4-6

depicts that KAP regarding COVID-19 is significantly related with each other. Data in Table 3-5 reflects that knowledge score regarding COVID-19 is associated with education level and job status and practice score is associated with job status.

Table 1: Frequency and percentage distribution of demographic characteristics (N=100).

Demographic variables	Frequency	Percentage
		(%)
Gender		
Male	67	67
Female	33	33
Religions		
Hindu	99	99
Muslim	1	1
Age (years)		
20-30	14	14
31-40	24	24
41-50	26	26
51-60	36	36
Marital status		
Married	91	91
Unmarried	9	9
Level of education		
HS	34	34
Graduation	45	45
Post-graduation	21	21
Job status		
Officer	30	30
UDC	54	54
LDC	16	16

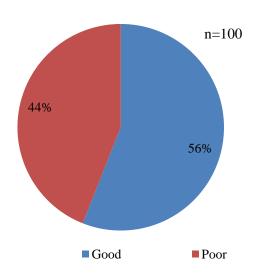


Figure 1: Pie diagram showing percentage distribution of participants' level of knowledge regarding COVID-19.

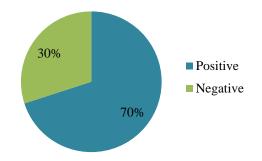


Figure 2: Pie diagram showing percentage distribution of participants' level of attitude regarding COVID-19.

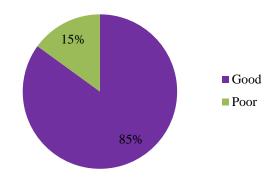


Figure 3: Pie diagram showing percentage distribution of participants' level of practice towards COVID-19.

Table 2: Correlation between the knowledge, attitude and practice scores of frontline workers towards COVID-19 (n=100).

Variables	R value	P value
Knowledge and attitude	0.54	< 0.01
Knowledge and practice	0.73	< 0.01
Practice and attitude	0.48	< 0.01

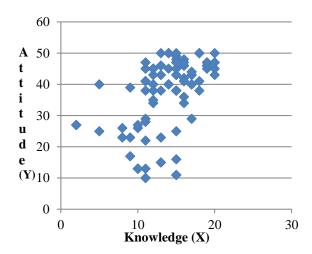
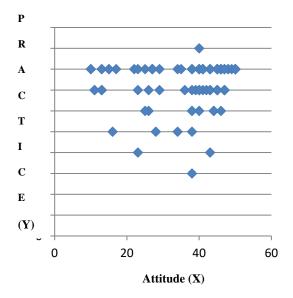


Figure 4: Scatter diagram showing relationship between knowledge and attitude of frontline workers towards COVID-19.



5 K 0 o W 5 0 E D G 0 E 0 5 10 **(Y)** Practice (X)

Figure 5: Scatter diagram showing relationship between practice and attitude of frontline workers towards COVID-19.

Figure 6: Scatter diagram showing relationship between practice and knowledge of frontline workers towards COVID-19.

Table 3: Association between the socio-demographic variables and knowledge scores of the frontline worker towards COVID-19 (n=100).

Socio-demographic	Knowledge	escore	Chi square value	P value
variables	Poor	Good		
Age (years)				
≤40	17	21	0.013	0.907
≥40-60	27	35	0.013	
Gender				
Male	28	39	0.402	0.526
Female	16	17	0.402	
Marital status				
Married	39	52	0.536	0.464
Unmarried	5	4	0.144 (with Yates correction)	0.703 (with Yates correction)
Education level				
HS	22	12	11.51	0.003
Graduate	18	27		
Post-graduation	4	17		
Job status				
Officer	12	18	10.90	0.004
UDL	19	35		
LDC	13	3		

Table 4: Association between the socio-demographic variables and attitude scores of the frontline worker towards COVID-19 (n=100).

Socio-demographic	Attitude sco	re	Chi sanara valua	P value
variables	Positive	Negative	Chi square value	
Age (years)				
≤40	14	24	1.36	0.242
≥40-60	16	46		
Gender				
Male	17	50	2.07	0.15
Female	13	20		
Marital status				
Married	27	64	0.052	0.819

Continued.

Socio-demographic	Attitude sc	ore	Chi aguara valua	P value
variables	Positive	Negative	Chi square value	
Unmarried	3	6	0.023 (with Yates correction)	0.878 (with Yates correction)
Education level				
HS	14	20	3.06	0.215
Graduate	11	34		
Post-graduation	5	16		
Job status				
Officer	6	24	2.92	0.232
UDL	17	37		
LDC	7	9		

Table 5: Association between the socio-demographic variables and practice scores of the frontline worker towards COVID-19 (N=100).

Socio-demographic	Attitude score		Chi square value	P value
variables	Positive	Negative	Cili square value	r value
Age (years)				
≤40	5	33	0.163	0.242
≥40-60	10	52	0.103	
Gender				
Male	7	60	2.20	0.15
Female	8	25	3.30	
Marital status				
Married	14	76	0.21	0.640
Unmarried	1	9	0 (with Yates correction)	1.000 (with Yates correction)
Education level				
HS	7	27		0.03
Graduate	7	37	4.81	
Post-graduation	1	21	-	
Job status				
Officer	3	27		0.02
UDL	6	48	7.58	
LDC	6	10	•	

DISCUSSION

The present study found that 56% participants have good knowledge regarding COVID-19 and 44% have poor knowledge regarding COVID-19 and it is supported by the study Bates et al and their result showed the mean COVID-19 knowledge score was 10.29 (SD: 1.50, range: 0-12), suggesting a relatively high rate of knowledge.9 The present study found that 70% had positive attitude towards COVID-19 and 30% had negative attitude towards COVID-19. On contrary to this study, Gebretsadik et al study showed 317 (82.6) of the participants were not providing the correct response for the question about the possibility of transmission of the disease by asymptomatic persons. 10 There is alarmingly negatively skewed attitude regarding the COVID-19 pandemic, which needs urgent improvement. The variation of attitude scores may be due to different study population and the differences in questioning.

Fatmi et al study supports our study findings which showed that respondents had good knowledge (99.5%) of COVID-19.¹¹ The majority of the respondents (79.5%) had positive attitudes toward the adherence of government IPC

measures with 92.7, 96.4 and 82.3% practicing social distancing/self-isolation, improved personal hygiene and using face mask respectively.

This study showed the significant relationship between knowledge and attitude, knowledge and practice and attitude and practice regarding COVID-19. This study findings are supported by the study Reuben et al where Pearson's correlation showed significant relationship between knowledge of COVID-19 and attitude towards preventive measures. Chowdhury et al study also revealed a significant positive correlation (r=0.263) between knowledge and practice scores.

This study revealed a significant association between knowledge score regarding COVID-19 and education level as well as job status too. Our study findings are supported by the study Lee et al where they revealed that level of knowledge varied by sociodemographic characteristics. If Individuals with higher levels of education (β =0.06, p<0.05) demonstrated higher levels of knowledge. Alhazmi et al study also showed a positive association between KAP and education. Our study found a significant association between practice score

regarding COVID-19 and job status.¹⁵ But Erfani et al, in their study found significant association between practice score and education level.¹⁶

Our study did not show any association between the gender, age, marital status with knowledge, attitude and practice scores but Bekele et al and Hanawi et al, in their study found significant association between KAP of COVID-19 and socio-demographic characteristics like (age, gender, race, marital status). This may be because of limited sample size.

This study has several strengths and limitations. Firstly, the sample size is small (100) and only the frontline workers were selected so generalization of the findings is not possible. Secondly, data used in the analysis of this study were self-reported, which might suffer from reporting bias. Furthermore, there may be some endogenous variables like general knowledge, attitude, practice and expectation from the government. We have included mainly educated people so generalization of findings is limited. Community-based sampling surveys were not feasible during this particular period. Despite these limitations, we believe the study does provide useful insights into participant's perspectives and the impact of the pandemic on this population in India. Consequently, we believe the findings are useful to provide further guidance to education and health policy making.

CONCLUSION

To conclude, our findings suggest that frontline workers demonstrated good knowledge, positive attitudes, and reasonable practice regarding COVID-19 during the outbreak. There was positive correlation of knowledge, attitude and practice. Job status, education levels are associated with knowledge and practice in our study. Educational interventions particularly targeting lower knowledge individuals regarding COVID-19, are essential for encouraging good practice and enhancing knowledge. It can be anticipated that by increasing knowledge via public health policy-makers and the cooperation of the authorities can control and eliminate the disease.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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