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Research article

To assess the effectiveness of video-assisted teaching regarding the knowledge on prevention of ventilator-associated pneumonia in the intensive care unit among staff nurses of selected hospitals

Sherin Elsa Aniyan Samuel[1], Gargee Karadkar[2*]

[1]Asian Heart Institute, Mumbai, Maharashtra, India
[2]Bharati Vidyapeeth College of Nursing, Navi Mumbai, Maharashtra, India

Abstract

Introduction: Critically ill patients with respiratory failure, cardiac failure patients suffer from more serious illnesses. They are subjected to the invasive support and monitoring equipment. They require ventilator support for their life-saving. The mechanical ventilator will directly ventilate alveolar of lungs and increase the rate of depth breathing of the patients. VAP occurs as a result of a bacterial infection of the pulmonary parenchyma in mechanically ventilated patients due to aspiration, use of contaminated equipment, ingestion of contaminated medications, or colonization of the aero digestive tract. VAP is a major source of increased illness and death. Persons with VAP have increased lengths of ICU hospitalization and have up to a 20-30% death rate. **Methodology:** The research was conducted at two tertiary care hospitals (Karuna Hospital and Ashok Hospital, Borivali West) of the city (Mumbai) after obtaining the permission from the concerned authorities. In this study, it includes the staff nurses of the Intensive Care Unit of the selected hospitals. 120 Staff nurses of the Intensive Care Unit of the selected hospitals and 50 ICU Staff nurses were included. Data were collected according to the questionnaire. After collecting the Pre-test questionnaire, the investigator conducted a Video Assisted Teaching on prevention of Ventilator-Associated Pneumonia. On the seventh day, the post-test was done on the same samples by administering the same set of questionnaires. The questionnaires were completed in the presence of the investigator to avoid contamination, bias, and errors in the data collection. **Results:** Distribution of response in relation to the demographic variables revealed that the staff nurses 80% (20-30 yr), 18% (31-40 yr) , 2% (41-50 yr) .Most of the staff nurses, 72% were females and 28% were males and shows that there is no significant association of Gender on Mean knowledge Score during Post Test. Majority 52% were females and 12% males had qualification as GNM Nursing. 10% males and females had the qualification of BSc Nursing and 10% of females and 6% of males had the qualification of Post BSc Nursing. Most of the staff nurses, 52% were having 1-3 years of experience , 22% had 3.1 to 6 years of experience , 10% had 6.1 to 9 years of experience and 16% were above 9.1 years of experience and shows that there is no significant association of years of experience on Mean knowledge Score during post. The pre-test the mean of the knowledge obtained by the patient was 11.86 and in the post-test, it increased to 18. The 't'value was -8.19 and the 'p' value was 0.001($p < 0.05$). Thus it is statistically interpreted that the Video Assisted teaching on prevention of Ventilator-Associated Pneumonia was effective. Hence the research hypothesis H_1 was accepted. **Conclusion:** It was concluded that the video-assisted teaching on the prevention of ventilator-associated pneumonia among the ICU staff nurses was found to be effective and also concluded undoubtedly that the video-assisted teaching prepared by the investigator helped the staff nurses to improve their knowledge about the prevention of ventilator-associated pneumonia.

Keywords: ventilator-associated pneumonia, ICU hospitalization.

***Corresponding author: Mrs. Gargee Karadkar,** Bharati Vidyapeeth College of Nursing, Navi Mumbai, Maharashtra, India. Email k_gargee@yahoo.com

1. Introduction

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Critically ill patients with respiratory failure, cardiac failure patients suffer from more serious illnesses. They are subjected to the invasive support and monitoring equipment. They require ventilator support for their life-saving. The mechanical ventilator will directly ventilate alveoli of lungs and increase the rate of depth breathing of the patients [1].

They also receive more antibiotic therapy during their hospitalization. These factors contribute to their significantly increased risk of developing hospital-acquired infections (Nosocomial infections). Nosocomial pneumonia associated with mechanical ventilation (either by endotracheal tube or tracheostomy) that develops within 48 hrs or more of hospital admission and which was not present at the time of admission [2].

According to Indian statistical analysis, the researcher reported a total of 95 (38%) patients who had developed VAP infections and an incidence of 40.1 cases. Ventilator-associated pneumonia is the second most common nosocomial infections, after urinary tract infection. Ventilator-associated pneumonia is best diagnosed using traditional clinical criteria. Prompt administration of appropriate antibiotics seems to be only intervention that alters outcome once the diagnosis is established. The role of a Nurse is to understand Ventilator-associated pneumonia and it's risk factors which can make staff nurses more prepared in handling this problem. Each critical nurse can play a functional role in reducing and preventing the occurrence of Ventilator Associated Pneumonia [3].

VAP occurs as a result of a bacterial infection of the pulmonary parenchyma in mechanically ventilated patients due to aspiration, use of contaminated equipment, ingestion of contaminated medications, or colonization of the aero digestive tract. VAP is a major source of increased illness and death. Persons with VAP have increased lengths of ICU hospitalization and have up to a 20-30% death rate [4].

Objectives

1. To assess and compare the knowledge of staff nurses before and after video-assisted teaching on prevention of ventilator-associated pneumonia.
2. To find an association between the level of knowledge regarding prevention of ventilator-associated pneumonia and selected demographic variable.

2. Methodology:

Research design

The research design is the plan, structure, and strategy of investigations of answering, the research question is the overall plan or blueprint, the researchers select to carry out their study

Research design provides a scheme for answering specific research questions and the principles of scientific inquiry are utilized to answer each question. The overall purpose of the research design is twofold: to aid in the solution of the research question and to maintain control [(5)].The research design used in the study is the Pre- Experimental design. One group pre-test post-test design was used to find the effectiveness of the video Assisted Teaching on the knowledge of Prevention of Ventilator-Associated Pneumonia among the ICU nurse.

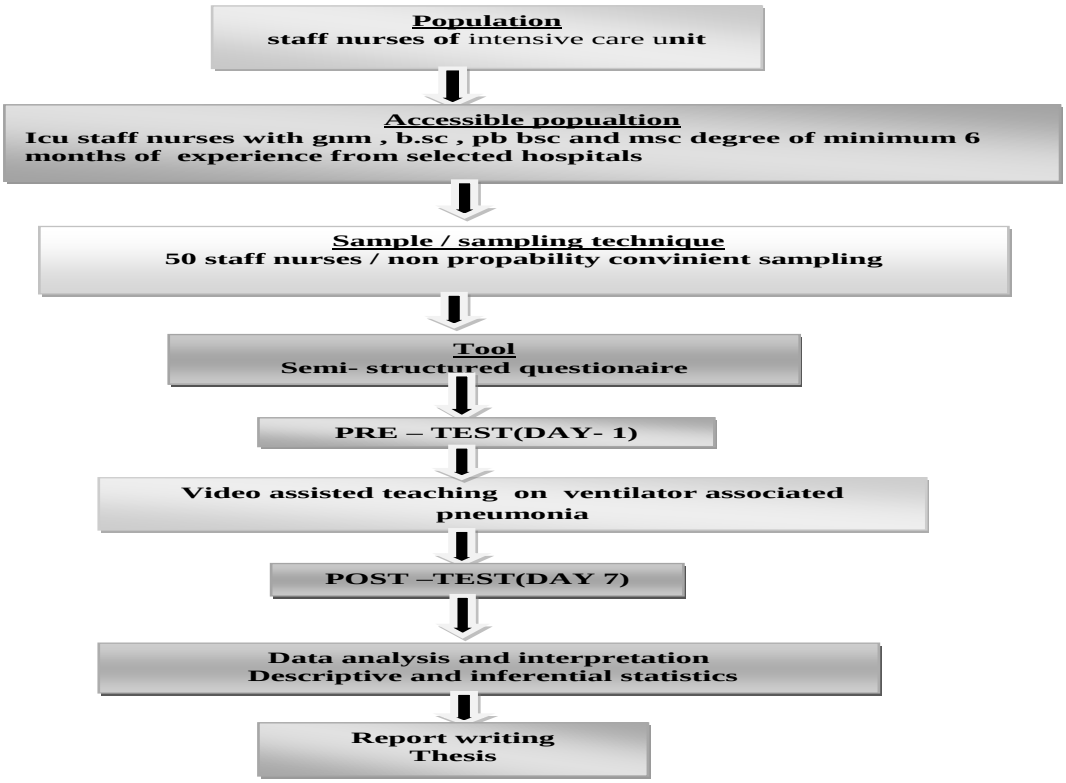

Figure no 1: Schematic representation of the research process

Research setting

Setting refers to the area where the study was conducted. It is the physical location and condition where the data collection is followed. The selection of an appropriate setting to conduct the study is a key to its successful completion of research [6].The overall target population was in the Intensive care unit of hospitals were 120 staff nurses and the accessible population was 50 staff nurses. The research was conducted at two tertiary care hospitals (Karuna Hospital and Ashok Hospital, Borivali West) of the city (Mumbai) after obtaining the permission from the concerned authorities. The area of specialty included the Surgical Intensive Care Unit (SICU), Intensive Critical Care Unit (ICCU), Medical Intensive Care Unit (MICU), High Dependency Unit (HDU).

Variables of the study

Variables are the attributes and the characteristics that can have more than one value such as height or weight. In other words, variables are quantities, qualities, properties or characteristics of people, things or situation that change or vary [7]. There are two types of variables i.e Dependent variables and Independent variables. The dependent variable in this present study was Knowledge regarding the Ventilator Associated Pneumonia and the Independent variable is the Video Assisted Teaching on the Prevention of Ventilator-Associated Pneumonia.

Population

In this study, it includes the staff nurses of the Intensive Care Unit of the selected hospitals. The target population is the aggregate of cases about which the researcher would like to make generalizations [6].In this study, it includes the 120 Staff nurses of the Intensive Care Unit of the selected hospitals. Accessible population is the aggregate of cases that conform to the designated criteria and are accessible as a pool of subjects for the study [6]. In this study, it includes 50 ICU Staff nurses with General Nursing and Midwifery, B.Sc., Post Basic Bsc and Msc degree of minimum 6months of experience from selected hospitals.

Sample size

It is the number of the sample being selected in the study.In this study, 50 staff nurses of ICU were the samples taken by the investigator for the study.

Inclusive criteria

The criteria that specify characteristics that the population does have [7].

In this study, the inclusion criteria are:

Staff nurses who are:

- General Nursing and Midwifery, BSc, Post Basic BSc AND MSc nursing staffs working in ICU of the selected hospitals.
- Staff nurses having minimum 6 months of experience.
- Willing to participate in the study.
- Present at the time of data collection.

Exclusive criteria

The criteria that specify characteristics that the population does not have [7].

- Staff nurses who are working in another ward in the selected hospital.

Tools for data collection

The tool used in the study consists of two sections:

- Section 1– Questionnaire on the demographic data (age, sex, qualification, education, years of ICU experience, attended any workshop seminar previously about the prevention of Ventilator-Associated Pneumonia)
- Section 2– Questionnaire on knowledge of Prevention of Ventilator-Associated Pneumonia.

Development of the tool

In this study, the tool prepared by the investigator was based on the objectives of the study, Demographic data and the semi-structured Questionnaire was prepared to evaluate the knowledge of the staff nurses before and after the Video-assisted teaching. After the extensive and systematic review of the literature, the investigator developed these skills.
The sources of tool construction were: Journals, Textbooks, Thesis, Online source reports and discussion from the experts i.e. various experts from the Medical-Surgical nursing specialty, department of pulmonary medicine, Statistician who enlighten and refined the investigator's ideas about the tool preparation**.**

Description of the tool
Section 1 – Demographic data

The investigator constructed the tool to collect the background data of the study subjects and to identify the influence of sample characteristics with the knowledge in them.
It included variables such as age, sex, qualification, education, years of ICU experience, attended any workshop seminar previously about the prevention of Ventilator-Associated Pneumonia.

Section 2- Semi-Structured Knowledge Questionnaire

The investigator constructed the tool for the purpose of assessing the knowledge of staff nurses regarding the prevention of Ventilator-Associated Pneumonia. A structured knowledge questionnaire was used after reviewing various sources and consultation with the experts.
The questionnaire consisted of twenty-five multiple choice questions; each question had four choices with one correct answer and the other three wrong answers. Each correct answer was given a score of one making it total out of twenty-five.

Grading of knowledge score

Excellent: 21- 25
Very good: 16-20
Good: 11-15
Average: 6- 10
Poor : 0-5

Video-assisted teaching

The video assisted teaching was prepared by the investigator on the topic, Prevention of Ventilator-Associated Pneumonia. The following were content based on the topic that are:

1. Anatomy and physiology of lung.
2. The definition of VAP.
3. Identify the reasons for VAP in ICU patients.
4. Types of VAP.
5. Risk factors for VAP.
6. Pathogenesis of VAP.
7. Clinical manifestations of VAP.
8. Treatment of VAP.
9 Prevention of VAP – This includes Hand hygiene, Position, Oral hygiene, Daily weaning DVT Prophylaxis, Peptic ulcer Prophylaxis Enteral feeding and Suctioning.

Feasibility of the study

It is a small scale test to determine the feasibility of the larger study. E.g. Pilot study. The investigator faced minor difficulties with aspects of time management and overall physical set of room to play the video during the study.

Data collection method

It is a precise systemic gathering of information relevant to research purpose or the specific objective or the hypothesis of a study. The procedure for collecting data is not a mechanical process that can be carefully planned prior to initiation. The investigator as a whole person should be totally involved, perceiving, reacting, interacting, reflecting, attaching and recording [5].

Procedure for data collection

The main study was gathered from 22-11-2015 to 2-12-2015. Permission from the hospital authority was taken for conducting the research study. The pre-test questionnaires were distributed to the samples and were collected back after fifteen minutes.
After collecting the Pre-test questionnaire, the investigator conducted a Video Assisted Teaching on prevention of Ventilator-Associated Pneumonia. On the seventh day, the post-test was done on the same samples by administering the same set of questionnaires. The questionnaires were completed in the presence of the investigator to avoid contamination, bias, and errors in the data collection.

Statistical analysis

The data was planned to be analyzed by both inferential and descriptive statistics on the basis of the objectives and hypothesis of the study. To compute the data master chart was prepared by the investigator which included: Demographic data containing sample characteristics like age, sex, education, qualification, years of experience were analyzed using frequency and percentage. Data of pre-test and post-test were analyzed by using the paired t-test which would be used to detect the effectiveness of the Video Assisted Teaching. The significant difference between the knowledge and demographic variables were calculated using 'Chi-square test' the results were compared at 0.05 levels of significance.

3. Results

Percentage wise distribution according to the selected demographic characteristics of staff nurses- Staff nurses in the selected hospitals in relation to knowledge regarding the Prevention of Ventilator-associated Pneumonia. A Non Probability convenience sampling was drawn from the study population. The data obtained to describe the sample characteristics including age, gender, yrs of experience, qualification are presented in frequency and percentage.

Table no 1: Percentage-wise distribution according to the age, gender, and experience of staff nurses.

Demographic variables	Frequency	Percentage (%)
Age		
21-30	40	80
31-40	9	18
41-50	1	2
Total	50	100

Demographic variables	Frequency	Percentage (%)
Gender		
Female	36	72
Male	14	28
Total	50	100
Experience		
1 to 3	26	52
3.1 to 6	11	22
6.1 to 9	5	10
More than 9.1	8	16
Total	50	100

80% of the staff nurses were in the age group of 20-30 years .18% of the staff nurses were in the age group of 31-40 years. And 2% of the staff nurses were in the age group of 41-50 years. Most of the staff nurses, 72% were females and 28% were males.

Table no 2: Percentage-wise distribution according to the qualification of staff nurses.

Qualification	Female		Male	
	Frequency	(%)	Frequency	(%)
Bsc nursing	5	10	5	10
GNM	26	52	6	12
Post Basic BSc. nursing	5	10	3	6
Grand Total	36	100	14	100

Majority 52% were females and 12% males had qualification as GNM Nursing. 10% males and females had the qualification of BSc. Nursing and 10% of females and 6% of males had the qualification of Post Basic BSc. Nursing.

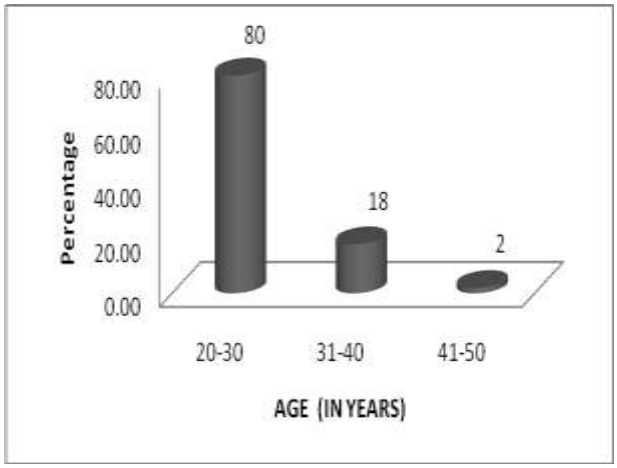

Figure no 2: Bar diagram showing distribution according to their age (in years) of staff nurses

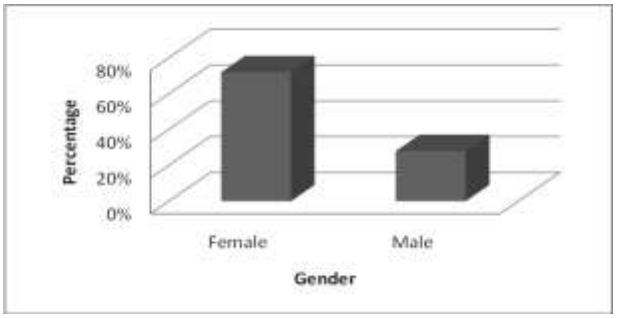

Figure 3: Bar diagram showing distribution according to their gender of staff nurses.

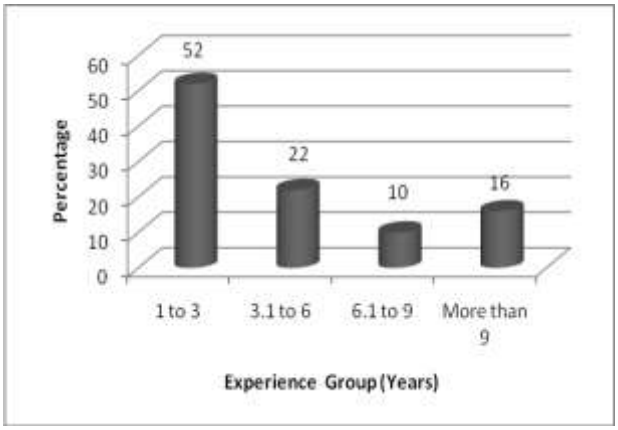

Figure 4: Bar diagram showing experiences in group year wise. of staff nurses.

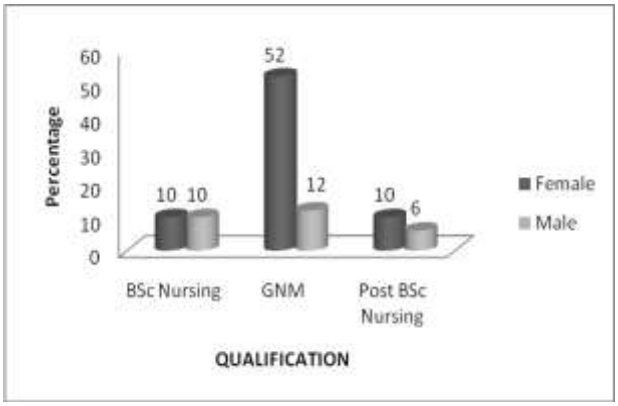

Figure no 5: Bar diagram showing distribution according to their Qualification of staff nurses.

Existing level of knowledge regarding prevention of ventilator-associated pneumonia among staff nurses before video assisted teaching - The assessment of the existing level of knowledge regarding prevention of ventilator-associated pneumonia among staff nurses before video assisted teaching. The level of knowledge is grouped as poor, average, good, very Good and excellent.

Table no 3: Existing level (Pre-test) of knowledge regarding prevention of ventilator-associated pneumonia among staff nurses before video assisted teaching

Level of Knowledge Score	Pre Test score	Frequ-ency	%	Mean Knowledge score	Standard Deviation
Poor	0 -5	1	2	5.00	-
Average	6-10	15	30	8.80	1.47
Good	11-15	29	58	12.79	1.26
Very Good	16-20	5	10	17.00	1.22
	Total	50	100		

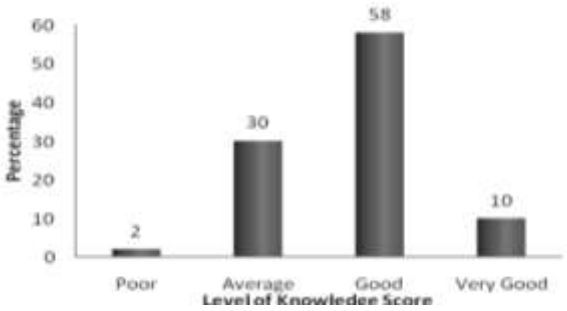

Figure no 6: Bar diagram showing assessment of existing level (Pre-test) of knowledge regarding prevention of ventilator-associated pneumonia among staff nurses before video assisted teaching.

Assessment of Post Test Knowledge Score Regarding the Prevention of Ventilator-Associated Pneumonia of Staff Nurses after Video Assisted Teaching The assessment of post test knowledge score regarding the prevention of ventilator-associated pneumonia of staff nurses after video-assisted teaching**.** The level of knowledge was grouped as Average, Good, Very Good and Excellent. The post-test was given after seven (7) days of the video-assisted teaching.

Table no 4: Post-test knowledge score regarding the prevention of ventilator-associated pneumonia of staff nurses after video-assisted teaching

Level of Knowledge Score	Post-test Score	Frequency	%	Mean Knowledge score	Standard Deviation
Poor	0 -5	1	2	3.00	
Average	6-10	2	4	8.50	2.12
Good	11-15	3	6	12.00	1.00
Very Good	16-20	33	66	18.18	1.29
Excellent	21-25	11	22	22.18	1.54
	Total	50	100		

The maximum score in the pre-test was 33(66%) with the mean knowledge score of 18.18 and standard deviation of 1.29 and 11(22%) of them had an excellent knowledge score with mean knowledge score of 22.18 and standard deviation of 1.54.

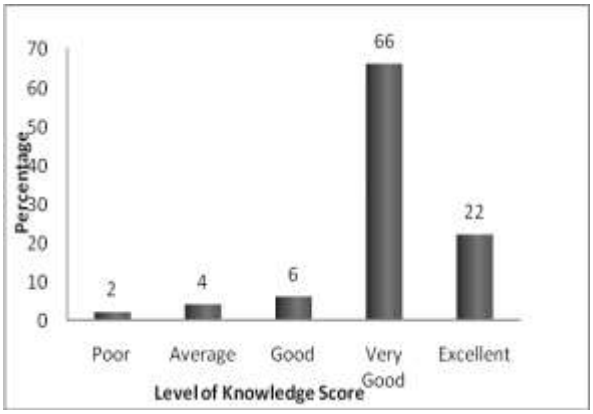

Figure no 7: Bar diagram showing assessment of post-test knowledge scores regarding prevention of ventilator-associated pneumonia among staff nurses after video-assisted teaching.

Comparison of knowledge of staff nurses before and after the video-assisted teaching of prevention of ventilator-associated pneumonia the pre and post test knowledge scores before and after the video-assisted teaching. The hypothesis was tested statistically with the distribution of the pre-test and the post-test mean and standard deviation. The significance difference at 0.05 levels is tested with the 'chi-square'.

Table no 5: Pre and Post-test knowledge scores of nurses before and after the video-assisted teaching.

Level of Knowledge Score	Pre-test		Post-test	
	Frequency	%	Frequency	%
Poor	1	2	1	2
Average	5	30	2	4
Good	9	58	3	6
Very Good	5	10	33	66
Excellent	0	0	11	22
Total	50	100	50	100
chi-square=62.7 ; P=0.001(S)				

The above shows that in pre-test, 1(2%) of the staff nurses were having poor knowledge regarding the prevention of ventilator-associated pneumonia with the mean knowledge score of 5, 15(30%) have average number of knowledge scores with the mean knowledge score of 8.80 and standard deviation 1.47 and 5(10%) have good number of knowledge scores with the mean knowledge score of 17.00 and standard deviation of 1.22. The maximum score in the pre-test

was 29 (58%) with the mean knowledge score of 12.79 and standard deviation of 1.26 and none of them had an excellent knowledge score.

Whereas in the post-test, 1(2%) of the staff nurses were having poor knowledge regarding the prevention of ventilator-associated pneumonia with the mean knowledge score of 3, 2(4%) have average number of knowledge scores with the mean knowledge score of 8.50 and standard deviation 2.12 and 3(6%) have good number of knowledge scores with the mean knowledge score of 12.00 and standard deviation of 1.00. The maximum score in the pre-test was 33(66%) with the mean knowledge score of 18.18 and standard deviation of 1.29 and 11(22%) of them had an excellent knowledge score with mean knowledge score of 22.18 and standard deviation of 1.54.

In the post-test scores, there was an increase in knowledge scores in the very good and excellent score category as compared to the pre-test scores. The chi-square value was 6.27 and the p-value was 0.001($p< 0.05$). The null hypothesis (H_0): There was no significant difference between the pre-test and post test knowledge scores of staff nurses before and after the video-assisted teaching was rejected and hence, Research hypothesis (H_1) was accepted.

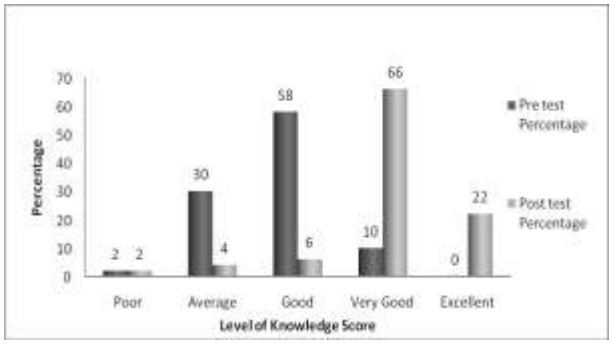

Figure no 8: Bar diagram showing pre and post test knowledge scores of staff nurses before and after the video-assisted teaching.

The effectiveness of the video-assisted teaching in knowledge scores regarding the prevention of ventilator-associated pneumonia among staff nurses in the selected hospitals.

Table no 6: Effectiveness of the video-assisted teaching in knowledge scores regarding the prevention of ventilator-associated pneumonia among staff nurses in the selected hospitals.

	PRE test score	POST test score
Mean	11.86	18
Standard Deviation	2.95	4.02
95% CI: (-7.647, -4.633)		
Paired T-Test: T-Value = -8.19 P-Value = 0.001 (S)		

It was seen that in the pre-test, the mean of the knowledge obtained by the staff nurses was 11.86 and in the post-test it increased to 18. The't'-value was -8.19 and the 'p' value was 0.001($p< 0.05$). The Null hypothesis (H_0): There was no significant difference in the mean knowledge scores of pre-test and post test regarding prevention of Ventilator-Associated Pneumonia among the staff nurses of the selected hospitals was rejected and hence, the research hypothesis (H1) was accepted.

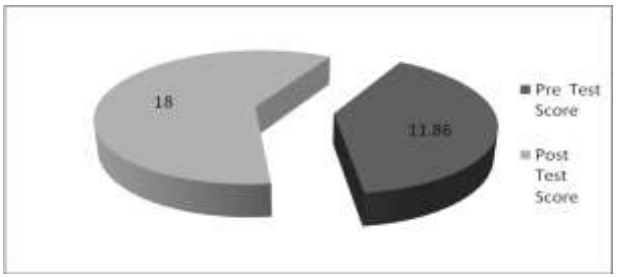

Figure no 9: Pie diagram showing Effectiveness of the video-assisted teaching among staff nurses in the selected hospitals.

Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the demographic variables

Table no 7: Association of pre-test and post test knowledge score regarding prevention of Ventilator-associated pneumonia in relation to the age in years

Age Group (Yrs)	Frequency	Pre Test		Post Test	
		Mean Knowledge score	Standard Deviation	Mean Knowledge score	Standard Deviation
21-30	40	11.60	3.10	18.03	4.46
31-40	9	12.78	2.17	17.78	1.30
41-50	1	14.00	--	19.00	--
Total	50	11.86		18.00	
Median Test		Chi-Square = 0.26 P = 0.613(NS)		Chi-Square = 0.83 P = 0.364(NS)	

The above table shows the pre-test and post test association of knowledge score with the age in years of staff nurses. The 'p' value of 0.613 and chi-square 0.26 shows that there is no significant difference in age (in years) on Mean knowledge Score during Pre Test. Also, p value of 0.365 and chi-square 0.83 shows that there is no significant difference in age (in years) on Mean knowledge Score during Post Test and hence, H02 was accepted.

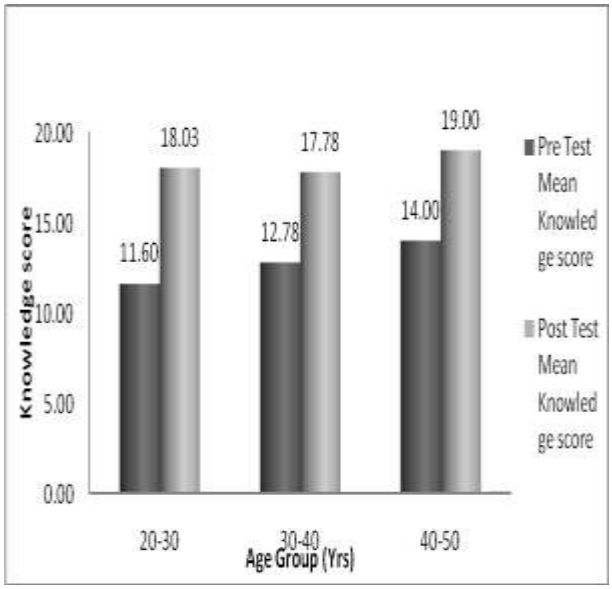

Figure 10: Bar diagram showing Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the age in years

Table no 8: Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the Gender

Gender	Frequency	Pre Test		Post Test	
		Mean Knowledge score	Deviation	Mean Knowledge score	Deviation
Female	36	11.42	2.68	18.72	2.84
Male	14	13.00	3.40	16.14	5.82
Total	50	11.86		18.00	
Median Test		Chi-Square = 0.51 P = 0.475(NS)		Chi-Square = 8.85 P = 0.433(NS)	

The above table shows the pre-test and post test association of knowledge score with the gender. The 'p' value of 0.475 and chi-square 0.51 shows that there is no significant association of qualification on Mean knowledge Score during Pre Test. Also, p value of 0.433 and chi-square 8.85 shows that there is no significant association of Gender on Mean knowledge Score during Post Test and hence, H02 was accepted.

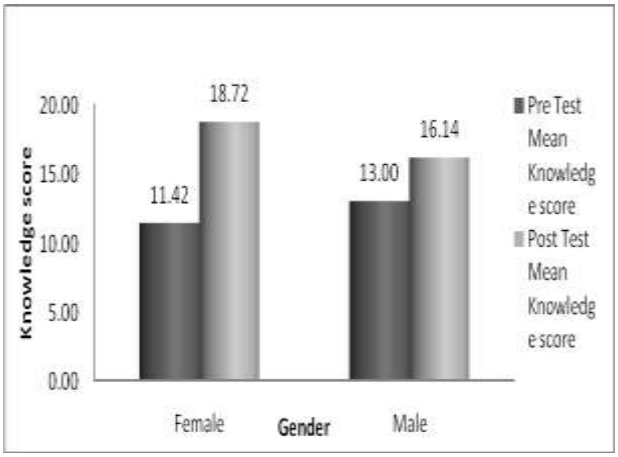

Figure no 11: Bar diagram showing Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the Gender

Table no 9: Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the Qualification.

Qualification	Count	Pre Test		Post Test	
		Mean Knowledge score	Standard Deviation	Mean Knowledge score	Standard Deviation
BSc Nursing	10	12.80	3.68	17.00	5.83
GNM	32	11.75	2.76	18.28	3.53
Post BSc Nursing	8	11.13	2.80	18.13	3.48
Total	50	11.86		18.00	
Median Test		Chi-Square = 0.35 P = 0.838(NS)		Chi-Square = 0.32 P = 0.852(NS)	

The table shows the pre-test and post test association of knowledge score with the qualification. The 'p' value of 0.838 and chi-square 0.35 shows that there is no significant difference of qualification on Mean knowledge Score during Pre Test. Also, p value of 0.852 and chi-square 0.32 shows that there is no significant difference of qualification on Mean knowledge Score during Post Test and hence, H02 was accepted.
(Figure no 10).

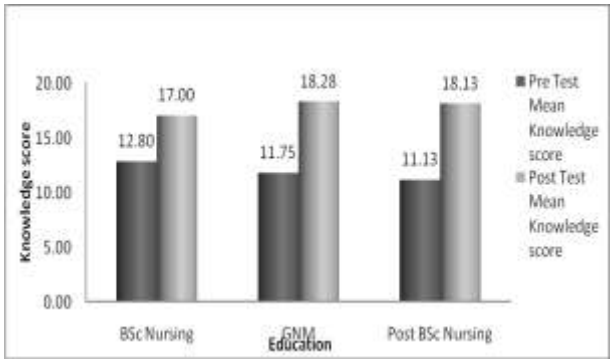

Figure no 12: Bar diagram showing Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the qualification

Table 10: Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the years of experience

Years of Experience	Freq-uency	Pre Test		Post Test	
		Mean Knowledge score	Standard Deviation	Mean Knowledge score	Standard Deviation
1 to 3.1	26	11.31	3.28	18.27	4.52
3.1 to 6	11	11.36	1.75	18.18	3.63
6.1 to 9	5	13.40	2.88	18.80	1.64
More than 9.1	8	13.38	2.72	16.38	3.96
Total	50	11.86		18.00	
Median Test		Chi-Square = 3.62 P =0.305(NS)		Chi-Square = 2.06 P = 0.561(NS)	

The table IV.9 shows the pre-test and post test association of knowledge score with the years of experience. The 'p' value of 0.305 and chi-square 3.62 shows that there is no significant difference of years of experience on Mean knowledge Score during Pre Test. Also, p value of 0.561 and chi-square 2.06 shows that there is no significant difference of years of experience on Mean knowledge Score during Post Test and hence, H_{02} was accepted.

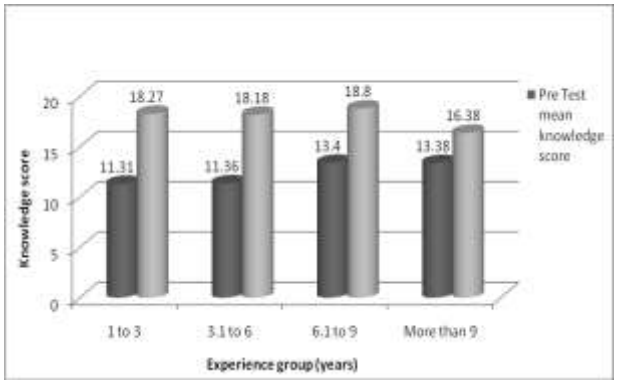

Figure no 13: Bar diagram showing Association of pre-test and post test knowledge score regarding prevention of ventilator-associated pneumonia in relation to the years of experience

4. Discussion

The study was undertaken with the main purpose of assessing the level of knowledge of staff nurses regarding prevention of ventilator-associated pneumonia with the help of video-assisted teaching, the findings of the study were discussed based on the objectives and hypothesis.

Distribution of response in relation to the demographic variables revealed that 80% of the staff nurses were in the age group of 20-30 years. 18% of the staff nurses were in the age group of 31-40 years. And 2% of the staff nurses were in the age group of 41-50 years. The chi-square 0.26 and 'p' value of 0.613 and shows that there is no significant association of age (in years) on Mean knowledge Score during Pre Test. Also, chi-square 0.83 and p value of 0.365 ($p > 0.05$) shows that there is no significant association of age (in years) on Mean knowledge Score during Post Test. Hence the null hypothesis H_{02} is accepted.

Most of the staff nurses, 72% were females and 28% were males and the chi-square 0.51 and 'p' value of 0.475 ($p > 0.05$) shows that there is no significant association of qualification on Mean knowledge Score during Pre Test. Also, chi square 8.85 and p-value of 0.433 ($p > 0.05$) shows that there is no significant association of Gender on Mean knowledge Score during Post Test. Hence the null hypothesis H_{02} is accepted.

Majority 52% were females and 12% males had qualification as GNM Nursing. 10% males and females had the qualification of BSc Nursing and 10% of females and 6% of males had the qualification of Post BSc Nursing and the chi-square 0.35 and 'p' value of 0.838 shows that there is no significant association of qualification on Mean knowledge Score during Pre Test. Also, chi square 0.32 and p value of 0.852 shows that there is no significant association of qualification on Mean knowledge Score during Post Test. Hence the null hypothesis H_{02} is accepted.

Most of the staff nurses, 52% were having 1-3 years of experience, 22% had 3.1 to 6 years of experience, 10% had 6.1 to 9 years of experience and 16% were above 9.1 years of experience and the chi-square 3.62 and 'p' value of 0.305($p > 0.05$) shows that there is no significant association of years of experience on Mean knowledge Score during Pre Test. Also, p value of 0.561 and chi-

square 2.06 ($p > 0.05$) shows that there is no significant association of years of experience on Mean knowledge Score during post. Hence the null hypothesis H_{02} is accepted.

The pre-test the mean of the knowledge obtained by the patient was 11.86 and in the post-test it increased to 18. The 't' value was -8.19 and the 'p' value was 0.001($p < 0.05$). Thus it is statistically interpreted that the Video Assisted teaching on prevention of Ventilator-Associated Pneumonia was effective. Hence the research hypothesis H_1 was accepted.

Conclusion

The staff nurses of the Intensive Care units have inadequate knowledge regarding the prevention of ventilator-associated pneumonia. There was a significant increase in the knowledge of staff nurses after the administration of the video-assisted teaching on prevention of ventilator-associated pneumonia. To find the effectiveness of the video-assisted teaching, paired t-test was used. It showed a significant difference in the knowledge scores at 0.05 level of significance. The findings showed that in post-test 22% of staff nurses had an excellent level of knowledge scores, 66% of them had very good, 6% of staff nurses had good knowledge, 4% of the staff nurses had average knowledge score and 2% of the staff nurses had poor knowledge. Thus, it was concluded that the video-assisted teaching on the prevention of ventilator-associated pneumonia among the ICU staff nurses was found to be effective.
Hence, based on the above-cited findings it was concluded undoubtedly that the video-assisted teaching prepared by the investigator helped the staff nurses to improve their knowledge about the prevention of ventilator-associated pneumonia. The analysis also revealed that there was no association between the knowledge scores of the staff nurses with their age, gender, qualification and years of experience.

References

[1] Ventilator-associated pneumonia. [Internet]. [Cited 2015 December 3, 2015]. Available from: http://en.m.wikipedia.org/wiki/Ventilator_Associated_Pneumonia
[2] National institute of health excellence. [cited2016September7]. Available from: https://www.nice.org.uk> national institute of health excellence (NICE).2007.Centre for disease control and prevention
[3] Mathai AS, Philip A, Issac R. Ventilator-Associated Pneumonia: A persistent health care problem in Indian Intensive Care Units. Lung India:2016;33(5):512-516 available from: http://www.lung india.com. Accessed on 26th December 2016.
[4] Chintamani, Lewis CL. Medical Surgical Nursing. New Delhi; Elseiver Publications 2011.pgno 565, 1713
[5] Basavanthappa BT. Nursing Research and Statistics. Third edition. New Delhi; Jaypee brothers medical publishers.2014; pg no: 127,107,184
[6] Poilt DE, Beck CT. Nursing Research: Principles and Methods. Seventh edicit on. Philadelphia; Lippincott Williams and Wilkins.2008; page no: 114,115,164,249,252, 289,290,292,416.
[7] Sharma SK. Nursing Research and Statistics. First Edition. Haryana. Elsevier Publications. page no: 84,92,94,33,34,31,217,219