



EFFECTIVENESS OF VIDEO ASSISTED PROGRAM ON KNOWLEDGE AND PRACTICE REGARDING HAND HYGIENE IN PREVENTION OF INFECTION AMONG HEALTHCARE WORKERS IN SELECTED HOSPITALS OF GUWAHATI, ASSAM: AN EVALUATIVE STUDY

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ABSTRACT:

BACKGROUND

Hand hygiene is crucial in healthcare settings for infection control and patient safety. It is a global health issue and the most cost-effective way to reduce infections and antimicrobial resistance. Hand hygiene is the act of cleaning one's hands with soap or handwash and water to remove viruses/bacteria/microorganisms, dirt, grease, or other harmful and unwanted substances stuck to the hands. Improving hand hygiene practices among healthcare workers can significantly reduce the incidence of HAIs. The WHO estimates that proper hand hygiene practices could prevent up to 50% of healthcare-associated infections. Guidelines for hand hygiene practice have been issued by World Health Organization (WHO) and Center for disease control and prevention (CDC, Atlanta) but lack of awareness among HCW result in poor compliance which could have serious aftereffects on a healthcare system.

OBJECTIVES

- i. To assess the level of pretest-posttest knowledge regarding hand hygiene in prevention of infection among healthcare workers in selected hospitals of Guwahati, Assam.
- ii. To assess the level of pretest-posttest practice regarding hand hygiene in prevention of infection among healthcare workers in selected hospitals of Guwahati, Assam.
- iii. To determine the effectiveness of video assisted program regarding hand hygiene in prevention of infection by comparing pretest-posttest level of knowledge and practice among healthcare workers in selected hospitals of Guwahati, Assam.
- iv. To correlate the knowledge and practice regarding hand hygiene in prevention of infection among healthcare workers in selected hospitals of Guwahati, Assam.

- v. To find the association between knowledge and practice before video assisted program regarding hand hygiene in prevention of infection among healthcare workers with selected demographic variables.

METHODS AND MATERIALS: Pre experimental one group pre-test post-test design was used in this study. Non probability convenience sampling technique was used for obtaining the adequate sample for the study. Study was undertaken on 100 healthcare workers working in selected hospitals of Guwahati, Assam. Healthcare workers were selected on the basis of inclusion criteria. Pre-test knowledge was checked using standardized knowledge questionnaire and practice was assessed using observational checklist. The post-test was conducted on the seventh day after the administration of video assisted programme in the same manner.

RESULTS: Result showed that out of 100 health care worker, majority 44(47%) were in the age group of >40 years, 59(59%) was male, 78 (78%) of the respondents were under metrics, 35(35%) were working in ICU, 64(64%) had worked for more than 2 years, 95(95%) had attended the training on hand hygiene, 100(100%) have alcohol based handrub practice. In pre-test knowledge, majority 61(61%) had inadequate knowledge with a mean knowledge score of 9.5 and SD 2.90. whereas in post-test knowledge, majority 77(77%) had adequate knowledge with a mean knowledge score of 22.26 and SD 3.70. In pre-test practice, majority 62(62%) had moderately adequate practice with a mean practice score of 10.46 and SD 2.74. whereas in pre-test practice, majority 51(51%) had moderately adequate practice with a mean practice score of 20.03 and SD 3.36. The calculated value of 'T' (4.71) was more than the tabulated value (1.98) at 0.05 level of significance for knowledge and the calculated value of 'T' (3.18) was more than the tabulated value (1.98) at 0.05 level of significance for practice which signifies that video assisted programme was effective in increasing the knowledge and practice for healthcare workers. The analysis depicted that there was significant association between pre-test knowledge regarding hand hygiene and education, settings and work experience, there was significant association between pre- test practice regarding hand hygiene.

CONCLUSION: Based on the analysis of the findings of the study, the following inferences were drawn. There was evident increase in the knowledge and practice in all areas included in the study after the administration of video assisted program on hand hygiene. Thus, it was proved that the video assisted program was an effective teaching method for creating awareness on the importance of hand hygiene.

Keywords: hand hygiene, healthcare workers, alcohol based handrub, prevention of infection

INTRODUCTION

Hand hygiene is crucial in healthcare settings for infection control and patient safety. It is a global health issue and the most cost-effective way to reduce infections and antimicrobial resistance [1]. Lack of compliance with hand hygiene practices leads to increased healthcare-related infections [2]. Hand hygiene is recognized as a crucial measure to prevent pathogen transmission and reduce healthcare-related infections. Inadequate access to resources, training, awareness programs, high workload, and cultural barriers contribute to suboptimal hand hygiene practices in India [3]. Video-based interventions are particularly suitable for the diverse Indian healthcare workforce, considering varying literacy levels and language barriers. This research aims to address specific challenges in the Indian healthcare system, improve hand hygiene practices, reduce healthcare-related infections, and enhance healthcare delivery in India [4]. The WHO's "Guidelines on Hand Hygiene in Health Care" provide evidence-based recommendations for hand hygiene practices in healthcare settings. Healthcare-associated infections affect millions of patients globally and contribute to morbidity and mortality [5]. Improving hand hygiene practices among healthcare workers can significantly reduce the incidence of HAIs [6]. The WHO estimates that proper hand hygiene practices could prevent up to 50% of healthcare-associated infections [5].

OBJECTIVES OF THE STUDY

- i. To assess the level of pretest-posttest knowledge regarding hand hygiene in prevention of infection among healthcare workers in selected hospitals of Guwahati, Assam.
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- iii. To determine the effectiveness of video assisted program regarding hand hygiene in prevention of infection by comparing pretest-posttest level of knowledge and practice among healthcare workers in selected hospitals of Guwahati, Assam.
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- v. To find the association between knowledge and practice before video assisted program regarding hand hygiene in prevention of infection among healthcare workers with selected demographic variables.

RESEARCH METHODOLOGY

A descriptive study was used in the study to accomplish the objective using non-probability convenient sampling technique for obtaining adequate sample for the study. Study was done on 100 healthcare workers in selected hospitals of Guwahati, Assam. Respondents were selected on the basis of inclusion and exclusion criteria; WHO's Standardised knowledge questionnaire and Observational practice checklist were used to assess the effectiveness of video assisted program on knowledge and practice regarding hand hygiene in prevention of infection among healthcare workers.

DESCRIPTION OF THE TOOL

In order to meet the objectives of the study, the following tools were constructed which consists of three sections:

Section I - Demographic variables

Section II - WHO's Standardised knowledge questionnaire

Section III - Observational practice checklist

Section IV - Preparation of the video assisted program on hand hygiene

DATA COLLECTION PROCESS

Data collection process was scheduled from 28th September to 19th October 2023.

Prior data collection, permission was obtained from the respective authorities. After getting permission, the investigator visited the hospitals on the given dates and was introduced to the grade IV health care workers who fulfilled the pre-determined selection criteria. The investigator explained the purpose of her study and she assured them of the confidentiality and anonymity to get their co-operation and prompt responses during data collection. 100 healthcare workers were selected using convenience sampling method. A written informed consent was also taken from the nurses and physicians. Then the investigator distributed the tools developed to assess the effectiveness of video assisted program on knowledge and practice regarding hand hygiene in prevention of infection among healthcare workers which took 15-20 minutes to complete in average.

RESULTS

SECTION I: Frequency and percentage distribution of demographic variables of healthcare workers

Table 1: The table 1 depicts that most of the healthcare workers, 47(47%) were aged >41 years, 59(59%) were male, 35(35%) was working in ICU, 78(78%) were Under Metrics, 64(64%) had >2 years total years of working experience, 95(95%) had attended training on hand hygiene and 100(100%) had alcohol based handrub practice.

n = 100

Demographic Variables	Frequency (f)	Percentage (%)
Age in years		
21-30	23	23%
31-40	30	30%
>40	47	47%
Gender		
Male	59	59%
Female	41	41%
Education		
Under Metrics	78	78%
HSLC	20	20%
HS	2	2%
Settings		
ICU	35	35 %
Cabin	15	15%
General ward	29	29%
ICCU	9	9%
Emergency ward	12	12%
Total years of working experience		
<6 Months	5	5%
6-12 Months	11	11%
1-2 Years	20	20%
>2 Years	64	64%
Attended training on hand hygiene		
YES	95	95%
NO	5	5%
Alcohol based handrub practice		
YES	100	100%
NO	-	-

SECTION II: Frequency and percentage distribution of pretest and post test level of knowledge and practice regarding Hand hygiene in prevention of infection among healthcare workers

Table 2: The table 2 depicts that the frequency and percentage distribution of pretest and posttest level of knowledge regarding hand hygiene in prevention of infection among healthcare workers. It shows that in the pretest, none were having adequate knowledge, 39(39%) had moderately adequate knowledge and 61(61%) had inadequate knowledge regarding hand hygiene in prevention of infection among healthcare workers. After the intervention, 77(77%) had adequate knowledge, 21(21%) had moderately adequate knowledge and 2(2%) had inadequate knowledge regarding hand hygiene in prevention of infection among healthcare workers.

n = 100

Level of Knowledge	Pre-test		Post-test	
	FREQUENCY	PERCENTAGE (%)	FREQUENCY	PERCENTAGE (%)

Inadequate (<33%)	61	61%	2	2%
Moderately Adequate (33%-66%)	39	39%	21	21%
Adequate (>66%)	0	0	77	77%

Table 3: The table 3 depicts that the frequency and percentage distribution of pretest and posttest level of practice regarding hand hygiene in prevention of infection among healthcare workers. It shows that in the pretest, 62(62%) had moderately adequate practice, 37(37%) had inadequate practice and 1(1%) had moderately adequate practice regarding hand hygiene in prevention of infection among healthcare workers. After the intervention, 51(51%) had moderately adequate practice, 47(47%) had adequate practice and 2(2%) had inadequate practice regarding hand hygiene in prevention of infection among healthcare workers.

n =

100

Level of Practice	Pre-test		Post-test	
	FREQUENCY	PERCENTAGE (%)	FREQUENCY	PERCENTAGE (%)
Inadequate (<33%)	37	37%	2	2%
Moderately Adequate (33%-66%)	62	62%	51	51%
Adequate (>66%)	1	1%	47	47%

SECTION III: Percentage distribution of pretest and posttest level of knowledge and practice regarding Hand hygiene in prevention of infection among healthcare workers

Table 4: Effectiveness of VAP on knowledge regarding Hand hygiene in prevention of infection among healthcare workers. The table 4 shows that the pretest mean score of knowledge was 9.50 ± 2.91 and the posttest mean score of knowledge was 22.26 ± 3.72 . The mean difference score was 13.10. The calculated paired 't' = 13.10 which was statistically significant at $p < 0.001$ level. This clearly infers that after the administration of VAP regarding Hand hygiene in prevention of infection was found effective in improving the level of knowledge in the post test.

*** $p < 0.001$, S – Significant n= 100

Variables	Mean	S. D	Range of score	Mean Difference	Paired "t" test and p-Value
Pretest	9.50	2.91	6-18	13.10	't' = 26.56 $p = 0.0001$, S***
Post Test	22.26	3.72	7-29		

Table 5: Effectiveness of VAP on practice regarding Hand hygiene in prevention of infection among healthcare workers. The table 5 shows that the pretest mean score of practice was 10.46 ± 2.76 and the posttest mean score of practice was 20.03 ± 3.38 . The mean difference score was 9.57. The calculated paired 't' = 22.82 which was statistically significant at $p < 0.001$ level. This clearly infers that after the administration of VAP regarding Hand hygiene in prevention of infection was found effective in improving the level of practice in the post test.

*** $p < 0.001$, S – Significant n= 100

Variables	Mean	S. D	Range of score	Mean Difference	Paired “t” test and p-Value
Pretest	10.46	2.76	4-20	9.57	‘t’ = 22.82 p=0.0001, S***
Post Test	20.03	3.38	9-25		

Table 6: Correlation between pre-test and post-test knowledge and practice regarding hand hygiene in prevention of infection among HCWS. The table XIII shows that in the calculated ‘r’=0.163 and ‘r’=0.092 shows a weak positive correlation between the pre-test and post-test knowledge and practice which was not found to be statistically significant at p<0.05 level of significance. H₃ was rejected and H₀₃ was accepted.

*p>0.05, N.S – Not Significant
n=100

Test	Variables	Mean	S. D	Karl Pearson’s Correlation ‘r’ p-Value
Pre-test	Knowledge	9.50	2.91	‘r’ = 0.163 p=0.105, N. S
	Practice	10.46	2.76	
Post-test	Knowledge	22.26	3.72	‘r’ = 0.092 p=0.361, N. S
	Practice	20.03	3.38	

Table 7: Association of pretest level of knowledge regarding hand hygiene in prevention of infection among HCWs with their selected demographic variables.

*p<0.05, S – Significant, p>0.05, N.S – Not Significant
n=100

Demographic Variables	Inadequate		Moderately Adequate		Adequate		Fisher Exact test p-value
	f	%	f	%	f	%	
Age in years							
21-30 years	15	15%	8	8%	0	0	P=0.776 N. S
31-40 years	19	19%	11	11%	0	0	
>40 years	27	27%	20	20%	0	0	
Gender							
Male	33	33%	26	26%	0	0	P= 0.297 N. S
Female	28	28%	13	13%	0	0	
Education							
Under-metrics	47	47%	31	31%	0	0	P=0.904 N. S
HSLC	13	13%	7	7%	0	0	
HS	1	1%	1	1%	0	0	
Settings							
ICU	23	23%	12	12%	0	0	P=0.193 N. S
Cabin	10	10%	5	5%	0	0	
General ward	18	16%	11	11%	0	0	
ICCU	2	2%	7	7%	0	0	
Emergency	8	8%	4	4%	0	0	
Working experience							
< 6 months	3	3%	2	2%	0	0	P=0.375 N. S
6-12 months	8	8%	3	3%	0	0	

1-2years	15	11%	5	5%		0	0	
> 2 years	35	35%	29	29%		0	0	
Training attended on hand hygiene								
Yes	57	57%	38	38%		0	0	P=0.646
No	4	4%	1	1%		0	0	N. S

INTERPRETATION

The data presented in Table X represents the following:

- Age:** The calculated p value was 0.776. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and age.
- Gender:** The calculated p value was 0.297. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and gender.
- Education:** The calculated p value was 0.904. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and education.
- Settings:** The calculated p value was 0.193. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and setting.
- Total working experience:** The calculated p value was 0.375. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and total working experience.
- Training attended regarding hand hygiene:** The calculated p value was 0.646. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and training attended regarding hand hygiene.

Table 8: Association of pretest level of Practice regarding hand hygiene in prevention of infection among HCWs with their selected demographic variables.

*p<0.05, S – Significant, p>0.05, N.S – Not Significant
n=100

Demographic Variables	Inadequate		Moderately Adequate		Adequate		Fisher Exact test p-value
	f	%	f	%	f	%	
Age in years							
21-30 years	13	13%	10	10%	0	0	P=0.033 S*
31-40 years	12	12%	17	17%	1	1%	
>40 years	12	12%	35	35%	0	0	
Gender							
Male	21	21%	37	37%	1	1%	P= 0.902 N.S
Female	16	16%	25%	25%	0	0	
Education							
Under-metrics	29	29%	48	48%	1	1%	P=1.00 N.S
HSLC	7	7%	13	13%	0	0	
HS	1	1%	1	1%	0	0	
Settings							
ICU	10	10%	24	24%	1	1%	P=0.757 N.S
Cabin	7	7%	8	8%	0	0	
General ward	10	10%	19	19%	0	0	
ICCU	4	4%	5	5%	0	0	
Emergency	6	6%	6	6%	0	0	
Working experience							
< 6 months	2	2%	2	2%	1	1%	P=0.263 N.S
6-12 months	4	4%	7	7%	0	0	
1-2years	8	8%	12	12%	0	0	
> 2 years	23	23%	41	41%	0	0	

Training attended on hand hygiene							
Yes	35	35%	59	59%	1	1%	P=1.00 N.S
No	2	2%	3	3%	0	0	

INTERPRETATION

The data presented in Table X represents the following:

- Age:** The calculated p value was 0.033. Since the p value was less than 0.05 level of significance, there was significant association between knowledge and age.
- Gender:** The calculated p value was 0.902. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and gender.
- Education:** The calculated p value was 1.00. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and education.
- Settings:** The calculated p value was 0.757. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and setting.
- Total working experience:** The calculated p value was 0.263. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and total working experience.
- Training attended regarding hand hygiene:** The calculated p value was 1.00. Since the p value was more than 0.05 level of significance, there was no significant association between knowledge and training attended regarding hand hygiene.

CONCLUSION

In the pre-test knowledge, majority i.e. 61 (61%) had inadequate knowledge whereas in post-test knowledge, majority i.e. 77 (77%) had adequate knowledge. In pre-test practise, majority i.e. 62 (62%) had moderately adequate practice whereas in post-test practice, majority 51 (51%) had moderately adequate practice towards hand hygiene. In pre-test, mean knowledge score was 9.50 ± 2.91 whereas in post-test, the mean knowledge score was 22.26 ± 3.72 .

The calculated value of 't' (26.56) was more than the tabulated value (1.98) at 0.05 level of significance which indicated that the video assisted programme regarding hand hygiene was effective in improving the knowledge of the HCWs. In pre-test, mean practice score was 10.46 ± 2.76 whereas in post-test, it was 20.03 ± 3.38 . The calculated value of 't' (22.8) was more than the tabulated value (1.98) at 0.05 level of significance which indicated that the video assisted programme regarding hand hygiene was effective in improving the practice of the HCWs. There was no significant association between pre-test knowledge and the demographic variables. The analysis depicted that there was significant association between pre-test practice and age in years whereas there was no significant association with other selected demographic variables such as gender, education, total working experience, settings and training attended on hand hygiene.

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