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Effectiveness of Information Education Communication Package on Central Venous Catheter Care in Terms of Knowledge and Attitude of Staff Nurses

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Abstract
This study aims to effectiveness of information education and communication package on central venous catheter care in terms of knowledge and attitude among staff nurses working in civil hospital Panipat Haryana. The conceptual framework adopted in this study was Ernestine Wiedenbach's The Helping Art of Clinical Nursing (1964). Research design in the present study was pre – experimental design. Samples for the study were selected through non – probability convenience sampling technique. Sixty samples were recruited. Knowledge and attitude questionnaire regarding central venous catheter care was developed and validity of the tool was obtained from experts from medical surgical nursing. Data collection method was self –reporting. Data collected were analysed by descriptive and inferential statistics. Results: there was a significant difference between pre-test and post-test knowledge score the 't' value was 37.794 (df = 59 & TV = 2.0003) there was a significant effectiveness of attitude score among samples after administering information education and communication package the 't' value was 19.754 (df = 59 & TV = 2.0003). There was a significant correlation between knowledge and attitude regarding central venous catheter care (r = 0.265). The study concluded that staff nurse in civil hospital Panipat gained good knowledge and developed positive attitude regarding central venous catheter care.

Key Words: *Effectiveness, Information Education Package, Central venous catheter care, staff nurses*

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I. Introduction:

Central venous catheters are intravascular access devices that terminate within the great vessels of the neck (superior or inferior vena cava, brachiocephalic veins, subclavian vein or internal jugular vein), or a site proximal to the heart. Central Venous Catheters are vital for the care of hospitalized and critically ill patients, as they provide reliable venous access for clinical activities such as blood sampling, infusion of medications, and hemodynamic measurement. However, Central venous catheters are also the leading cause of healthcare-associated bloodstream infections (BSIs) and are frequently implicated in life-threatening illnesses.[1]

Infections associated with CVCs are categorized in the literature as either "Central-Line Associated Blood Stream Infection" (CLABSI), or "catheter-related bloodstream infection" based on whether surveillance or ascertainment of infection is the desired goal. For instance, the centres for Disease Control and Preventions' National Healthcare Safety Network uses the CLABSI definition for surveillance purposes, defining the term as a laboratory confirmed BSI in any patient with a CVC present either at the time of, or within a 48-hour period before the detection of infection.[2]

Catheter-related bloodstream infections (CRBSI) are a significant cause of morbidity and excess hospital cost. Data from prospective, randomized trials demonstrate that the risk of these infections can be minimized by simple interventions. Changing the behaviour of healthcare workers who insert and care for intravascular catheters is imperative. Creating a culture of patient safety and assuring easy access to the products necessary to maintain strict asepsis during catheter insertion, dressing changes, and when manipulating catheter hubs, will enhance adherence to optimal practice and will reduce the risk posed to the millions of patients in need of such devices.3

NEED FOR THE STUDY:

Clinicians should think about how to care for various I.V. devices and when central venous access should be discontinued. They should understand some low-resistance lines, such as those used for dialysis; often

need anticoagulant flushes, while other lines with valves, intended for long-term access, generally do not require heparin flushes. An emphasis on meticulous sterile technique, both during the placement of lines and during routine care, is essential. Removal of unused lines reduces infection risk.[4]

The best way nurses can help decrease the risk for a central venous catheter related bloodstream infection is by using meticulous hand hygiene. Proper hand hygiene before performing central venous catheter care can involve either the use of a waterless alcohol-based product, or using an antibacterial soap with water and adequate rinsing.[5]

When caring for a patient with a central venous catheter, the nurse should be aware of how these factors can influence a patient's risk for developing a catheter related bloodstream infection.(9) Central venous catheters may be made out of either polyvinyl chloride or polyurethane material. Studies have indicated that catheters made out of polyurethane have a lower infection rate than catheters made out of polyvinyl chloride.[6]

Nurses' adherence to EBP is very important for reducing the incidence of CRBSI and improving pediatric patient outcome (O'Grady *et al.*, 2011). Several studies indicated that lack of knowledge and skills is one of the main barriers for implementing evidence-based nursing practice (Grimshaw *et al.*, 2004; Kennedy *et al.*, 2004).

Kadium (2015) reported that studies provided evidence of effects of improving nurses' knowledge on reducing CRBSI. Some studies provided training modules to develop the required skills for health workers. A lack was in the literature relevant to hemodialysis unit. The majority of reviewed literature provided promising evidence as regards the effect of educational and/or intervention programs directed at ICU doctors and nurses on the theoretical knowledge of prevention of CRBSIs. The greater part of the studies proposed that the educational intervention could improve or enhance nurses' knowledge in reducing CRBSI rates.

Therefore, the current study will provide evidence for conducting studies to improve nurses' knowledge and practice as regards CVC maintenance and care. The content of the educational program in this study could be reflected in paediatric nursing education and practice, and improve patient outcomes health care settings of India.

STATEMENT OF THE PROBLEM:

A Pre-experimental study to evaluate the effectiveness of Information Education Communication package on central venous catheter care in terms of knowledge and attitude of staff nurses working in civil hospital of Panipat, Haryana"

OBJECTIVES:

1. To assess the knowledge of staff nurses regarding central venous catheter care.
2. To assess the attitude of staff nurses regarding central venous catheter care.
3. To assess the effectiveness of Information Education Communication package regarding central venous catheter care.
4. To determine the correlation between knowledge and attitude score regarding central venous catheter care.
5. To find the association between mean pre test knowledge and attitude scale on central venous catheter care with their selected socio demographic variables.

DELIMITATIONS:

1. The study is limited to 60 staff nurses of civil hospital Panipat.
2. The study is limited to civil hospital Panipat.
3. Total period of data collection is delimited for 1 month.

II. Methodology

Pre-experimental research design was selected to study the effectiveness of information education package on Information Education Communication package on central venous catheter care in terms of knowledge and attitude of staff nurses working in civil hospital of Panipat, Haryana. Samples for the study were recruited through non-probability convenience sampling technique. Sample size was sixty staff nurses. Research tool were developed it consists of three sections which includes demographic variables, structured knowledge questionnaire regarding central venous catheter care. Attitude scale was structured and all the tools were validated and tested for its reliability by means of test – retest methods for structured knowledge questionnaire and split half technique was adapted to attitude scales. The reliability scores for structured knowledge questionnaire was 0.76 and for attitude scale 0.78. pre-test was taken from the samples and information educational package was administered to all samples, post-test was taken from these samples after seven days. Data which collected were analysed manually by using descriptive and inferential statistics.

III. DATA ANALYSIS AND INTERPRETATIONS:

The collected data was tabulated, organized and analysed using descriptive and inferential statistics as follows:

Table – I: Distribution of samples according to socio – demographic variables.

(n = 60)

S. No.	Socio demographic variables	Frequency	Percentage
1.	**Age (in Years)**		
	a) 21-25	1	1.66
	b) 26-30	8	13.33
	c) 31-35	12	20.00
	d) Above 35	39	65.00
2.	**Professional Qualification**		
	a) GNM	51	85.00
	b) Post-Basic B.Sc Nursing	5	8.30
	c) B.Sc Nursing	4	6.66
	d) M.Sc Nursing	0	0.00
3.	**Monthly Income**		
	a) Below Rs. 10000	0	0.00
	b) Rs.10,000-Rs.15,000	7	11.66
	c) Rs.15,001-Rs.20,000	0	0.00
	d) AboveRs.20,001	53	88.33
4.	**Professional Experience**		
	a) Below 6 months	0	0.00
	b) 7 months to 1 year	0	0.00
	c) 1 year to 5 years	8	13.33
	d) Above 5 years	52	86.66

Figure – 1: Percentage distribution of samples according to knowledge in Pre and Post – test

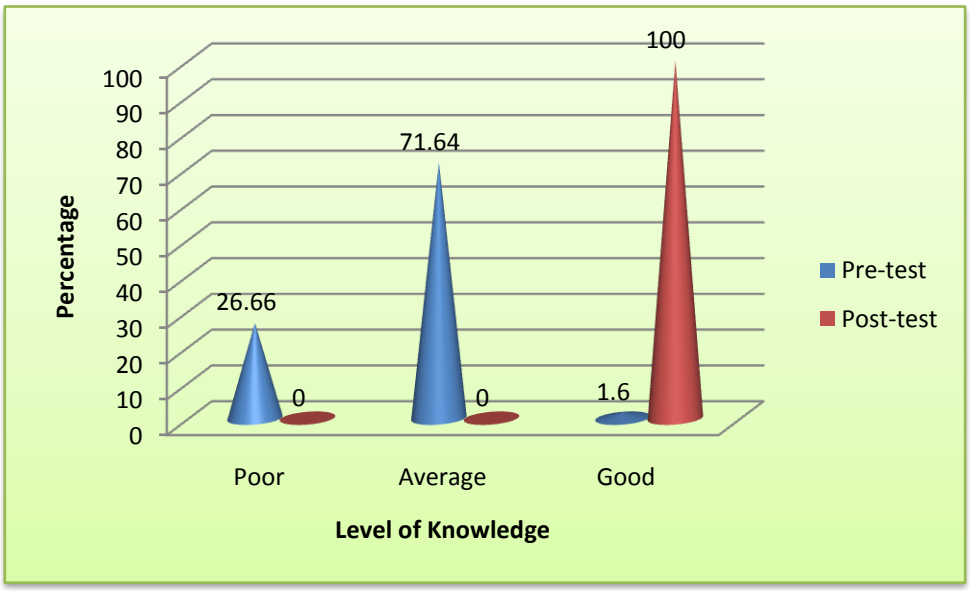

Figure – II: Percentage distribution of samples according to attitude in Pre and Post – test

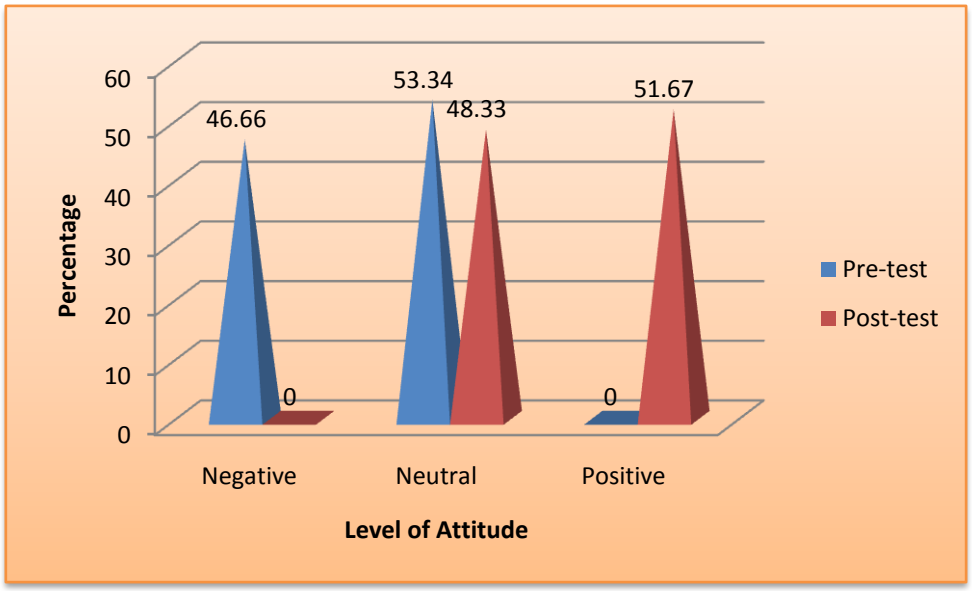

Table – II: Mean, Mean Difference, Standard Deviation and Paired 't' test value of samples knowledge

(n = 60)

S. No	Test	Mean	Mean Difference	Standard Deviation	Paired 't' test	Table value
1.	**Pre-test**	12.63	16.067	3.199	**37.794 (df = 59)**	**2.0003**
2..	**Post-test**	28.70		0.962		

In this study, to test the effectiveness of information education and communication package on knowledge regarding central venous catheter care, the null hypothesis can be stated as follows.

H_0 – The information, education and communication package is not effective in increasing the knowledge regarding central venous catheter care.

From table – II it was understood the pre-test mean score was 12.63 and the post-test mean score was 28.70. the mean difference between pre-test and post-test was 16.067. Standard deviation value of pre-test and post-test was 3.199 and 0.961 respectively. The calculated paired 't' test score was 37.794 with degree of freedom 59. The table value was 2.0003.

As the calculated value was higher than the table value we reject the null hypothesis and accept the alternate hypothesis i.e. the information, education and communication package is effective in increasing the knowledge regarding central venous catheter care.

Table – III: Mean, Mean Difference, Standard Deviation and Paired 't' test value of samples attitude

(n = 60)

S. No	Test	Mean	Mean Difference	Standard Deviation	Paired 't' test	Table value
1.	**Pre-test**	**35.73**	**20.684**	**7.376**	**19.754 (df = 59)**	**2.0003**
2..	**Post-test**	**56.42**		**5.590**		

To test the effectiveness of information education and communication package on attitude regarding central venous catheter care, the null hypothesis can be stated as follows.

H_0 – The information, education and communication package is not effective in increasing the attitude regarding central venous catheter care.

From table – III it was understood the pre-test mean score was 35.75 and the post-test mean score was 56.42. the mean difference between pre-test and post-test was 20.684. Standard deviation value of pre-test and post-test

was 7.376 and 5.590 respectively. The calculated paired 't' test score was 19.754 with degree of freedom 59. The table value was 2.0003.

As the calculated value was higher than the table value we reject the null hypothesis and accept the alternate hypothesis i.e. the information, education and communication package is effective in increasing the attituderegarding central venous catheter care.

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