

**THE EFFECT OF GLYCERINE MAGNESIUM SULPHATE
APPLICATION ON THROMBOPHLEBITIS AMONG
PATIENTS RECEIVED INTRAVENOUS INFUSION
SELECTED HOSPITALS AT ARIYALUR**



A Dissertation submitted to
**THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY
CHENNAI**

In partial fulfillment of the requirement for the award of degree of
MASTER OF SCIENCE IN NURSING

OCTOBER 2018

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INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

I, **301611701** hereby declare that this dissertation entitled “**A STUDY TO ASSESS THE EFFECTIVENESS OF GLYCERINE MAGNESIUM SULPHATE APPLICATION ON THROMBOPHLEBITIS AMONG PATIENTS RECEIVED INTRAVENOUS INFUSION SELECTED HOSPITALS AT ARIYALUR**” has been prepared by me under the guidance and direct supervision of **Prof. R. PUNITHAVATHI, M.Sc.,(N)** Principal, Thanthai Roever college of nursing, Perambalur, as requirement for partial fulfillment of M.Sc., Nursing degree course under **The Tamilnadu Dr. M.G.R. Medical University, Chennai – 32**. This dissertation had not been previously formed and this will not be used in future for award of any other degree / diploma. This dissertation represents independent original work on the part of the candidate.

Place: Perambalur

Date: October - 2018

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THE EFFECTIVENESS OF GLYCERINE MAGNESIUM SULPHATE APPLICATION ON THROMBOPHLEBITIS AMONG PATIENTS RECEIVED INTRAVENOUS INFUSION

ABSTRACT

INTRODUCTION

The intravenous cannulation can have undesirable effects, of which most common is phlebitis due to mechanical, chemical, or infectious cause. The aim of the study is to assess the effectiveness of glycerine magnesium sulphate application on reduction of thrombophlebitis among patients received intravenous infusion.

METHOD

Study design was true experimental, pre test-post test design. 60 patients with thrombophlebitis received intravenous infusion were recruited by simple random sampling technique (N=30) at experimental group received glycerine magnesium sulphate application intervention over the site of thrombophlebitis twice a day for 3 days. Pre test and post test were done with modified Visual Infusion Phlebitis scale by observation method.

RESULT

Statistical analysis revealed that the post test mean score of thrombophlebitis in experimental group was 6.5 ± 1.5 whereas in the control group was 9.5 ± 2.4 . The mean difference was 3. The obtained 't' value 7.5 was significant at 0.01 level.

CONCLUSION

Findings revealed that glycerine magnesium sulphate application is effective in reduction of thrombophlebitis among patient received intravenous infusion.

TABLE OF CONTENTS

CHAPTER NO	TITLE	PAGE NO
I	INTRODUCTION	1 – 5
	Need for the study	2
	Statement of the problem	3
	Objectives of the study	3
	Research hypothesis	4
	Operational definitions	4
	Assumptions	5
	Delimitations	5
	Projected outcome	5
II	REVIEW OF LITERATURE	6 – 15
	Related studies	6
	Conceptual frame work	12
III	METHODOLOGY	16 – 21
	Research design	16
	Variables	16
	Setting of the study	17
	Population	17
	Sample	17
	Sampling technique	17
	Sample size	17
	Description of data collection tool	18
	Data collection procedure	19
	Plan for data analysis	19
	Ethical consideration	20
	Pilot study	20
	Schematic representation of research	21
IV	DATA ANALYSIS AND INTERPRETATION	22 – 40
V	DISCUSSION	41 – 43

VI	SUMMARY Major findings of the study Implications Recommendations Conclusion	44 – 49 45 47 48 49
VII	REFERENCE	50 - 52
VIII	ANNEXURES	i - ix

LIST OF TABLES

TABLE NO	TITLE	PAGE NO
1	Frequency and percentage distribution of demographic variables of the patients with thrombophlebitis received intravenous infusion.	23
2	Pre and post test level of thrombophlebitis among patients received intravenous infusion in experimental group.	30
3	Pre and post test level of thrombophlebitis among patients received intravenous infusion in control group.	32
4	Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous infusion in experimental group.	34
5	Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous infusion in control group	35
6	Comparison of post test mean score of thrombophlebitis among patients received intravenous infusion between the experimental and control group.	37
7	Association of post test level of thrombophlebitis among patients received intravenous infusion with their selected demographic variables in the experimental group.	39

LIST OF FIGURES

FIGURE NO	TITLE	PAGE NO
1	Conceptual frame work based on Wiedenbach's Helping Art theory	15
2	Schematic representation of research methodology	21
3	Percentage distribution of age in years of patients with thrombophlebitis received intravenous infusion	26
4	Percentage distribution of vein cannulated among patients with thrombophlebitis who received intravenous infusion	27
5	Percentage distribution of size of cannula among patients with thrombophlebitis who received intravenous infusion	28
6	Percentage distribution of duration of cannula in situ among patients with thrombophlebitis who received intravenous infusion	29
7	Percentage distribution of pre and post test level of thrombophlebitis among patients received intravenous infusion in experimental group	31
8	Percentage distribution of pre and post test level of thrombophlebitis among patients received intravenous infusion in control group	33
9	Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous infusion in experimental group and control group	36
10	Comparison of post test mean score of thrombophlebitis among patients received intravenous infusion between the experimental and control group	38

LIST OF ANNEXURES

ANNEXURE NO	TITLE	PAGE NO
I	Letter seeking expert's opinion for Content validity permission.	i
II	List of expert's opinion for content Validity	ii
III	Evaluation criteria checklist for validation	iii
IV	Permission letter for research purpose	iv
V	Informed consent form(English)	v
VI	Informed consent form (Tamil)	vi
VII	Data collection tool	vii - ix

CHAPTER - I

INTRODUCTION

In health care setting, peripheral intravenous catheter is an essential tool in the delivery of patient care and 80% of patients being admitted to hospital receive intravenous infusion. Although such catheters provide necessary vascular access, they are associated with some risks and complications that can have an impact on the clinical status and outcome of the patient. Studies have shown that 20% to 80% of patients treated by peripheral intravenous catheters are susceptible to some form of thrombophlebitis and accounts for considerable iatrogenic morbidity.

Peripheral catheter-related phlebitis is caused by the inflammation of the tunica intima of the superficial vein due to irritation of the tunica by mechanical, chemical, or bacterial sources. If left untreated, it can lead to infection or thrombus formation. Other factors which increase the pathogenesis of thrombophlebitis include size of cannula, catheter material, duration of cannulation, infectious agent, and disease condition.

Early phlebitis at an intravenous site usually resolves after a cannula is removed or re-sited. The initial treatment for any form of phlebitis is to stop the infusion and remove the peripheral intravenous catheter. This should be done with consideration for the patient's commonest symptoms of any swelling along the venous tract, leading to a hardened, cord-like vein. The affected limb should be elevated to minimize inflammation, and an anti-inflammatory cream or gel can be directly applied to the area. Anti-inflammatory analgesics can be prescribed to treat both the inflammation and the pain associated with phlebitis.

Glycerine attracts water to the skin and restores the suppleness of skin, as it moisturizes the skin and cleanses as well. Its also acts as vasodilator and used in treating pain. It has antibacterial action also when it comes in contact with the bacteria. Glycerine hydrating properties enable the body to seal off the broken capillaries, blood vessels, blood and fluids. Magnesium sulphate is highly soluble in water. It is absorbed in the skin easily, draws toxin from the body, reduces inflammation and relaxes muscle including vascular smooth muscle. Most importantly it is a natural emollient, exfoliator and much more. Magnesium sulphate is the second most plentiful cation of the intracellular fluids. Magnesium inhibits ca^{2+} influx through of hydroxyridine –sensitive, voltage dependent channel. It is commonly used for treating thrombophlebitis

NEED FOR THE STUDY

A common problem encountered during intravenous infusion is the phlebitis, ie the inflammation of the venous wall near the point of entry of the cannula into the veins. It is often due to patient movement and disruption of vein at the site of insertion of the cannula. The patients who are on cytotoxic drugs, hyperosmolar agents and vasoactive drugs are more prone to phlebitis.

The Infusion Nurses Society national standards of practice stated that a nurse who administers intravenous medication or fluid must know its adverse effects and appropriate intervention to be taken before starting the infusion. Although many strategies to reduce have been suggested, because of its multifactorial etiology, prevention of complication still continues to fail. Hence nurses need to be aware of and consider certain intervention to reduce phlebitis when managing intravenous infusion in patient.

The recommended interventions Guggul paste, thrombophob ointment or gel, heparinoid application, moist heat, cold compress, aloevera gel, ichthomal belladonna, ichthomal glycerine and mucus polysaccharide poly sulphate for thrombophlebitis.

The researcher in her clinical nursing practice had experienced and observed that patients with IV cannula were frequently encountered with pain and suffering due to thrombophlebitis and driven to explore the actions to hasten the healing of thrombophlebitis.

Because of the similar therapeutic effect of these interventions especially in reducing pain and inflammation of intravenous site, it makes lot of confusion among nurses to practice the ideal choice of intervention which promotes patients comfort by reliving pain and inflammation. This made the investigator to be more interested to assess the effectiveness of glycerine magnesium sulphate application in reducing thrombophlebitis.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of glycerine magnesium sulphate application on thrombophlebitis among patients received intravenous infusion selected hospitals at Ariyalur.

OBJECTIVES

1. To assess the level of thrombophlebitis among patients received intravenous infusion.
2. To assess the effectiveness of glycerine magnesium sulphate application on reduction of thrombophlebitis among patients received intravenous infusion.
3. To find the association between the post test level of thrombophlebitis among patients received intravenous infusion with their selected demographic variables.

RESEARCH HYPOTHESES

H1: There is a significant reduction in thrombophlebitis among patients with intravenous infusion after glycerine magnesium sulphate application.

H2: There is a significant association between post test level of thrombophlebitis among patients with intravenous infusion and their selected demographic variables who received glycerine magnesium sulphate application.

OPERATIONAL DEFINITIONS

EFFECTIVENESS

The degree to which the level of thrombophlebitis is reduced by glycerine magnesium sulphate application. It will be measured by modified Visual Infusion Phlebitis scale.

MAGNESIUM SULPHATE APPLICATION

It refers to solution in amount of 20 gm magnesium sulphate mixed with 50 ml glycerine, applied over proximal to the site of thrombophlebitis twice a day for 3 days.

PATIENTS WITH THROMBOPHLEBITIS

It refers to the individuals who are admitted in the hospital with medical or surgical condition developed thrombophlebitis after intravenous infusion.

INTRAVENOUS INFUSION

Administration of fluid and medication through via vein peripheral through use of Intravenous cannula.

THROMBOPHLEBITIS

It is inflammation of a vein due to a blood clot in a vein located just below the skin surface. It refers to observable and palpable area of upper extremity around the affected vein based on the signs and symptoms such as pain, cord like swelling, tenderness, warmth, redness and loss of function of affected arm.

ASSUMPTIONS

Glycerine magnesium sulphate application may reduce the thrombophlebitis.

DELIMITATIONS

The sample size was limited to 60.

The study is limited to only patients with thrombophlebitis after intravenous Infusion.

Data collection period was limited to 4 weeks.

Setting is limited to only two setting.

PROJECTED OUTCOME

The findings of the study will help the nurses to implement glycerine magnesium sulphate application to reduce the discomfort of patient with thrombophlebitis.

CHAPTER – II

REVIEW OF LITERATURE

Review of literature can help to clarify a problem, justify research for the proposed problem, throw light on appropriate methodology and contribute towards the development of a conceptual framework.

PART – I

The investigator has discussed the literature review in the following sections:

SECTION A: review of literature related to thrombophlebitis in general.

SECTION B: review of literature related to Glycerine Magnesium Sulphate application in reducing thrombophlebitis.

SECTION A: **review of literature related to thrombophlebitis in general.**

Martinez JA et al (2001) conducted a prospective study among 569 IV cannula including 492 peripherally inserted cannula in a country hospital. 11.5% of patients developed thrombophlebitis and mean time cannulation in situ was 3 days. The chi square findings showed the contributing factors as age above 65 years, female sex, insertion of cannula into back of hand IV infusion of drug like aminophylline and not using heparin.

Hunter ES, Bell E et al (2002) study the relationship of local IV complications and the methods of intermittent IV access. The purpose of the study was to determine the incidence of complications during IV infusion which depends on whether the IV tubing is directly connected to the infusion

device or the tubing connected to the latex part of IV lock using a needle. They concluded that direct connection of tube to the infusion device had the higher incidence of complication.

Seini, et al (2011) investigated the epidemiology of infiltration caused by intravenous infusion in Nehru hospital, PGIMER Chandigarh. A total of 168 patients with peripheral intravenous cannula included in the study using purposive sampling technique were studied prospectively. Infiltration grading scale developed by infusion nurses society was used to assess infiltration. The revealed incidence of infiltration was 31.5 percent and also that nurses are directly involved in the handling of peripheral intravenous cannula. The protocol need to be developed to use by the nurses for prevention and management of infiltration caused by peripheral intravenous cannula.

Ewa id vall (2006) conducted a evidence based practice for elective replacement of peripheral intravenous catheter to prevent thrombophlebitis. The incidence of thrombophlebitis associated with peripheral intravenous catheter has been reported to range from 5.3% to 77.5%. Many factors that increase the risk for thrombophlebitis have been reported, of which time in situ is one. In Sweden, the recommended guideline of elective replacement of peripheral intravenous catheter every 12-24 hours.

Lanbeck Peter (2004) conducted a descriptive study to analyse the perception of risk factors for infusion phlebitis among Swedish nurses. Questionnaire was developed to assess the perception of nurses. The finding revealed that a majority of the nurses believed that insertion of a peripheral venous catheter in the forearm and catheter rotation within 48 hours were protective.

Ahlquist (2006) conducted a cross section survey to evaluate the outcome of implemented evidence based clinical guidelines of Nursing care, handling and documentation for peripheral intravenous cannula frequency of thrombophlebitis,. The findings of this study revealed that the sign of thrombophlebitis increases by 21% ($p < 0.01$) and the use of cannula size 0.80 mm increased by 22% ($p < 0.001$). Nurses documentation of peripheral intravenous cannula improved significantly ($p < 0.001$). This study conclude that implementation of the guidelines resulted in significant improvement by means of decrease frequency of signs of thrombophlebitis, increased application of smaller cannula size (0.80 mm) as well as of the nurses documentation in the patients record.

Singh R, Bhandarg S Pun KD (2008) a study was conducted to compare the rates of phlebitis of peripheral intravenous line left in place for 72 hours versus rates of those left in place 96 hours. Results were a total of 2503 peripheral lines and the overall phlebitis rate was 6.8%. It was estimated that in 1 month approximately 300 intravenous lines potentially could be prolonged beyond 72 hours; 215 lines were changed at 72 hours despite no signs of inflammation, 61 lines were kept till 96 hours, and 19 lines were kept beyond 96 hours. Conclusion of the study was phlebitis rate for our peripheral intravenous catheters at 96 hours was not significantly different from that at 72 hours.

Ruchisaini (2011) reported that clinical variables such as the site of vein, type of fluid, flow rate, number of days on flow had significant association with the pain perception or swelling. Total of 168 peripheral intravenous cannula studied and identified that inappropriate aseptic technique, involvement of elbow joint, soiling, longer duration of more than 24 hours etc, as the most important risk factors for the development of phlebitis.

SECTION B: review of literature related to Glycerine Magnesium Sulphate application in reducing thrombophlebitis.

Yambem M, Madhale M, Bagi D, (2015), compared the effectiveness of glycerine with magnesium sulphate versus heparin – benzyl nicotinate (thrombophob) ointment on management of thrombophlebitis among patients admitted in ICU of selected hospital in Karnataka. The study were 30 patients having intravenous thrombophlebitis and they were divided into group I and group II through Purposive sampling. After applying interventions on both groups observations were maid using the Modified Jackson’s Phlebitis scale. The findings revealed that the computed ‘t’ value of group I (10.69*), group II (6.20*) and significant difference was observed between the group. They revealed that magnesium sulphate application was more effective intervention in reducing thombophlebitis as compared to the application of heparin – benzyl nicotinate (thrombophob) ointment.

Saini B, Paul P (2011) a quasi experimental study was conducted on “the effectiveness of cold application, heparinoid and magnesium sulphate application on thrombophlebitis” among patients in selected hospitals of indore. The findings of the study indicated that the computed ‘t’ value of cold application group [$t'_{14}=14.33$], heparinoid application group [$t'_{14}=20.82$], and magnesium sulphate application group [$t'_{14}=20.82$] were statistically significant, which suggested that all three interventions were effective in reducing the signs and symptoms of thrombophlebitis. The computed ‘F’ ratio of all the three groups [$F_{2,42}=10.10$] showed that three types of application differ significantly. However, the mean difference of magnesium sulphate group [18.34] was higher than the cold application [13.33] and heparinoid application [12.8] group. This concluded that magnesium sulphate application was most effective intervention in reducing the thrombophlebitis.

Biswas D (2005) in her dissertation compared the effect of four selected nursing interventions on patients with phlebitis related to peripheral intravenous infusion in Kolkata, West Bengal in 2005. Icthammol belladonna dressing (treatment I), magnesium sulphate dressing (treatment II), ichtammol belladonna dressing along with hot fomentation (treatment III) and glycerine magnesium sulphate dressing group (treatment IV). It was found that ichtammol belladonna dressing along with hot fomentation was more effective among four modalities, but it also said that glycerine magnesium sulphate was being used effectively in the treatment of phlebitis.

Ravindra HN et al (2005) conducted a quasi experimental study to evaluate effectiveness of glycerine magnesium sulphate dressing on phlebitis among patients undergoing peripheral intravenous infusion. Findings revealed that glycerine magnesium sulphate dressing was highly effective in decreasing phlebitis level of the patient. The obtained value 7.454 was statistically significant at 0.001 level.

Gopalkrishna & Kmble (2015) conducted an experimental study to assess the effectiveness of Guggul paste application versus other standard care measure (magnesium sulphate dressing, warm compress and thrombophob application) on intravenous infiltration among hospitalised patients in Pune. A pre-test and post-test control group design was used. The study sample were 60 patients having intravenous infiltration randomly assigned to the experimental and control group. After applying interventions on both groups observations were carried out using the infusion nurses society infiltration scale at an interval of 12 hours for three days. A paired t test was used to assess the effectiveness of guggul application dressing in experimental group and magnesium sulphate dressing, warm compress and thrombophob application in control group. The corresponding p-Values were less than 0.05 at 29 degrees of freedom. Thus it was concluded that all treatments were equally effective in intravenous infiltration.

Chanda Sha, S Sadikumar (2018), conducted a quasi experimental study to assess the effectiveness of heparin, glycerine magnesium sulphate and moist heat application on Infiltration and extravasations among the IV cannulisation patients in a selected hospital Bangalore. A pre test post test time series design was used. The study sample size was 45 patients. After applying interventions on three groups observations were carried out using infiltration grading scale, extravasations was assessed used extravasations grading scale and numerical pain rating scale was using to assess pain. Findings revealed that 0.05 level of significant with ANOVA F.Value of 0.711. The study concluded that all three interventions, heparin, glycerine magnesium sulphate and moist heat were equally effective.

PART II - CONCEPTUAL FRAMEWORK

The conceptual framework of the study was derived from the modified Wiedenbach's Helping Art of clinical Nursing theory (1964). According to the theory, the nursing is involved in three components.

- ❖ Identifying a need for help
- ❖ Ministering needed plan
- ❖ Validating that need for help was met

In this study the nurse investigator is attaining the goal through 3-steps of wiedenbach's prescriptive theory.

STEP-I

IDENTIFYING A NEED FOR HELP

General information

For collecting general information the investigator demographic variable and through pre-test collect information about thrombophlebitis under grades of No, Mild , Moderate and Severe.

The Central Purpose

According to the theory, the central purpose refers to what the nurse wants to accomplish. It is the overall plan towards which the nurse strives. It transcends the immediate intend of the assignment or task by specially directing activities towards the patient's goal.

In this study the central purpose was the reduction of the thrombophlebitis.

The Prescription

According to the theory the prescription refers to the plan of care for patients. Which include the intervention of application glycerine magnesium sulphate.

STEP-II

MINISTERING NEEDED PLAN

The nurse formulates a plan of action to meet the patients need for help based on available resources. What the patients thinks, knows, can do and has done what the nurse thinks, knows, can do and has done; the nurse presents the plan to the patients and the patient's response to it.

In this study the glycerine magnesium sulphate application is the implementation for patients who have developed thrombophlebitis after intravenous infusion.

Realities

It refers to the physical, physiological, emotional and spiritual factors that come into play in a situation involving nursing action. Wiedenbach's defines the five realities as agent, recipient, goal, need and framework.

The agent who is the practicing nurse and her delicate characterized by personal attributes, capacities, commitment and conference to provide nursing care. In the study it refers to the researcher; direct all action towards the goal.

In this study recipient are the patient who has problems and symptoms of thrombophlebitis.

The goal is the desired outcome the nurse wishes to achieve. In this study it refers to the reduction of thrombophlebitis.

The mean comprise the activities and devices used by the nurse to achieve the goal. This includes specific skills, procedures, techniques and devices that may be used to facilitate nursing practiced. In this study the intervention of thrombophlebitis using glycerine magnesium sulphate application twice a day and for three days.

The framework consists of the human, environment, professional and organizational facilities. In this study thrombophlebitis among patients received intravenous infusion at private hospital Ariyalur.

STEP-III

VALIDATING THAT THE NEED FOR HELP WAS MET

The nurse perceives the patient's behaviour consistent or inconsistent with the nurse's concept of comfort of capability. It refers to a collection of evidence that shows patients need have been met and that his/her functional ability has been restored as a direct result of the research action. It is based on patient's oriented evidence. This step involves post-test assessment and that score after ministering analysis to infer the outcome.

In this study the post test was done through modified Visual Infusion Phlebitis scale. According to the result of the post test score described the No, minimal, mild, moderate thrombophlebitis.

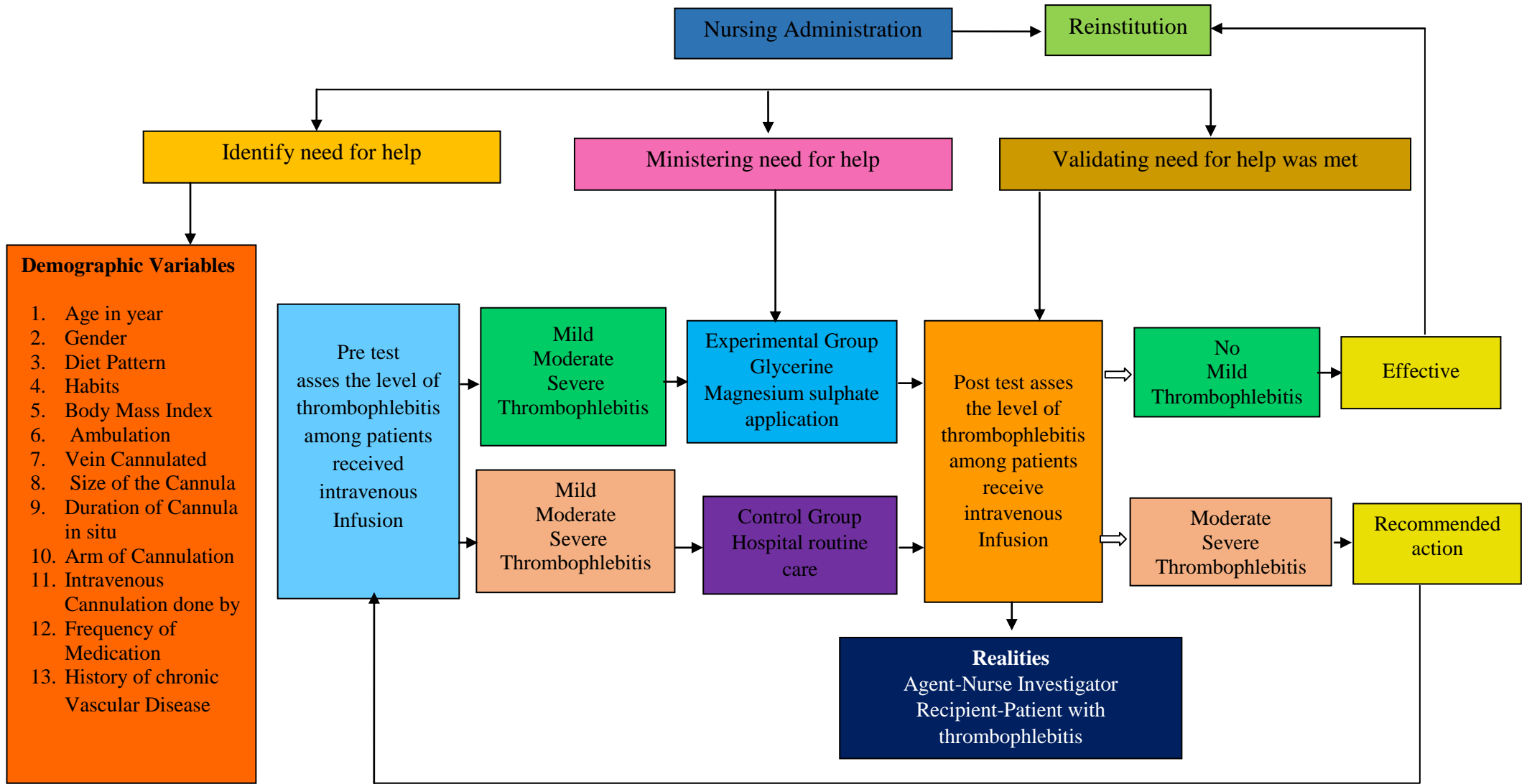


FIGURE 1: WIEDENBACH'S HELPING ART TO CLINICAL NURSING THEORY (1964)

CHAPTER - III

METHODOLOGY

This chapter describes the methodology followed to assess the effectiveness of glycerine magnesium sulphate application on thrombophlebitis among patients received intravenous infusion.

RESEARCH APPROACH

Quantitative and evaluative research approach.

RESEARCH DESIGN

True Experimental Pre Test – Post Test Control Group Design

GROUP	PRE TEST	TREATMENT	POST TEST
EXPERIMENTAL GROUP	O_1	X	O_2
CONTROL GROUP	O_1	-	O_2

- O_1 - Pretest measurement of thrombophlebitis
 X - Glycerine magnesium sulphate application
 O_2 - Post test measurement of thrombophlebitis

VARIABLES

Dependent Variable : Thrombophlebitis.

Independent Variable : Glycerine magnesium sulphate application.

SETTING OF THE STUDY

Medical and surgical wards in KMS and Golden Hospitals at Ariyalur.

POPULATION

Patient with thrombophlebitis after intravenous infusion.

ACCESSIBLE POPULATION

Patient with thrombophlebitis after intravenous infusion admitted in Hospitals at Ariyalur.

SAMPLE

Inpatients with thrombophlebitis after intravenous infusion admitted in KMS and Golden Hospitals.

SAMPLING TECHNIQUE

Simple random sampling technique – lottery method

SAMPLE SIZE

- 60 sample
- 30 patients for experimental group
- 30 patients for control group

SELECTION CRITERIA

INCLUSION CRITERIA

1. Patients who are > 21 years of age.
2. Patients who have developed thrombophlebitis due to intravenous infusion.
3. Patients who are admitted in wards.
4. Patients who are willing to participate.
5. Patients available during data collection period.

EXCLUSION CRITERIA

1. Patients who are not willing to participate in this study.
2. Patients who had known skin allergy to glycerine magnesium sulphate application
3. Patients with burns.

DESCRIPTION OF DATA COLLECTION TOOL

The investigator used a modified Visual Infusion Phlebitis Scale to assess the thrombophlebitis.

STRUCTURED QUESTIONNAIRE

The structured questionnaire was developed

Section I: Questions to elicit demographic data.

Section II: Modified Visual Infusion Phlebitis Scale. It consist of 5 components pain, swelling, tenderness, warmth and redness, each divided into 1-4 scores.

SCORING AND GRADING PROCEDURE

SCORING - The observed condition of thrombophlebitis is given score as per description given in the scale. The score obtained by observation is graded as follows:

GRADING PROCEDURE

SCORE		GRADE
5	:	No thrombophlebitis
6 - 10	:	Mild thrombophlebitis
11 - 15	:	Moderate thrombophlebitis
16 - 20	:	Severe thrombophlebitis

CONTENT VALIDITY

For content validity the research experts were requested to give their opinion about the content areas and its relevance and appropriateness of the items. Content validity obtained from five experts in the department of medical and surgical nursing. Items were modified based on their suggestions.

RELIABILITY

The researcher has adapted the standardized Visual Infusion Phlebitis scale. The reliability was not assessed as it was already established.

DATA COLLECTION PROCEDURE

Data collection was done from 04.03.18 to 01.04.2018 at KMS and Golden hospital Ariyalur. Patients who received IV infusion were screened for thrombophlebitis and the participants were recruited by simple random sampling technique in the medical and surgical wards. The purpose of the study was explained, written consent was obtained from all patients before the study. Demographic data collected and the thrombophlebitis was assessed with modified Visual Infusion Phlebitis scale as pre test on the first day. Glycerine Magnesium Sulphate application intervention over the site of thrombophlebitis for 15 minutes was done, morning and evening 2 times a day for 3 days. Post test was done with the same scale on the fourth day. The researcher herself collected the data by using the observation method with help of modified Visual Infusion Phlebitis Scale.

PLAN FOR DATA ANALYSIS

It was planned to analyse the collected data by using descriptive and inferential statistics. Frequency and percentage distribution will be used to analyse the demographic variables and level of thrombophlebitis among hospitalized patients. Mean and standard deviation to describe the thrombophlebitis. The paired t test will be used to assess the effectiveness within group and independent t test will be used to assess the effectiveness of

Glycerine magnesium Sulphate application. Chi square test will be used to find the association of post test scores with their selected demographic variables.

ETHICAL CONSIDERATION

- The study was performed after getting approval from the dissertation ethical of committee of, THANTHAI ROEVER COLLEGE OF NURSING.
- Permission was obtained from the chairman of Golden and KMS Hospitals, at Ariyalur.
- The written consent was obtained from each study participant before collection the data.
- Confidentiality was maintained throughout the study.

PILOT STUDY

The pilot study was done at private hospital from 7.12.2017 to 14.12.2017 to test the feasibility, relevance and practicability. Permission was sought from the chairmans of KMS and Golden Hospitals at Ariyalur. The consent was obtained from all the participants after explaining the purpose of the study and their doubts were clarified. The pilot study was conducted among 10 patients, 5 in experimental group and 5 in control group, selected by simple random sample technique. The intervention of Glycerine Magnesium Sulphate application over the site of thrombophlebitis for 15 minutes, morning and evening 2 times a day for 3 days was done for experimental group and the control group received routine hospital care. Post test was done with the same scale on the fourth day. The data analysis showed that the study was found to be feasible and it was decided to continue main study without any modifications.

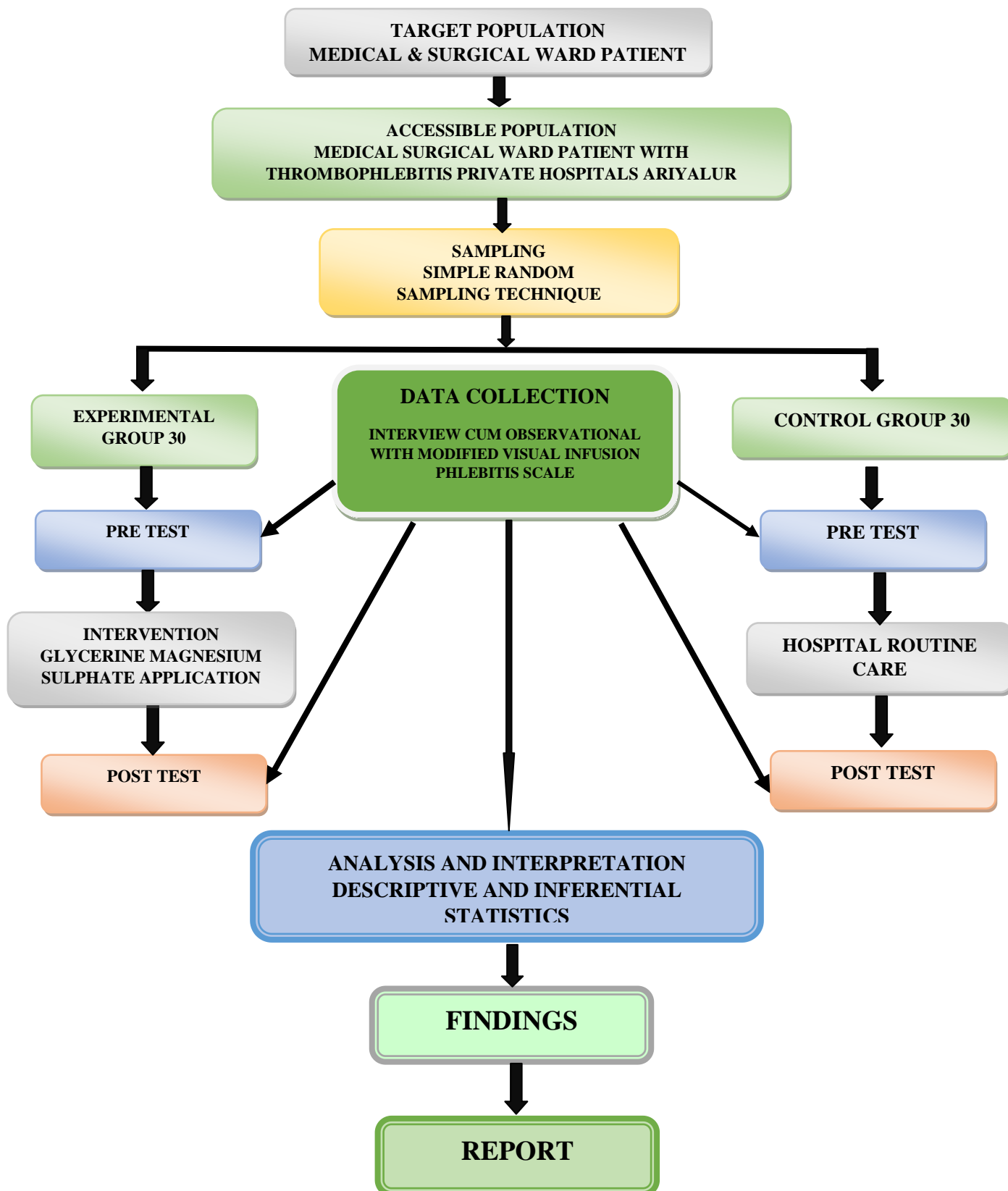


FIG 2 : SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

The analysis is a process of organizing and synthesizing the data in such a way that the research question can be answered and hypothesis tested {Polit and Hungler, 2011}.

This chapter deals with analysis and interpretation of the data collected from 60 patients received intravenous infusion. The data was organized, tabulated and analysed according to the objectives. The findings are presented under the following sections.

ORGANIZATION OF THE DATA

- SECTION I :** Description of the demographic variables of the patients with thrombophlebitis who received intravenous infusion.
- SECTION II:** Pre and post test level of thrombophlebitis of patients received intravenous infusion in experimental and control group.
- SECTION III:** Comparison of pre and post test mean score of thrombophlebitis of patients received intravenous infusion in experimental and control group.
- SECTION IV:** Association of post test level of thrombophlebitis of patients received intravenous infusion with their selected demographic variables in the experimental group .

SECTION – I

Table 1: Frequency and percentage distribution of demographic variables of the patients with thrombophlebitis received Intravenous infusion.

N=60 (30+30)

Demographic variables	Experimental group		Control group	
	No.	%	No.	%
Age in years				
21-30	11	36.66%	12	40%
31-40	6	20%	5	16.66%
41-50	3	10%	2	6.66%
51-60	4	13.33%	3	10%
> 60	6	20%	8	26.66%
Gender				
Male	12	40%	13	36.66%
Female	18	60%	17	56.66%
Diet pattern				
Vegetarian	4	13.33%	8	26.66%
Non vegetarian	26	86.66%	22	73.33%
Habits				
Cigarette smoking	2	6.66%	2	6.66%
Alcohol	5	16.66%	4	13.33%
Tobacco	4	13.33%	4	13.33%
None	19	63.33%	20	66.66%
Body Mass Index				
Under weight	2	6.66%	1	3.33%
Normal	23	76.66%	21	70%
Over weight	0	0	3	10%
obese	5	16.66%	5	16.66%
Ambulation				
Mobilized	26	86.66%	22	73.33%
Partially mobilized	3	10%	5	16.66%
Immobilized	1	3.33%	3	10%

Vein Cannulated				
Basilic vein	6	20%	5	16.66%
Cephalic vein	13	43.33%	16	53.33%
Median vein fore arm	11	36.66%	9	30%
Size of the cannula				
16G	0	0%	0	0%
18G	17	56.66%	20	66.66%
20G	10	33.33%	8	26.66%
22G	3	10%	2	6.66%
Duration of cannula in situ				
<2days	7	23.33%	12	40%
2-3days	17	56.66%	15	50%
3-5days	6	20%	3	10%
> 5 days	0	0%	0	0%
Arm of cannulation				
Right arm	15	50%	13	43.33%
Left arm	15	50%	17	56.66%
Intravenous cannulation done by				
Registered nurse	29	96.66%	27	90%
Student nurse	0	0%	0	0%
Doctor	1	3.33%	3	10%
Frequency of medication				
od	1	3.33%	0	0%
bd	22	73.33%	21	70%
tds	7	23.33%	9	30%
qid	0	0%	0	0%
History of chronic vascular disease				
No	29	96.66%	30	100%
Yes	1	3.33%	0	0%

In Table 1 depicts that in experimental group Majority 11(3666%) of patients were in of 21-30 years, equal representation of patients 6(20%) were in age group of 31-40 and > 60 years, 4(13.33%) of patients were in 54-60 years and the least number of age group 3(10%) 41-50years. Majority

18(60%) were female. Majority 26(86.66%) of the sample were non vegetarian. Majority 5(16.66%) are alcohol users, 4(13.33%) are tobacco users, 2(6.66%) are cigarette smoker. Majority 23(76.66%) had normal BMI 5(16.66%) were obese, 2(6.66%) were under weight. Majority 26(86.66%) had been mobilized, Majority 13(43.33%) had cephalic vein, 11(36.66%) had median fore arm vein and 6(20%) had basilic vein cannulation. Majority 17(56.66%) had 18G size cannula, 10(33.33%) had 20G size cannula and 3(10%) had 22G size cannula. Majority 17(56.66%) had 2-3 days, 7(23.33%) had <2days and 6(20%) had 3-5 days duration of cannula in situ. Equal representation of patients 15(50%) with right arm and left arm cannulation each. Majority 29(96.66%) had cannulation done by registered nurse. Majority 22(73.33%) received bd medication and 7(23.33%) received tds medication. Majority 29(96.66%) had no chronic vascular disease.

In control group Majority 12(40%) were in 21-30 years, 8(26.66%) of patients were in > 60 years, 5(16.66%) of patients were in 31-40 years, 3(10%) of patients were in 51-60 years, the number of age group 2(6.66%) 41-50 years. Majority 17(56.66%) were female. Majority 22(73.33%) of the sample were non vegetarian. Majority 20(66.66%) had no bad habits, equal representation of 4(13.33%) alcohol users, tobacco users and 2(6.66%) cigarette smoker. Majority 21(70%) had normal BMI, 5(16.66%) were obese, 3(10%) were overweight. Majority 16(53.33%) had cephalic vein, 9(30%) median forearm vein and 5(16.66%) basilic vein cannulation. Majority 20(66.66%) had 18G, 8(26.66%) had 20G, and 2(6.66%) had 22G size cannula. Majority 15(50%) had 2-3 days, 12(40%) <2days and 3(10%) 3-5 days duration of cannula in situ. Majority 17(56.66%) had left arm cannulation. Majority 27(90%) had cannulation done by registered nurse. Majority 21(70%) received bd medication and 9(30%) received tds medication. Majority 30(100%) had no chronic vascular disease.

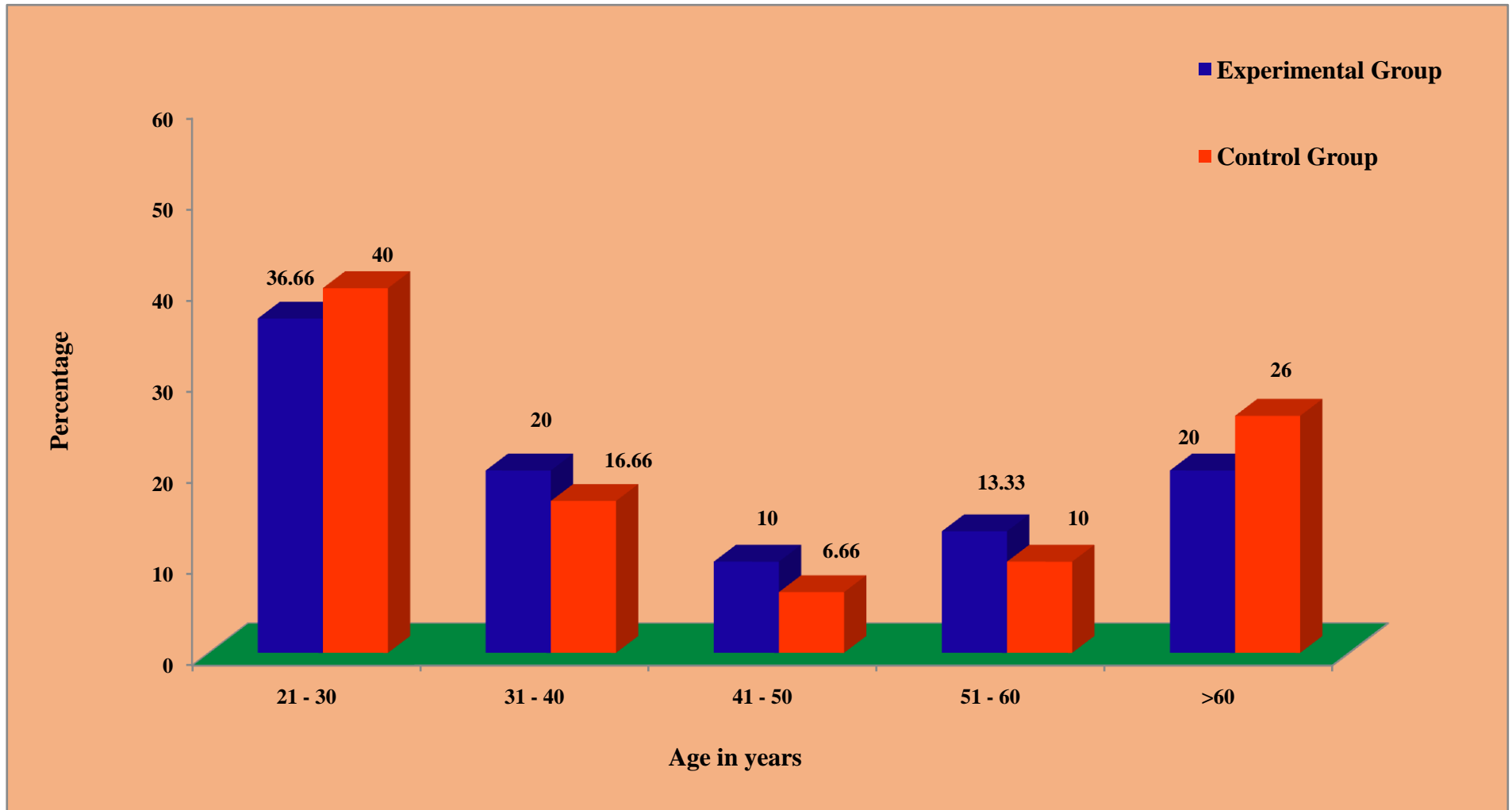


Figure 3 : Percentage distribution of age in years of patients with thrombophlebitis who received Intravenous infusion

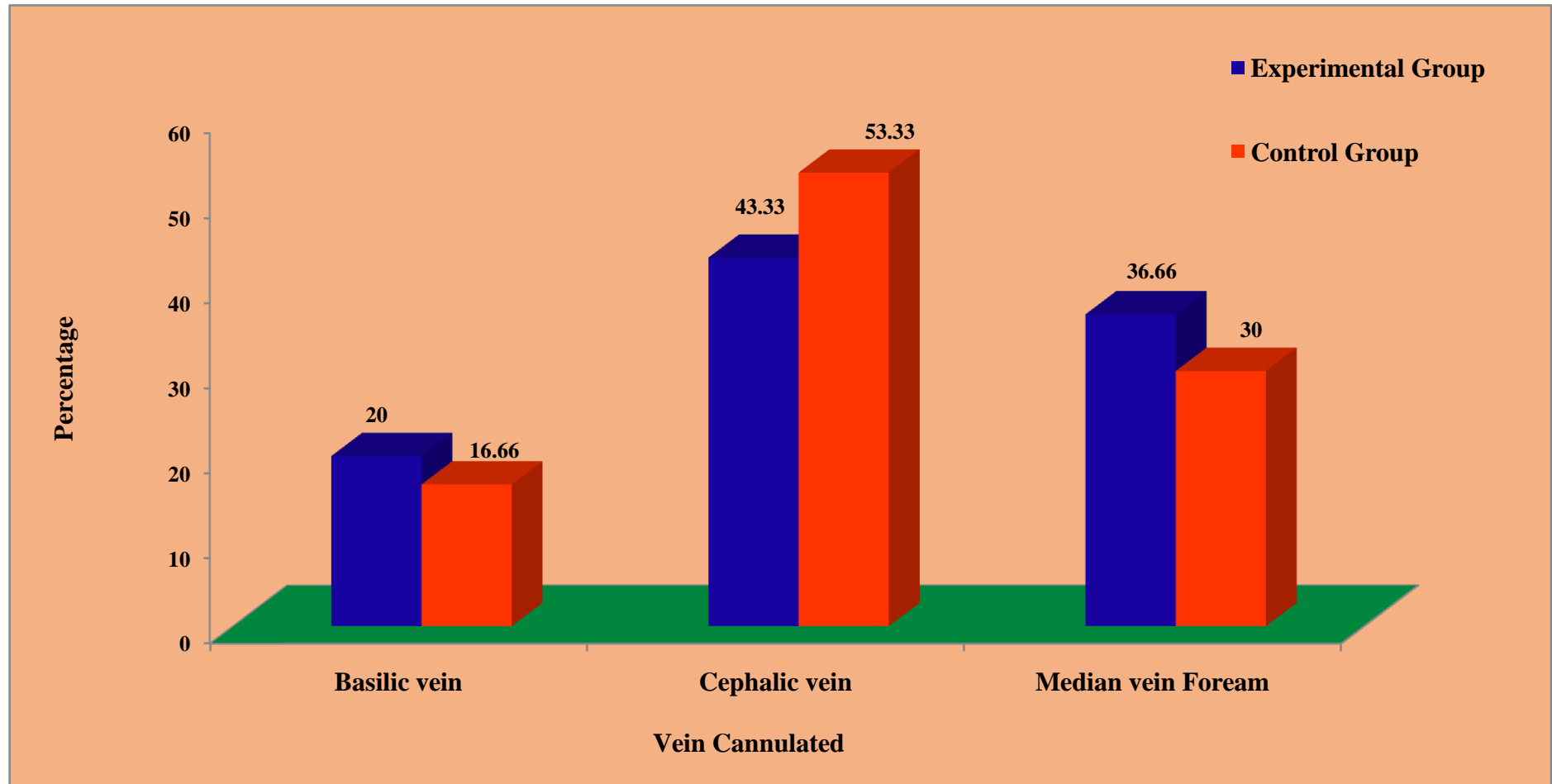


Figure 4 : Percentage distribution of vein cannulated among patients with thrombophlebitis who received Intravenous infusion

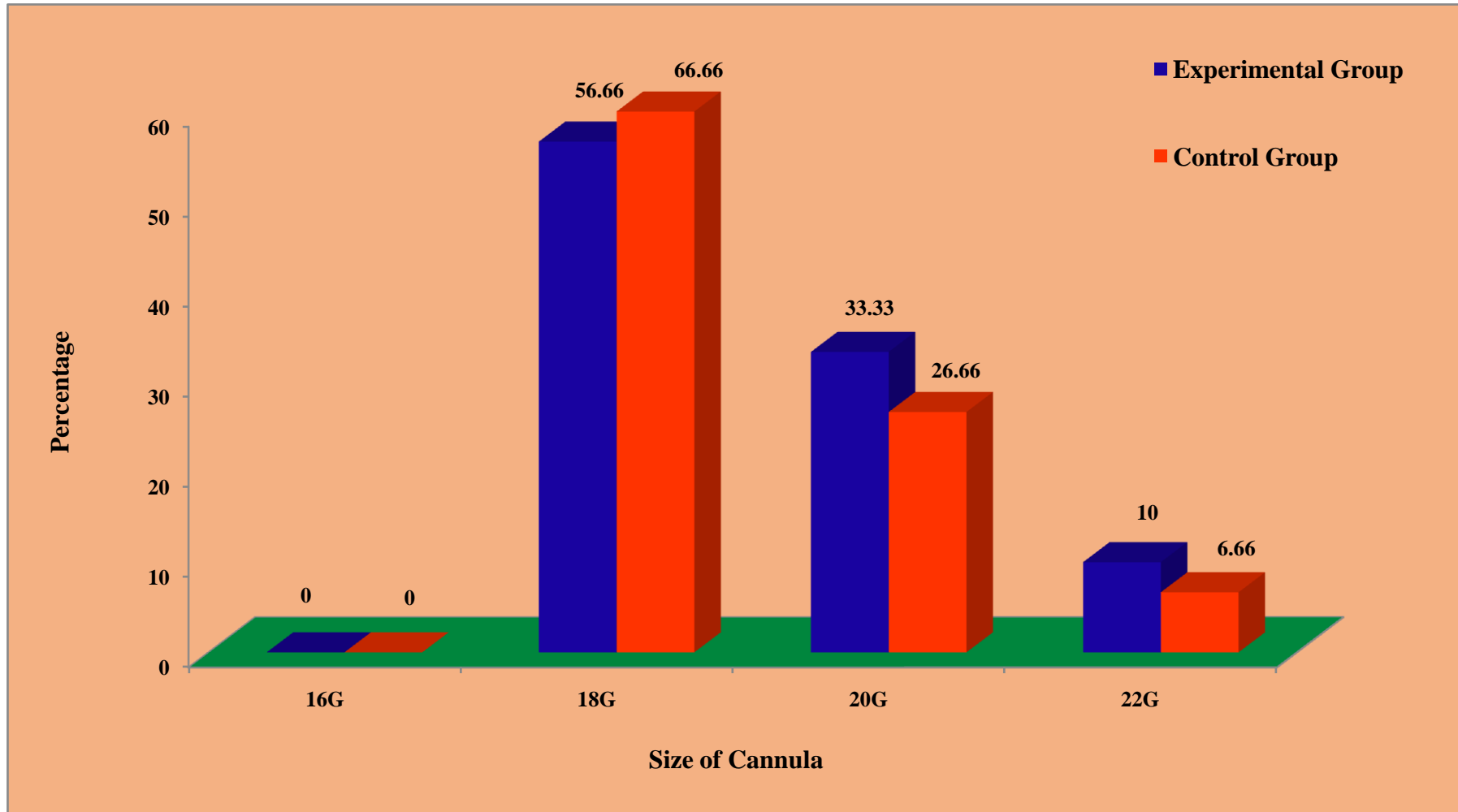


Figure 5: Percentage distribution of size of cannula among patients with thrombophlebitis who received Intravenous infusion.

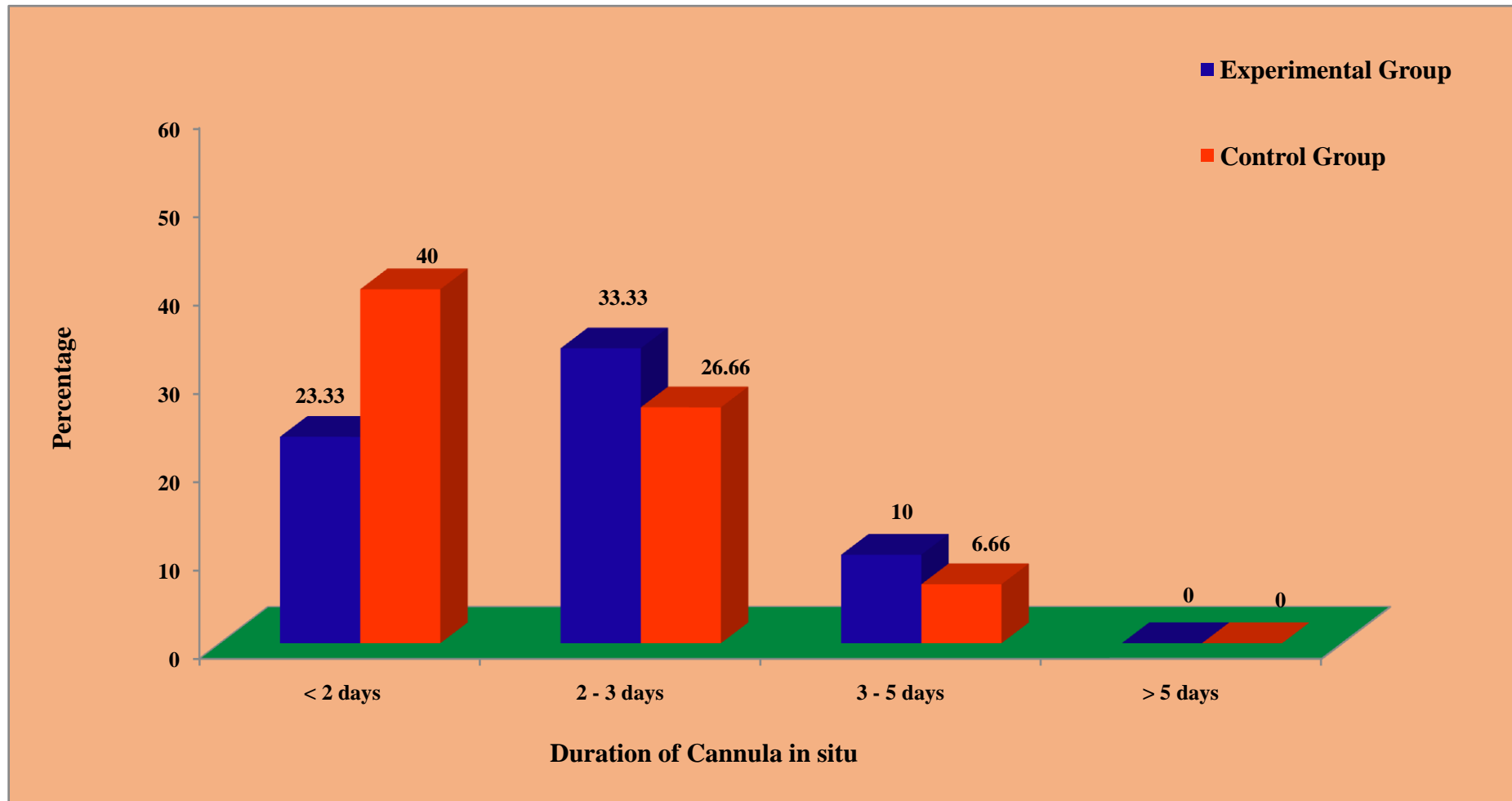


Figure 6: Percentage distribution of duration of cannula in situ among patients with thrombophlebitis who received Intravenous infusion.

SECTION - II

Table 2: Pre and Post Test level of thrombophlebitis among patients received intravenous infusion in experimental group.

N=30

Level of thrombophlebitis	Pre test		Post test	
	No.	%	No.	%
No	0	0%	12	40%
Mild	3	10%	18	60%
Moderate	19	63.33%	0	0%
Severe	8	26.66%	0	0%

Table 2 shows that in pre test majority of patients 19(63.33%) had moderate, 8(26.66%) had severe, 3(10%) had mild level of thrombophlebitis in the experimental group.

In the post test, Majority 18(60%) had mild level of thrombophlebitis, 12(40%) had no thrombophlebitis.

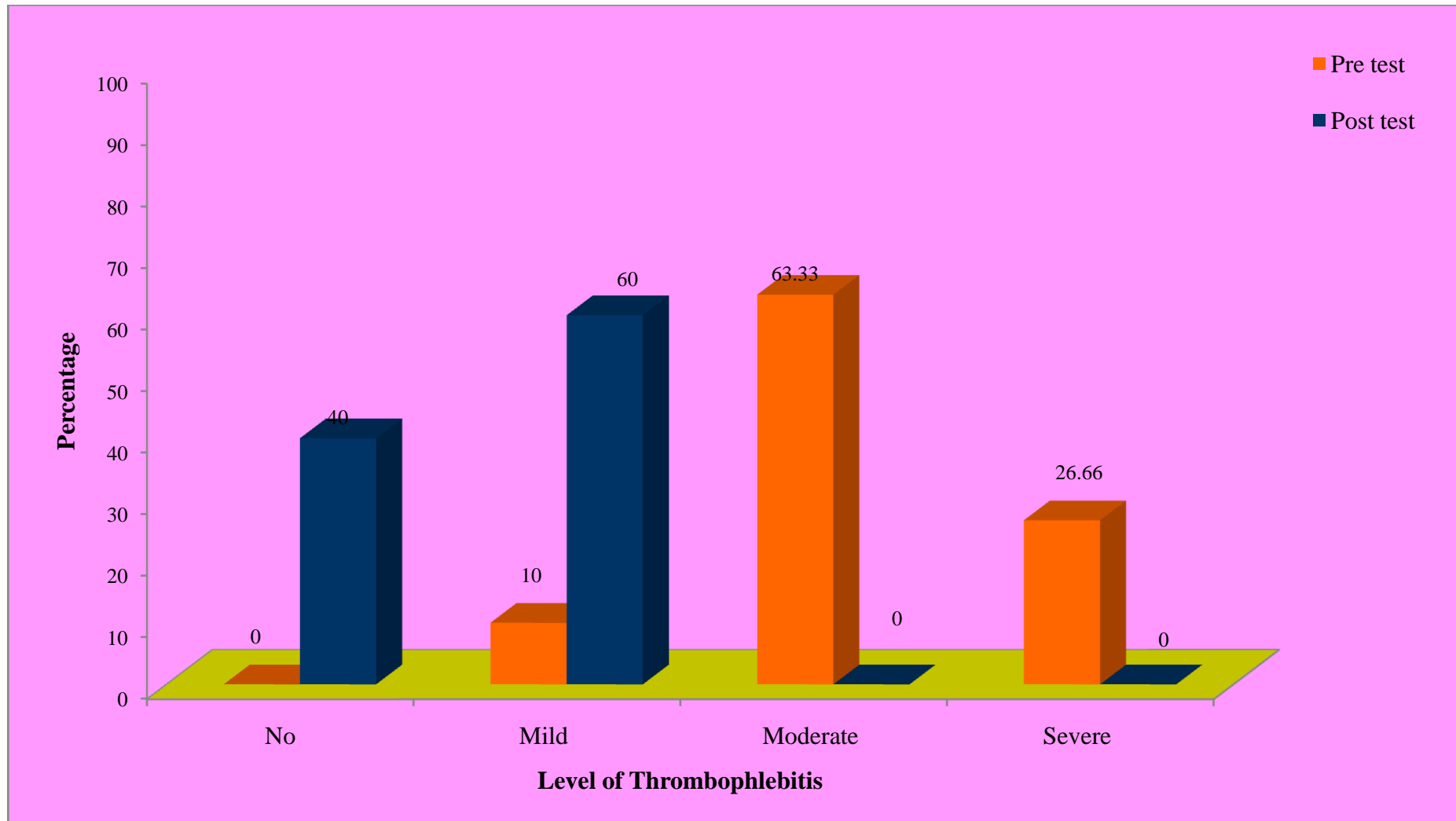


Figure 7 : Percentage distribution of pre and post test level of thrombophlebitis among patients received Intravenous infusion in experimental group

Table 3 : Pre and post test level of thrombophlebitis among patients received intravenous infusion in control group

N=30

Level of Thrombophlebitis	Pre test		Post test	
	No.	%	No.	%
No	0	0%	2	6.66%
Mild	2	6.66%	22	73.33%
Moderate	22	73.33%	6	20%
Severe	6	20%	0	0%

Table 3 shows that in pre test majority of patients 22(73.33%) had moderate, 6(20%) had severe and 2(6.66%) had mild level of thrombophlebitis in the control group.

In post test, majority 22(73.33%) had mild, 6(20%) had moderate and 2(6.66%) had no level of thrombophlebitis.

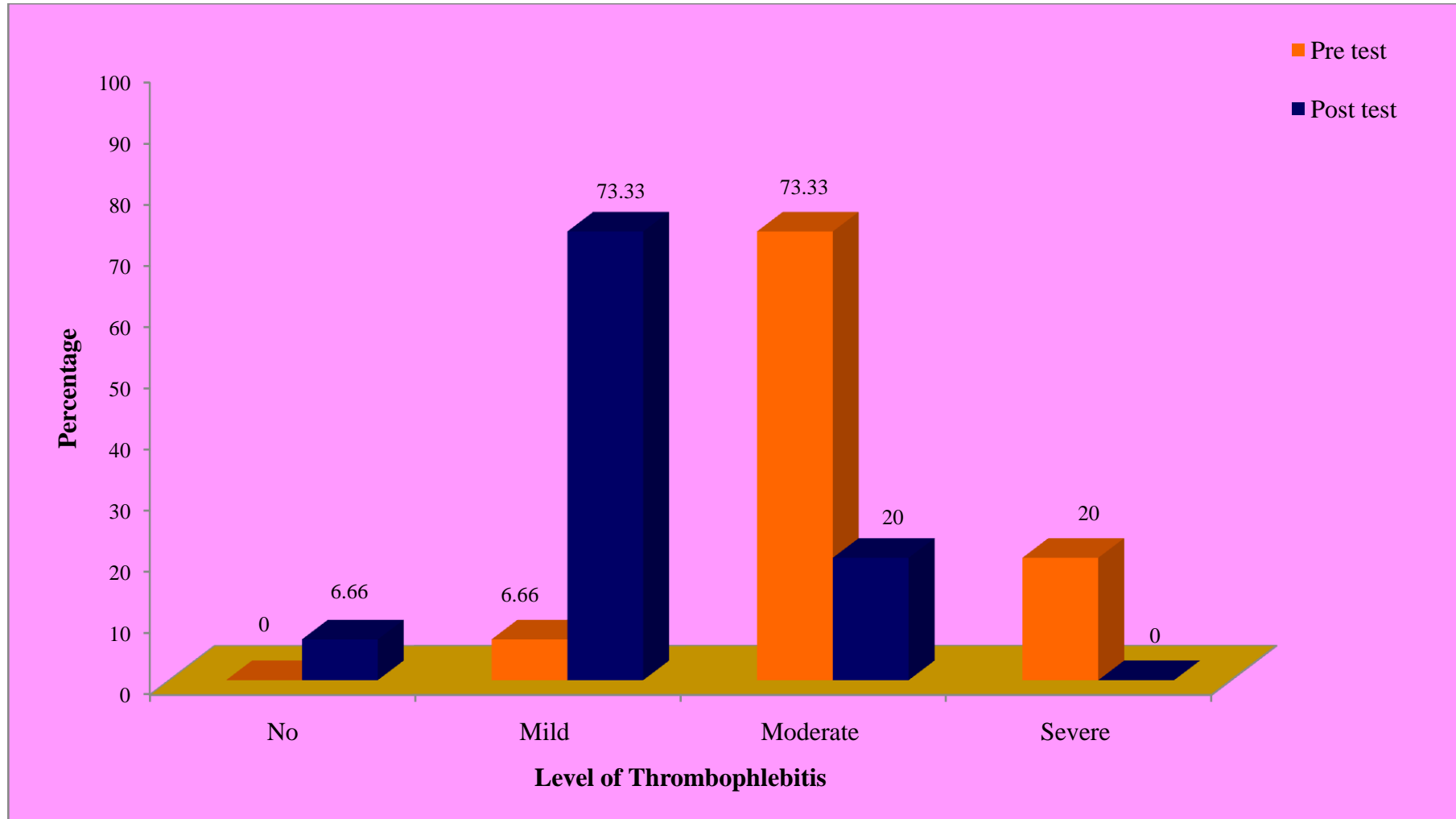


Figure 8: Percentage distribution of pre and post test level of thrombophlebitis among patients received Intravenous Infusion in control group

SECTION - III

Table 4: Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous Infusion in experimental group.

N=30

Experimental group	Max score	Mean	S.D	Mean Diff.	Paired 't' value
Pre test	20	13.9	2.32	7.4	28.3 S***
Post test	20	6.5	1.5		

***P<0.001, (S - Significant)

Table 4 shows that the pre test mean score of thrombophlebitis in experimental group 13.9 ± 2.32 and the post test mean score was 6.5 ± 1.5 . The mean difference was 7.4 and the calculated paired 't' value 28.3 was found to be statistically at $p < 0.001$ level.

Table 5: Comparison of pre and post test mean score of thrombophlebitis among patients received intravenous infusion in control group.

N=30

Control group	Max score	Mean	S.D	Mean diff	Paired 't' value
Pre test	20	13.8	2.3	4.3	17.8 S***
Post test	20	9.5	2.4		

***P<0.001, (S - Significant)

Table 5 shows that the pre test mean score of thrombophlebitis in control group was 13.8 ± 2.3 and the post test mean score was 9.5 ± 2.4 . The mean difference was 4.3 and the calculated paired 't' value 17.8 was found to be statistically significant $p < 0.001$ level.

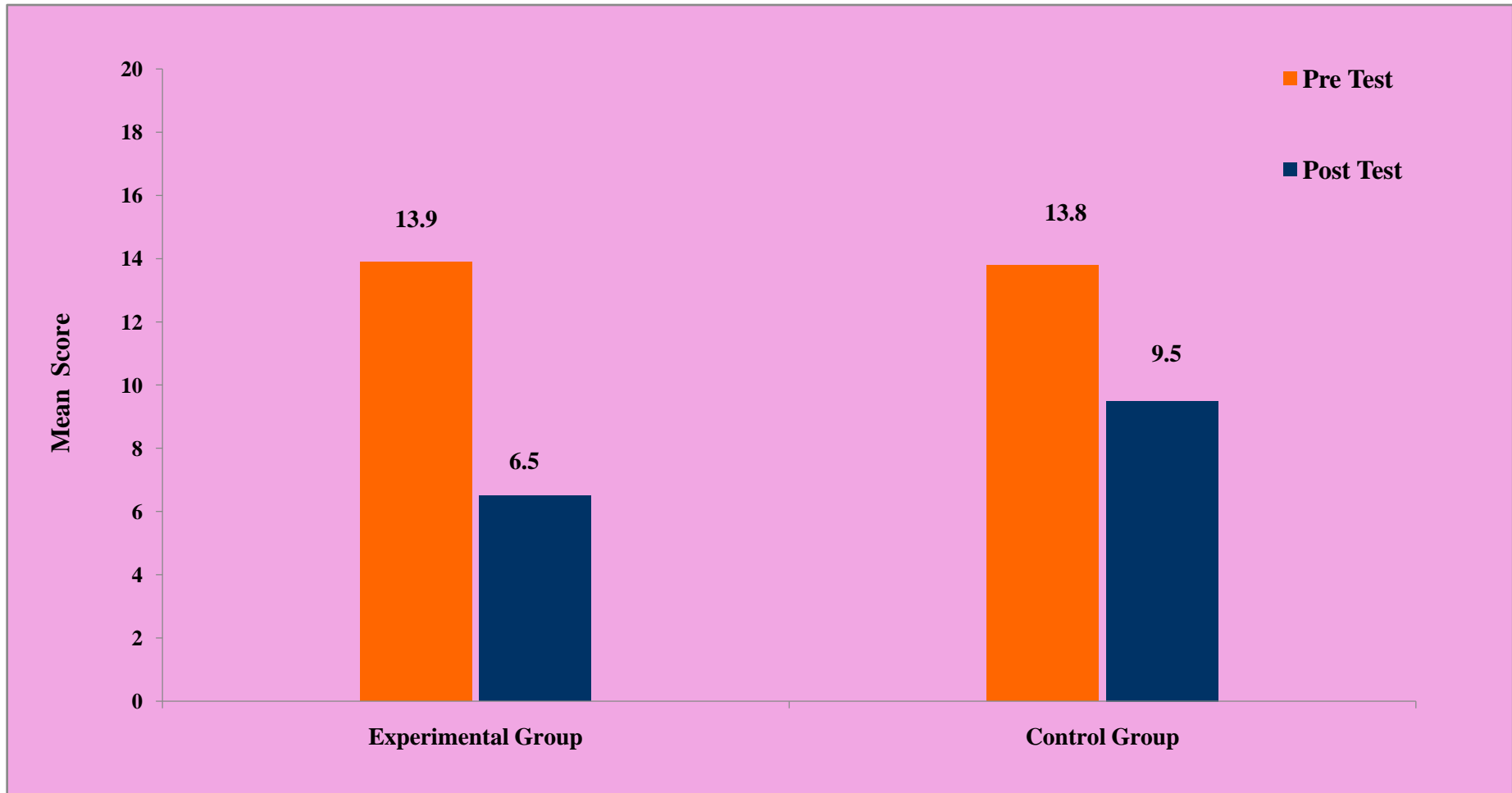


Figure 9: Comparison of pre and post test mean score of thrombophlebitis among patients received Intravenous infusion in experimental and control group.

Table 6: Comparison of post test mean score of thrombophlebitis among patients received intravenous infusion between the experimental and control group.

N=60 (30+30)

Group	Max Score	Mean	S.D	Mean diff	Unpaired 't' value
Experimental group	20	6.5	1.5	3	t = 7.5 S***
Control group	20	9.5	2.4		

***P<0.001, (S - Significant)

Table 6 shows that the post test mean score of thrombophlebitis in experimental group was 6.5 ± 1.5 whereas in the control group the post test mean score was 9.5 ± 2.4 . The mean difference was 3 and the calculated unpaired 't' value 7.5 was found to be statistically significant at $p < 0.001$ level.

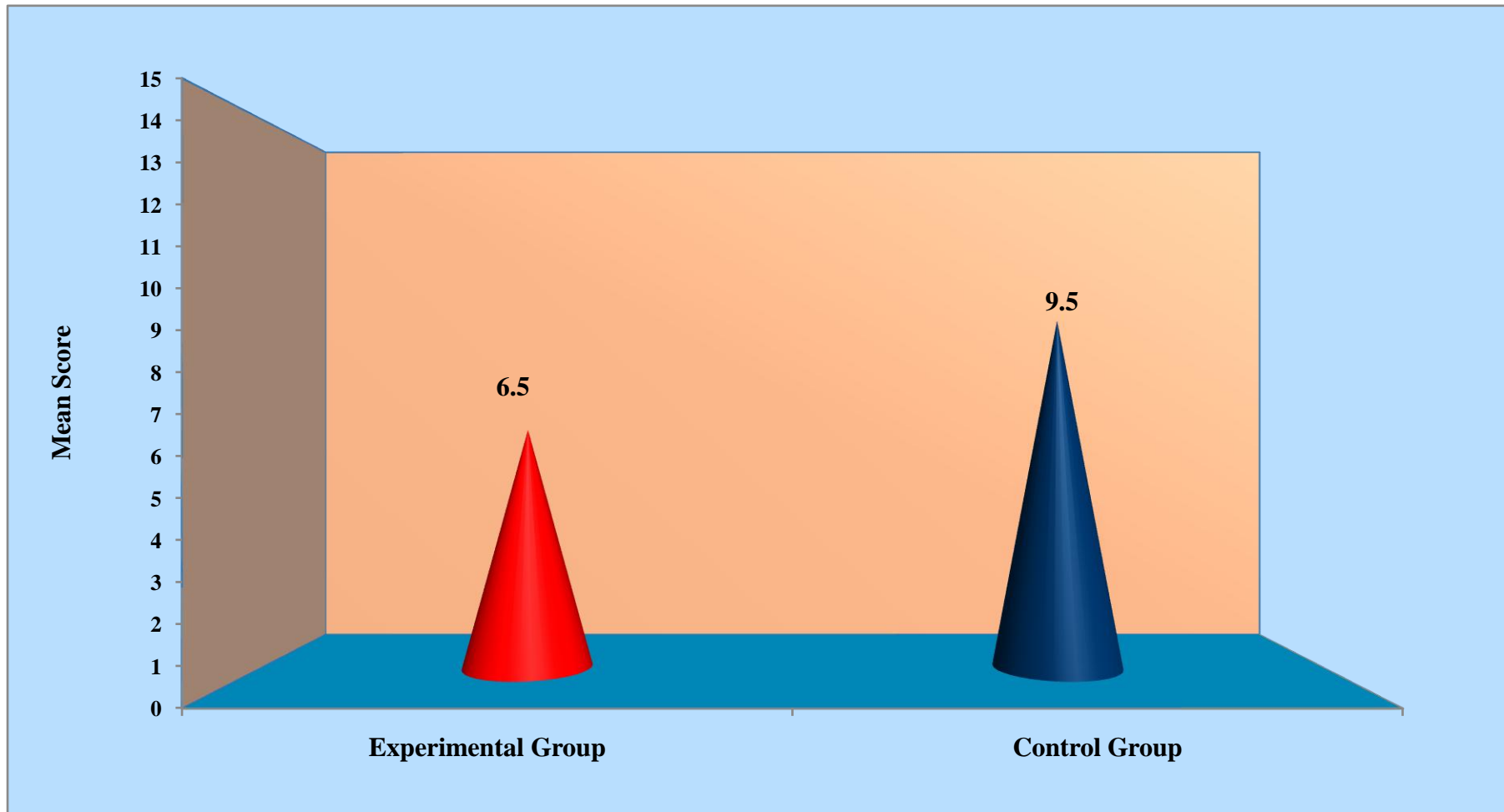


Figure 10 : Comparison of post test mean score of thrombophlebitis among patients received Intravenous infusion between the experimental group and control group

SECTION – IV

TABLE 7: Association of post test level of thrombophlebitis among patients received intravenous infusion with their selected demographic variables in the experimental group.

N = 30

Demographic variables	No		Mild		Chi-square value
	No	%	No	%	
Age in years					
21-30	4	13.33%	7	23.33%	$x^2 = 3.21$ NS
31-40	1	3.33%	5	16.66%	
41-50	1	3.33%	2	6.66%	
51-60	2	6.66%	1	3.33%	
>60	4	13.33%	3	10%	
Gender					
Male	6	20%	17	23.33%	$x^2=0.4034$ NS
female	6	20%	11	36.66%	
Diet pattern					
Vegetarian	2	6.66%	2	6.66%	$x^2=0.192$ NS
Non vegetarian	10	33.33%	16	53.33%	
Habits					
Smoking	0	0.00%	2	6.66%	$x^2=3.409$ S***
Alcohol	1	3.33%	4	13.33%	
Tobacco	3	10%	1	3.33%	
None	8	26.66%	11	36.66%	
Body mass index					
Under weight	1	3.33%	1	3.33%	$x^2 = 0.090$ NS
Normal	9	30%	14	46.66%	
Over weight	0	0%	0	0%	
Obese	2	6.66%	3	10%	
Ambulation					
Mobilized	10	33.33%	16	53.33%	$x^2=1.581$ NS
Partially mobilized	1	3.33%	2	6.66%	
immobilized	1	3.33%	0	0%	

Vein cannulated					
Basilic vein	3	10%	3	10%	$x^2 = 0.847$ NS
Cephalic vein	4	13.33%	9	30%	
Median vein forearm	5	16.66%	6	20%	
Size of the cannula					
16G	0	0%	0	0%	$x^2 = 2.910$ NS
18G	7	23.33%	10	33.33%	
20G	4	13.33%	6	20%	
22G	1	3.33%	2	6.66%	
Duration of cannula In situ					
<2 days	1	3.33%	6	20%	$x^2 = 2.910$ NS
2-3 days	8	26.66%	10	33.33%	
3-5 days	3	10%	2	6.66%	
Above 5 days	0	0%	0	0%	
Arm of cannulation					
Right arm	7	23.33%	8	26.66%	$x^2 = 0.555$ NS
Left arm	5	16.66%	10	33.33%	
IV cannulation done by					
Registered nurse	11	36.66%	18	60%	$x^2 = 1.551$ NS
Student nurse	0	0%	0	0%	
doctors	1	3.33%	0	0%	
Frequency of medication					
Once a day	0	0%	0	0%	$x^2 = 0.031$ NS
Twice a day	9	30%	14	46.66%	
Thrice a day	3	33.33%	4	13.33%	
Every fourth hourly	0	0%	0	0%	
History of chronic vascular disease					
Yes	1	3.33%	0	0%	$x^2 = 1.191$ NS
No	11	36.66%	18	60%	

The table 7 shows that the demographic variables habits has shown statistically significant association with the post test level of thrombophlebitis among patients received intra venous infusion at $p < 0.05$ level in the experimental group and the other demographic variables had not shown statistically significant association with the post test level of thrombophlebitis among patients received intravenous infusion.

CHAPTER - V

DISCUSSION

The main aim of the study was to assess the effectiveness of glycerine magnesium sulphate application on thrombophlebitis among patients received intravenous infusion selected hospitals at Ariyalur. The research design adopted for this study was true experimental pre test and post test control group design. The setting of the study was private hospitals at Ariyalur.

The first objective of the study was to assess the level of thrombophlebitis among patients received intravenous infusion.

In pre test majority 63.33% had moderate level of thrombophlebitis, 26.66% had severe level of thrombophlebitis, and 10% had mild level of thrombophlebitis and in post test majority 60% had mild level of thrombophlebitis, 40% had no thrombophlebitis among patients in experimental group.

In pre test the majority 73.33% had moderate level of thrombophlebitis, 20% had severe level of thrombophlebitis, and 6.66% had mild level of thrombophlebitis, where as in post test majority 73.33% had mild level of thrombophlebitis 20% had moderate level of thrombophlebitis, 6.66% had no thrombophlebitis among patients in control group.

The second objective of the study was to assess the effectiveness of glycerine magnesium sulphate application on reduction of thrombophlebitis among patients received intravenous infusion.

The pre test mean score was 13.9 ± 2.32 and the post test mean score was 6.5 ± 1.5 . The mean difference was 7.4 and the calculated paired 't' value 28.3 was found to be statistically significant at $p < 0.001$ level.

The pre test mean score of thrombophlebitis in control group was 13.8 ± 2.3 and the post test mean score was 9.5 ± 2.4 . The mean difference was 4.3 and calculated paired 't' value 17.8 was found to be statistically significant $p < 0.001$ level.

The post test mean score of thrombophlebitis in experimental group was 6.5 ± 1.5 in the control group it was 9.5 ± 2.4 . The mean difference was 3 and the calculated unpaired 't' value 7.5 was found to be statistically significant at $p < 0.001$ level.

Based on the study findings the stated hypothesis

H1 There is a significant reduction in thrombophlebitis among patients with intravenous infusion after glycerine magnesium sulphate application was accepted.

The third objective to find the association between the post test level of thrombophlebitis among patients received intravenous infusion with their selected demographic variables.

The demographic variable habits had shown statistically significant association with the post test level of thrombophlebitis among patients received intravenous infusion at $p < 0.001$ level in the experimental group.

There was no significant association found between variables of Age in years, Gender, Body mass index, Ambulation, Vein Cannulated, Size of Cannula, Duration of Cannula in situ, Arm of cannulation, Intravenous cannulation, Frequency of medication and History of chronic vascular disease and the post test level of thrombophlebitis.

Hence the stated hypothesis

H2 There is a significant association between the post test level of thrombophlebitis and their selected demographic variables among patients received intravenous infusion was not accepted

CHAPTER - VI

SUMMARY, MAJOR FINDINGS, IMPLICATIONS, RECOMMENDATION AND CONCLUSION

This chapter was divided into two sections. In the first section Summary of the study, findings, and conclusions were presented. In the second section, the implication in various areas of nursing practice, nursing education, nursing administration, nursing research, and recommendation of further study were presented.

SUMMARY OF THE STUDY

The main objective of the study was to assess the effectiveness of Glycerine Magnesium Sulphate application on thrombophlebitis among patients received intravenous infusion in private hospitals at Ariyalur.

A quantitative evaluative approach, true experimental pre test- post test control group design were adopted for this study. Simple random sampling technique was used to select the sample and the sample size was 60. Conceptual frame work-Wiedenbach's model was used in this study.

The tool selected for the present study included structure questionnaire for demographic variables, modified Visual Infusion Phlebitis scale to assess the thrombophlebitis among patient received intravenous Infusion.

The intervention of Glycerine Magnesium Sulphate application over the site of thrombophlebitis for 15 minutes, morning and evening twice a day for 3 days was done. Post test was done with the same scale on fourth day.

The study revealed the Glycerine Magnesium Sulphate application is found effective reduction of the thrombophlebitis among patient received intravenous infusion.

I. MAJOR FINDINGS OF THE STUDY

- Majority 36.6% of the patients in experimental group belongs to 21-30 years and 40% in control group belongs to age group of 21-30 years.
- Majority 60% of the patients were female in experimental group and 56.6% were female in control group.
- Majority 86.66% of patients were non vegetarian in experimental group and 73.3% in control group.
- Majority 63.3% of patients had no bad habits in experimental group and 66.6% in control group.
- Majority 76.66% of patients in experimental group and 70% in control group had normal BMI.
- Majority 86.66% of patients in experimental group and 73.33% in control group had been mobilized.
- Majority 43.33% of patients in experimental group and 53.33% in control group were cannulated with cephalic vein.
- Majority 56.66% of patients in experimental group and 66.66% in control group were cannulated in 18G cannula.
- Majority 56.66% of patients in experimental group and 50% in control group had 2-3 days duration of cannula in situ.
- Majority 50% of patients in experimental group had both right and left arm cannulation and 56 % in control group were cannulated with left arm.
- Majority 96.6% of patients in experimental group and 90% in control group had intravenous cannulation done by registered nurse.
- Majority 73.33 % of patients in experimental group and 70% in control group had frequency of BD medication.
- Majority 96% of patients in experimental group and 100% in control group had no history of chronic vascular disease.

II. FINDINGS RELATED TO STUDY INTERVENTION

1. In the pre test, majority of patients in the experimental group 63.33% had moderate level of thrombophlebitis 26.66% had severe level of thrombophlebitis and 10% had mild level of thrombophlebitis.
2. In the pre test, majority of the patients in the control group 73.33% had moderate level of thrombophlebitis 20% had severe level of thrombophlebitis 6.66% had mild level of thrombophlebitis.
3. In the post test 60% had mild level of thrombophlebitis, 40% had no thrombophlebitis among patients in experimental group.
4. In the Post test 73.33% had mild level of thrombophlebitis, 20% had moderate level of thrombophlebitis 6.66% had no thrombophlebitis among patients in control group..
5. In the experimental group, pre test thrombophlebitis mean score was 13.9 ± 2.32 and the post test mean score was 6.5 ± 1.5 . The mean difference score was 7.4 and the calculated paired 't' value of $t=28.3$ was found to be statistically significant at $P<0.01$ level.
6. In the Control group pre test thrombophlebitis mean score was 13.8 ± 2.3 and the post test mean score was 9.5 ± 2.4 . The mean difference was 4.3 and the calculated paired 't' value of $t=17.8$ was found to be statistically significant at $P<0.01$ level.
7. In the post test mean score of thrombophlebitis in experimental group was 6.5 ± 1.5 in the control group it was 9.5 ± 2.4 . The mean difference was 3 and the calculated unpaired 't' value 7.5 was found to be statistically significant at $p<0.001$ level.
8. The demographic variables and habits had shown statistically significant association with the post test level of thrombophlebitis among patients received Intravenous infusion at $P<0.05$ level in the experimental group.

IMPLICATIONS

The findings of the study have implications in various areas of Nursing Service, Nursing Education, Nursing Administration and Nursing Research.

IMPLICATION FOR NURSING SERVICE

- ❖ This study gives the insight for the nurses to plan and organize care for patient with thrombophlebitis.
- ❖ The clinical nurse may use glycerine magnesium sulphate every 12th hourly for the management of thrombophlebitis in the hospital setting.
- ❖ It will also improve the skills of nurses on assessment of thrombophlebitis by modified Visual Infusion Phlebitis scale.
- ❖ The nurse should contribute the evidence based nursing practice through the experiences gained from application of Glycerine magnesium sulphate on thrombophlebitis, the nurse can reduce further complication.

IMPLICATION FOR NURSING EDUCATION

- ❖ The findings of the study can be of importance to the nurse educators, nurse educator may use the findings of this study during the instruction period to educate student nurses about relevance of application of glycerine magnesium sulphate on management of thrombophlebitis.
- ❖ Nursing students are the future educators and care providers. Hence they need to know all aspects of thrombophlebitis. This study highlights most of all areas which will help nursing student to gain in depth knowledge about thrombophlebitis assessment and effect of glycerine magnesium sulphate application.
- ❖ The tool and findings of this study will provide a guide line to develop clinical teaching and in-service education programs for all nursing staffs on management of thrombophlebitis.

IMPLICATION FOR NURSING ADMINISTRATION

- ❖ The study findings may contribute to the development of evidence based protocols on management of cannula induced thrombophlebitis.
- ❖ The nurse administrator could encourage the utilization of the study findings in daily clinical practice.
- ❖ The key findings of this study will help in formulating educational programs like continuing education programme and in-service education on thrombophlebitis and its management for intravenous infusion nurse which will improve the quality of nursing education and nursing care.
- ❖ The nurse administrator can plan in-service education programs to make staff nurses aware of the recent advances recording the management of thrombophlebitis.

IMPLICATIONS FOR NURSING RESEARCH

- ❖ The results of the study contribute to the body of knowledge of nursing research.
- ❖ It serves as a guideline to conduct other similar studies in different setting and on a different population.
- ❖ The study may encourage other researchers to investigate this research problem further on a larger scale in order to facilitate further generalization of the results.

RECOMMENDATIONS

- ❖ The study recommends the following the further research.
- ❖ The similar can be conducted in with larger sample for better generalizations.
- ❖ The study can be conducted the effectiveness of glycerine magnesium sulphate application on reduction of thrombophlebitis.
- ❖ This study can be conducted in different age group of people.

CONCLUSION

The purpose of this study was to assess the effectiveness of Glycerine Magnesium Sulphate application on reducing thrombophlebitis among patients received intravenous infusion in private hospitals at Ariyalur. From the findings, it is evident that Glycerine Magnesium Sulphate application is effective in reducing thrombophlebitis among patients received intravenous infusion.

On the whole, carrying out the present study was really an enriching experience to the investigator. It also helped a great deal to explore and improve the knowledge of the researcher and the respondents.

BIBLIOGRAPHY

BOOK REFERENCES

- ❖ Basavanthappa B.T “Nursing Research”, 2nd ed 2006. Jaypee Brothers publication. Bangalore.135-137.
- ❖ Black MJ, Hawks JH. Medical-surgical, 8th ed. Vol (I) W.B Saunders. Philadelphia. 981.
- ❖ Brunner & Suddarth’s. “Text book of Medical-Surgical Nursing”, 12th ed 2010. Vol (I). Wolters Kluwer. New Delhi (India).291-292.
- ❖ Kozier & Erb’s. “Fundamentals of Nursing”, 8th ed 2008. Dorling Kindersley Publishers. New Delhi. 963.
- ❖ Lewis’s. “Medical Surgical Nursing”, 7th ed 2013, Mosby Publishers. Missouri. 393.
- ❖ Linda D. Urden “Critical Care Nursing”, 6thed 2011, mosby Elsevier publication. 336.337.
- ❖ Luckman & Sorensen “Medical Surgical Nursing”, 3rd ed 1987, W.B. saunder’s Company. Philadelphia.538.
- ❖ Philpps. Etal “Medical Surgical Nursing Concepts and clinical practice”, Sixth ed 1991, Mosby publication. Missouri.798.
- ❖ Polit & Hungler. Nursing Research Principles and Methods, 1999 Lippincott publishers.
- ❖ Polit & Beck “Nursing Research Generating and assessing evidence for nursing practice”, 9th ed. Lippincott Publishers. 281
- ❖ Potter & Perry “Fundamental of Nursing”,6th ed 1997. Mosby publishers. 10.
- ❖ Suresh K Sharma “Nursing research and statistics” 2012, Elsevier publication india. 93-143.
- ❖ Taylor. Carol et al., “Fundamentals of Nursing – The art and science of Nursing care” 2nd ed. J.B. Lippincott company. Philadelphia. 843-844.

JOURNALS

- Ahlquist. Handling of Peripheral intravenous cannulae: effect of evidence based clinical guidelines. *Journal of clinical nursing* . 2006: vol (15): 1354-1361.
- Biswas D. Comparative study of four selected nursing intervention On intravenous infusion related phlebitis. *Asian Journal of cardiovascular nursing*. 2006: January 14 (I): 55-60.
- Denise M. Phlebitis a painful complication of peripheral IV catheterization. *American journal of nursing*. 2003; 103 (2):55-60.
- Higginson R, Parry A Phlebitis: treatment, care and prevention. *Nursing Times*, 2011;107(36):18-21
- Joseph J. effectiveness of nursing intervention on patients with phlebitis related to peripheral intravenous infusion. Honours (thesis)submitted to Rajiv Gandhi University of Health sciences, Bangalore;2009.
- Landbech Peter. Perception of risk factor for infusion phlebitis among Swedish nurses: a questionnaire study. *Journal of infusion nursing*. 2004;27(I):25-30.
- Macklin d phlebitis, a painful complication of peripheral IV catheterization that may be prevented. *American journal of nursing*; 2003; 103(2);55-60.
- Martinez J.A. etal .intravenous cannulae. Complications arising from their use and analysis of their predisposing factors. *Clinical Medicine*, 2001;103(3):89-93.
- Ruchisaini, Meenakashi Agnihotri, Ashok Gupta, Indarjit Walia. Epidemiology of Infiltration and phlebitis. *Nursing and Midwifery research journal*,2011;7(I).
- Saini B, Paul P. The effectiveness of cold application, heparinoid application and magnesium sulphate application on superficial thrombophlebitis among patients. *Indian journal of nursing studies*.2011; Jan-June 2 (I):4.

NET REFERENCE

- ❖ [https://www.ijmrhs. Com](https://www.ijmrhs.Com) > abstract > a- quasi.exper.....
- ❖ <https://www.scribd.com.doc.magso4-a.....>
- ❖ <https://www.nitte.edu.in>journal> march 2016>
- ❖ <https://www.ijsr.net>Nov 162619>
- ❖ <https://www.researchasate .net>publication>
- ❖ <https://clinical trails.gov>Ncto1226069>
- ❖ <https://www.rgugs.ac.in.>onlinecdc>uploads>
- ❖ <https://www.global scientific Journal. >com>
- ❖ <https://repository-tnmgrmu.in>1>3001222.....>

ANNEXURE - I
LETTER SEEKING EXPERT'S OPINION FOR CONTENT
VALIDITY

From

Reg.No.301611701,
II -Year M.Sc., (Nursing),
Thanthai Roever College of Nursing,
Perambalur.

To

Respected sir / Madam,

Sub: Requisition for content validity of tool regarding.

I am doing M.sc (Nursing) II Year in Thanthai Roever College of Nursing, Perambalur, under the Tamilnadu, Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of my M.Sc (Nursing) Degree Programme, I am conducting a research on **“A study to assess the effectiveness of glycerine magnesium sulphate application on thrombophlebitis among patients received intravenous infusion in selected hospitals at Ariyalur”**. A tool has been developed for the research study. I am submitting the above stated for your valuable opinion, I will be thankful for your kind consideration. Kindly return it to the undersigned.

Thanking you

Yours Sincerely,

Reg.No. 301611701

Place:

Date:

ANNEXURE - II
LIST OF EXPERT'S OPINION FOR CONTENT VALIDITY OF
RESEARCH TOOL

1. Prof.R.Punithavathi M.Sc. (N),

Principal,
Thanthai Roever College of Nursing,
Perambalur.

2. Prof.V.J.Elizabeth M.Sc. (N),

Vice principal,
Thanthai Roever College of Nursing,
Perambalur.

3. Prof.R.Reena M.Sc. (N), Ph.D,

Principal,
Tagore College of Nursing,
Chennai.

4. Prof. R.Umarani M.Sc. (N), M.S, Ph.D,

Principal,
Sri Vijay Vidhalaya College of Nursing,
Dharmapuri.

5. Mrs. V. Manopriya M.Sc. (N), M.B.A,

Assistant professor
Kasturba Gandhi College of Nursing,
Puducherry

6. Mrs. S. Shyamala Grace M.Sc. (N),

Associate professor,
Dhanalakshmi College of Nursing,
Perambalur.

ANNEXURE - III

EVALUATION CRITERIA CHECK LIST FOR VALIDATION

INTRODUCTION

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks. Kindly place tick mark in the appropriate column and give remarks.

INTERPRETATION OF COLUMN

Column I : Meets the criteria

Column II : Partially meet the criteria

Column III : Does not meet the criteria

S.NO	Criteria	1	2	3	Remarks
1	Scoring <ul style="list-style-type: none"> • Adequacy • Clarity • Simplicity 				
2	Content <ul style="list-style-type: none"> • Logical sequence • Adequacy • Relevance 				
3	Language <ul style="list-style-type: none"> • Appropriate • Clarity • Simplicity 				
4	Practicability <ul style="list-style-type: none"> • It is easy to score • Does it precisely • Utility 				

Signature :

Name :

Designation :

Address :

Any other suggestion

ANNEXURE - IV**PERMISSION LETTER FOR RESEARCH PURPOSE****From**

Reg.No.301611701,
II –Year M.Sc. (Nursing),
Thanthai Roever College of Nursing,
Perambalur.

Through

The Principal,
Thanthai Roever College of Nursing,
Perambalur.

To

The Medical Officer,
KMS & Golden Hospitals,
Ariyalur.

Respected Sir / Madam,

Sub: Requisition for granting permission regarding.

I am doing M.Sc. (Nursing) II Year in Thanthai Roever College of Nursing, Perambalur. Under **the Tamilnadu Dr. M.G.R. Medical University, Chennai**. As a partial fulfillment of my M.Sc. (Nursing) Degree Programme, I am going to conduct **“A study to assess the effectiveness of Glycerine Magnesium Sulphate application on thrombophlebitis among patients received intravenous infusion”** in selected hospitals at Ariyalur. I would like to conduct the data collection at your esteemed institution. Hence, I kindly request you to grant me permission to conduct my study in our Hospitals.

Thanking you

Yours Sincerely,

Place:

Reg.No.301611701

Date:

ANNEXURE – V**CERTIFICATE OF ENGLISH EDITING****TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Reg No: 301611701**, II-Year M.Sc. [Nursing] student of Thanthai Roever College of Nursing has done a dissertation study on **“A Study to assess the effectiveness of Glycerine Magnesium Sulphate application on thrombophlebitis among patients received intravenous infusion”** in selected hospital at Ariyalur. This study was edited for English language appropriateness.

Signature

ANNEXURE - VI

ஒப்புதல் படிவம்

பெரம்பலூர் தந்தை ரோவர் செவிலியர் கல்லூரியில்
 முதுகலை செவிலிய பட்டப்படிப்பு பயிலும் பதிவு எண் :
 301611701 அவர்களால் நடத்தப்படுகின்ற சிரை அழற்சி
 சம்பந்தமான ஆராய்ச்சி நோக்கத்தினை பற்றியும் , சிகிச்சை
 பற்றிய விளக்கமும் எனக்கு தெளிவாக தெரிவிக்கப்பட்டது .
 இதில் கிளிசரின் மெக்னீசியம் சல்பேட் சிரை அழற்சி மேல்
 தடவுவதற்கு நான் சம்மதிக்கிறேன் . இதில் பங்கேற்பதற்கு
 எனக்கு எந்த ஆட்சேபனையும் இல்லை . மேலும் இந்த
 விவரங்களை வெளியிடுவதற்கும் அச்சிடுவதற்கும் முழு
 சம்மதம் அளிக்கிறேன் .

கையெழுத்து,

பெயர்:

தேதி:

இடம்:

ANNEXURE - VII
DATA COLLECTION TOOL
SECTION-A DEMOGRAPHIC DATA

Kindly furnish the following details by placing a tick mark in appropriate choice.

1. AGE IN YEARS

- | | | | |
|------------|--------------------------|------------|--------------------------|
| a. 21 – 30 | <input type="checkbox"/> | b. 31 – 40 | <input type="checkbox"/> |
| c. 41 – 50 | <input type="checkbox"/> | d. 51 – 60 | <input type="checkbox"/> |
| e. > 60 | <input type="checkbox"/> | | |

2. GENDER

- | | | | |
|---------|--------------------------|-----------|--------------------------|
| a. Male | <input type="checkbox"/> | b. Female | <input type="checkbox"/> |
|---------|--------------------------|-----------|--------------------------|

3. DIET PATTERN

- | | | | |
|---------------|--------------------------|-------------------|--------------------------|
| a. Vegetarian | <input type="checkbox"/> | b. Non Vegetarian | <input type="checkbox"/> |
|---------------|--------------------------|-------------------|--------------------------|

4. HABITS

- | | | | |
|----------------------|--------------------------|------------|--------------------------|
| a. Cigarette Smoking | <input type="checkbox"/> | b. Alcohol | <input type="checkbox"/> |
| c. Tobacco | <input type="checkbox"/> | d. None | <input type="checkbox"/> |

5. BODY MASS INDEX

- | | | | |
|-----------------|--------------------------|-----------|--------------------------|
| a. Under Weight | <input type="checkbox"/> | b. Normal | <input type="checkbox"/> |
| c. Over weight | <input type="checkbox"/> | d. Obese | <input type="checkbox"/> |

6. AMBULATION

- | | | | |
|----------------|--------------------------|------------------------|--------------------------|
| a. Mobilized | <input type="checkbox"/> | b. Partially Mobilized | <input type="checkbox"/> |
| c. Immobilized | <input type="checkbox"/> | | |

7. VEIN CANNULATED

- | | | | |
|------------------------|--------------------------|------------------|--------------------------|
| a. Basilic Vein | <input type="checkbox"/> | b. Cephalic Vein | <input type="checkbox"/> |
| c. Median Vein forearm | <input type="checkbox"/> | | |

8. SIZE OF THE CANNULA

- | | | | |
|--------|--------------------------|--------|--------------------------|
| a. 16G | <input type="checkbox"/> | b. 18G | <input type="checkbox"/> |
| c. 20G | <input type="checkbox"/> | d. 22G | <input type="checkbox"/> |

9. DURATION OF CANNULA IN SITU

- | | | | |
|-------------|--------------------------|-------------|--------------------------|
| a. <2 days | <input type="checkbox"/> | b. 2-3 days | <input type="checkbox"/> |
| c. 3-5 days | <input type="checkbox"/> | d. >5 days | <input type="checkbox"/> |

10. ARM OF CANNULATION

- | | | | |
|--------------|--------------------------|-------------|--------------------------|
| a. Right arm | <input type="checkbox"/> | b. Left arm | <input type="checkbox"/> |
|--------------|--------------------------|-------------|--------------------------|

11. INTRAVENOUS CANNULATION DONE BY

- | | | | |
|---------------------|--------------------------|------------------|--------------------------|
| a. Registered nurse | <input type="checkbox"/> | b. Student nurse | <input type="checkbox"/> |
| c. Doctors | <input type="checkbox"/> | | |

12. FREQUENCY OF MEDICATION

- | | | | |
|-----------------|--------------------------|------------------------|--------------------------|
| a. Once a day | <input type="checkbox"/> | b. Twice a day | <input type="checkbox"/> |
| c. Thrice a day | <input type="checkbox"/> | d. Every fourth hourly | <input type="checkbox"/> |

13. HISTORY OF CHRONIC VASCULAR DISEASE

- | | | | |
|--------|--------------------------|-------|--------------------------|
| a. Yes | <input type="checkbox"/> | b. No | <input type="checkbox"/> |
|--------|--------------------------|-------|--------------------------|

SECTION – B
MODIFIED VISUAL INFUSION PHLEBITIS SCALE

S. NO	CRITERIA	1	2	3	4	OBTAINED SCORE
1	PAIN	Not experiencing pain	Experiencing pain by touching	Experiencing pain by movement	Experiencing pain while at rest	
2	SWELLING	Not present	Up to 1 cm around the site of insertion	< 2cm in proximal/ distal area	< 4cm proximal/ distal area	
3	TENDERNESS	Not present	Up to 1cm around the site of insertion	<2cm in proximal/ distal area	<4cm in proximal /distal area	
4	WARMTH	Not present	Mild	Moderate	Severe	
5	REDNESS	Not present	Mild	Moderate	Severe	

GRADING

- 5 - No thrombophlebitis
6 – 10 - Mild thrombophlebitis
11 – 15 - Moderate thrombophlebitis
16 – 20 - Severe thrombophlebitis