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# Effectiveness of video assisted teaching on respiratory protection for housekeeping workers during COVID-19 pandemic

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**Abstract**

The COVID-19 is a respiratory virus which causing illness. In this case, healthcare workers are likely to be exposed to COVID-19 because they are closely contacted by patients who are suspected, probable or confirmed COVID-19. The best way to prevent and reduce the transmission is to be educated about the COVID-19 virus, its causes, how it is transmitted and about respiratory protection by effective programs like video assisted teaching. The present study aims to assess the effectiveness of video assisted teaching on respiratory protection for Housekeeping Workers during COVID-19 Pandemic. A quantitative pre-experimental design (one group pre-test, post-test design) was conducted among 40 Housekeeping workers. A convenient sampling technique was used to select samples. The pre-test was conducted by a self-structured questionnaire and on the same day Video Assisted Teaching was provided. After a week, a post test was conducted to find out the effectiveness of Video Assisted Teaching. The study results show that the pre-test mean score of knowledge was 11.90 with standard deviation 2.44 and the post-test mean score of knowledge was 20.83 with standard deviation 1.79. The calculated paired 't' test value of t = 18.258 was found to be statistically significant at $p<0.0011$ level. This indicates that Video Assisted Teaching on knowledge regarding respiratory protection administered to housekeeping workers was found to be effective in improving the post-test level of knowledge regarding respiratory protection among housekeeping workers during COVID-19.

**Keywords:** COVID-19, respiratory protection, video assisted teaching

## Introduction

India braces for the COVID-19 pandemic; healthcare workers on the frontlines are particularly vulnerable to this infection. The virus that causes COVID -19 was initially called as 2019-nCoV and was then termed as syndrome coronavirus 2 (SARS-CoV-2) by the International Committee on Taxonomy of Viruses (ICTV). It is a new strain discovered in 2019 which was not found previously in humans.

Previously, the severe acute respiratory syndrome-coronavirus (SARS-CoV) and the Middle East respiratory syndrome-coronavirus (MERS-CoV) have been known to affect humans. Outbreaks of respiratory disease caused by these viruses seem to have originated in animals before moving into other hosts like humans. MERS-CoV was found to be transmitted from Arabian camels to humans, whereas SARS-CoV was transmitted from civet cats to humans. SARS-CoV-2 seems to have originated from bats and first reports of cases were from Wuhan, Hubei Province in China, suggesting an animal-to-person spread from a live animal market. The virus then spread outside Hubei and subsequently, to the rest of the world via human transmission. Several countries have now reported community spread. The World Health Organization (WHO) declared coronavirus disease as a pandemic on March 11, 2020 [1].

COVID-19 also referred to as coronavirus disease 2019 is a rising respiratory disease that is caused by a novel Coronavirus which was initially detected in December 2019 in Wuhan, China. The disease is extremely infectious and therefore the outbreak has been declared a worldwide pandemic by the WHO. The first case of coronavirus pandemic in India was reported on 30th January 2020 [2].

Official names have been announced for the virus responsible for COVID-19 (previously known as "2019 novel coronavirus") and the disease it causes. The official names are coronavirus disease (COVID-19), severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [3].

In patients with Coronavirus disease 2019 (COVID-19), the most common clinical symptoms are fever and cough, shortness of breath, and other breathing difficulties in addition to other nonspecific symptoms, including headache, dyspnoea, fatigue, and muscle pain. Moreover, some patients also report digestive symptoms such as diarrhoea and vomiting. COVID-19 was similar to SARS and Middle East respiratory syndrome (MERS) in some clinical manifestations [4].

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The best way to prevent and slow down transmission is to

be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes [5].

Health care workers (HCWs) are the primary sector in contact with patients and are an important source of exposure to infected cases in health care settings; thus, HCWs are expected to be at high risk of infection. By the end of January, the WHO and Centres for Disease Control and Prevention (CDC) had published recommendations for the prevention and control of COVID-19 for HCWs [6].

A healthcare worker is one who delivers care and services to the sick and ailing either directly as doctors and nurses or indirectly as aides, helpers, laboratory technicians, or even medical waste handlers. There are approximately 59 million healthcare workers worldwide. Recognizing the vital role played by health care workers as "the most valuable resource for health" the World Health Organization (WHO) had declared the years 2006 to 2015 as the "The decade of the human resources for health." Healthcare industry is one of the most hazardous environments to work in. Employees in this industry are constantly exposed to a complex variety of health and safety hazards in the course of their work. Hazards range from biological exposure to disease [7].

As of 28th December 2020 79,673,754 people have been affected by COVID-19 worldwide. About 1,761,381 lives have been lost. (Source: WHO) SAARC region comprises of over 21% of the world's population which remains vulnerable towards COVID-19. The Member States have reported 1, 15, 42, 043 cases, a total of 1, 68, 720 deaths in the region, and 1, 09, 84, 545 recovered cases [8].

A study recently published in the International Journal of Infectious Diseases from thirty-seven countries found that nearly 300,000 healthcare workers had been infected with Covid-19. In addition to the high number of infections, over 2,500 healthcare workers died from the virus as of August 15th [9].

Health workers are the most likely to be exposed to COVID-19 because they are in close contact with patients with suspected, probable or confirmed COVID-19.

In areas of community or cluster transmission, health workers, caregivers and visitors should wear a mask at all times when in the health facility, even if physical distancing can be maintained. Masks should be worn throughout their shifts, apart from when eating, drinking or needing to change the mask for specific reasons:

**Health workers and caregivers include:** doctors, nurses, midwives, medical attendants, cleaners, community health workers, and any others working in clinical areas.

Health workers must remember to combine hand hygiene with any time they touch their mask or face, before and after putting on and removing their masks, as well as before they touch them to readjust them.

In areas with sporadic spread of COVID-19, health workers in clinical areas should wear medical masks throughout their shift apart from when eating, drinking or needing to change the mask for specific reasons.

Health workers should continue to physically distance and avoid unnecessary close contact with colleagues and others in the facility when not providing patient care.

Respirator masks are recommended for use where aerosol generating procedures are in place for a suspect/confirmed COVID-19 patient. In these settings, WHO recommends the use of airborne and contact precautions?

As health workers have been infected with COVID-19 outside of health facilities, it is critical that health workers, as all people, follow the guidance to protect themselves from infection when outside of a health facility [10].

Risk Factors for Severe Acute Respiratory Syndrome Coronavirus 2 Infection in Hospital Workers: Results from a Screening Study in New Jersey, United States in spring 2020. The proportion of participants testing positive was highest for phlebotomists (23.9%), maintenance/ housekeeping (17.3%), dining/food services (16.9%), and interpersonal/support roles (13.7%) despite lower levels of direct patient care duties. Positivity rates were lower among doctors (7.2%) and nurses (9.1%). (Emily S Barrett *et al.*, 2020) [11].

Decided to study knowledge and associated attitude among healthcare workers at our hospital to enable further policies regarding awareness programs. We provided 104 employees (front desk, housekeeping, pharmacists, security, and technical staff) with a validated questionnaire to assess knowledge and attitude regarding the COVID-19 pandemic. Results: About 69.2% of respondents demonstrated a good knowledge level while positive attitude was obtained in 74% respondents. Higher education and profession (technical staff) showed a trend in determining a good level of knowledge. Less than 80% score in the attitude section was associated with the source of information being newspaper and peers/family. The knowledge score and attitude regarding COVID-19 is satisfactory within the hospital staff. Increased educational input involving the housekeeping, security, and pharmacy staff may improve COVID-19 related knowledge. (Madhavi Singh *et al.*, 2020) [12].

Where Doctors, nurses, and paramedics are trained and aware of respiratory protection. The main goal of the current study was to measure the level of knowledge on respiratory protection for Housekeeping staff during COVID-19 pandemic and to detect socio-demographic variables related to a satisfactory level of them and to explore knowledge associated with the prevention of related to the occupational exposure of coronavirus infection.

**Methods and Materials**

The quantitative approach with Pre-experimental (one group pre- test, post-test design) research design was conducted to assess the effectiveness of video assisted teaching on respiratory protection for housekeeping workers during COVID-19 pandemic. The formal permission was obtained from the housekeeping department of Saveetha Medical College and Hospital. A total of 40 housekeeping workers were selected by using a convenient sampling method. The inclusion criteria for the samples were the housekeeping workers who work in the hospital, who are available during the study, who are willing to participate, who can read, write and understand Tamil and English. The exclusion criteria for the samples were the housekeeping workers who are not working in the hospital, who are not available during the

study, who are not willing to participate, who can read, write and understand Tamil and English. The purpose of the investigation was explained by the investigator to the samples and a written informed consent was obtained before collecting the data. The data collection includes collecting demographic data and assessed (pre-test) the knowledge of Respiratory Protection by using a self-structured questionnaire tool. The planned teaching programme was carried out on the same day. After a week, a post-test was conducted among the sample using the same questionnaire, and therefore the collected data were tabulated and analyzed by using descriptive and inferential statistics.

## Results and Discussion
### Section A: Demographic characteristics
Among 40 samples, where most of the housekeeping workers, 35(87.5%) were female, 26(65%) were aged between 40 -50 years, 32(80%) had middle school education, 38(95%) had an income of Rs.8000 – 15000, 37(92.5%) were residing in rural area, 40(100%) had 3 – 4 members in their family, 31(77.5%) were married and 32(80%) had TV as source of knowledge about COVID-19.

### Section B: Assessment of level of knowledge on respiratory protection for housekeeping workers during Covid-19.
The present study shows that in the pre-test, 29(72.50%) had moderate knowledge and 11(27.50%) had inadequate knowledge on respiratory protection for housekeeping workers during COVID-19.

Whereas in the post test, 23(57.50%) had adequate knowledge and 17(42.50%) had moderate knowledge on respiratory protection for housekeeping workers during COVID-19.

**Table 1:** Frequency and percentage distribution of level of knowledge on respiratory protection for housekeeping workers during COVID-19. n = 40

| Knowledge | Inadequate (0 – 10) | | Moderate (11 – 20) | | Adequate (21 – 30) | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Pretest | 11 | 27.50 | 29 | 72.50 | 0 | 0 |
| Post Test | 0 | 0 | 17 | 42.50 | 23 | 57.50 |

The present study finding is supported by Marzieh Honarbakhsh (2017) a cross-sectional study was conducted with 284 employees of educational hospitals affiliated to Shiraz University of Medical Sciences. Results: Average scores of knowledge, perceptions and practice of HCWs on using RPE were 66.50% ± 11.93%, 80.32% ± 10.05% and 70.12% ± 20.51%, respectively. A significant association was observed between knowledge and age, job experience, history of using respirator, marital status and risk of respiratory hazards in the workplace and perceptions with age and education and practice with education. Conclusion: Studied HCWs had positive perceptions and moderate level of knowledge and practice about the use of RPE. Full implementation of respiratory protection program in the hospitals would be helpful to improve the knowledge, perceptions and practices of HCWs regarding RPE [13].

### Section C: Effectiveness of Video Assisted Teaching On Knowledge Regarding Respiratory Protection for Housekeeping Workers During Covid-19.

**Table 2:** Comparison of pre-test and post-test level of knowledge regarding respiratory protection for housekeeping workers during COVID-19. n = 40

| Knowledge | Mean | S.D | Paired 't' test Value |
|---|---|---|---|
| Pretest | 11.90 | 2.44 | t = 18.258 |
| Post Test | 20.83 | 1.79 | p = 0.0001 S*** |

***$p < 0.001$, S – Significant

The present study depicts that the pre-test mean score of knowledge was 11.90 with standard deviation 2.44 and the post-test mean score of knowledge was 20.83 with standard deviation 1.79. The calculated paired 't' test value of t = 18.258 was found to be statistically significant at $p < 0.0011$ level.

This clearly infers that there was significant improvement was observed that video assisted teaching on knowledge regarding respiratory protection administered to housekeeping workers was found to be effective in improving the post-test level of knowledge regarding respiratory protection among housekeeping workers during COVID-19.

Another study was also supported by Vanya Singh *et al.*, (2020) a quasi-experimental study, one group pre and post-test design, using Google Questionnaire forms was conducted at a tertiary care centre. The training was assisted by trained tutors, and three in house videos were demonstrated to the participants regarding specific IPC measures; "Do's and Don'ts;" "Hand hygiene and personal protective equipment's (PPE)" and "Environmental cleaning and disinfection." The level of knowledge increased significantly by 16% in the post-test. Statistically significant association between the levels of knowledge in pre-test as well as post-test scores. The participants were satisfied with the video assisted trainings and willing to use videos for revision [14]. Another investigation which supported the current investigation is Mohammad Alkot (2016) [15] an interventional prospective study was conducted on a 398 HCWs in primary health-care centres of Makkah Al-Mukarramah.

**Result:** The level of satisfactory knowledge, positive attitude, and good practice of studied HCWs significantly improved after exposure to the program, as it increased from 43.3%, 45%, and 57.4% before intervention to 67.9%, 63.8%, and 64.8% after intervention, respectively (*P* < 0.001). Older age, previous training, and experience were positively correlated with higher scores of knowledge [15].

### Section D: Association of level of knowledge with selected demographic variables
None of the demographic variables had not shown statistically significant association with post-test level of knowledge regarding respiratory protection among housekeeping workers during COVID-19.

### Conclusion
Thus the findings of the present study revealed that, the video assisted teaching on respiratory protection is effective

intervention to improve knowledge on respiratory protection. Video assisted teaching was conducted to enhance the knowledge of housekeeping workers which is essential for performing their activities by making awareness on respiratory protection and thereby to update their knowledge.

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### Reference
1. Modi PD, Nair G, Uppe A *et al*., COVID-19 Awareness Among Healthcare Students and Professionals in Mumbai Metropolitan Region: A Questionnaire-Based Survey. Cureus, 2020, 12(4).
2. Mahato C, Suryavanshi S. Knowledge, attitude, and practices towards COVID-19 among nurses, ward attendants, and housekeeping staff at a tertiary psychiatric institute in India. International Journal of Community Medicine and Public Health 2020;7(12):5035-43.
3. World Health Organization. Naming the coronavirus disease (COVID-19) and the virus that causes it, 2020.
4. Ouassou H, Kharchoufa L, Bouhrim M *et al*., The Pathogenesis of coronavirus disease 2019 (COVID-19): Evaluation and prevention. Journal of immunology research, 2020.
5. World Health Organization. There is a current outbreak of Coronavirus (COVID-19) disease, 2020.
6. Bhagavathula AS, Aldhaleei WA, Rahmani J *et al*., Knowledge and Perceptions of COVID-19 Among Health Care Workers: Cross-Sectional Study. JMIR public health and surveillance, 2020, 6(2).
7. Joseph B, Joseph M. The health of the healthcare workers. Indian journal of occupational and environmental medicine 2016;20(2):71-72.
8. SAARC Disaster Management Centre (IU). COVID-19 cases in the SAARC Member States, 2020.
9. Haseltine WA. Nearly 300,000 Healthcare Workers Have Been Infected with Covid-19 Worldwide, Threatening Health Systems, 2020.
10. World Health Organization. Coronavirus disease (COVID-19): Masks, 2020.
11. Barrett ES, Horton DB, Roy J *et al*., Risk Factors for Severe Acute Respiratory Syndrome Coronavirus 2 Infection in Hospital Workers: Results from a Screening Study in New Jersey, United States in Spring 2020. In Open forum infectious diseases (US: Oxford University Press 2020;7(12):534.
12. Singh M, Lath D, Reddy J, Balakrishna N. Knowledge and attitude regarding the COVID-19 pandemic among healthcare workers at a medical college and hospital in South India. National Journal of Physiology, Pharmacy and Pharmacology 2020;10(12):1065-1071.
13. Honarbakhsh M, Jahangiri M, Ghaem H. Knowledge, perceptions and practices of healthcare workers regarding the use of respiratory protection equipment at Iran hospitals. Journal of infection prevention 2018;19(1):29-36.
14. Singh V, Supehia S, Gupta PK *et al*., Effectiveness of video modules in infection control trainings during COVID-19 pandemic: A quasi-experimental study in tertiary care institute. Journal of Education and Health Promotion 2020;55:56.
15. Alkot M, Albouq MA, Shakuri MA, Subahi MS. Knowledge, attitude, and practice toward MERS-CoV among primary health-care workers in Makkah Al-Mukarramah: an intervention study. Int J Med Sci Public Health 2016;5(5):952-60.