

## ORIGINAL ARTICLE

# Impact of Training on Awareness of COVID-19 among The Health Care Workers in A Tertiary Care Hospital of Dehradun

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## Citation

Naz F, Ohri P, Sharma A, Spandana BS, Gupta K. Impact of Training on Awareness of COVID-19 among The Health Care Workers In A Tertiary Care Hospital of Dehradun. Indian J Comm Health. 2022;34(1):20-25. <https://doi.org/10.47203/IJCH.2022.v34i01.005>

Source of Funding: Nil Conflict of Interest: None declared

## Article Cycle

Received: 30/10/2021; Revision: 12/01/2022; Accepted: 05/03/2022; Published: 31/03/2022

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## Abstract

**Background:** Novel Corona virus infection (Covid-19) was declared global pandemic by WHO infecting more than 118,000 cases in 114 countries and the number of deaths counting to 4291. WHO recommends the only strategy to limit the spread of Corona virus is only by prevention itself. **Aim and Objective:** To assess the awareness among Health Care Workers on covid-19 infection. To compare the level of knowledge among the study participants and to assess the impact of training about the knowledge on covid-19 control. **Material and methods:** The study was conducted by the Research team of Community Medicine Department, SGRRIM&HS, Dehradun between 1st October to 31st December 2020. Self-administered, pre-tested questionnaire was used to assess the knowledge and awareness among health care workers. Data collected and analysed using SPSS software for different parameters. **Result:** A total of 421 health care workers participated in the present study. Majority of the study participants were female with 346 (82.2%) while 75 (17.8%) of them were male. Independent t-test was used to compare pre and post-test values with Socio-demographic profile, designation, and work place of the respondents. **Conclusion:** Improvement in the knowledge and awareness among health care workers was observed post training.

## Keywords

Covid-19 Pandemic, Awareness, Frontline workers.

## Introduction

Novel Corona virus infection (Covid-19) is a global pandemic declared by WHO on March 11, 2020. It has been observed that the spread of infection has led to uncountable deaths in more than 114 countries(1). It is transmitted through large droplets produced during sneezing & coughing, can transverse not more than 6 feet (almost 2 meters) by both symptomatic and asymptomatic patients and by indirect contact(2). On January 27th 2020, the first COVID-19 infected case was reported in a 20 year old female, in India, in the

Emergency Department in General Hospital Thrissur, Kerala(3)

The symptoms include dry cough, fatigue & fever leading to serious symptoms such as shortness of breath & chest pain(4). The contaminated droplets can get settled on the surfaces like plastics, cardboards etc(5). Cross infection through mucus membrane of eyes, nose and mouth may lead to this infection. So, it is advised to frequent hand washing with soap and water(6). WHO recommended prevention is the only strategy to protect from spread of Corona virus.

Preventive measures include regular hand washing, social distancing, avoiding close contact and following cough

etiquettes like covering nose & mouth while sneezing & coughing. In this pandemic, health care workers are vulnerable to virus exposure, long working hours, psychological stress, fatigue, physical violence, Occupational burnout and Stigma etc. Lack of awareness among the health care workers may lead to delayed case identification & decrease in the quality of the treatment offered eventually leading to the spread of the pandemic(1). The origin and spread of infection among humans is unknown, but the rapid human spread has been confirmed globally(7). The present study aimed, to assess the knowledge and awareness regarding covid-19 control among the healthcare workers in a tertiary health care setup, in Dehradun.

### Aims & Objectives

1. To assess the awareness among nurses, technicians, housekeeping staff and ward attendants regarding covid-19 infection
2. To compare the level of knowledge among staff nurses, technicians, housekeeping staff and ward attendants regarding covid-19 infection.
3. To assess the impact of training about the knowledge on covid-19 control among the study participants.

### Material & Methods

**Study design:** Institutional based observational study

**Place of study:** Department of Community Medicine of SGRRIM& HS, and Shri Mahant Indiresht Hospital, Dehradun.

**Duration of study:** Three months (October 2020 to December 2020)

**Sampling Technique:** Nurses, housekeeping, security staffs, technicians and attendants of SMIH were selected by purposive sampling technique. Out of 1682 Health care workers, 421 participants were included in the study by total enumeration method.

**Study tool:** A validated and self-administered questionnaire, translated both in English and Hindi were distributed among the study participants.

**Inclusion criteria:** All the health care workers of SGRRIM&HS willing to participate in the study by giving their verbal consent.

**Exclusion criteria:** Participants who were not able to read and write and the employees who were not willing to give consent were excluded from the study.

**Methodology:** The study was conducted by the Department of Community Medicine comprising of Doctors (faculty and PG students). The study participants were assembled in a hall. The respondents were seated with social distancing and Sanitization was properly followed while conducting each session. The objective and purpose of the study was duly explained. A self administered, pre tested questionnaire containing 20 multiple choice questions with one correct answer each, was distributed among the respondents. The

questionnaire contained socio demographic details and on Covid-19 infection under the following domains - Hand hygiene, Personal Protective Equipment (PPE), Infection control and biomedical waste disposal which was succeeded by numerous health education sessions mainly aimed at control measures for Covid-19. This included two way communication between the research team and the respondents. Audio visual aids were also used to keep the session interesting and informative. Pre test questionnaire was re-administered as a post test after the session to assess the impact of training. Session on health education was held to refresh and consolidate the knowledge. There was due addressal of the queries of participants.

**Statistical analysis** Data was refined, compiled and tabulated using Microsoft Excel and analyzed using SPSS 26.0 version. Data was compared using cross tabulation and paired student t-test to find association and significance between the study variables. Confidence interval was taken as 95%. Less than 0.05 value of P was taken as statistically significant.

### Results

In this study 421 participants in total were taken up. Majority of them were females 346 (82.2%) followed by males 75 (17.8%) as in table1. According to working place, majority of the respondents 115(27%) were from Surgery department and about 99(23.4%) were ICU staff, followed by medicine department with 87(20.6%) and staff from Covid-19 ward were 3(0.7%). According to educational qualification, maximum participants were General Nursing and Midwifery (GNM) 266(63.2%) followed by BSc Nursing and participants completed 10th class were 54(12.9%) and the least respondents were Auxilliary Nursing and Midwifery (ANM) 3(0.7%). According to job designation, out of 421 study participants maximum respondents were staff nurse 320(76%) followed by ward attendants 96(22.8%) and the least were those working in OT 2(0.5%). Maximum participants were in the age group of 25 – 29 yrs with 147(34.9%) and the minimum number belonged to age  $\geq 45$  yrs were 17(4%). ([Table 1](#))

Independent t-test was applied to compare between each pre and post test values with Socio-demographic profile, designation, and work place of the study participants. P value of  $<0.05$  was taken as statistically significant which was observed among all the variables except for participants working in COVID and private ward and for participants with educational qualification of ANM and class 8th as in ([Table 2](#)).

When compared age with pre and post test scores, maximum improvement of average scores was seen in the respondents belonging to  $\geq 45$  yrs, scoring 7.8 followed by age group of 20-24 yrs, scoring 6.3 as in the ([Table.3](#)).

In Table 4, questions in the tests with their pre and post test scores were compared. Maximum improvement was seen in question no.5 from 69(16.3%) to 340(80.7%)

followed by question no. 9 from 64(15.2%) to 236(56%) post training.

In (Figure 1), educational qualification with their pre and post test scores was compared. The participants with Bachelor of Arts (BA) degree showed improvement in the average score from 5.8 to 13.6. Comparison between job designation versus pre and post test scores showed that there was improvement in the average score of technicians from 9 to 17 post training which was shown in the (Figure 2). It was found that male respondents had maximum increase in the average score post training that is from 7.5 to 13.9 which is depicted in (Figure 3)

## Discussion

Covid-19 pandemic is a global emergency effecting people. Healthcare workers are at the maximum risk of exposure while giving care to the infected. Hence, HCWs should be well aware about the preventive measures on Covid-19. Therefore, it is vital to assess the knowledge and awareness among health care workers in a tertiary care setup on Covid-19 awareness training. During our search for articles we could not find much of references related to this particular topic. Thus it further motivated us to carry research on this topic which would be of help for fellow researchers.

The study included 421 respondents, out of them, female 346(89.2%) were majority when compared to male 75(17.8%). Regarding working place of study subjects most of them were from surgery ward 115(27%) and least were from COVID ward 3(0.7%). Majority of the participants were 25-29 yrs with 147(34.9%) and about 17(4%) respondents were above the age of 45 yrs.

When mean pre and post test scores were analysed, maximum variables (gender, workplace, education and designation) showed statistical significance.

According to a study conducted by Nallani et.al on KAP among Health care professionals (4), showed 63.47% subjects had good knowledge regarding Covid-19. Another study conducted by Zhong BL, et.al(8) on KAP towards Covid-19 among Chinese residents showed that over 90% of the participants had correct knowledge. Similarly, study by Clements JM et.al on Knowledge and behaviour among American residents during the beginning of COVID 19 pandemic showed 80% of the study subjects had good knowledge (9)

## Conclusion

The present study depicts improvement in the awareness of preventive measures among the study participants post training.

## Recommendation

Information, Education, Communication (IEC) activities should be thoroughly conducted to sensitise HCWs on

simple measures like hand washing, social distancing, use of masks, vaccination.

## Limitation of the study

Our study may not reflect and reproduce the same outcome when conducted in other institutions which is a major limitation of our study. Other limitations are, as it is a self-administered questionnaire which completely depends on the participant's honesty and recall ability, which may give rise to recall bias. Ethical committee was not timely approached due to the lockdown.

## Relevance of the study

Lack of research material on this topic shows the lacunae which should be filled only by further study on knowledge and awareness of Covid-19 among health care workers.

## Authors Contribution

All authors contributed equally.

## Acknowledgement

We acknowledge all our study participants for their time and patience without which the study wouldn't be possible and we would also like to thank the faculty members of our department for their timely input and assistance during the study.

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**Tables****TABLE 1 SOCIO-DEMOGRAPHIC DISTRIBUTION OF HEALTH CARE WORKERS**

VARIABLES	FREQUENCY (n=421)	PERCENTAGE (%)
<b>Age(in years)</b>		
20 – 24	141	33.5%
25 – 29	147	34.9%
30 – 34	56	13.4%
35 – 39	41	9.7%
40 – 44	19	4.5%
≥45	17	4%
<b>Gender</b>		
Male	75	17.8 %
Female	346	82.2%
<b>Qualification</b>		
8th	6	1.4%
10th	54	12.8%
12th	30	7.1%
ANM	3	0.7%
GNM	266	63.2%
BA	8	1.9%
BSc	54	12.9%
<b>Designation</b>		
OT	2	0.5%
Staff Nurse	320	76%
Technician	3	0.7%
Ward Attendant	96	22.8%
<b>Ward</b>		
COVID	3	0.7%
Surgery	115	27%
De-addiction	5	1.2%
Emergency	10	2.4%
ICU	99	23.4%
Medicine	87	20.6%
OBG	31	7.3%
OPD	38	9%
Private Ward	20	4.7%
Pulmonary	13	3.1%

**TABLE 2 MEAN PRE AND POST TEST SCORES OF HEALTH CARE WORKERS**

VARIABLES	Pre test-score Mean ± Std. Deviation	Post test -score Mean ± Std. Deviation	P value
<b>Gender</b>			
Male	7.59 ± 2.991	8.58±2.923	0.00
Female	13.93±3.326	14.48±3.521	0.00
<b>Qualification</b>			
8 <sup>th</sup>	5.00±2.530	1.17±6.047	0.01
10 <sup>th</sup>	7.13±3.314	12.00±4.370	0.00
12 <sup>th</sup>	6.50±2.460	13.07±3.841	0.00
ANM	9.33±2.082	11.67±4.509	0.25
GNM	8.81±2.762	15.06±2.916	0.00
BA	5.88±2.232	13.63±2.774	0.00
BSc	9.44±2.905	14.76±3.273	0.00
<b>Designation</b>			

VARIABLES	Pre test-score	Post test -score	P value
OT	9.00±1.414	12.50±2.121	0.00
Staff Nurse	8.93±2.753	14.98±3.011	0.00
Technician	9.00±1.00	17.00±1.00	0.00
Ward Attendant	6.60±2.986	12.32±4.186	0.00
<b>Ward</b>			
COVID	7.00±3.606	14.00±3.00	0.15
Surgery	8.00±2.767	13.98±3.205	0.00
De-addiction	8.60±2.702	14.40±5.367	0.00
Emergency	8.80±2.936	16.30±3.302	0.00
ICU	8.72±3.134	14.42±3.756	0.00
Medicine	8.90±3.019	14.88±3.634	0.00
OBG	9.06±2.407	15.06±2.932	0.00
OPD	7.47±3.096	13.21±3.589	0.00
Private Ward	8.15±2.978	15.06±2.280	0.24
Pulmonary	7.69±2.869	13.46±4.156	0.00

\*P value <0.05 is taken as statistically significant

**TABLE 3 COMPARISON OF AGE VS PRE AND POST TEST SCORES AMONG HEALTH CARE WORKERS**

AGE (in years)	n =421	PRE TEST SCORE	Avg. score	POST TEST SCORE	Avg. score
20 - 24	141	1203	8.5	2099	14.8
25 - 29	147	1244	8.4	2154	14.6
30 - 34	56	485	8.6	816	14.5
35 - 39	41	306	7.4	500	12.1
40 - 44	19	135	7.1	240	12.6
≥45	17	126	14.8	228	26.6

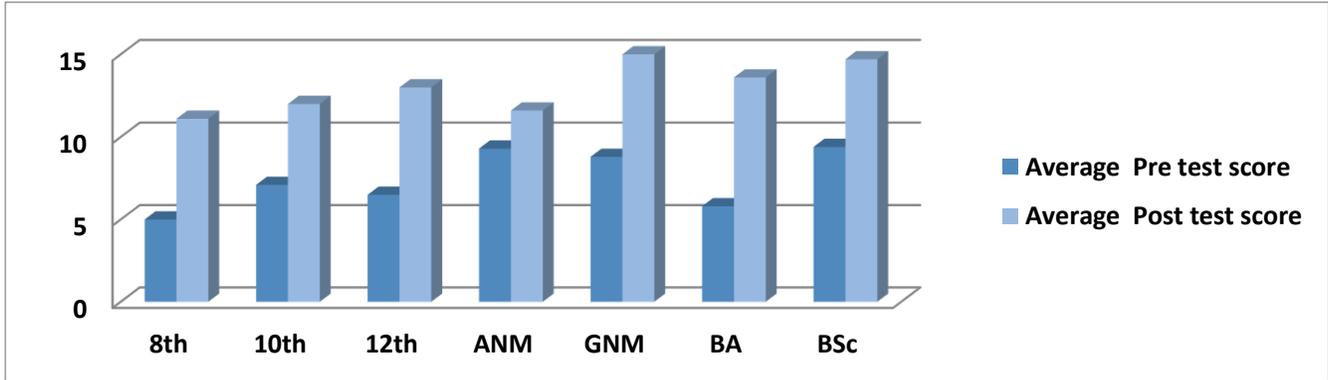
**TABLE 4 COMPARISON OF QUESTIONS WITH PRE AND POST TEST SCORES AMONG HEALTH CARE WORKERS**

QUESTION NO.	PRE TEST SCORE (n=421)	Percentage (%)	POST TEST SCORE	Percentage (%)
1. COVID – 19 Biomedical Waste disposals is done in	190	45.1%	335	79.5%
2. Broken ampoules to be disposed in:	145	34.4%	258	61.2%
3. To make 1% Sodium Hypochlorite from 10% Sodium Hypochlorite:	185	43.9%	250	59.3%
4. Spill of COVID – 19 Positive patients to be soaked with 1% Sodium Hypochlorite for:	130	30.8%	348	82.6%
5. Once 1% Sodium Hypochlorite made is used for	69	16.3%	340	80.7%
6. Linen of the COVID – 19 positive patients to be disinfected 1 <sup>st</sup> with:	180	42.7%	325	77.1%
7. After removal of COVID-19 waste, Dustbin to be sprayed with:	191	45.3%	354	84%
8. Sneezing and coughing etiquette:	170	40.3%	257	61%
9. Floor mopping done with:	64	15.2%	236	56%
10. After removal of catheter, drains, tubes etc, from the dead body of COVID-19 positive patient, the holes or the wounds should be disinfected with:	151	35.8%	308	73.1%
11. After removal of dead body from mortuary, the mortuary should be:	182	43.2%	363	86.2%
12. While removing the dead body attendants should wear	363	86.2%	386	91.6%
13. After every use of COVID – 19 Patients ambulance should be	320	76%	401	95.2%
14. During doffing of PPE kit for removal of mask, we should use:	100	23.7%	259	61.5%
15. Hand hygiene includes:	276	65.5%	296	70.3%
16. Triple layer mask can be used for:	191	45.3%	287	68.1%

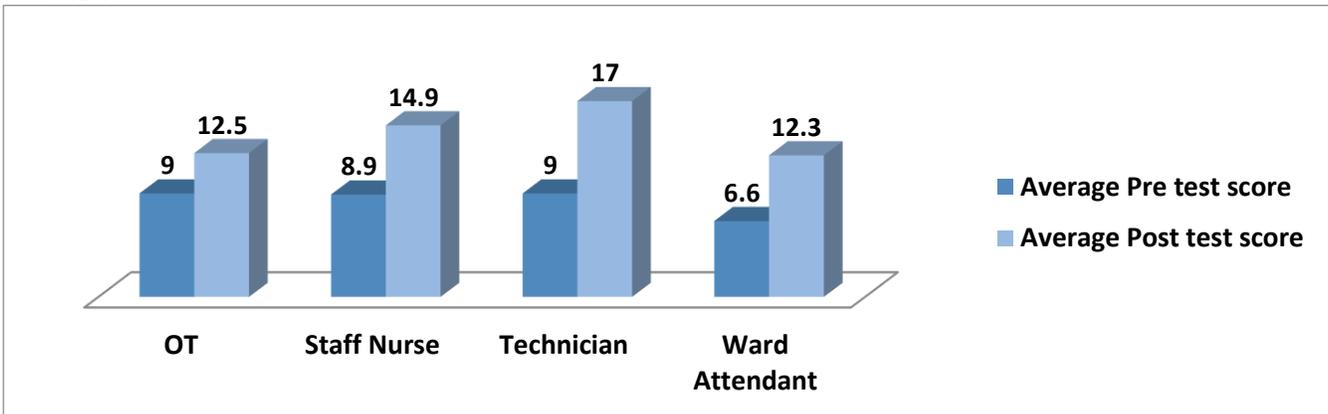
17.	Donning of PPE kit done in:	230	54.6%	285	67.6%
18.	1 <sup>st</sup> step in donning is:	226	53.6%	315	74.8%
19.	As per AIIMS Delhi guidelines, 1st N-95 mask can be again repeated on:	80	19%	199	47.2%
20.	In Doffing area 2 chairs should be present-	95	22.5%	252	59.8%

**Figures**

**FIGURE 1 COMPARISON OF EDUCATION VS PRE AND POST TEST SCORES AMONG HEALTH CARE WORKERS**



**FIGURE 2 COMPARISON OF DESIGNATION VS PRE AND POST TEST SCORES AMONG HEALTH CARE WORKERS**



**FIGURE 3 COMPARISON OF GENDER VS PRE AND POST TEST SCORES AMONG HEALTH CARE WORKERS**

