



ASSESSING KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) REGARDING COVID -19 AMONG HEALTH CARE WORKERS (HCWS) IN STATE OF HIMACHAL PRADESH, INDIA: A CROSS-SECTIONAL STUDY.

Dr Shweta Kanwal*

MD Community Medicine); Faculty, Regional Health and Family Welfare Training Centre (RHFWTC) Kangra at Chheb*Corresponding Author

Dr Anil Kumar Verma

MD Community Medicine); Faculty, Regional Health and Family Welfare Training Centre (RHFWTC) Kangra at Chheb

ABSTRACT

Introduction: The COVID-19 pandemic caused by severe acute coronavirus 2 (SARS-CoV-2) has become one of the most important health problems in recent history. Prevention measures such as mass vaccination, social distancing, face masks and public awareness campaigns are key players in controlling the pandemic. This study has been conducted with an objective to assess Knowledge, Attitude and Practice (KAP) regarding COVID-19 among Health care workers (HCWs) in state of Himachal Pradesh, India and the findings of the study may help the government to devise effective Standard operating Procedures (SOPs) and awareness campaigns. **Material and methods:** This was a cross-sectional study conducted in the month of October 2022 to December 2022 on the various categories of Health Care Workers (HCWs). The study was conducted in Regional Health and Family Welfare Training Centre (RHFWTC) Kangra at Chheb where refresher trainings are carried out among government in-service HCWs round the year. The data was collected using self designed semi-structured questionnaire after reviewing literature concerning COVID-19 and informed consent was obtained from the study participants. **Results:** In our study, mean score for overall KAP has been found to be 17.8 +/-1.3 which implies good and satisfactory level among HCWs. Knowledge was found to be fair among 70.2% and good among 28.6%, attitude found to be fair among 24.1% and good among 73.9% and practice good among 96.3% of HCWs. Knowledge score has been found to be significantly associated with qualification ($p=0.038$) and post category ($p=0.000$). **Conclusion:** The gaps are to be addressed by devising effective Standard operating Procedures (SOPs) and awareness campaigns and trainings among HCWs so that they can practice and educate patients and public regarding preventive measures for COVID-19 including vaccine hesitancy. The same study can be conducted on larger samples and could be replicated in different settings for better generalization.

KEYWORDS : COVID-19 Pandemic, vaccine hesitancy, SOPs, HCWs, training and retraining.

INTRODUCTION

The COVID-19 pandemic caused by severe acute coronavirus 2 (SARS-CoV-2) has become one of the most important health problems in recent history. The first case of COVID-19 was detected in India in January when WHO declared the novel Coronavirus outbreak as a Public Health Emergency of International concern.⁽¹⁾ Current evidences suggest that SARS-CoV-2 is transmitted predominantly from person to person through respiratory secretions in small droplets when in close contact or by touching contaminated surface or objects. Pre-existing morbidity, chronic illness and old age have been identified as potential risk factors for disease severity and mortality⁽²⁾. Although the public healthcare workers are working tirelessly for COVID-19 management, there is currently no specific antiviral treatment available. Initially the disease was very contagious and human-to-human spread was very swift⁽³⁾. It is recognized that healthcare workers (HCW) worldwide are at a higher risk of contracting the infection⁽⁴⁾. Although various drugs are under trial, but the management remains mainly supportive. Therefore, prevention measures such as mass vaccination, social distancing, face masks and public awareness campaigns are key players in controlling the pandemic⁽⁵⁾. The lessons learned from the SARS epidemic suggested that knowledge on and attitudes toward infectious diseases can also be associated with feelings of panic and anxiety, which further complicates attempts to prevent the spread of the disease⁽⁶⁾. The active cases in India comprises 0.01%, discharged cases 98.80% and deaths 1.19%. Total COVID-19 vaccination count as on 21 December 2022 is 2,20,01,45,981⁽⁷⁾. There are only three approved vaccines available for vaccination in India - Covaxin, Covishield and Sputnik-v⁽⁸⁾.

Health care workers (HCWS) play an important role in prevention of COVID-19 by practising as well as creating awareness regarding preventive measures. There is lack of data on the Knowledge, Attitude and Practice (KAP) regarding COVID-19 among different categories of HCWs in Himachal Pradesh. Thus, this study has been conducted with an objective to assess Knowledge, Attitude and Practice (KAP) regarding COVID-19 among Health care workers (HCWs) in state of Himachal Pradesh, India and the findings of the study may help the government to devise effective Standard operating Procedures (SOPs) and awareness campaigns.

MATERIAL AND METHODS

Study design and data collection: This was a cross-sectional study

conducted in the month of October 2022 to December 2022 on the various categories of Health Care Workers (HCWs). The study was conducted in Regional Health and Family Welfare Training Centre (RHFWTC) Kangra at Chheb, Himachal Pradesh where refresher trainings are carried out among government in-service HCWs round the year. The data was collected using self designed semi-structured questionnaire after reviewing literature concerning COVID-19 and informed consent was obtained from the study participants. Assuming the prevalence of knowledge regarding COVID-19 among HCWs as 83%⁽⁹⁾, a sample size of minimum 226 participants was calculated at 5.0% level of significance and 80.0% study power. The sample size was calculated using the formula $n=4pq/E^2$ where $p=83\%$, $q=17\%$ and $E=5\%$ was taken. All the HCWs of different categories attending various trainings during the study period were provided the information about the study by using participant information sheet. Those who were interested to participate were enrolled in the study. The data was collected from 245 candidates.

Data collection tool: The questionnaire was based on socio-demographic details and knowledge about the transmission and prevention of COVID-19 disease, attitude about the disease and practices about prevention of COVID-19. The knowledge section contained 9 questions, the attitude section contained 6 questions while the section on practices comprised 5 questions. One mark was awarded for each right answer and there was no negative marking. The total number of questions were 20 (KI-K9, A1-A6 and P1-P5) and total maximum marks were 20.

Criteria used for assessment of the levels of KAP: Following criteria⁽⁵⁾ was used to label as poor, fair and good knowledge, attitude and practice regarding COVID-19. Overall KAP was labelled as poor with <60%, fair as between 60-79% and good as >80% of the total score obtained.

Category	Total score (out of 20)	Knowledge score (out of 9)	Attitude score (out of 6)	Practice score (out of 5)
Poor	<12	<5	<4	<3
Fair	12-16	5-7	4-5	3-4
Good	>=17	>=8	>=6	5

Ethical consideration: The whole procedure was performed in accordance with the ethical standards and the Helsinki declaration of 1975 and a permission was sought from the head of the institution prior

to the commencement of the study.

Data analysis: Results for the continuous variables were expressed as mean and standard deviation (SD) . The results for the categorical variables were expressed as percentages. Association between the independent variables (sociodemographic variables) and the levels of KAP was assessed using Chi-square test and p-values less than 0.05 were considered as significant.

RESULTS

Table 1: Distribution of study participants based on the Sociodemographic characteristics.

DEMOGRAPHIC CHARACTERSTICS	TOTAL RESPONDENTS (n=245)
Age group (in yrs)	N(%)
Upto 30	81(33.1)
31-45	125(51)
>/=46	39(15.9)
Gender	N(%)
Male	68(27.8)
Female	177(72.2)
Experience (in yrs)	N(%)
Upto 2	89(36.3)
2-5	52(21.2)
>/=5	104(42.4)
Facility type	N(%)
Primary	124(50.6)
Secondary	103(42)
Tertiary	18(7.3)
Qualification	N(%)
+2	46(18.8)
Graduation	184(75.1)
Postgraduation	15(6.1)
Marital status	N(%)
Married	218(89)
Unmarried	27(11.0)

Most of the study participants belonged to the age between 31 years and 45years, females (72.2%) and from primary health care facilities (HSCs, HWCs and PHCs) (Table 1).Overall mean score was found to be 17.8 with standard deviation of 1.3 (Table 2). Various HCWs participated among which staffnurses and community health officers (CHOs) were 25.7% and 24.1% respectively (Figure 1).Overall 81.2% had good level, 18.8% had fair and none had poor level of KAP regarding COVID-19(Figure 2).

Figure 1: Distribution of study participants based on post category.



Table 2: Score obtained among the study participants.

Characteristic	Mean score	Standard deviation
Overall	17.8	1.3
Knowledge	6.8	1.1
Attitude	5.6	0.6
Practice	4.9	0.2

Figure 2: Distribution of study participants based on the overall score obtained.

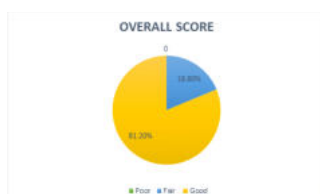


Figure 3: Level of Knowledge, Attitude and Practice among the study participants.

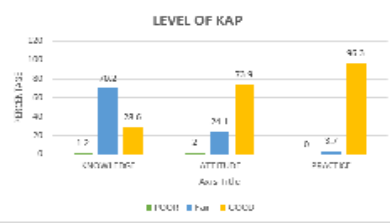


Table 3: Distribution of study participants based on answers to COVID-19 Knowledge

QUESTION	CORRECT ,N(%)	INCORRECT ,N(%)
K1.Causative agent for COVID-19 is a	244(99.6)	1(0.4)
K2.Components of PPE include	241(98.4)	4(1.6)
K3.Nitrile gloves are preferred over latex gloves.T/F	170(69.4)	75(30.6)
K4.Maintain a distance of atleastmeters from person under home quarantine.	40(16.3)	205(83.7)
K5.Mode of transmission of COVID-19 is mainly through respiratory droplets.Y/N	230(93.9)	15(6.1)
K6.Preventive measures for COVID-19 includes	235(95.9)	10(4.1)
K7.Severe cases and deaths are more common among.....	174(71)	71(29)
K8.Most COVID-19 cases are severe and cannot recover without treatment .Y/N	164(42.4)	141(57.6)
K9.There is vaccine available for certain age groups against COVID-19 .Y/N	232(94.7)	13(5.3)

Only 69.4% knew that the nitrile gloves are preferred over latex gloves and only 16.3% knew the correct least distance to be maintained from person under home quarantine (Table 3). Only 91% agree that all health care workers should play role in combating COVID-19 pandemic (Table 4) and 97.1% go outside whenever required only (Table 5). None of the sociodemographic variables were found to be significantly associated with overall score of study participants towards COVID-19 (Table 6) but knowledge score has been found to be significantly associated with qualification (p=0.038) and post category (p=0.000).

Table 4: Distribution of study participants based on answers to COVID-19 Attitude

QUESTION	CORRECT ,N(%)	INCORRECT ,N(%)
A1.COVID-19 is a communicable disease that can be prevented.Y/N	239(97.6)	6(2.4)
A2.All health care workers should play role in combating COVID-19 pandemic.Y/N	223(91.0)	22(9.0)
A3.By using appropriate PPE, transmission of infection can be prevented.T/F	241(98.4)	4(1.6)
A4.All the target groups for COVID-19 should get vaccinated.T/F	228(93.1)	17(6.9)
A5.Preventive measures like mask, frequent handwash etc should be followed by all .Y/N	229(93.5)	16(6.5)
A6.Staff in your health centre/institution is observing the precautionary measures.Y/N	238(97.1)	7(2.9)

Table 5: Distribution of study participants based on answers to COVID-19 Practice

QUESTION	CORRECT ,N(%)	INCORRECT ,N(%)

P1.I wash/sanitize hands before and after attending patients.Y/N	243(99.2)	2(0.8)
P2.I dispose off PPE in appropriate bins. Y/N	243(99.2)	2(0.8)
P3.I ask patients to maintain social distancing. Y/N	244(99.6)	1(0.4)
P4.I go outside whenever required only.Y/N	238(97.1)	7(2.8)
P5.I educate patients regarding prevention of COVID-19 and opting vaccination.Y/N	243(99.2)	2(0.8)

Table 6: Association between Sociodemographic variables and Overall score of study participants towards COVID-19

INDEPENDENT VARIABLES	OVERALL SCORE			X ² (p value)
	Poor	Fair	Good	
Age: upto 30y	0(0)	18(7.3)	63(25.7)	1.34(0.51)
31-45y	0(0)	20(8.2)	105(42.8)	
46 and above	0(0)	8(3.3)	31(12.7)	
Experience: upto 2yr	0(0)	22(8.9)	67(27.5)	4.91(0.08)
2-5y	0(0)	11(4.4)	41(16.7)	
5y and above	0(0)	13(5.3)	91(37.2)	
Gender:Male	0(0)	15(6.2)	53(21.6)	0.66(0.41)
Female	0(0)	31(12.6)	146(59.6)	
Facility type:Primary	0(0)	22(8.9)	102(41.6)	1.23(0.54)
Secondary	0(0)	22(8.9)	81(33.3)	
Tertiary	0(0)	2(0.8)	16(6.5)	
Qualification:+2	0(0)	7(2.8)	39(15.9)	2.47(0.29)
Graduation	0(0)	34(13.8)	150(61.2)	
Postgraduation	0(0)	5(2.1)	10(4.2)	

DISCUSSION

Our study was conducted in a regional training centre where government in-service HCWs of Himachal Pradesh are given trainings round the year regarding recent advances and skill and professional enhancement. Various HCWs participated in the study -laboratory technicians (11.5%), staff nurses (25.7%), health workers (22%), community health officers (24.1%), medical officers (1.2%), senior TB laboratory supervisors (6.5%) and ophthalmic officers (9.0%). In our study, mean score for overall KAP has been found to be 17.8 +/-1.3 which implies good and satisfactory level among HCWs. Knowledge was found to be fair among 70.2% and good among 28.6%, attitude found to be fair among 24.1% and good among 73.9% and practice good among 96.3% of HCWs.

In a study by Albahari AH et al⁽⁴⁾ overall, 57.4% of the health care workers (HCWs) had a sufficient overall level of knowledge. In a study by Zhang M⁽¹⁰⁾, 89% of HCWs had sufficient knowledge of COVID-19, more than 85% feared self-infection with the virus and 89.7% followed correct practices regarding COVID-19. A study was done by Padmanaban S et al⁽¹¹⁾ where the majority (65.5%) of students possess a high level of knowledge about the disease. 71.0% of them had a positive attitude towards COVID-19 and 66.7% of them exhibited desirable practices to mitigate COVID-19. A study done by Gopalakrishnan S et al⁽⁹⁾ showed that more than 80% of HCWs in India had adequate knowledge, positive attitude, and practiced safely most of the time. A multinational study done by Masoud AT et al⁽⁶⁾ among the public concludes that overall, the participants had fair knowledge (mean score: 19.24±3.59) and attitudes (3.72±2.31) and good practices (12.12±1.83) regarding COVID-19. In a study by Chowdhury P et al⁽¹⁾ only 10% of the ASHAs had adequate knowledge, 30.9% showed positive attitude and 88% adhered to the good practices. In our study none of the sociodemographic variables were found to be significantly associated with the overall score but knowledge score has been found to be significantly associated with qualification (p=0.038) and post category (p=0.000). In a study by Padmanaban S et al⁽¹¹⁾ knowledge of higher education students towards COVID-19 was significantly associated with the socio-demographic variables such as marital status (p < 0.05); programme of study (p < 0.01); field of study (p < 0.01); the locality (p < 0.01) and socioeconomic status (p < 0.01). A study by Lee M et al⁽¹³⁾ females (β = 0.06, p < 0.05) and individuals with higher levels of education (β = 0.06, p < 0.05) demonstrated higher levels of knowledge. In a study done by Luo YF et al⁽¹³⁾ the sociodemographic status of the participants (public) revealed obvious differences in the preventive behaviors; females had better preventive

behaviors than males such as cooperating with the epidemic prevention hygiene habits.

Our study participants (HCWs) lacked adequate knowledge about preference of Nitrile gloves over latex gloves which is most important in the hospital settings. Also the inadequate knowledge regarding minimum distance to be maintained with the patient under home quarantine may promote the transmission of disease. Only 42.4% denied that most COVID-19 cases are severe and cannot recover without treatment. If HCWs would not have correct and sufficient knowledge how could they educate the patients and public in prevention of COVID-19. Also, it is important for them to understand that all health care workers should play role in combating COVID-19 pandemic. Thus, this inadequacy needs to be addressed by training and retraining and issuing latest SOPs to HCWs followed by time to time evaluation.

Our study is a novel study which had not been conducted in Himachal Pradesh in the past. Since the study has been conducted among in-service HCWs of various post categories, this will provide actual picture of KAP regarding COVID-19 in the state. There are certain limitations of the study also. The questionnaire used was not sufficient and validated one to assess the KAP regarding COVID-19. Moreover, a big sample size may be needed for countrywide external validity.

CONCLUSION

Overall 81.2% had good level, 18.8% had fair and none of the HCWs in Himachal Pradesh had poor level of overall KAP regarding COVID-19. As the world continues to battle the pandemic of COVID-19, evaluating the current KAP of the healthcare workforce regarding COVID-19 is paramount for winning this battle. The gaps are to be addressed by devising effective Standard operating Procedures (SOPs) and awareness campaigns and trainings among HCWs so that they can practice and educate patients and public regarding preventive measures for COVID-19 including vaccine hesitancy. The same study can be conducted on larger samples and could be replicated in different settings for better generalization.

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