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Self-Expressed Practice of Nurses Regarding Intravenous Therapy in a Tertiary Care Hospital: A Cross-Sectional Study

Sunil Kumar Tailor[1]
Shiv Kumar Mudgal[2]*
Digpal Singh Chundawat[3]
Sandeep Garg[4]

[1]Nursing tutor, college of nursing, All India institute of medical sciences, Bhopal (M.P.).
Email: suniltailor48@gmail.com

[2]*Professor, Akal College of Nursing, Eternal University, Baru Sahib, Himachal Pradesh.
Email: peehupari05@gmail.com

[3]Senior Nursing Officer, All India institute of medical sciences, Bhopal (M.P.).
Email: singhchundawat.digpal@gmail.com

[4]Assistant Professor, Mewar B.Sc. Nursing College, Udaipur (Raj.).
Email: sandeep.pgn@gmail.com

Article Information

ABSTRACT

Background and Aims: Intravenous therapy meaning fluids, drugs and other substances infused with in the vein through cannula. Intravenous therapy has many complications because of malpractice and negligence during care of a patient having intravenous cannula. Though many of them have follow correct practice but do not follow each step of procedure and aseptic technique during cannulation or Intravenous therapy.

Aims: The present study was carried out to determine the self-expressed practice towards administration of intravenous therapy among the nurses working at tertiary care hospitals.

Methods: A Cross-Sectional research design was adopted to determine the nurses' self-express practice on intravenous therapy. A total of 268 nurses were selected through convenient sampling technique from a tertiary care hospital. A self-express practice Likert scale was used to assess the nurses' self-expressed practice on IV therapy. The data were analyzed using descriptive and inferential statistic using.

Result: The finding of the study indicated that the overall mean self-expressed practice score of nurses was 39.44±4.77. The level of nurses self-expressed practice was significantly associated with attended any in service educational programme related to peripheral intravenous therapy (p=0.046).

Conclusion: Nurses had very satisfactory level of self-expressed practice on administration of peripheral IV therapy. The administration of peripheral IV therapy could be more improved by provision of in-service educational programme.

INTRODUCTION

Intravenous canula is the most common and essential devise, which used very frequently in hospital settings [1]. Peripheral intravenous cannulation is an integral part of professional nursing curriculum as well as practice in all nursing institutions. [2]Intravenous cannulation is an invasive procedure carried out for all most all admitted patients and intravenous therapy means infusion of medicine, fluids, blood, blood products, nutrients and other substances into a vein [3]. Peripheral intravenous therapy significance, using site for this therapy is peripheral like upper limbs or lower limbs and is continued for different period of time depending on the condition of patient.[4]This invasive procedure

and long duration kept the patients on a risk of microbial infection. These infections are associated with more days in hospital stay, expenditure, morbidity and mortality [2].

Intravenous therapy is most widely used method of drug and fluid administration across the world in hospitals. It is estimated that about 80% of hospital admitted patient yearly undergo peripheral IV cannulation in order to receive therapeutic IV medications and fluids [5,6]. This may cause in nosocomial infection as 6.2% of such reported cases is directly associated with intravenous line. It is also reported that between 2.3% to 67% patients suffer from thrombophlebitis [7]. Between 1.5% -60% patients develop phlebitis [8]. Intravenous line is more frequently may associate with localized than systemic problems. In USA, approximately every year 80,000 cases have been reported with catheter related blood stream infection and 2, 50,000 patients in intensive care unit [9].

The nursing implications involve assessment of the IV insertion site for signs and symptoms of infiltration, signs and symptoms of phlebitis, carefully monitoring the IV to prevent such infections. A high level of nursing practice is required to achieve effective and safe management for patients with IV line [2,10]. Nurses of 21st century are expected to have qualities like critical thinking, ability to work as a competent and efficient health team member and advanced skills but a study findings showed that only 3% staff nurses have above average practice, among of them 90% have average practice and remaining 3 % have not able to perform correctly during administration of intravenous therapy and this average level of practice could be a major risk factor for localized and systematic complications.[11-12] It was also observed by the investigators during their clinical exposure that majority of nurses were not practice as per standard. Based on the information mentioned above, the present study is conducted with an aim of ascertaining the nurses' self-expressed practice towards IV therapy.

METHODOLOGY

Study Design and Duration: This cross-sectional study was conducted at a tertiary care teaching hospital in northern India to deduce the Nurses' Practice regarding administration of intravenous therapy. The study was performed from 11th March 2018 to 10th April 2018.

Ethical Consideration: Ethical approval was obtained from institutional ethics committee vide letter no. PMCH/IEC/20/244 dated 09.02.2018. The purpose of the study was well informed to all the participants and all of them were anonymized by name and institute. An informed online consent was taken from each participant.

Study Participants: Nurses from selected tertiary care hospital were included as study population. We enrolled only those Nurses, who were willing to participate, present at the time of data collection and able to read and write English. A total of 268 participants were enrolled using convenient sampling technique while participants who have not been met inclusion criteria were excluded.

Sample Size Estimation: Sample size was estimated by using formula $(Z1 – a/2)^2$ (p) (q)/d2 with 5% margin of error, 95% confidence interval and prevalence was taken from previous study which was 83.7%. The minimum estimated sample size was 226 participants and after consideration of 15% of dropout rate, a total 268 sample size was taken for this study [13,14].

Study Instrument and self-structured self-express practice Likert scale Design: The study was conducted using a self-structured self-express practice Likert scale. Self-structured self-express practice Likert scale consisted two sections;

Section I: 6 items related to demographic variables of participants (age, gender, marital status, education level, total years of experience and attended in service educational programme on peripheral IV therapy);

Section II: 22 items. Each item has options such as always, sometimes/rarely, never. Statements carry scores as follows: for positive statements, always–2, sometimes/rarely-1, Never -0

mark and for negative statements scoring was in revere manner as always-0, sometimes/rarely-1, Never-2. The total maximum and minimum score were 44 and 0 respectively. The self-structured self-express practice Likert scale was validated by a panel of experts including two senior residents and one junior resident, four senior nurses and two nurse educators. To ensure the reliability of the self-structured self-express practice Likert scale, split half method was used and it was 0.97 which indicated the good internal consistency of all items in the tool. Further, this self-structured self-express practice Likert scale was piloted on 30 nurses and found feasible.

DATA ANALYSIS

The collected data was organized and transferred to excel sheets. Statistical analysis was performed by using the statistical computer package, IBM Statistical Package for the Social Sciences (SPSS 23.0). Data were analyzed through descriptive and inferential statistics. Participants' demographic variables were analyzed and presented in frequency and percentage while participants' level of self-express practice was assessed and presented in Unsatisfactory, Satisfactory and Very Satisfactory. Chi-square was used to find out association of self-expressed practice regarding IV therapy with selected demographic variables of participants at 0.05 level of significance.

RESULTS

Table 1: The participants' demographical variables Respondents (N=268)

S.No.	Demographic Data		Frequency (F)	Percentage (%)
1.	Age in years	20-25	108	40.3
		26-31	130	48.5
		32-37	24	9.0
		MORE THAN 37	6	2.2
2.	Gender	Female	62	23.1
		Male	206	76.9
3.	Marital status	Married	142	53.0
		Unmarried	124	46.3
		Divorced	2	0.7
4.	Educational level	Diploma in nursing	36	13.4
		Graduation in nursing	182	67.9
		Post-graduation in nursing	50	18.7
5.	Working experience	Less than one year	108	40.3
		One to three year	94	35.1
		Four to six year	36	13.4
		More than six year	30	11.2
6.	Have you attended any educational programme related to peripheral intravenous therapy	Yes	122	45.5
		No	146	54.5

As depicted in **Table 1**, most of the participants were male 206 (76.9%), aged between 26 and 31 years 130 (48.5%) and had a graduation in nursing 182 (67.9%). Only 30 (11.2%) of participants had more than six years of working experience in hospitals and more than half 142 (53%) of participants were married and 146 (54.5%) had not attended any in service educational programme on peripheral IV therapy.

that 66.1% had unsatisfactory level of practice and 33.9% had satisfactory level of practice [15]. Another study conducted by Abraham LMat Christian Medical College and Hospital, Ludhiana, Punjab show that All the staff nurses had inadequate practices regarding care of peripheral intravenous catheter. Majority of staff nurses had maximum practice score in the area of replacing articles and least in the area of care of IV line and IV catheter [16].

Table 2: Scores of participants on 22 items Likert scale according to their demographic variables

S. No.	Variable		Average	Good	Chi square	Df	P-value
1	Age in years	20-25	4	104	3.758[a]	3	0.289
		25-31	10	120			
		31-36	0	24			
		37 or more than 37	0	6			
2	Gender	female	2	60	0.650[a]	1	0.42
		Male	12	194			
3	Marital Status	Married	10	132	2.058[a]	2	0.357
		Unmarried	4	120			
		Divorced	0	2			
4	Educational Level	Diploma in nursing	4	32	4.664[a]	2	0.097
		Graduation in nursing	6	176			
		Post-graduation in nursing	4	46			
5	Working Experience	Less than one year	6	102	5.837[a]	3	0.12
		One to three year	2	92			
		Four to six year	2	34			
		More than six year	4	26			
6	Have you attended any educational programme related to peripheral intravenous therapy?	Yes	10	112	3.998[a]	1	0.046*
		No	4	142			

p-value* (<0.05) indicates significant difference between the groups.

As demonstrate in **Table 2**, the Nurses self-express practice scores regarding IV therapy ranged between 20 and 44 with a total mean score of 39.44±4.77 on 22 items Likert scale. Nurses who attended in service educational programme on peripheral IV therapy had a significantly good self-express practice score than who did not attended the in service educational programme (p=0.047). No other nurses' demographics variable were significantly affected the self-express practice score of nurses regarding IV therapy.

As represent in bar graph, the most of the nurses 254 (94.8%) had very satisfactory level of self-expressed practice, 14 (5.2%) had satisfactory level of self-expressed practice and no one had unsatisfactory self-expressed practice.

DISCUSSION

The current study assessed the self-expressed practice of nurses regarding peripheral intravenous therapy at tertiary care hospitals in Rajasthan.

This study findings show that nurses had a very satisfactory practice scores regarding administration and care of peripheral IV therapy. In this study the total mean self-express practice score of nurses was 89.63% which was similar with a study conducted by Asha, et al. reported that 90% of nurses had average practice, 3% had above average practice and remaining 3% had not able to perform correctly during administration of intravenous therapy [12]. Further, another study carried out by Arbaee IFand Ghazali AN pantai hospital, finding determine that 83.7% nurses had followed correct practice of care and maintenance of IV cannula [13].

This study has contradictory findings with another study conducted by Lamsal S and Shrestha R. in which findings represent
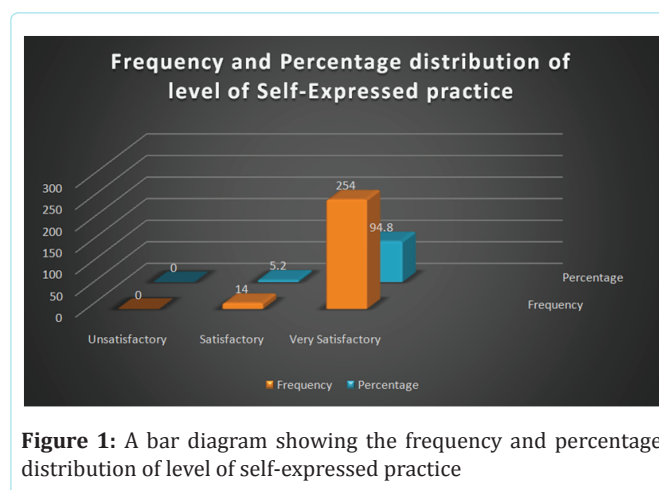

Figure 1: A bar diagram showing the frequency and percentage distribution of level of self-expressed practice

Centre for Disease Prevention and Control (CDC) recommended that educating health care workers regarding infection control measures is the highest priority to prevent and control hospital acquired infections [16]. Therefore, it is needed that all nurses must practice based on evidence to prevent infection related to intravenous therapy.

This was a single centric study and participants were selected by using convenient sampling technique. In addition, all information was self-reported, and no cross validation of these data were made. Therefore, findings of our study should be generalized cautiously.

CONCLUSION

The risks and complications of IV therapy could put the patients in danger. Therefore, in the clinical settings, nurses must be skilled and competent while providing care for patient with IV line. In present study, majority of nurses' had very satisfactory practice on peripheral IV therapy but there were some nurses who did not competent and skilled while providing IV care that could endanger the patients' life. The factors which were influencing the level of practice were attended in service educational programme. Hence, it is suggested to increase the participation of nurses in workshops/ seminars/conferences regarding peripheral IV therapy. In addition, it is also recommended for reinforcement of IV therapy protocol and effective supervision for enhancing Nurses' Practice.

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