



A STUDY TO EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME (STP) ON KNOWLEDGE REGARDING “PREVENTION OF BLOOD BORNE DISEASES” AMONG DIALYSIS NURSES AND TECHNICIANS, IN A SELECTED HEALTH FACILITY, BENGALURU

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ABSTRACT

Background of the study: Blood borne pathogen poses a serious risk to Health care workers as well as to patients and Occupational exposure to blood or body fluids create a risk to the Health care workers. Prevention of Blood borne diseases is an important topic in the field of nursing. Nurses should have knowledge about the Levels of prevention and infection control precautions should be carried out during the working period. Infection control precautions help the nurses to provide effective care to the patients and to minimize the risk of transmission of Nosocomial infection in the Dialysis unit.

Objectives of the Study

- To Assess the Knowledge regarding Prevention of Blood borne diseases among respondents.
- To Evaluate the effectiveness of Structured Teaching Programme regarding Knowledge on Prevention of Blood borne diseases among respondents.
- To Find out the association between Post test Knowledge scores regarding Prevention of Blood borne diseases with selected Demographic variables of respondents.

Method: A pre experimental study with one group pre test and post test design was used to evaluate the effectiveness of Structured Teaching Programme (STP) regarding knowledge on “Prevention of Blood borne diseases” among Dialysis nurses and technicians. Purposive sampling technique was used to collect the data from 60 Dialysis nurses and technicians in a selected Health care facility, Bengaluru. Closed ended questionnaire and STP was used as the tool for the research study. The data was collected for the time period of 7 day and the data Obtained were analyzed by Descriptive and Inferential statistics in terms of objectives.

Results: The findings of the study with regard to pre test revealed that majority 53.3% of the respondents had inadequate knowledge, 46.7% had moderate knowledge and none of them had adequate knowledge on Prevention of Blood borne diseases. But in Post test, 51.7% respondents was found with adequate knowledge, 29(48.3%) had moderate knowledge and none of them had inadequate knowledge regarding Prevention of Blood borne diseases.

Interpretation and Conclusion: The study had proved that respondents had inadequate knowledge regarding Prevention of Blood borne diseases before administration of Structured Teaching Programme. The findings of the study showed that Structured Teaching Programme was effective in gaining knowledge regarding Prevention of Blood borne diseases among Dialysis nurses and technicians. Overall knowledge the paired mean difference was 12.30 and SD of difference was 2.78 and Mean difference percentage was 27.9%. It shows that there is a significant increase in knowledge regarding Prevention of Blood borne diseases after administration of Structured Teaching Programme.

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INTRODUCTION

The cellular component of blood consists of Red Blood Cells (RBC), White Blood Cells (WBC) and Platelets. These cellular components of blood normally make up of 40% to 45% of blood. RBC contain hemoglobin which facilitates oxygen transport by binding to the respiratory gas and it greatly increase its solubility of blood.¹ Incidence of this disease results in 9.2 million deaths in 2013 (17%) of all deaths where infectious diseases can spread through direct contact from person to person and through droplet exposure and indirectly it can spread through airborne transmission, contaminated objects.²

The pathogens may transmitted from percutaneous exposure are HIV, HBV, HCV.³ India has approximately HBV carrier rate of 3.0% with a high prevalence rate in the tribal population. CDC reportly states that, there is some set of standards precautions should be followed by dialysis personnel consistently to adhere gloving, hand washing, face shields, segregation of machines and equipment, proper PPE to decrease the cross- infections while initiating, discontinuing, handling dialyzer, contaminated needles, equipments, lab specimens and biohazard container at the dialysis unit. Hence, the investigator felt that, an awareness on infection control procedures are to be imparted for dialysis unit personnel to prevent Blood-borne diseases while working at dialysis unit.⁴

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REVIEW OF LITERATURE

Related to the Blood borne diseases

A recent study outlined among 1219 health care workers in a tertiary hospital Bangalore to examine the injury registers, incidence of sharp injuries, blood splash exposures and post prophylaxis status of the employees and the analysis was done from 54 locations of two units of a tertiary hospital attached to a Medical college. The study reveals that the incidence of sharp injuries and blood splash exposures among health care workers was 17.1%, out of these 60.5% occurred in the age group of 20-30 years, 70% were female, 32% injuries occurred in wards and post exposures prophylaxis for hepatitis B (primary dose) was given to 25 health care workers and the basic regimen for HIV post exposure prophylaxis was given to 4 health care workers. The study suggested that there is need of appropriate training and preventive measures to reduce the incidence of injuries.⁵

Related to dialysis unit

A study was conducted to know the management of dialysis patients seropositive for HBsAg, anti-HCV and anti-HIV antibodies. 11,589 unique patients reported that anti-HCV positive patients on dialysis had higher mortality rate than anti-HCV negative patients (1.35, Confidence interval 95%, 1.13, 1.59, p < 0.001). Standard precautions and specific procedures are necessary to control HCV infection in the dialysis unit and it is important to control HBV transmission through isolation by dialysis machine, staffs and rooms. The study suggested that Vaccination is very important against HBV transmission among dialysis patients and Monotherapy lamivudine along with antiviral therapy (pegylated interferon and ribavirin) is a standard care for HCV infection among dialysis patients.⁶

Related to knowledge on prevention of blood borne disease

A study was carried out to review the risk and management of HIV, HBV and HCV infections among health care workers and about different methods for preventing exposure and recommendation for post exposure prophylaxis. It has estimated that the average risk for HIV transmission after percutaneous exposure is approximately 0.3%, HBV transmission is 6-30% and for HCV transmission is 1.8%. The study concluded that to minimize the blood borne infection transmission from health care members to patients all health care members should maintain standard precautions including hand washing, protective barriers and handling appropriately the disposal of needles and other sharp instruments and there is need of appropriate written protocols for reporting, evaluation, counseling, treatment and follow up of occupational exposure.⁷

Related to Structured Teaching Programme

A study was conducted to assess the effectiveness of Structured Teaching Programme on knowledge regarding prevention of infection among the hemodialysis staff nurses in

selected hospital Chattisgarh state, India. Study included 60 hemodialysis staff nurses and Out of 60 sample 30 for experimental group and 30 for control group. Results shows that in the pretest there is no difference between experimental and control group, the mean value of pretest score which was calculated using unpaired t-test is $t=0.50$ $P=0.61$ $df=58$ and in the post test $t=6.27$ $P=0.001$ $df=58$ and there is significant difference between experimental and control group. The study concluded that the study enabled the nurses to gain knowledge regarding new protocol related to prevention of infection in hemodialysis unit.⁸

METHODOLOGY

Research approach: An evaluative approach with pre experimental one group pre and post test design

Research Design: Pre-experimental with one group pretest and posttest design

Variables:

Independent variable: Structured Teaching Programme (STP)

Dependent variables: Knowledge of respondents regarding Prevention of Blood borne diseases

Extraneous variables: Demographic characteristics included were Age, Gender, Professional qualification, Family income, Experience, Marital status, previous knowledge regarding exposure to any Blood borne diseases and previous knowledge regarding exposure to any injury.

Setting of the study:

The study was conducted in the Ramaiah Memorial Hospital, Bengaluru.

Target population: 60 Dialysis nurses and technicians as respondents in a selected Health care facility, Bengaluru

Sample size: 60

Sampling technique: Purposive sampling technique.

RESULTS

Section -1: Description of demographic variables of respondents.

Table 1 Frequency distribution of demographic variables of respondents

SN.	Demographic variables	Frequency	n=60	
			Frequency	Percentage (%)
1.	Age (in years)			
	a. ≤25	25		41.7
	b. 26-30	20		33.3
	c. 31-35	15		25.0
2	Gender			
	a. Male	31		51.7
	b. Female	29		48.3
3	Professional qualification			
	a. Diploma nursing/technician	43		71.7
	b. Graduate in nursing/technician	14		23.3
	c. Post graduate in nursing /technician	3		5.0
4.	Family income (Rs/month)			
	a. ≤1895	-		-
	b. 1895-5657	-		-
	c. 5657-9573	-		-
	d. 9573-14360	12		20.0
	e. ≥14360	48		80.0
5.	Experience in years			

	a. Below 2	-	-
	b. 2-4	17	28.3
	c. 6-8	27	45.0
	d. More than 8	16	26.7
6.	Marital status		
	a. Married	38	63.3
	b. Unmarried	22	36.7
	c. Divorce		
	d. Widow		
7.	Previous knowledge regarding exposure to any Blood borne disease		
	a. Yes	40	66.7
	b. No	20	33.3
8.	If yes, the specify(n=40)		
	a. Academic information	24	60.0
	b. In-service education	14	35.0
	c. Webinar	-	-
	d. Family members/relatives/friends	2	5.0
9.	Previous knowledge regarding exposure to any injury		
	a. Yes	32	53.3
	b. No	28	46.7
10.	If yes, then specify (n=32)		
	a. Academic information	10	31.3
	b. In-service education	12	37.5
	c. Webinar	1	3.1
	d. Family members/relatives/friends	9	28.1

Section-2: Assessment of level of knowledge regarding Prevention Blood borne diseases of respondents

Pretest and Post-test knowledge scores regarding Prevention of Blood borne diseases among respondents:

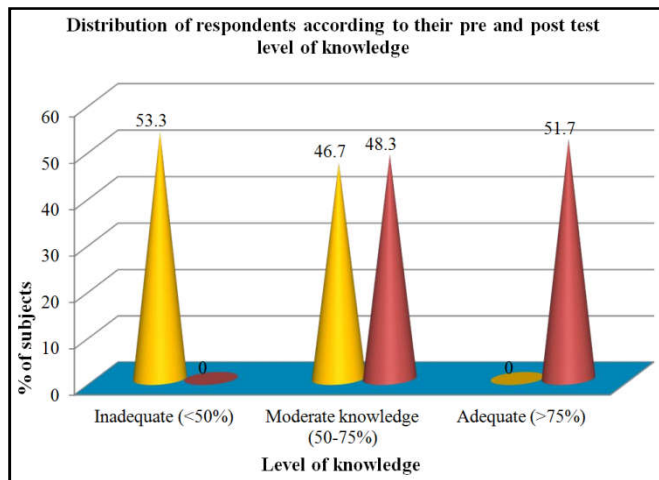


Figure 1 Pretest and Post-test knowledge scores of the respondents

Figure shows that in the Pre test, a majority 32(53.3%) had inadequate knowledge, 28(46.7%) had moderate knowledge and none of them had adequate knowledge. But, in Post test, 31(51.7%) had adequate knowledge, 29(48.3%) had moderate knowledge and none of them had inadequate knowledge. It evidenced that there was an increase in the knowledge regarding Prevention of Blood borne diseases after administration of Structured Teaching Programme.

Classification of Respondents by Level of Pre and Post-test knowledge scores according to distribution of questionnaires

It shows that in pre test the subjects were within the range of 13-29 with mean 21.63 and SD of 4.02. The pre test mean score percentage was 49.1%. But in post test, the subjects were within the range of 27-41 with mean 33.93 and SD 3.50. The post test mean score percentage was 77.1%. Similarly, the pre test mean score percentage in the aspect of basic information

regarding prevention of Blood borne disease was 52.9 and it has increased to 77.3% in post test.

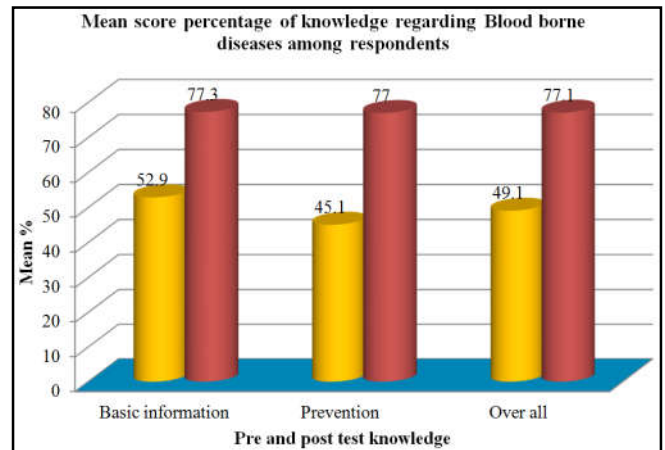


Figure 2 Classification of Respondents by Level of Pre and Post-test knowledge scores according to distribution of questionnaires

The mean score percentage in the aspect of prevention Blood borne disease was 45.1% in pre test and it has increased to 77.0% in post test. The post test scores of knowledge was comparably more than the pre test knowledge scores. It evidenced that the STP was effective in improving the knowledge regarding Blood borne diseases among respondents.

Section 3: Effectiveness of STP on Knowledge regarding Blood borne diseases among respondents

Percentage distribution of respondents by Knowledge gain after Structured Teaching Programme

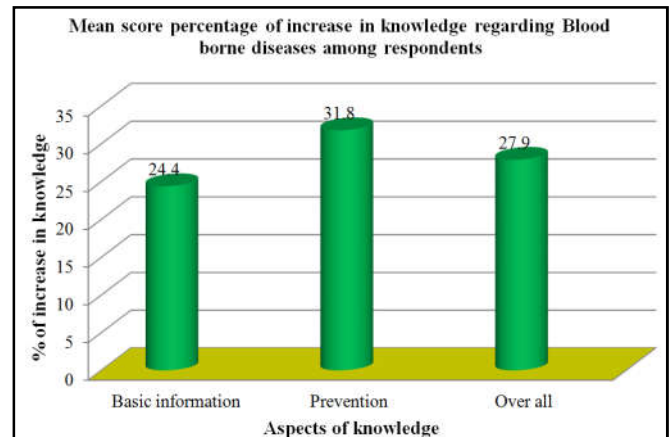


Figure 3 Percentage distribution of respondents by knowledge gain

It showed that the paired t-test analysis outcomes of comparison of pre and post test scores for significance. Regarding overall knowledge the paired mean difference was 12.30 and SD of difference was 2.78 and Mean difference percentage was 27.9%. It was found to be significant ($t=33.24$, $df=59$) at 5% level (i.e., $p<0.05$). The paired t- test was also worked out for different aspects of knowledge regarding Prevention of Blood borne diseases among respondents and it was also found to be invariably significant at 5% (i.e., $p<0.05$). It evidenced that STP was statistically significant in improving knowledge among respondents.

Section -4: Association between knowledge on Prevention of Blood borne diseases with selected demographic variables.

Outcomes of Chi-square analysis for association between level of knowledge and knowledge regarding Prevention of Blood borne diseases.

Sl. No.	Demographic Variables	Sample (n=60)		Post test Level of knowledge				Chi-square value	p-value
		F	%	Moderate	Adequate	F	%		
1.	Age (in years)							6.857, df=2, S	P<0.05
	a. ≤25	25	41.7	17	53.1	8	28.6		
	b. 26-30	20	33.3	8	25.0	12	42.9		
	c. 31-35	15	25.0	7	21.9	8	28.8		
	d. > 35	-	-	-	-	-	-		
2.	Gender							0.076, df=1, NS	p>0.05
	a. Male	31	51.7	16	50.0	15	53.6		
	b. Female	29	48.3	16	50.0	13	46.4		
3.	Professional qualification							7.485, df=2, S	P<0.05
	a. Diploma nursing/technician	43	71.7	27	84.4	16	57.1		
	b. Graduate in nursing/technician	14	23.3	3	9.4	11	39.3		
	c. Post graduate in nursing/technician	3	5.0	2	6.3	1	3.6		
4.	Family income (Rs/month)							1.071, df=1, NS	p>0.05
	a. ≤1895	-	-	-	-	-	-		
	b. 1895-5657	-	-	-	-	-	-		
	c. 5657-9573	-	-	-	-	-	-		
	d. 9573-14360	12	20.0	8	25.0	4	14.3		
	e. ≥14360	48	80.0	24	75.0	24	85.7		
5.	Experience in years							0.552, df=2, NS	p>0.05
	a. Below 2	-	-	-	-	-	-		
	b. 2-4	17	28.3	10	31.3	7	25.0		
	c. 6-8	27	45.0	13	40.6	14	50.0		
	d. More than 8	16	26.7	9	28.1	7	25.0		
6.	Marital status							1.482, df=1, NS	P>0.05
	a. Married	38	63.3	18	58.3	20	71.4		
	b. Unmarried	22	36.7	14	43.8	8	28.6		
	c. Divorcee	-	-	-	-	-	-		
	d. Widow	-	-	-	-	-	-		
7.	Previous knowledge regarding exposure to any Blood borne disease							0.33, df=1, NS	P>0.05
	a. Yes	40	66.7	21	65.6	19	67.9		
	b. No	20	33.3	11	34.4	9	32.1		
8.	If yes, the specify (n=40)							6.857, df=2, S	P<0.05
	a. Academic information	24	60.0	17	53.1	8	28.8		
	b. In-service education	14	35.0	8	25.0	12	42.9		
	c. Webinar	-	-	-	-	-	-		
	d. Family members/relatives/friends	2	5.0	7	21.9	8	28.6		
9.	Previous knowledge regarding exposure to any injury							0.306, df=1, NS	p>0.05
	a. Yes	32	53.3	16	50.0	16	57.1		
	b. No	28	46.7	16	50.0	12	42.9		
10.	If yes, then specify (n=32)							11.844, df=3, S	P<0.05
	e. Academic information	10	31.3	6	37.5	4	25.0		
	f. In-service education	12	37.5	5	31.3	7	43.8		
	g. Webinar	1	3.1	0	0	1	6.3		
	h. Family members/relatives/friends	9	28.1	5	31.3	4	25.0		

Note: S-significant (p<0.05); NS-Not significant (p>0.05).

CONCLUSION

In the Pre test, a majority 32(53.3%) had inadequate knowledge, 28(46.7%) had moderate knowledge and none of them had adequate knowledge. But, in Post test, 31(51.7%) had adequate knowledge, 29(48.3%) had moderate knowledge and none of them had inadequate knowledge. The pre test mean score percentage in the aspect of basic information regarding Prevention of Blood borne disease was 52.9% and it has increased to 77.3% in post test.

The mean score percentage in the aspect of prevention blood borne disease was 45.1% in pre test and it has increased to 77.0% in post test. The overall knowledge mean difference was found 12.30 and SD difference was 2.78 and mean difference percentage was 27.9%. The paired t- test was carried out and it was found invariably significant at p<0.05 level, hence the research hypothesis (H1) was accepted. It provides the evidence that the STP was significantly effective in increasing the knowledge regarding Prevention of Blood borne diseases. The association between post test knowledge regarding Prevention Blood borne diseases and selected demographic variables, the Chi-square test was carried out and it was found significant at p<0.05 level, hence the research hypothesis (H2) was accepted. It provides the evidence that there was significant association between knowledge on Prevention of Blood borne diseases and selected demographic variables.

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