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A Study To Evaluate The Effectiveness Of Video Demonstration Versus Manual Demonstration Regarding Intravenousprocedure Among Bsc Nursing Students At Btnc, Sagar

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Abstract:

Introduction: Intravenous (IV) therapy is an important part of clinical care. It can be used to restore fluids, administer blood products or medications, or serve as an alternate route for nutrition when the gastrointestinal tract is not functioning adequately. IV therapy is a common intervention in nursing practice and useful for rapidly addressing symptoms and restoring hemostasis. Although initiating IV therapy is a common nursing intervention, it is an invasive skill and requires diligent safety practices to prevent and address complications. Intravenous therapy (IV therapy) involves the administration of substances such as fluids, electrolytes, blood products, nutrition, or medications directly into a client ‘s vein. The intravenous route is preferred to administer fluid and medications when rapid onset of the medication or fluid is needed. The direct administration of medication into the bloodstream allows for a more rapid onset of medication actions, restoration of hydration, and correction of nutritional deficits. IV therapy is often used to restore fluids and/or electrolyte balances more efficiently than what would be achieved via the oral route.

Aim: The Study was undertaken to evaluate the effectiveness of A comparative study to evaluate the effectiveness of Video Demonstration Teaching Method versus Manual Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing Students of BTNC, Sagar, MP, India.

OBJECTIVES:

Primary Objective:

- To determine if video demonstrations are more effective than manual demonstrations for teaching intravenous procedures.

Secondary Objectives:

- To determine the pre – test level of knowledge regarding Intravenous Procedure by Video Demonstration Teaching Method among BSc. Nursing First Year Students of BTNC, Sagar, MP, India by using Structured Questionnaire in the Experimental group 1.
- To identify the pre – test level of knowledge regarding Intravenous Procedure by Manual Demonstration Teaching Method among BSc. Nursing First Year Students of BTNC, Sagar, MP, India by using Structured Questionnaire in the Experimental group 2.
- To implement Video Demonstration Teaching Method on Intravenous Procedure among BSc. Nursing First Year Students of BTNC, Sagar, MP, India in the Experimental group 1.
- To provide Manual Demonstration Teaching Method on Intravenous Procedure among BSc. Nursing First Year Students of BTNC, Sagar, MP, India in the Experimental group 2.
- To find out the post – test level of knowledge regarding Intravenous Procedure by Video Demonstration Teaching Method among BSc. Nursing First Year Students of BTNC, Sagar, MP, India by using Structured Questionnaire in the Experimental group 1.
- To sort out the post – test level of knowledge regarding Intravenous Procedure by Manual Demonstration Teaching Method among BSc. Nursing First Year Students of BTNC, Sagar, MP, India by using Structured Questionnaire in the Experimental group 2.
- To evaluate the effectiveness of Video Demonstration Teaching Method versus Manual Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing Students of BTNC, Sagar, MP, India.
- To compare the effectiveness of Video Demonstration Teaching Method versus Manual Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing Students of BTNC, Sagar, MP, India in Experimental Group 1 and Experimental Group 2.
- To analyze the association between the pre – test level of knowledge regarding Video Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing First Year Students of BTNC, Sagar, MP, India with their selected socio – demographic variables in the Experimental group 1.
- To determine the association between the pre – test level of knowledge regarding Intravenous Procedure by Manual Demonstration Teaching Method among BSc. Nursing First Year Students of BTNC, Sagar, MP, India with their selected socio – demographic variables in the Experimental group 2.

Methodology: This comparison study was conducted on 66 under B.sc nursing student who were randomly assigned to two group. Group A attended a classroom demonstration method and group B underwent video-based teaching on intravenous procedure. Learning level of both the groups was compared by using independent 't' test

Result: The Pretest knowledge was notified that mean 16.75, standard deviation is 3.93 and minimum value 6.00 or maximum value is 25.00. The Post-test knowledge was notified that mean 26.30, standard deviation is 4.27 and minimum value 13.00 or maximum value is 35.00. Pre-test practice was notified that mean 20.51, standard deviation is 6.57 and minimum value 6.00 or maximum value is 33.00. The Posttest practice was notified that mean 39.50, standard deviation is 5.05 and minimum value 15.00 or maximum value is 48.00. After completing this study, study came to the conclusion that the students of B.Sc. Nursing in a selected university in Dehradun, Uttarakhand, had little understanding of cannulation and its care

Conclusion: The study concludes by highlighting the intravenous procedure knowledge among the B.sc nursing student at BTNC Sagar M P. By providing them a knowledge in two ways, the video demonstration and the manual demonstration and compare the effectiveness. So, there can be less malpractice followed and no error can be seen in patient. It will help to provide the good quality of care to the patient and cost effective.

KEYWORDS: Evaluate, Effectiveness, Knowledge, Video Demonstration, Manual Demonstration, Student.

INTRODUCTION

Intravenous therapy (IV therapy) involves the administration of substances such as fluids, electrolytes, blood products, nutrition, or medications directly into a client's vein. The intravenous route is preferred to administer fluid and medications when rapid onset of the medication or fluid is needed. The direct administration of medication into the bloodstream allows for a more rapid onset of medication actions, restoration of hydration, and correction of nutritional deficits. IV therapy is often used to restore fluids and/or electrolyte balances more efficiently than what would be achieved via the oral route. Traditional manual demonstration has long been used in nursing and medical education as a standard method to teach clinical skills. While it provides real-time interaction and immediate feedback, it is often limited by instructor availability, time constraints, and the inconsistency in demonstration quality. With the integration of technology into education, video demonstration has emerged as a powerful teaching tool. It allows learners to repeatedly view procedures at their own pace, promoting better retention, consistency in content delivery, and greater accessibility. Video-based learning may enhance student understanding and confidence, particularly in skill-based procedures like IV insertion.

Video assisted teaching can be an effective tool not only due to it's easy to share and self-teaching possibility but also effective in improving knowledge compared to other teaching techniques.

SIGNIFICANCE NEEDS OF THE STUDY

The management of the Intravenous therapy is now an accepted and often very relevant part of a nurse's role. Specialist in Intravenous therapy are also becoming, more common, taking the lead in assessing, inserting, managing and removing a variety of vascular access devices both in hospital and in the community. Many as 80% of hospitalized patients will have a cannula in situ, and Hart (2008) suggested that patients who require IV therapy are often seriously ill and immune compromised, thus are more susceptible to infection. The Department of Health (2007) estimated that 6000 patients acquire a catheter-related bloodstream infection every year in the UK. Robust standards of practice are therefore paramount to ensure safe and competent practice, both in peripheral IV annulation and IV care. Using the chain of infection as a framework to review practice will enable practitioners to ensure thorough standards of practice, and the Royal College of Nursing (2005) stated that only trained and competent staff using strict aseptic techniques should be involved in IV or cannula care. The Code (Nursing and Midwifery Council (NMC), (2008) stipulates all practitioners must deliver care based on the best available evidence and/or best practice, and that knowledge and skills for safe and effective practice must be kept up-to-date throughout each health professionals working life. Intravenous fluid administration is an integral component of clinical care.

This study is therefore essential to:

- Determine the most effective teaching strategy for enhancing knowledge of IV procedures.
- Improve the quality of clinical education by adopting evidence-based instructional methods.
- Enhance patient safety by ensuring healthcare students and professionals are well-trained in IV techniques.
- Provide a basis for curriculum planners and educators to make informed decisions regarding teaching methodologies.

Statement of the Problem: A comparative study to evaluate the effectiveness of Video Demonstration Teaching Method versus Manual Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing Students of BTNC, Sagar, MP, India.

Background of the study

In today's healthcare environment, clinical competency is a critical requirement for nurses and healthcare professionals. One of the most frequently performed and vital procedures in clinical practice is Intravenous (IV) therapy, used for administering medications, fluids, blood products, and nutrition. Mastery of this skill demands both theoretical knowledge and practical expertise, as even minor errors can lead to serious complications such as infection, infiltration, or phlebitis.

This study is therefore conducted to bridge this gap by comparing the effectiveness of video demonstration and manual demonstration teaching methods on knowledge regarding intravenous procedures. The findings will help educators identify the most suitable and effective teaching strategy for enhancing clinical competence among learners, ultimately improving patient care outcomes.

Research Hypotheses

- RH1 There will be a significant difference in knowledge level regarding Video Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing First Year Students of BTNC, Sagar, MP, India in the Experimental group 1.
- RH2 There will be a significant difference in knowledge level regarding Manual Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing First Year Students of BTNC, Sagar, MP, India in the Experimental group 2.
- RH3 There will be a significant association between the pre – test level of knowledge regarding Video Demonstration Teaching Method on Knowledge regarding Intravenous Procedure among BSc. Nursing First Year Students of BTNC, Sagar, MP, India with their selected socio – demographic variables in the Experimental group 1.
- RH4 There will be a significant association between the pre – test level of knowledge regarding Intravenous Procedure by Manual Demonstration Teaching Method among BSc. Nursing First Year Students of BTNC, Sagar, MP, India with their selected socio – demographic variables in the Experimental group

Operational Definitions:

Evaluate: Evaluate refers to the statistical measurement of knowledge score of B. Sc nursing students on intravenous procedure.

Effectiveness: Refers to significant and desirable difference in pretest and post-test knowledge score of B. Sc nursing students on intravenous procedure.

Knowledge: In this study knowledge refers to response given by the B. Sc. nursing students to the structured knowledge questionnaires through interview schedule regarding on intravenous procedure.

Video Demonstration: It refers to the provides a concise, visual presentation of a product or service, demonstrating its features, benefits, and functionality engagingly

Manual Demonstration: It refers to a teaching method where a teacher or expert visually shows and explains a concept, process, or procedure to students often through a hands-on activity or experiments.

Student: It refers to an individual who is enrolled in an education programme for the purpose of learning.

Scope of Research

The aim of study is to compare the effect of the video demonstration and classroom demonstration assisted teaching on the level of intravenous procedure of nursing students. Thus, students are enabled to develop skills efficiently without the need for an instructor.

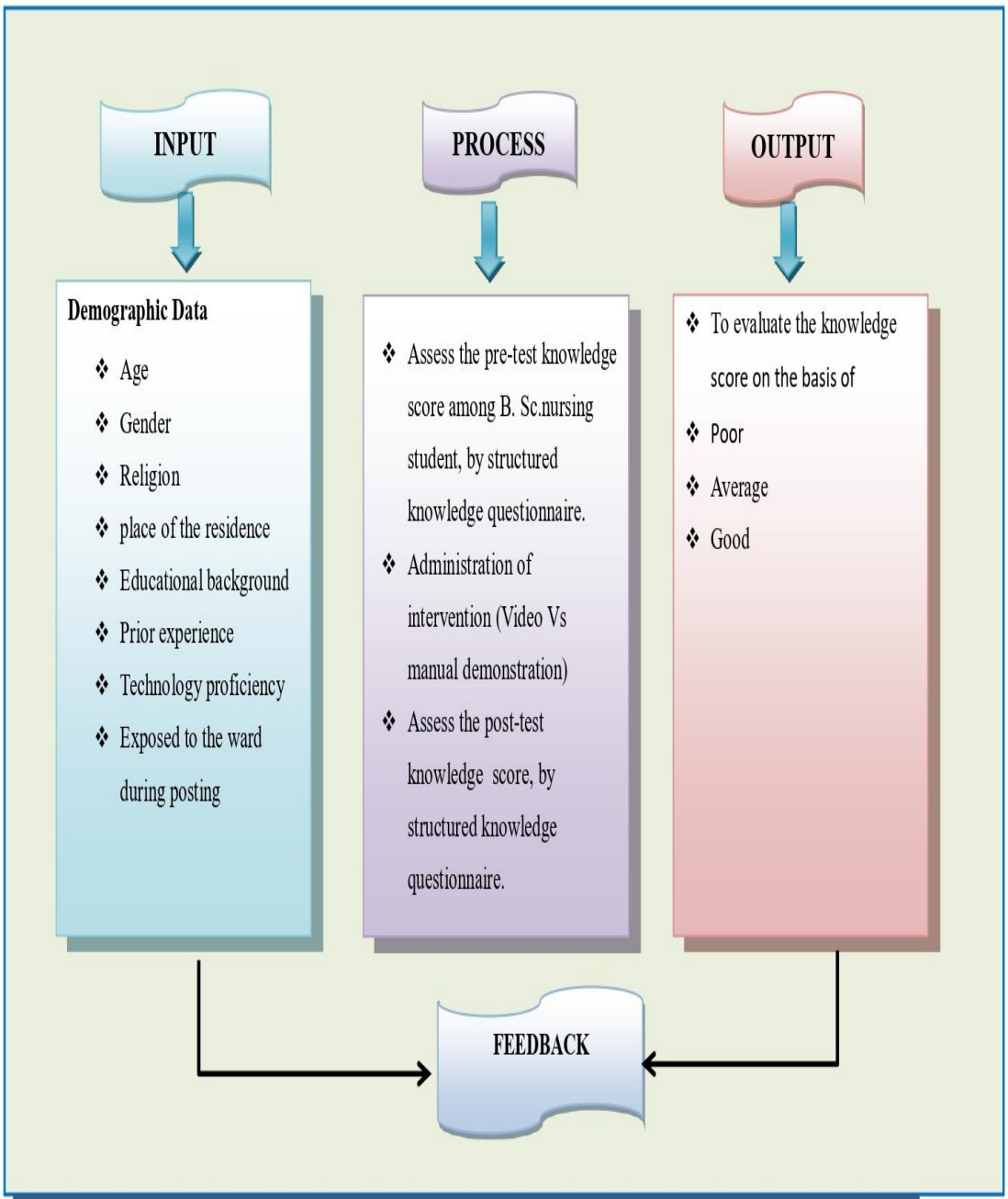

Figure-1.1: Modified conceptual framework based on general system model by Ludwing and Beter Lenffy (1968).

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RESEARCH METHODOLOGY

Research Approach: Experimental evaluate research approach

Research Design: Pre-experimental two group and pre -test post -test design

Variables:

Dependent Variable: Knowledge of B.SC. Nursing Student

Independent Variables: Video demonstration versus classroom demonstration on intravenous procedure.

Population:

Targeted population: B.SC Nursing student who were studied in BTNC Sagar during the study

Accessible population: B.SC Nursing student who were available at BTNC Sagar during the study

Sample size: 60 students

Sampling technique: Non – probability convenient sampling technique

Sampling Criteria:

Inclusive criteria:

Who were:

- Studied in BTNC
- Present at time of the data collection
- Are willing to participate in the study
- Knows Hindi and English

Exclusion criteria:

Who were:

- Not studied in BTNC
- Not present at a time of the data collection
- Not Willing to participate in the study
- Not knows Hindi and English

Description of Tools

The structured questionnaire consists of three sections as described as follows:

Section A- Demographic variables

This section contains items. The section was intended to collect information pertaining to demographic variables of the subject such as Age, Gender, Religion, educational status of students, family monthly income.

Pilot Study

The pilot study is a small preliminary investigation of the same general characteristics as the major study. The main aim to assess the feasibility practicability and assessment of measurement.

Procedure for Data Collection

The data was collected the period from 29/03/2025 to 08/04/2025 at Bhagyoday Tirth Nursing college Sagar. The investigator collected written permission by the Dr. Rajkrishna R. Pillai, Principal, Bhagyoday Tirth Nursing college Sagar. A verbal consent was obtained from the subjects. Introduction about self and study was given. The samples were reassured that the data collected will be kept confidential. A questionnaire administered was among B. Sc. Nursing students by using purposive sampling techniques who met the content of the study by distributing close ended questionnaire.

Data analysis and interpretation of data

Table:1 Description of demographic variables of percentage distribution Group – 1

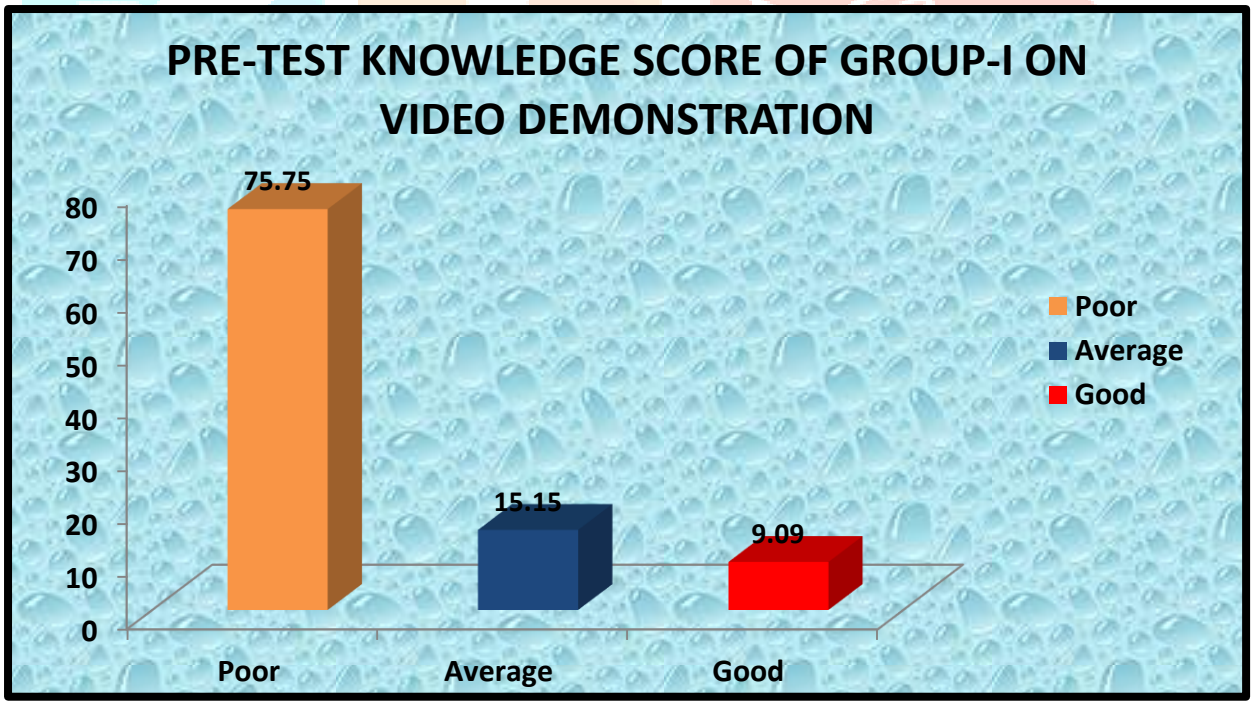
S. No.	Demographic variables	Categories	Frequency (f)	Percentages (%)
1.	Age	a) 18 – 20 years	16	48.48
		b) 21 – 23 years	12	36.36
		c) 24 - 26 years	5	15.15
		d) 27 - 29 years	0	0
2.	Gender	a) Female	29	87.87
		b) Male	4	12.12
3.	Religion	a) Hindu	19	57.57
		b) Muslim	10	30.30

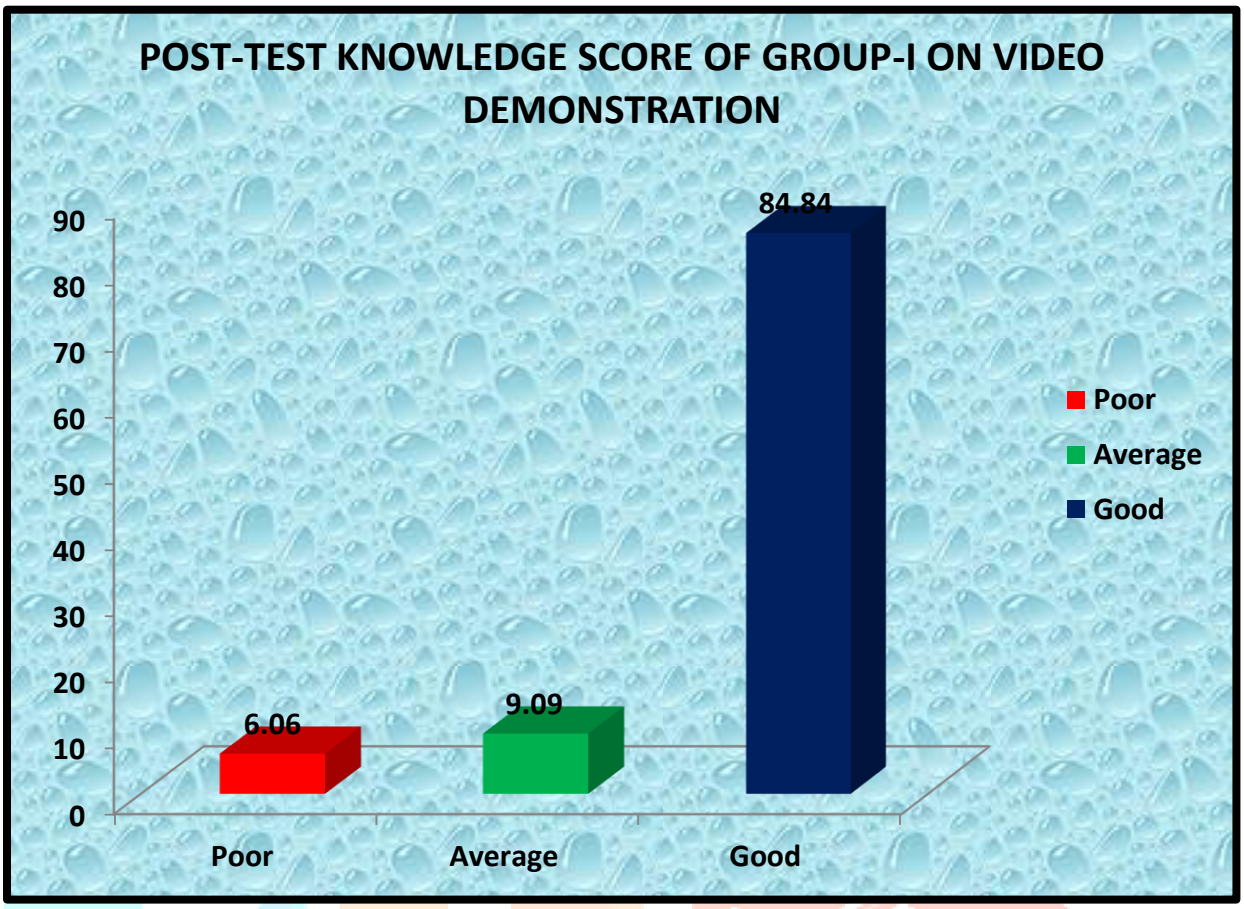
		c) Christian	4	12.12
		d) Others	0	0
4.	Place of residence	a) Urban	26	78.78
		b) Rural	5	15.15
5.	Educational background	a) Bachelor degree	7	21.21
		b) Master degree	0	0
		c) Diploma	26	78.78
		d) Others	0	0
6.	Prior experience	a) clinical duty	10	30.30
		b) lab experience	0	0
		c) Through lecture	23	69.69
		d) None	0	0
7.	Technology proficiency	a) Television	0	0
		b) Mobile	22	66.66
		c) Newspaper and magazine	0	0
		d) Journals	9	27.27
8.	Exposed to the wards during posting	a) Through seniors	5	15.15
		b) Through equipment's available	0	0
		c) Through regular practice done	11	33.33
		d) Regular observation	17	51.51

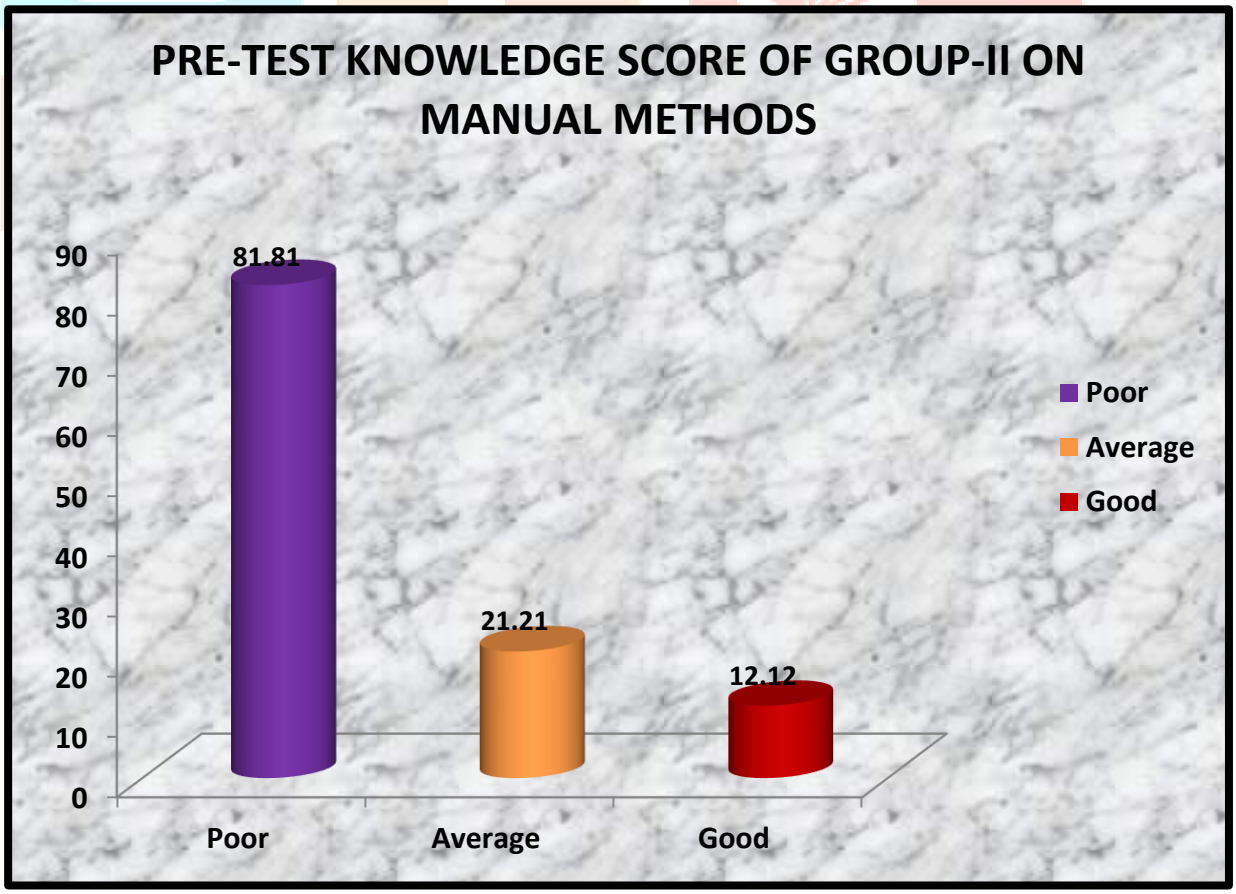
Description of demographic variables of percentage distribution Group- II

S. No.	Demographic variables	Categories	Frequency (f)	Percentages (%)
1.	Age	a) 18 – 20 years	16	48.48
		b) 21 – 23 years	10	30.30
		c) 24 - 26 years	7	21.21
		d) 27 - 29 years	0	0
2.	Gender	a) Female	28	84.84
		b) Male	5	15.15
3.	Religion	a) Hindu	21	63.63
		b) Muslim	5	15.15
		c) Christian	7	21.21
		d) Others	0	0
4.	Place of residence	a) Urban	23	69.69
		b) Rural	10	30.30
5.	Educational background	a) Bachelor degree	23	69.69
		b) Master degree	0	0
		c) Diploma	9	27.27
		d) Others	0	0
6.	Prior experience	a) clinical duty	15	45.45
		b) lab experience	0	0
		c) Through lecture	18	54.54
		d) None	0	0

7.	Technology proficiency	a) Television	0	0
		b) Mobile	20	60.60
		c) Newspaper and magazine	0	0
		d) Journals	13	39.39
8.	Exposed to the wards during posting	a) Through seniors	2	6.06
		b) Through equipment's available	0	0
		c) Through regular practice done	22	66.66
		d) Regular observation	9	27.27




POST-TEST KNOWLEDGE SCORE OF GROUP-I ON VIDEO DEMONSTRATION
90
80
70
60
50
40
30
20
10
0
6.06
9.09
84.84
Poor
Average
Good
Poor
Average
Good


PRE-TEST KNOWLEDGE SCORE OF GROUP-II ON MANUAL METHODS
90
80
70
60
50
40
30
20
10
0
81.81
21.21
12.12
Poor
Average
Good
Poor
Average
Good

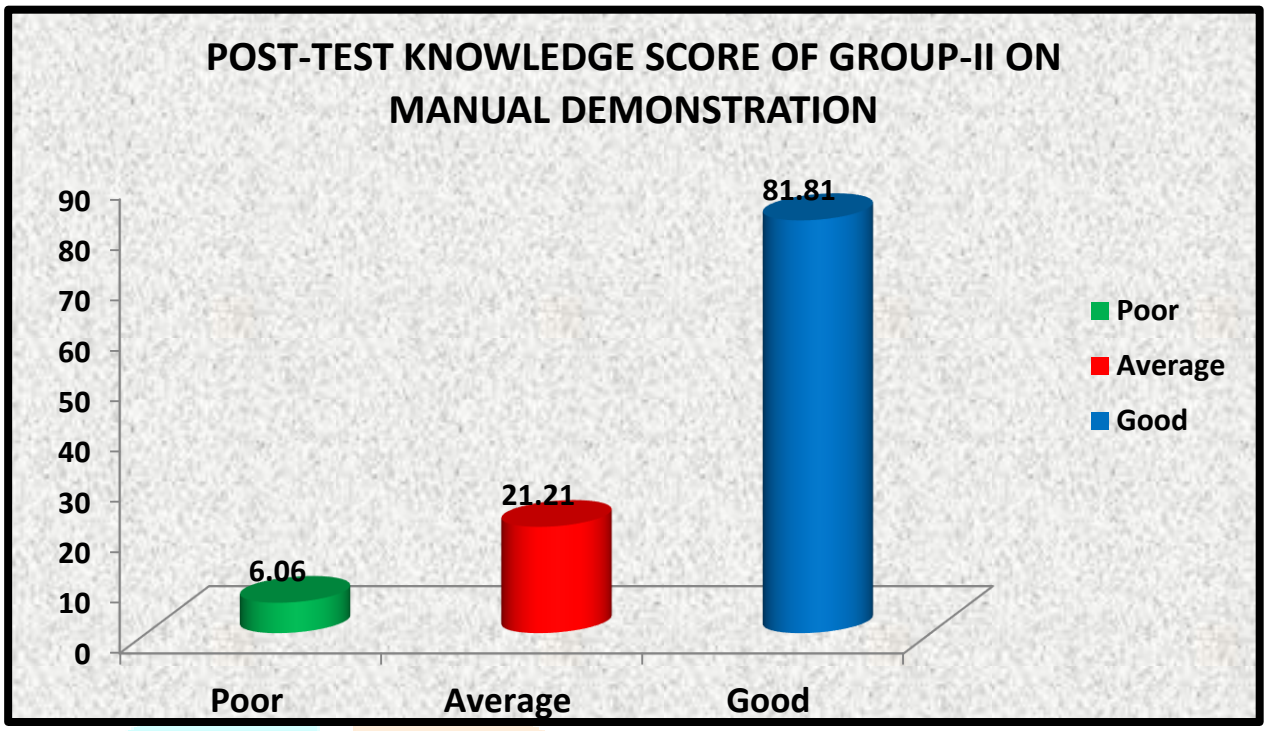


Table: 4.6.1 Showing frequency and percentage distribution according to the knowledge score on intravenous procedure among B. Sc. nursing students.

N = 33

SN	CATEGORY		MEAN	MEAN DIFFERENCE	MEAN PERCENTAGE	SD	T-TEST
1	Video demonstration	Pre-test	7.66	10.7	29.43	4.46	5.35
		Post-test	18.36		70.56	3.69	
2	Manual demonstration	Pre-test	8.27	11.15	29.86	5.039	5.62
		Post-test	19.42		70.133	3.31	

Table: Showing frequency and percentage distribution according to the knowledge score on intravenous procedure among B. SC. nursing first year students.

N = 33

SN	CATEGORY		POOR (%) 0-8	AVAREGE (%) 9-16	GOOD (%) 17-24
1	Video demonstration	Pre-test	**25** (75.75%)	**5** (15.15%)	**3** (9.09%)
		Post-test	**2** (6.06%)	**3** (15.15%)	**28** (84.84%)
2	Manual demonstration	Pre-test	**27** (81.81%)	**7** (21.21%)	**4** (12.12%)
		Post-test	**2** (6.06%)	**4** (12.12%)	**25** (75.75%)

ASSOCIATION BETWEEN THE PRE – TEST LEVEL OF KNOWLEDGE REGARDING INTRAVENOUS PROCEDURE BY VIDEO DEMONSTRATION TEACHING METHOD AMONG BSC. NURSING FIRST YEAR STUDENTS OF BTNC, SAGAR, MP, INDIA WITH THEIR SELECTED SOCIO – DEMOGRAPHIC VARIABLES IN THE EXPERIMENTAL GROUP 1

S. No.	DEMOGRAPHIC VARIABLES	CATEGORIES	KNOWLEDGE SCORE			DF	CHAI SQUIRE
			Poor	Average	Good		
1	Age	a) 18 – 20 years	12	3	1	4	2.778
		b) 21 – 23 years	8	2	2		
		c) 24 - 26 years	5	0	0		
		d) 27 - 29 years	0	0	0		
2	Gender	a) Female	23	4	2	2	2.432
		b) Male	02	1	1		
3	Religion	a) Hindu	15	2	2	4	1.177
		b) Muslim	7	2	1		
		c) Christian	3	1	0		

		d) Others	0	0	0		
4	Place of residence	a) Urban	20	3	3	2	1.864
		b) Rural	5	2	0		
5	Educational background	a) Bachelor degree	5	1	1	2	0.27
		b) Master degree	20	4	2		
		c) Diploma	0	0	0		
		d) Others	0	0	0		
6	Prior experience	a) clinical duty	7	2	1	2	9.383*
		b) lab experience	0	0	0		
		c) Through lecture	18	3	2		
		d) None	0	0	0		
7	Technology proficiency	a) Television	0	0	0	2	0.201
		b) Mobile	18	2	2		
		c) Newspaper and magazine	0	0	0		
		d) Journals	7	1	1		
8	Exposed to the wards during posting	a) Through seniors	5	0	0	4	1.949
		b) Through equipment's available	0	0	0		
		c) Through regular practice done	8	2	1		
		d) Regular observation	12	3	2		

Conclusion:

This study dealt with the analysis and interpretation of data collected from 66 B. Sc. nursing students in selected BTNC, Sagar. Descriptive and inferential statistics were used for analysis. It was found that the pre-test and post-test knowledge score of B. Sc. nursing students ranged from the 0-8, 9-16 and 17-24 respectively. The mean post-test knowledge score of experimental groups-I (X2 = 18.36) were higher than the mean pre-test knowledge score (X2 = 7.66) the 't' value computed ('t'=5.35). And the mean post-test knowledge score of experimental group-II (X2 = 19.42) were higher than the mean pre-test knowledge score (X2 = 8.27) the 't' value computed ('t'=5.628).

Nursing Implications

The findings of present study have implications for nursing practice, nursing education, nursing administration and nursing research.

Nursing Education

Nursing curriculum equips the student with essential knowledge, skills and attitude to fulfil their duties and responsibility during upcoming professional life. The nursing curriculum is concerned with the preparation of future nurses. This study gives awareness about the intrauterine device and how it can be utilized in their significant areas and the detailed content should be incorporate in the curriculum and should be included in the procedural manual. There must be adequate supervision instruction and evaluation and improve their knowledge in intrauterine device.

Nursing practice

The nurse as a member of health team should be aware of the benefits and procedure how to use of intrauterine device. Because nurses are the largest group of care provider in public health services. Primary role of community health nurses to support population and deliver preventive health care services.

Nursing administration

The nurse administrator should conduct awareness regarding intrauterine device among postnatal mothers who are indicated and also plan intervention to promote their health. Nurses work to monitor community health trends and risk factors, help communities to set local health priorities. Nurses serve as leader of community.

Nursing research

Nurse plays a key role in providing health care to patient and being closed to the patient they can conduct projects and research studies in the community. The present study also gives various recommendations, and findings can be used to identify the problems. The findings of this study can be used by the future research and it can be disseminated as to improve the knowledge level of nursing students how to manage the problem.

Recommendations

- A department health education could be organized in the community so that health teaching and in service education program can be conducted on regular basis.
- Similar study can be conducted in the large sample.

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