

# A Study to Assess the Knowledge Regarding Intravenous Site Care among Staff Nurses Working in NMCH, Jamuhar, Rohtas

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**Abstract:** *Introduction: IV therapy was first studied in 1831 by Dr. Thomas Latta of Leith and used IV saline in 1832 cholera epidemic. IV was further developed in 1930s by Hirschfeld, Hyman & Wanger. Intravenous therapy is used for fluid administration, to correct electrolyte imbalances, to deliver medications and for blood transfusion. Peripheral IV lines are simple, inexpensive and typically used for short term therapy. The 3 main types of centrally inserted catheters are non-tunneled, skin-tunneled, and implantable ports. As these are inserted in the major or the large veins, these catheters hold large risk of varied complications like bloodstream infections, pneumothorax, thrombosis, misplacement and other complications. The nurse should have accurate knowledge of the preparation and administration of the IV infusion and IV device and also know about the prevention, treatment and management of local and systematic complications.*

*Aim: To assess the knowledge and practice regarding intravenous site care among staff nurses working in Narayan Medical College and Hospital jamuhar, Rohtas.*

*Methodology: A quantitative approach is used for this study as it is considered as suitable one to assess the knowledge and practice regarding intravenous site care among nursing staff. The research design for the study is non-experimental and descriptive design. The sample sizes are 30 nurses selected with convenient sampling technique.*

*Result: In order to collect the scientific data we used self-structured questionnaire. According to the finding majority of sample 24 (80%) of participant are having good knowledge, and 04(13.33%) of participant are having average knowledge and 02(6.66%) of participant are having poor knowledge. Majority of 19(63.33) of participant are having good level of practices, 11(36.66%) of participant are of average practices and there was no any participant having poor practice were found on data analysis.*

*Discussion: The findings of the present study can be used as a guide of future research. Interventional study can be designed to explore the knowledge and practice of staff nurses regarding prevention of blood stream infection following intravenous site care. To make the recommendation to the future researcher that a similar study can be carried out using teaching strategies like video films, computer assisted instructions.*

*Conclusion: The study concluded that knowledge and practice are directly proportional to each other. There is no significant association between knowledge and practice with socio-demographic variable.*

**Keywords:** Staff nurses, intravenous care, knowledge, practice..

## I. INTRODUCTION

Intravenous therapy is the infusion of fluids directly into a vein. It is the fastest way to deliver fluids and medications throughout the body. It allows rapid and more predictable delivery of drugs. In case of some drugs, it allows higher doses than would be tolerated orally and also allows administration of large volumes which is not dependent on gut function or muscle perfusion. (Alan W. Partin, 2021) IV therapy was first studied in 1831 by Dr. Thomas Latta of Leith and used IV saline in 1832 cholera epidemic. IV was further developed in 1930s by Hirschfeld, Hyman & Wanger. Intravenous therapy is used for fluid administration, to correct electrolyte imbalances, to deliver medications and for blood transfusion. For IV administration, a thin plastic tube called an IV cannula is inserted either into central or peripheral vein. The catheter allows health care provider to give multiple safe doses of medication without needing to poke with a needle each time and multiple medicines can be given at same time through different ports.

Peripheral (Standard IV lines) are simple, inexpensive and typically used for short term therapy. Veins are typically accessed in the patient's hand or arm, and sometimes in the foot. For instance, they may be used during a short hospital stay to administer medication during treatment or surgery. With standard IV administration a needle is usually inserted into a peripheral vein (E Cheung, 2009). The cannula is then pushed over the needle.

## II. NEED FOR STUDY

Intravenous (IV) cannulation is the commonest and first invasive procedure among hospitalized patients. It is however associated with risks and complications that can delay the prognosis and have an adverse impact on the clinical outcome of the patient. In the most healthcare setting, short peripheral intravenous catheters (PIVS) are a critical tool in the delivery of patient care. A study reported in the journal of infusion nursing, found an overall complication rate for peripheral intravenous catheters (PIVCS) in place for 96 hours to be close to 50%. Current data available on PIV-BSI (peripheral venous catheter – blood stream infection) suggest incidence density rate of 0.2-0.7 episode per 100 device days, which appear low when compared with other catheters. However, some studies report absolute PVC-BSI numbers in the range of central line-associated infections. More research is needed both to capture the dimension of the problem and to provide efficient control measures, so the researcher felt the need to do this study. A prospective cohort study was conducted on risk of catheter related bloodstream infection with peripherally inserted central venous catheter used in hospital patients in ICU, USA. One hundred and fifteen patients were selected using simple random method. This study concluded that peripherally inserted central venous catheter used in high risk hospitalized patients are associated with a rate of CR-BSI similar to conventional central venous catheter placed in the internal jugular or subclavian vein (Arelena 2009). 6 Methods and techniques used during central venous catheter management.

## III. OBJECTIVES

### Primary Objectives

- To assess the knowledge regarding intravenous site care among staff nurses.
- To assess the practice regarding intravenous site care among staff nurses.

### Secondary Objectives

- To find out association of knowledge with socio-demographic variables among staff nurses.
- To find out association of practice with socio-demographic variables among

## IV. METHODOLOGY

In the present study, quantitative approach is used to assess the knowledge and practice regarding intravenous site care among staff nurses at NMCH Sasaram. Research approach is an overall plan to carry out the research.

In the present study, the research design for the study is non experimental, descriptive design.

In the present study the study setting of the study is NMCH, Rohtas.

## V. RESULTS

In order to collect the scientific data we used self-structured questionnaire. According to the finding majority of sample 24 (80%) of participant are having good knowledge, 04(13.33%) of participant are having average knowledge and 02(6.66%) of participant are having poor knowledge. Majority of 19(63.33) of participant are having good level of practices, 11(36.66%) of participant are of average practices and there was no any participant having poor practice were found on data analysis

**Table 1:** Representing frequency and percentage of staff nurse of NMCH, Sasaram

| Demographic variables   | Frequency (f) | Percentage (%) |
|-------------------------|---------------|----------------|
| <b>1. Age (in year)</b> |               |                |
| a. 20-30                | 26            | 86.67%         |
| b. 31-40                | 3             | 10.00%         |
| c. 41-50                | 0             | 0.00%          |
| d. 51 and above         | 1             | 3.85%          |

|                              |    |        |
|------------------------------|----|--------|
| <b>2. Gender</b>             |    |        |
| a. Male                      | 17 | 56.67% |
| b. Female                    | 13 | 43.33% |
| <b>3. Qualification</b>      |    |        |
| a. ANM                       | 0  | 0.00%  |
| b. GNM                       | 23 | 76.67% |
| d. Bsc Nursing               | 7  | 23.33% |
| d. Msc Nursing               | 0  | 0.00%  |
| <b>4. Year of experience</b> |    |        |
| a. 0-2 Year                  | 22 | 73.33% |
| b. 3-4 Year                  | 1  | 3.33%  |
| c. 5-6 Year                  | 5  | 16.67% |
| d. More then 6 years         | 2  | 6.67%  |
| <b>5. Area of experience</b> |    |        |
| a. Critical                  | 16 | 53.33% |
| b. Non critical              | 14 | 46.67% |
| <b>6. POSITION</b>           |    |        |
| Staff nurse                  | 25 | 83.33% |
| Senior staff nurse           | 3  | 10.00% |
| Ward incharge                | 2  | 6.67%  |

Table 1 descripts data related to socio demographic data. Majority of the participants 86.67% (26) are belongs to age group 20-30 year and 10% (3) participant belongs to age group 31-40 year of age and 0.00% (0) participate belongs to the age group 41-50 year and 3.85% (1) participate belongs to age group 51 and above years of age. Majority 56.67% (17) of the participant are male and 43.33% (13) are female. Majority sample 76.67% (23) are GNM Nurse and 23.33% (7) sample are Bsc. Nurse and ANM and Msc. Nurse are 0.00% (0). Majority participant 73.33% (22) have experience of 0-2 years and 16.67%(5) participant have experience of 5-6 years and 6.67%(2) participant have experience of more than 6 years and rest of 3.33%(1) participant have experience of 3-4 years. Majority of taken sample are 53.33% (16) experience in critical area and rest of 46.67%(14) participant are experience in non critical area. Majority of the taken sample 83.33% (25) are working on position of staff nurse, and 10.00%(3) participant are senior staff nurse, and 6.67% (2) participant are ward in charge.

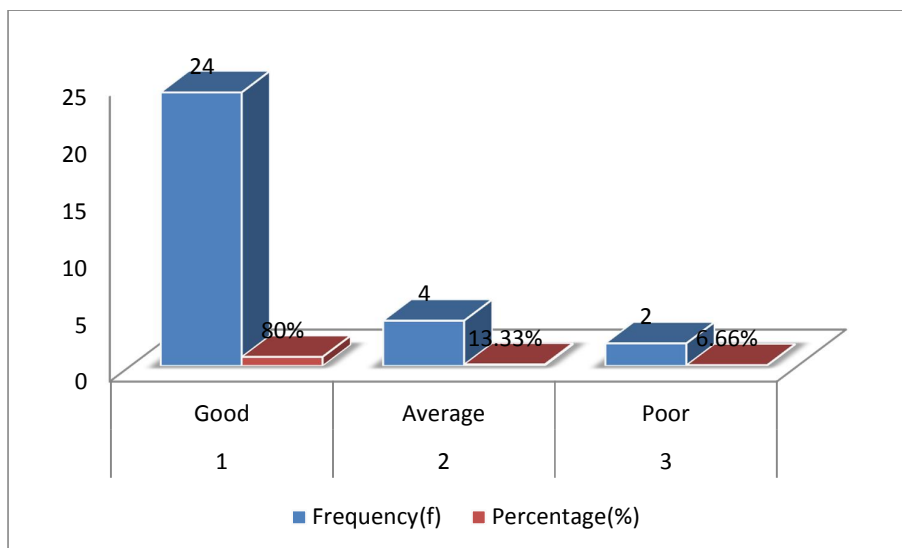
**SECTION II:** Analysis of self structured questionnaires on knowledge. The self structured questionnaires on knowledge was developed to measure the level of knowledge which was done in the duty.

**Table 2:** Representing the level of knowledge among staff nurse.

| n=30 |                    |               |                |
|------|--------------------|---------------|----------------|
| s.no | Level of knowledge | Frequency (f) | Percentage (%) |
| 1.   | Good               | 24            | 80%            |
| 2.   | Average            | 04            | 13.33%         |
| 3.   | Poor               | 02            | 6.66%          |

*Table 2 representing the level of knowledge among staff nurse.*

This table represents that in the present study majority of sample 24 (80%) of participant are having good knowledge, and 04(13.33%) of participant are having average knowledge and 02(6.66%) of participant are having poor knowledge.



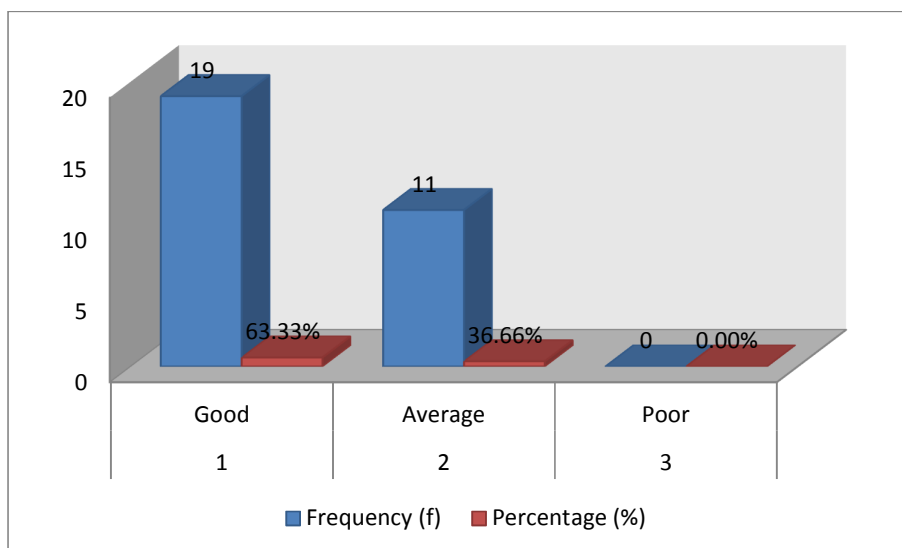
**FIG: 2 frequency distribution of level of knowledge**

### Section III: Analysis of checklist on practices.

**Table 3:** Representing the level of practice among staff nurse.

*N=30*

|    | Level of practice | Frequency (f) | Percentage (%) |
|----|-------------------|---------------|----------------|
| 1. | Good              | 19            | 63.33%         |
| 2. | Average           | 11            | 36.66%         |
| 3. | Poor              | 00            | 0.00%          |



**FIG 3: Frequency distribution of level of coping strategies.**

## VI. DISCUSSION

The present study is an effort to find out the level of knowledge and level of practice Consequences in order to achieve the objective. A quantitative approach was adopted and convenient sample was use to collect the data. This study was

conducted in one week at Narayan Medical College and Hospital Sasaram, Rohtas. The data was collected during working hour using knowledge and practice regarding intravenous site care.

## **VII. MAJOR FINDINGS**

### **Major Finding of Socio-Demographic Data**

Majority of the participants 86%(26) are belong to age group 20-30 year. This finding was supported by study title A study to assess the nurse' knowledge regarding intra venous therapy in a tertiary care hospital of teaching hospital in northern India by Sunil Kumar Tailor, Shiv K Mugdal, Digpal Singh Chundawat, and Krishna Kumar Nehra in 2018. Majority 53.25%(213) of the respondent were in age group of 26-30 years old and 20.25%(81) of the respondent were in age group of 21-25 years old.

Majority of 57%(17) are male and 43%(13) female. This finding was supported by study title title A study to assess the nurse' knowledge regarding intra venous therapy in a tertiary care hospital of teaching hospital in northern India by Sunil Kumar Tailor, Shiv K Mugdal, Digpal Singh Chundawat, and Krishna Kumar Nehra in 2018. There were majority of 244 male respondents which takes up 61%, where as 156 female respondents which takes up 39% in this study

Majority 77%(23) sample are GNM qualified and 23%(7) sample are B.Sc. Nursing. This finding was supported by study title Nurses 'knowledge regarding Intravenous Fluid Therapy at a country hospital in Kenya by Winfridah Wangui Njung, and Elizabeth Kalondu Kamolo. Majority of the participant 78.8%(41) sample ware GNM (diploma) qualified where as only 17.3%(9) sample were B.Sc. Nursing (bachelor's degree) take participate in the study.

### **Major Finding of Level of Knowledge**

In the present study majority 24(80%) of participant are having good level of knowledge, 4(13%) of participant having average level of knowledge and 2(7%) of participant having poor knowledge. This finding was supported by a study title assessment of the level of knowledge and practice on intravenous cannulization among staff nurses of selected tertiary care hospital in Dhaka city in 2016 by Md Anwar Hossain, Md Imamul Hasan Arif and Md Monoarul Haque. The study revealed that a majority of 49.7% had found good knowledge level followed by 25.5% had average knowledge, 21.7% had excellent knowledge and 3.1% had poor knowledge. About 53.8% had found poor knowledge level followed by 39.3% had average knowledge and 5.9% gad good knowledge, whereas only 1.0% had excellent knowledge regarding indication and contraindication on IV cannulization

Karen.et.al( 2010) conducted a study on non randomized study was conducted on peripherally inserted catheters may lower the incidence of catheter-related bloodstream infections in patients in surgical intensive care unit in the Southern Medical Centre at Texas in 2010. Non-randomized sampling technique is used for data collection with sample size 121 patients. Multivariable regression was performed to identify predictors of CR-BSI. Results were 13 CVC infections and one PICC infection, resulting in an infection rate of 6.0/1,000 catheter-days for central venous catheters and 2.2/1,000 for PICCs. The infected PICC was in place for 19 days, whereas the remainder of the PICCs were in place a mean of 14-17 days. Logistic regression demonstrated that line days was the only independent predictor of central venous catheters infection (p=0.015) These results suggest that minimizing the duration of central venous access and substituting PICC for central venous catheters may reduce the incidence of CR-BSI in long-stay SICU patients.

### **Major Finding of Level of Practice**

In the present study majority 63.33%(19) of participant are having good level of 38 practice and 36.66% having average practice

This finding was supported by a study title a descriptive study to assess the knowledge and practice regarding venous access devices and its care among staff nurse in selected hospital of district Mohali in 2017 by Sandeep Kaur, Nobelpreet kaur, Ramandeep kaur, Ravneet Kaur, and Ravaneetpal Kaur. The study revealed that a majority 93.33%(56) had average level of practice, whereas 5.00% (3) had poor practice and only 1.00%(1) had good level of practice.

Similar, Hossain (2016) conducted a descriptive cross-sectional study on 290 staff nurses in a Tertiary Care Hospital, Dhaka Medical College Hospital, Bangabandhu Sheikh Mujib Medical University, Delta Medical College Hospital, Dhaka, Bangladesh with the aim to find out the level of knowledge and practice on intravenous cannulization. It was found that a majority of 49.7 % nurses had good knowledge level followed by 25.5% who had average knowledge, 21.7%

had excellent knowledge and 3.1% had poor knowledge. About 53.8 % had poor knowledge level followed by 39.3% who had average knowledge and 5.9% had Good knowledge, whereas only 1.0% had excellent knowledge regarding indication and contraindication on IV cannulization. About 2.67% respondents had Excellent, 12% had Good, 73.33 % had Average Practice and 12% had poor practice.

### **VIII. CONCLUSION**

The finding of the present study can be used as a guide of future research Interventionally can be under taken to assess the knowledge regarding intravenous site care Ethical consideration was taken from Institutional ethical committee, GNSU

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