

Effectiveness of Awareness Video on Knowledge, Attitude and Practice Regarding Infection Control Measures Among Housekeeping Employees in Tertiary Care Hospital at Puducherry

Lavanya S¹, Kripa Angeline A^{2*}, Prabavathy S³

¹Dept of OBG Nursing, Kasturba Gandhi Nursing College, Sri Balaji Vidyapeeth(Deemed-to-be-University), SBV Campus, Pillaiyarkuppam, Puducherry 607 402, India.

²Dept of Medical Surgical Nursing, Kasturba Gandhi Nursing College, Sri Balaji Vidyapeeth(Deemed-to-be-University), SBV Campus, Pillaiyarkuppam, Puducherry 607 402, India.

³Dept of Mental Health Nursing, Kasturba Gandhi Nursing College, Sri Balaji Vidyapeeth(Deemed-to-be-University), SBV Campus, Pillaiyarkuppam, Puducherry 607 402, India.

*Corresponding author:
angelinekripa@gmail.com

Abstract

Introduction: The prevalence of Hospital acquired infections (HAI) varies widely across the globe. Worldwide, it is estimated that almost 10% of the hospitalized patients acquire at least one HAI. House keeping employees are at high risk of being infected and also, they serve as a tool of spreading infection and also most of them lack in knowledge and practice of infection control measures. Hence a study was planned to evaluate the effectiveness of awareness video on infection control measures among house keeping employees at selected hospital, Puducherry.. **Methodology:** Sixty samples who fit into the inclusion criteria were selected by Simple random Sampling technique. 30 minutes of Awareness video on infection control practices shown to house keeping employees followed by assessment of knowledge, attitude and practice and the differences were noted. The effectiveness was statistically tested by paired t test Result: In evaluation of knowledge, attitude and practice the improvement score was statistically tested by paired t- test which was found to be highly statistically significant at $p < 0.001$ level. Conclusion: It revealed that the awareness video was effective to improve the level of knowledge, attitude and practice among housekeeping employees.

Keywords

Awareness, Knowledge, Attitude, Practice, House Keeping Employees, Infection Control.

Imprint

Lavanya S, Kripa Angeline A, Prabavathy S. Effectiveness of Awareness Video on Knowledge, Attitude and Practice Regarding Infection Control Measures Among Housekeeping Employees in Tertiary Care Hospital at Puducherry. *Cardiometry*; Issue No. 26; February 2023; p. 512-516; DOI: 10.18137/cardiometry.2023.26.512516; Available from: <http://www.cardiometry.net/issues/no26-february-2023/effectiveness-awareness-video>

Introduction:

Hospital acquired infections (HAI) are a significant global health and safety risk for both patients and health care professionals. ¹ Increased diversity in medical treatments, lower patient resistance, and intrusive techniques that provide potential infection pathways are just a few of the reasons that cause infections in hospitalised patients. Health care professionals face a significant difficulty in preventing HAIs. ²

HAI is a serious problem in developed nations, where it affects up to 50% of patients in intensive care units and 5% to 15% of hospitalised patients in regular wards. ³

Worldwide, developed and underdeveloped nations are both impacted by nosocomial diseases. ⁴ One of the main causes of death and a factor in increased morbidity in hospitalised patients is an infection picked up in a medical environment. ⁵ They place a heavy burden on the healthcare professionals. According to WHO prevalence study done in 55 hospitals across 14 countries, nearly 1.4 million people worldwide suffer from infections related complications picked up in hospitals. The highest frequency of nosocomial infection was reported from hospital. ⁶

Infection control among housekeeping personnel was discovered in 19.1% of the 940 health care workers from the 979 patients whose data were evaluated. The seropositivity among the high-risk group of housekeeping employees was 20.3%, and the low-risk group was 7.4%. ⁷

In low and middle income countries, the prevalence of infections related to health care varies from 5.7% to 19.1%. ⁸ The most frequent issues that faced by the hospitalized patients are health care associated infections (HAIs). ⁹

The findings of the study showed that 64% of housekeeping staff members had insufficient awareness of general infection control practices.¹⁰

HAIs affect 9-37% of patients admitted to intensive care units and are present in 5-15% of hospitalized Intensive care unit patients. One out of every 25 hospitalized patients in the United States (US) at any given moment has a HAI.¹¹

The prevalence of HCAI in India is estimated by the International Nosocomial Infection Control Consortium to be 9.06 infections per 1000 intensive care unit (ICU) patient days; the rate of HCAI infection varies between 4.4 and 83.09 percent in various hospitals in India. Overall, HCAIs constitute a severe threat to the Indian Healthcare system since they raise prices, degrade the standard of care provided, and adversely affect patient outcomes in a number of ways.¹²

A face-to-face survey was conducted to evaluate environmental service workers' (ESWs) knowledge, attitudes, and practices on common cleaning and disinfection at three tertiary hospitals in China. Among the 115 participants, 89.1% agreed that environmental cleaning may help to keep patients safe, and 48.8% said they were extremely willing to improve cleaning procedures. The potential of nosocomial infections during daily cleaning was acknowledged by only 15 (11.6%) ESWs. Our research suggests that while ESWs' knowledge of cleaning procedures was adequate, their understanding of occupational safety and health was lacking. An ongoing education and training programme specifically for ESWs is required.¹³

A quasi-experimental study was conducted with 31 housekeeping employees who gave their consent and fulfilled the inclusion criteria for the ICU at a tertiary healthcare centre. Prior to conducting a systematic training programme on infection control measures, baseline knowledge and practices were assessed. Post-test knowledge was evaluated right away, and knowledge and practices were evaluated once more 15 days after the intervention. The findings showed that knowledge significantly improved from the pre-test to the posttest 1 ($p < 0.001$), but knowledge scores decreased from the posttest 1 to the posttest 2 ($p < 0.001$). After the intervention, the practice scores significantly improved ($p < 0.001$). Conclusion: A structured training programme improved the knowledge and application of infection control procedures among housekeeping staff.¹⁴

The training programmes for the medical and paramedical staff include instruction on standard pre-

cautions.¹⁵ They are not the only ones in charge of infection control; all staff members, both medical and non-medical, must cooperate to accomplish this task. The cleaning staff's familiarity and adherence to standard precautions is crucial since they link the complete health care delivery system.¹⁶ Many housekeepers are from lower socioeconomic classes, and because of their lack of knowledge, awareness, and training in handling hazardous waste, they are particularly exposed to toxic waste exposure. Therefore, it is crucial that they receive training and education. Despite the high risk of illness among sanitation workers, many are unaware of how to protect themselves and handle biological waste manually.¹⁷

Employees in the housekeeping industry are essential to the health care delivery system. They intentionally contribute to the cycle of infection in medical settings.¹⁸ House keeping employees are essential in every area of hospital settings. They are at high risk of being infected and also, they serve as a tool of spreading infection and also house keeping employees lack in knowledge and practice of infection control measures. So we felt to undertake the study to assess the effectiveness of awareness video regarding infection control measures on knowledge, attitude and practice among house keeping employees in tertiary care hospital at Puducherry.

STATEMENT OF THE PROBLEM:

A study to assess the Effectiveness of Awareness Video regarding Infection control measures on Knowledge, Attitude and Practice among House Keeping Employees In Tertiary Care Hospital at Puducherry.

OBJECTIVES:

- To assess the knowledge, attitude and practice regarding infection control measures among house keeping employees in tertiary care hospital at Puducherry.
- To evaluate the effectiveness of awareness video on infection control measures among house keeping employees in tertiary care hospital at Puducherry.
- To associate the knowledge, attitude and practice with selected demographic variables.

HYPOTHESES:

H1: Knowledge, attitude and practice on infection control measures differs before and after awareness video.

H2: There will be an association between knowledge, attitude and practice on infection control measures with selected demographic variables among housekeeping employees.

METHODOLOGY:

The present study was carried out at MGMCRI Tertiary care Hospital, Puducherry, India. This study was approved by the Institutional review board (IRB) and the Institutional Human ethical committee (IEC) of Kasturba Ganadhi Nursing College, Sri Balaji Vidyapeeth, Puducherry.

Study primer:

The population of the study was house keeping employees working in various department. It was a Pre experimental one group pre test and post test research design. A total of Sixty eligible participants were selected by convenient sampling technique based on inclusion and exclusion criteria of house keeping employees.

Inclusion and Exclusion criteria

The house keeping employees presented on the day of data collection were included in the study. Employees who were able to read and write tamil or English.. The above participants were included in the study. Any employees unwilling to participate in the study were excluded.

Data collection:

The study was ethically approved by the Institutional human Ethics Committee of Kasturba Gandhi Nursing college, Sri Balaji Vidyapeeth, Puducherry. Informed consent was obtained from the participants. Totally 40 minutes was given to complete the pretest questionnaire regarding assessment of knowledge, attitude and practice on infection control. The participants knowledge regarding infection control measures was assessed by Questionnaire related to source of infection, spread of infection, hand washing, biomedical waste management and infection prevention. One mark was given to correct response and the total score was calculated. The maximum score was 25. The total score of each subject was converted into percentage and interpreted as inadequate (< 50%), moderately adequate(50-75%) and adequate knowledge(>75%). The participants Attitude was assessed by 5 point scale on infection control which included 10 positive and 10

negative statement. The maximum score was 40 and minimum score was 12. High score indicates positive attitude. The practice on infection control was assessed by checklist. The total score for of each sample was converted into percentage and interpreted as good practice, moderate practice and poor practice. Following pretest, the participants were shown the awareness video on infection control measures for 30 minutes which included the source of infection, mode of transmission, biomedical waste management and infection prevention measures. The posttest assessment was done on 7 th day with the same tool.

Statistical Analyses:

Data were analysed using the statistical package for social science version 20(IBM SPSS statistics for windows, version 20.0.Armonk, NY: USA IBM Corp). Descriptive statistics that included frequency, percentage, mean, and standard deviation were used to describe the demographic variables. Paired 't' test was carried out to study the effectiveness of intervention on knowledge, attitude and practice over a period of time within the group.

RESULTS:

Socio demo variables:

All Sixty samples were completed the study. There were no drop outs. The percentage distribution of the demographic variables of house keeping employees as follows. Most of the samples 41 (68.3%) belongs 26-35 years of age, 31(51.7%) were females, 26(43.3%) post-natal mothers underwent primary education, With respect to religion 38(63.3%) of them were Hindu, In years of working, Out of 60 samples 33(55%) were 4-5years of working in hospital, In monthly income, majority of sample 38(63.3%) were above 10000. In area of working 24(40%) were working in OPD, majority of samples 43(71.7%) have underwent training on infection control measures. In source of information, 28(46.7%) have received information regarding infection control measures through media.

The improvement of knowledge, attitude and practice was statistically tested by paired t- test ($t=25.861, 6.423, 27.78$) respectively which was found to be highly statistically significant at $p<0.001$ level. (Table 1)

- In association between the knowledge and practice with selected demographic variables. The demographic variables like age, gender, educational

Table 1 Comparison of the mean& standard deviation of pre and post test level of knowledge, attitude and practice score on infection control measures among house keeping employees.

		Mean	SD	't' test	p- value
Knowledge score	Pre test	6.37	2.551	25.861	P<0.001
	Post test	19.43	2.638		
Attitude score	Pre test	46.35	1.821	6.423	P<0.001
	Post test	48.32	1.761		
Practice score	Pre test	4.22	1.236	27.783	P<0.001
	Post test	9.28	1.968		

qualification, religion, years of working in hospital, monthly income, area of working in hospital, training underwent on infection control were not significantly associated with knowledge and practice. **Hence the stated hypothesis (H2) was not accepted.**

- In Association, the attitude and Training underwent on infection control had a significant association. The p value was 0.046 was highly significant at $p<0.001$ level. There was no significant association with other demographic variables.

DISCUSSION:

The present study was undertaken to determine the effectiveness of awareness video on knowledge, attitude and practice on infection control measures among house keeping employees. In our study, 43.3% had primary level of education or less while about 40% of House Keeping workers were illiterate. Ni K et al. showed, that in their study, 60.5% of sanitation workers were uneducated or with primary education.¹⁹

In the present study, 28.3% of the employees not received any training regarding infection control. This was similar to the study conducted by John et al., 9 % of HCWs reported that they had never received any formal training regarding PPE.²⁰ Although most of the participants (71.7%) affirmed that they participate in one or more training related to infection prevention and control practices, some (28.3%) were not participated in any form of training. These results indicate that the hospital House Keeping workers may serve as a potential risk for transmission of healthcare-associated infections.

On comparing the results obtained from pretest and posttest, improvement in terms of knowledge, attitude and practices was observed. The results showed that no one had adequate knowledge, 55(91.6%) had favorable attitude and 68.3% had moderate prac-

tice which however increased to 65% had adequate knowledge, all 100% had positive attitude and 91.6% had good practice after awareness video towards infection control measures. The study findings are consistent with the similar study supported the result of the study conducted by Singh V et. al., in which There was an improvement in pre-test and post-test knowledge (6.21 to 9.7) and practice score (9.97 to post-test 10.52). However, the attitude score did not match with the study findings.²¹

In the present study, there was a significant increase in the practice scores after the intervention ($p<0.001$). This finding is in line with the results of Zagade T et al (2014) who reported increase in the practice scores after the intervention in biomedical waste handlers ($p<0.001$).²²

The results of our study suggest that awareness video met the need of the hour and significant improvement in baseline knowledge, attitude and practice was noted. Significant improvement in the knowledge of House Keeping workers with respect to various aspects of infection control practices.

The strengths of the present study were as two third of the participants had moderate level of practice and There was a negative statement also included in the assessment of attitude questionnaires, hence, there were no chances of guessing. The limitations of the study were the total enumeration of house keeping employees were selected from various unit includes general ward, ICU and OPD So faced difficulty in assessing the actual practices. Feeling of being observed could have influenced the practice of the housekeeping workers

CONCLUSION:

Awareness video on infection control practices was done to housekeeping employees are found to be more promising in improving the knowledge, attitude and practices. It seems to be very practical oriented and easily understandable. Awareness based video teaching can be implemented Periodically which will reinforces employees and to update their knowledge and enhances their better practice.

REFERENCES:

1. Pittet D, Allegranzi B, Storr J, Nejad SB, Dziekan G, Leotsakos A, Donaldson L. Infection control as a major World Health Organization priority for developing countries. *Journal of hospital infection*. 2008 Apr 1;68(4):285-92.

2. Yiek WK, Coenen O, Nillesen M, van Ingen J, Bowles E, Tostmann A. Outbreaks of healthcare-associated infections linked to water-containing hospital equipment: A literature review. *Antimicrobial Resistance & Infection Control*. 2021 Dec;10(1):1-9.
3. Vinodhini K, Devi AB. Study on infection control practices among healthcare workers in a speciality hospital, Chennai. *Poll Res*. 2016;35:549-5.
4. Khan HA, Baig FK, Mehboob R. Nosocomial infections: Epidemiology, prevention, control and surveillance. *Asian Pacific Journal of Tropical Biomedicine*. 2017 May 1;7(5):478-82.
5. Haque M, Sartelli M, McKimm J, Bakar MA. Health care-associated infections—an overview. *Infection and drug resistance*. 2018;11:2321.
6. Almurr BJ. Knowledge and Practice of Standard Precaution and Sharp Injuries among Nurses in the Northern West Bank Hospitals; Palestine (Doctoral dissertation).
7. Sherman HA, Karakis I, Heimer D, Arzt M, Goldstein W, Bouhnik L, Maimon MN. Housekeeping health care workers have the highest risk for tuberculin skin test conversion. *The International journal of tuberculosis and lung disease*. 2011 Aug 1;15(8):1050-5.
8. Vilar-Compte D, Camacho-Ortiz A, Ponce-de-León S. Infection control in limited resources countries: challenges and priorities. *Current infectious disease reports*. 2017 May;19(5):1-7.
9. Gastmeier P, Coignard B, Horan TC. Surveillance for healthcare-associated infections. *Infectious Disease Surveillance*. 2013 Apr 15:248-60.
10. Dancer SJ. Controlling hospital-acquired infection: focus on the role of the environment and new technologies for decontamination. *Clinical microbiology reviews*. 2014 Oct;27(4):665-90.
11. Alhumaid S, Al Mutair A, Al Alawi Z, Alsuliman M, Ahmed GY, Rabaan AA, Al-Tawfiq JA, Al-Omari A. Knowledge of infection prevention and control among healthcare workers and factors influencing compliance: a systematic review. *Antimicrobial Resistance & Infection Control*. 2021 Dec;10(1):1-32.
12. Balusu C. Addressing the Prevalence of Healthcare-Associated Infections in India. *Undergraduate Journal of Public Health*. 2022 Apr 29;6.
13. Kaiwen Ni . Knowledge, attitudes, and practices regarding environmental cleaning among environmental service workers in Chinese hospitals. 2017 Sep 1;45(9):1043-1045.doi: 10.1016/j.ajic.2017.02.029. Epub 2017 Mar 23.
14. Rashmi Vijaya, Ankita Sharma, Anoop Daga, L. Gopichandran. Effectiveness of Structured Training Programme on Infection Control Measures among Housekeeping Workers in Selected Intensive Care Units at Tertiary Hospital. *Journal of Nursing Science & Practice*. 2020; 10(2): 51–56p.
15. Sarika PS, Alka R, Varsha P. Assessment of knowledge, attitude and practices of allied health care professional students towards Universal Precaution. *Indian Journal of Forensic Medicine & Toxicology*. 2020 Oct 29;14(4):280-5.
16. Gianfredi V, Pennisi F, Lume A, Ricciardi GE, Minerva M, Riccò M, Odone A, Signorelli C. Challenges and opportunities of mass vaccination centers in COVID-19 times: a rapid review of literature. *Vaccines*. 2021 Jun;9(6):574.
17. UM Siddiqui, V Acharya. The awareness of and compliance with universal precautions among class IV hospital workers. *Research Papers*. 2010: 22–26.
18. Rosen MA, DiazGranados D, Dietz AS, Benishek LE, Thompson D, Pronovost PJ, Weaver SJ. Teamwork in healthcare: Key discoveries enabling safer, high-quality care. *American Psychologist*. 2018 May;73(4):433.
19. Knowledge, attitudes, and practices regarding environmental cleaning among environmental service workers in Chinese hospitals. Ni K, Chen B, Jin H, Kong Q, Ni X, Xu H. *Am J Infect Control*. 2017;45:1043–1045. [PubMed] [Google Scholar]
20. John A, Tomas ME, Hari A, Wilson BM, Donskey CJ. Do medical students receive training in correct use of personal protective equipment?. *Medical education online*. 2017 Jan 1;22(1):1264125.
21. Singh V, Narula H, Supheia S, Sharma M, Gupta PK, Sharma A, Rao S. Impact of Video Modules-Based Training on Knowledge, Attitude, and Practices of Cleaning and Disinfection Among Housekeeping Staff at a Tertiary Care Center During the COVID-19 Pandemic. *Cureus*. 2021 Oct 29;13(10):e19125. doi: 10.7759/cureus.19125. PMID: 34868766; PMCID: PMC8627668.
22. Tukaram Zagade, Asha Pratinidhi. Effectiveness of educational intervention on knowledge and practice among biomedical waste handlers. *International Journal of Science and Research (IJSR)*. 2012; 3(5): 285–295