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RESEARCH ARTICLE

A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON EXTERNAL COUNTER PULSATION THERAPY AMONG STAFF NURSE WORKING IN THE SELECTED HOSPITALS AT BANGALORE

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ABSTRACT

Cardio vascular disease such as angina pectoris and ischemic disease is a major disorder in India.Treatment of angina pectoris is traditionally aimed at reduction of symptoms as well as prevention of future cardiac events such as myocardial infarction or death. 15% of refractory angina pectoris patients either fail to respond fully to such therapy or ineligible to further intervention. External Counter Pulsation therapy (ECP) is a non pharmacologic, cost effective and non invasive therapy can be use safely in any age group without any complication. Education is one of the best way to change knowledge and attitude of staff nurses working in hospital. This has motivated the researcher to conduct a study "A study to assess effectiveness of structured teaching programme on external counter pulsation therapy among staff nurses working in selected hospitals at Bangalore".

Objective of the study: To evaluate the effectiveness of structured teaching programme on external counter pulsation therapy by comparing pre and post test knowledge score among staff nurses.

Methodology: One group pre-test, post-test research design, which is a pre experimental design with purposive sampling method, is used to select 40 staff nurse. The study was conducted in Pristine Cardiac hospital, Bangalore. The tool used for the data collection was self administered structured knowledge questionnaire which comprised of 8 items on demographic data and 40 items on knowledge of External counter pulsation therapy. The reliability of the tool was established by using Test-Retest method. The reliability Co-efficient is 0.965. The pre test was administered to 40 staff nurses followed by the STP then post test was conducted after 7 days to the same samples using the same tool. The conceptual framework used for this study is based on Stufflebean "CIPP evaluation model". Data gathered was analyzed using descriptive and inferential statistics in terms of frequency, percentage, mean, standard deviation, paired't' test and chi-square test.

Results: The present study conducted to assess the effectiveness of STP on ECP therapy among staff nurses highlights that the pre-test mean knowledge scores was 28.22% while post-test mean knowledge scores was 74.44%. Further the statistical obtained't' value was 25.61, which is significant at 5% level. There exists a significant difference between pre-test and post-test knowledge scores among participants. Hence H1 is accepted. The findings revealed that there is significant association between pre-test knowledge scores of staff nurses on ECP therapy with demographic variables such as professional experience and family income. Hence H_2 is accepted .But there is no significant association between pre-test knowledge scores of ECP therapy with demographic variables such as age group, gender, professional qualification, and duration of experience as a cardiac nurse, professional experience and source of information. Hence H_2 is rejected and null hypothesis is accepted.

Conclusion: Hence the findings revealed that structured teaching programme was effective in enhancement of the knowledge of staff nurses on External Counter Pulsation Therapy. The study recommends nurses can use this knowledge for caring patients with ECP therapy.

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INTRODUCTION

External counter pulsation (ECP) therapy is an emerging non pharmacologic, outpatient therapy in which, a set of inflatable cuffs (much like blood pressure cuffs) wrapped around the patients lower limbs (calves, lower thighs and upper thighs). During diastole, cuffs inflate sequentially from the calves, proximally raising diastolic aortic pressure and increasing coronary perfusion pressure. ECP therapy was used to treat the patients with coronary artery diseases (CAD) by 35 one hour section treatment. ECP therapy will increase collateral circulation in CAD patients.

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In CAD disease patients may experience anginal pain due to reduced blood circulation through the narrowed coronary arteries. ECP therapy will promote collateral circulation and help to reduce the angina. ECP therapy also beneficial for the patients who have erectile dysfunction, renal failure and progressive muscular dystrophy. The elevating diastolic pressure in arteries could improve blood flow to the heart and be beneficial for coronary insufficiency was first proposed in 1953 by Kantrowitz. In 1963, Dennis *et al*. used a pressure sleeve on the hind legs of dogs that was inflated and deflated in synchrony with their electrocardiogram. In 1968, Kantrowitz and associates demonstrated the principle of "phase shift", of increasing diastolic blood flow with the intra-aortic balloon pump in 27 patients. In 1969 Ruiz and associates evaluated the principle of "phase shift" by the use of external pulsatile pressure to the lower extremities in five normal subjects. Result shows that the aortic diastolic pressure was increased by 50 mm Hg with a 20% increase in cardiac output.

A comparative study was done on 1973, to assess the effects of sequential (inflating cuffs around the calves area, then thigh area, then buttocks in sequence) and non-sequential (uniform inflation) ECP therapy in seven normal subjects. Result shows that diastolic augmentation was equivalent in both groups but cardiac output increased 17% with the sequential method. Cardiac output did not rise significantly with the uniform inflation method. The researcher also compared sequential ECP therapy with the Intra-Aortic Balloon Pump (IABP) in experimental animals before and after inducing cardiac shock. Result shows that cardiac output was increased an average of 25% with ECP therapy compared to 4% with IABP. The study concluded that sequential ECP therapy was significantly increased the cardiac output and the average cardiac output was more in sequential ECP therapy compared with IABP. In India, CVD is the leading cause of death. According to World Health organization deaths due to CVD in India were 32% of all deaths in 2007 and are expected to rise from 1.17 million in 1990 and 1.59 million in 2000 and expecting 2.03 million in 2010. Although a relatively new epidemic in India, it has quickly become a major health issue with deaths due to CVD expected to double during 1985-2015. Mortality estimates due to CVD vary widely by state, ranging from 10% in Meghalaya to 49% in Punjab. In the Punjab (49%), Goa (42%), Tamil Nadu (36%) and Andhra Pradesh (31%) have the highest CVD related mortality estimates. CVD also affects Indians at a younger age (in their 30s and 40s) than is typical in other countries. An estimated 9.2 million productive years of life were lost in India in 2000, with an expected increase to 17.9 million years of life in 2030 due to cardiac diseases.

Technology for treating cardiovascular disease is slowly moving from very invasive to less invasive methods. In the seventies, bypass surgery was the big news in the treatment of coronary artery disease. In the eighties, it was balloon angioplasty and in the nineties, it was the stent. Now, we can move still a step further to a totally non-invasive treatment with ECP therapy. In the coming decade the use of external counter pulsation will increase in India, because External Counter Pulsation (ECP) therapy is a safe and effective treatment that provides sustained duration of benefit in patients with disabling angina and angina equivalents, left ventricular dysfunction (LVD), and heart failure. The researcher observed that the staff nurses are lacking the knowledge regarding external counter pulsation in India. So the researcher felt that, it s necessary to update the knowledge of staff nurses regarding external counter pulsation therapy. It will help them to update their knowledge with advanced technologies.

MATERIALS AND METHODS

Objective

- To assess the existing knowledge level on external counter pulsation therapy among staff nurses.
- To evaluate the effectiveness of structured teaching programme on external counter pulsation therapy by comparing pre and post test knowledge score among staff nurses.
- To find out the association between knowledge score with selected demographic variables.

Hypothesis

H_1: There will be significant differences between pre-test and post test knowledge scores on external counter pulsation therapy among staff nurses after structured teaching program.

H_2: There will be significant association between knowledge score on external counter pulsation therapy with selected demographic variables.

MATERIALS AND METHODS

Based on the problem and objective nature of the research One group pre-test, post-test research design, which is a pre experimental design, was selected to assess the knowledge of the staff nurses on ECP therapy. The independent variable STP, depended variable knowledge of staff nurses was the dependent variable in the study and demographic variables in this study were age, gender, professional qualification, professional experiences, and duration of experience as cardiac nurse, family income, and previous information, and source of information. The research setting in this study was Pristine hospital, Rajajinagar, Bangalore. The accessible population of staff nurses for the study was 52 staff nurses from the Pristine hospital. Sample consists of a sub set of a population selected to participate in a research study. In the present study the sample consisted of 40 staff nurses.

Sampling technique: Non randomized sampling technique of purposive sampling method. The data collection instruments consist of **Section 1:** Demographic variables such as age, gender, professional qualification, professional experiences, duration of experience as cardiac nurse, family income, and previous information, and source of information and **Section 2:** Structured questionnaire on knowledge of staff nurses regarding ECP therapy. The reliability of the tool was established by using data collected from 10 staff nurses from the Jupitor hospital, Malleswaram, Bangalore. Reliability was established by test retest method. Which measures the co-efficient of internal consistency. The reliability was established by using raw score method. Coefficient of correlation of knowledge test was found to r =0.965. This indicated that the tool was highly reliable. The STP was developed based on the review of the related research. Prior permission was obtained from the medical director, pristine hospital, Rajajinagar, Bangalore for conducting the study. Data was collected from 11 October 2010 to 11 November 2010 in Pristine hospital, west of chord road, Bangalore. To obtain true response, purpose and usefulness of the study explained and provided

assurance was given about the confidentiality of their response. An informed consent was obtained from each participant for their willingness to participate into study. The duration for the assessment of knowledge took 30 minutes.

RESULTS

Distribution of demographic variables

Table 1 Reveals classification of respondents by age, gender. Fig 3 shows that majority of the respondents were 18(45%) were in between 21-25 years of age, 17(42.5%) was between 26-30 years of age, 4 (10%) were between 31-35 yrs of age and 1(2.5%) were between 36-40. Regarding gender majority of the respondents 32(80%) were female and 8(20%) were male. Table 2 depicts the frequency percentage distributions of staff nurses by their professional qualification, professional experiences, areas of previous experiences, duration of experience as a cardiac nurse, family income, previous information and source of information.

- Diploma nursing and Bsc nursing students are 20 (50%) respectively.
- Most of respondents 25(62.5%) having 1-6 year experience and 14(35%) have more than 6 year experience and only 1 (2.5%) have less than one year experience.
- Most of the participants 27 (67.5%) having the 1-3 year experience in cardiac ward, while 06(15%) have less than one year, 03 (7.5%) have more than 3 year experiences and 4 (10) have no experience in cardiac ward.
- Most of the respondents 28 (70%) have family income between Rs. 4000-6000, 06(15%) have income in between Rs. 8001-10000, and 05(12.5%) have income in between Rs.6001-8000 .and followed by 01(2.5%) have more than Rs. 10001.Most of the respondents 21 (52.5%) have previous information about ECP therapy and 19 (47.5%) have no information about ECP therapy.
- Most of the respondents 15 (71.42%) have the source of information from print media and 03 (14.28%) have information from electronic and health personnel.

Table: 3 depict the classification of respondents on Pre-test knowledge level on ECP therapy. In the pre-test knowledge level, it was indicated that 35 (87.5%) of the respondents had inadequate knowledge and 5(12.5%) of the respondents had moderate knowledge and 0% of the respondents had adequate knowledge. Table: 4 depict the aspect wise pre-test mean knowledge scores of respondents on ECP therapy. The result indicates that 34.16% was found in the aspect of general information on external counter pulsation therapy, 25.75% was found in the aspect of Purpose, 20.8% was found in the aspect of Indication, 37.5% was found in the aspect of contra indication, 27.5% was found in the aspect of preparation of patient, 29.17% was found in the aspect of advantage, 30% was found in the aspect of disadvantage, 20.63% was found in the aspect of procedure, 47.5% was found in the aspect of mechanism, 38.8%was found in the aspect of after care and 65% was found in the aspect of side effect. Table: 5 depict the classification of respondent's post-test knowledge level on ECP therapy.

Table 1. Data on Frequency and Percentage Distribution of Demographic profile of the subjects in relation to Age, gender

N=40

Characteristics	Category	Respondents	
		n	Percent (%)
Age group (years)	21-25	18	45
	26-30	17	42.5
	31-35	04	10
	36-40	01	2.5
Gender	male	08	20
	Female	32	80

Table 2. The frequency and percentage distributions of staff nurses by their demographic variables- professional qualification, professional experiences, areas of previous experiences, duration of experience as a cardiac nurse, family income, previous information and source of information

Characteristics	Category	Respondents	
		Number	Percent (%)
Professional qualification	Diploma nursing	20	50
	BSC nursing	20	50
Professional experiences	<1year	01	2.5
	1-6year	25	62.5
	>6year	14	35
Duration of experience as cardiac nurse	<1 year	06	15
	1-3 year	27	67.5
	>3 year	03	7.5
	No experience	04	10
Family income	4000-6000	28	70
	6001-8000	05	12.5
	8001-10000	06	15
	>10001	01	2.5
Previous information	yes	21	52.5
	No	19	47.5
Source of information	Electronic media	03	14.28
	Print media	15	71.42
	Health personnel	03	14.28

Table 3. Classification of respondents on pre test knowledge level of ECP therapy

N= 40

Knowledge Level	Category	Classification of Respondents	
		Pre test	
		Number	Percent
Inadequate	≤ 50 % Score	35	87.5
Moderate	51-75 % Score	O5	12.5
Adequate	> 75 % Score	0	0.0
Total		40	100.0

Table 4. Aspect wise Pre test Mean Knowledge scores of respondents on ECP therapy

N=40

No.	Knowledge Aspects	Statements	Max. Score	Staff nurses working in the hospitals on knowledge score				
				Mean	Mean (%)	SD	SD%	Paired 't' test
I	General information external counter pulsation therapy	3	3	1.025	34.16	0.768	25.6	8.45
II	Purpose	4	4	1.03	25.75	0.733	18.33	8.84
III	Indication	6	6	1.25	20.8	1.01	16.83	7.86
IV	Contra indication	2	2	0.75	37.5	.809	4O.45	5.87
V	Preparation of patient	4	4	1.10	27.5	1.01	25.25	6.90
VI	Advantage	3	3	.875	29.17	.882	29.4	6.27
VII	Disadvantage\	2	2	0.6	30	.632	31.6	6
VIII	Procedure	8	8	1.65	20.63	1.33	16.63	7.84
IX	Mechanism	1	1	0.475	47.5	.505	50.5	5.94
X	After care	2	2	0.776	38.8	0.767	38.35	6.37
XI	Side effect	1	1	0.65	65	.483	48.3	8.51
	Combined	36	36	10.17	28.25	4.08	11.33	15.79

Table 5. Classification of respondents on post test knowledge level of ECP therapy

N =40

Knowledge Level	Category	Classification of Respondents	
		Post test	
		n	Percent (%)
Inadequate	≤ 50 % Score	0	0.0
Moderate	51-74 % Score	16	40
Adequate	≥75 % Score	24	60
Total		40	100.0

Table 6. Aspect wise Post test Mean Knowledge scores of respondents on ECP therapy

N=40

No.	Knowledge Aspects	Statements	Max. Score	Staff nurses working in the hospital on knowledge score				
				Mean	Mean (%)	SD	SD%	Paired 't' test
I	General information external counter pulsation therapy	3	3	2.25	75	0.808	26.9	17.59
II	Purpose	4	4	3.4	85	0.632	15.8	34
III	Indication	6	6	4.5	75	1.24	20.67	22.95
IV	Contra indication	2	2	1.22	61	0.697	34.85	11.107
V	Preparation of patient	4	4	3.27	81.75	0.905	22.26	22.88
VI	advantage	3	3	1.93	64.33	0.694	23.13	17.55
VII	Disadvantage	2	2	1.70	85	0.648	32.4	16.58
VIII	Procedure	8	8	5.87	73.34	1.42	17.75	26.21
IX	mechanism	1	1	.66	65.7	0.474	47.4	9
X	After care	2	2	1.20	60	0.687	34.35	11.05
XI	Side effect	1	1	.775	77.5	0.423	42.3	11.59
	combined	36	36	26.8	74.44	4.36	12.11	38.9

In the post-test knowledge level on ECP therapy, none of the respondents were found in inadequate level. 16 (40%) was found in moderate level and 24 (60%) was found in adequate level. Table 6 depict the aspect wise post-test mean knowledge scores of respondents on ECP therapy. Regarding the first aspect i.e.: General information external counter pulsation therapy, the mean knowledge score was 75%, regarding the second aspect Purpose the knowledge score was found to be 85%, regarding the third aspect indication was found to be 75%, regarding the fourth aspect contraindication was found to be 61%, regarding the fifth aspect preparation of patient was found to be 81.75, regarding the sixth aspect advantage was found to be 64.33, regarding the seventh aspect disadvantage was found to be 85, regarding the eighth aspect procedure was found to be 73.34, regarding the ninth aspect mechanism of action was found to be 65.7, regarding the tenth aspect after care was found to be 60 and the eleventh aspect side effect was found to be 77.5. The total mean knowledge score was 74.44%.

Table: 7 depict the classification of respondents on Pre-test and post-test knowledge level on ECP therapy. In the pre-test knowledge level, it was indicated that 35 (87.5%) of the respondents had inadequate knowledge, 05 (12.5%) of the respondents had moderate knowledge and 0% of the respondents had adequate knowledge. In the post-test knowledge level on ECP therapy, none of the respondents were found in inadequate level. 16 (40 %) was found in moderate level and 24 (60%) was found in adequate knowledge level.

Table 7. Classification of Respondents by pre-test and post-test Knowledge level on ECP therapy

N= 40

Knowledge Level	Category	Classification of Respondents			
		Pre test		Post test	
		Number	Percent	Number	Percent
Inadequate	≤ 50 % Score	35	87.5	0	0.0
Moderate	51-75 % Score	O5	12.5	16	40
Adequate	> 75 % Score	0	0.0	24	60
Total		40	100.0	40	100.0

Table 8. Aspect wise mean Pre test and Post test Knowledge on ECP therapy

N = 40

No.	Knowledge Aspects	Respondents Knowledge						Paired 't' Test
		Pre test		Post test		Enhancement		
		Mean (%)	SD	Mean (%)	SD	Mean (%)	SD	
I	General information external counter pulsation therapy	34.16	0.768	75	0.808	40.84	0.039	8.43
II	Purpose	25.75	0.733	85	0.632	59.25	0.101	17.04
III	Indication	20.8	1.01	75	1.24	54.2	0.23	14.03
IV	Contra indication	37.5	.809	61	0.697	23.5	0.112	2.77
V	Preparation of patient	27.5	1.01	81.75	0.905	54.25	0.105	10.59
VI	Advantage	29.17	.882	64.33	0.694	35.16	0.188	6.74
VII	Disadvantage	30	.632	85	0.648	55	0.016	7.09
VIII	Procedure	20.63	1.33	73.34	1.42	52.71	0.09	14.69
IX	Mechanism	47.5	.505	65.7	0.474	18.2	0.031	2.84
X	After care	38.8	0.767	60	0.687	31.2	0.08	2.73
XI	Side effect	65	.483	77.5	0.423	12.5	0.06	2.15
	Combined	28.25	4.08	74.44	4.36	46.19	0.28	25.61

* Significant at 5% level, t (0.05, 39 df) = 1.96

Table 9. Over all Pre test and Post test mean Knowledge scores on ECP therapy

N =40

Aspects	Statements	Staff nurses undergone STP on ECP therapy Knowledge score			Paired 't' Test
		Mean	Mean (%)	SD	
Pre test	36	10.17	28.25	4.08	25.61*
Post test	36	26.80	74.44	4.36	
Enhancement		16.64	46.22	0.28	

* Significant at 5% level, t (0.05, 39 df) = 1.96

Table 10. Association between Demographic variables and Pre test Knowledge level on ECP therapy

N=40

Demographic Variables	Category	Sample	Respondents Knowledge				χ^2 value	P Value
			Inadequate		Moderate			
			N	%	N	%		
Age Group	21-25	18	18	100	0	0		
	26-30	17	15	18.2	2	11.8	9.28	.101NS
	31-35	04	2	50	2	50		
	36-40	01	11	100	0	0		
Gender	Female	4	28	87.5	4	12.5		
		32					1.11	0.29NS
	male	08	8	100	0	0		
	Diploma nursing	20	18	90	2	10		
Professional qualification	BSC nursing	20	18	90	2	10	0	1NS
Professional experiences	<1year	1	1	100	0	0		
	1-6year	25	25	100	0	0	8.25	.016*
	>6year	14	10	71.4	4	28.6		
Duration of experience as cardiac nurse	<1 year	10	10	100	0	0		
	1-3 year	27	24	88.9	3	11.1		
	>3 year	03	2	66.7	1	33.3	2.963	0.23NS
Family income	4000-6000	28	28	100	0	0	14.07	0.0008*
	6001-8000	6	5	83.3	1	16.7		
	8001-10000	6	3	50	3	50		
Previous information	yes	21	18	85.7	3	14.3	.902	0.342
	No	19	18	94.7	1	5.3		
Source of information	Electronic	03	2	66.7	1	33.3		0.377
	Print	15	13	86.7	2	13.3		
	Health personnel	03	3	100	0	0		
	No information	21	20	95.2	1	5.8	3.095	

* Significant at 5% Level, NS : Non-significant

Table: 8 depict the aspect wise pre-test and post-test mean knowledge scores of respondents on ECP therapy. Regarding the first aspect i.e.: general information on ECP therapy pre-test mean knowledge score was found to be 34.16% and post-test was found to be 75% and regarding the second aspect i.e.: purpose of the ECP therapy the per-test mean knowledge score was found to be 25.75% and post-test was found to be 85% and regarding the third aspect indication the pre-test mean knowledge score was found to be 25.75% and post-test was found to be 75% and 4th aspect contra indication the pre-test

Table 11. Association between Demographic variables Post test Knowledge level on ECP therapy

N=40

Demographic Variables	Category	Sample	Respondents Knowledge				χ^2 value	P Value
			Adequate		Moderate			
			N	%	N	%		
Age Group	21-25	18	2	11.1	16	88.9		
	26-30	17	17	100	0	0	5.98	.0003*
	31-35	04	4	100	0	0		
	36-40	01	1	100	0	0		
Gender	Female	4	24	75	8	25	10.67	.001*
		32						
	male	08	1	12.5	7	87.5		
	Diploma nursing	20	8	40	12	60	8.64	.003*
Professional qualification	BSC nursing	20	17	85	3	15		
Professional experiences	<1year	1	0	0	1	100	13.71	.001*
	1-6year	25	11	44	14	56		
	>6year	14	14	100	0	0		
Duration of experience as cardiac nurse	<1 year	10	4	40	6	60	5.42	.066*
	1-3 year	27	20	65	7	35		
	>3 year	03	3	100	0	0		
Family income	4000-6000	28	13	46.4	15	53.6		
	6001-8000	6	6	100	0	0	10.29	.0058*
	8001-10000	6	6	100	0	0		
Previous information	yes	21	17	80.9	4	19.1	6.423	0.011*
	No	19	8	42.1	11	57.9		
Source of information	Electronic	03	3	100	0	0		0.089*
	Print	15	13	86.7	2	13.3		
	Health personnel	03	1	33.3	2	66.7		
	No information	19	11	57.9	8	42.1	6.516	

* Significant at 5% Level,NS: Non-significant.

mean knowledge score was found to be 37.5 and post test was found to be 61 and 5th aspect preparation of the patient mean pre test knowledge score was found to be 27.5 and post test was found to be 81.75 and 6th aspect pre test mean knowledge score on advantage of the ECP therapy was 29.17 and its post test was found to be 64.33 and in the 7th aspect disadvantage of ECP therapy pre test mean knowledge score was found to be 30 and post test found to be 85 and 8th aspect procedure of ECP therapy pre test mean knowledge score was 20.63 and post test was found to be 73.34 and 9th aspect, mechanism of ECP therapy pre test mean knowledge score was 47.5 and post test was 65.7 and 10th aspect after care of the ECP therapy pre test mean knowledge was 38.8 and post test was found to be 60 and last aspect, side effect of ECP therapy pre test mean knowledge score was 65 and post test knowledge score was 77.5. Further the statistical obtained 't' value was, 8.43,17.04,14.03,2.77,10.59,6.74,7.09,14.69, 2.84,2.73 and 2.15 respectively. Which is found to be significant at 5% level. Table: 9 reveals that the overall pre-test and post-test mean knowledge scores of respondents on ECP therapy. In pre-test the mean knowledge score was 28.25% and in post-test the mean knowledge score was 74.44%. Further the statistical obtained 't' value was25.61, which is significant at 5% level. There exists a significant difference between pre-test and post-test knowledge scores of staff nurses. Hence the research hypotheses H_1 is accepted i.e. there is significant difference between pre and post test knowledge scores of staff nurses on ECP therapy after administering structured teaching program. Data presented in the Table: 10 indicate, Association between Demographic variables and Pre test knowledge level on ECP therapy. Professional experience and family income exists significant association with the pre-test knowledge scores of the respondents. ($P<0.05$). Hence H_2 is accepted And there exists a non-significant association between pre-test knowledge level of respondents with other selected demographic variables such as age, gender, professional qualification, duration of experience as a cardiac nurse, previous information and source of information. Hence H_2 is rejected and null hypothesis is accepted.

Data presented in the Table: 11 indicate, Association between Demographic variables and Post-test knowledge level on ECP therapy. Age, gender, professional qualification, Professional experiences, family income, previous information and source of information exists significant association with the post-test knowledge scores of the respondents. ($P<0.05$), Hence H_2 is accepted.

Summary

This chapter dealt with the analysis and interpretation of data collected to evaluate the effectiveness of structured teaching program on ECP therapy among staff nurses and there is a significant association between level of knowledge scores and selected demographic variables.

DISCUSSION

This chapter deals with the discussion, based on the objectives of the study and hypotheses. The study was designed "to assess the effectiveness of structured teaching program on ECP therapy among staff nurses working in the selected hospitals at Bangalore." The findings of the study were discussed in terms of the study are compared and contrasted with those of other similar studies conducted in different setting. The study was a pre experimental study with one group pre test- post test design used to assess the knowledge of 40 staff nurses regarding ECP therapy. A structured knowledge questionnaire was used to collect the data from staff nurses. The pre test was conducted followed by implementation of structured teaching program on the same day and post test was conducted after 7 days by using same structured knowledge questionnaire to evaluate the effectiveness of structured teaching program.

Demographic characteristics of diploma in education students

- Majority of the staff nurses 18(45%) were in the age group of 21-25 years of age.

- Majority of respondents 32(80%) were female.
- Diploma and Bsc nursing staffs were 20 (50%) respectively.
- Majority of the respondents 25 (62.5%) having 1-6 year experience.
- Most of the participants 27 (75%) having the 1-3 year experience in cardiac ward.
- Majority of the respondents 28 (70%) have family income between Rs. 4000-6000.
- Most of the respondents 21 (52.5%) have previous information regarding ECP therapy.
- Most of the respondents 15 (71.42%) have the source of information from print media

The findings of the study based on its objectives are discussed under the following heading:

- To assess the existing knowledge level on external counter pulsation therapy among staff nurses.
- To evaluate the effectiveness of structured teaching programme on external counter pulsation therapy by comparing pre test and post test knowledge score.
- To find out the association between knowledge score with selected demographic variables.

Objective 1: To assess the existing knowledge level on external counter pulsation therapy among staff nurses.

Assessment of aspect wise and overall pre-test Mean Knowledge scores: The findings of the present study revealed that overall pre test mean knowledge score was 28.25% with a standard deviation of 4.08. Among the aspect wise knowledge score was 34.16% in general information, 25.75% in purpose, 20.8% in indication, 37.5% in contra indication, 27.5% in preparation of patients, 29.17% in advantage, 30% in disadvantage, 20.63% in procedure, 47.5% in mechanism, 38.8% in after care, 65% in side effect of ECP therapy. A study was conducted to analyze the insulin related knowledge among staff nurses. Seventy-three faculty members and 191 nurses from four hospitals completed a 20-item multiple-choice questionnaire that assessed knowledge of insulin nomenclature and characteristics and inpatient insulin use. Results showed that the percentage of knowledge-based questions answered correctly was low (51% for faculty and 47% for nurses). Study concluded that the educational programs teaching on insulin characteristics and inpatient diabetes management are needed for all categories of health care providers. Increased knowledge may help to improve patient safety in the hospital.

Objective 2: To evaluate the effectiveness of STP on ECP therapy by comparing pre test and post test knowledge score among staff nurses

Assessment of overall effectiveness of structured teaching programme:

The findings on effectiveness of structured teaching programme regarding mean knowledge score of the staff nurses revealed that the overall post-test mean knowledge score was higher 74.44% with standard deviation of 4.36, when compared with over all pre-test mean knowledge score value which was 28.22% with standard deviation 4.08 . The data presented in Table- reveal that staff nurses had higher mean knowledge score in the post-test than the pre-test with an mean knowledge enhancement of 46.22% and overall 't' value found 25.61 showed that the value was significant at $p<0.05$. Hence the research hypothesis H1 is accepted. This indicates that STP on ECP therapy among staff nurses was effective. A study was conducted to evaluate the effectiveness of teaching program on positioning of stroke patients among staff nurses. 59 nursing staffs and 38 stroke patients are participated in the study. The wards were randomly allocated to experimental or control status. Using questionnaires, the nurses' knowledge on posture and of issues relating to the moving and positioning of stroke patients was assessed before, immediately after, and 3 months after a package of formal teaching was implemented on the experimental wards. Result shows that immediately after teaching, nurses in the experimental group scored significantly higher than those in the control group. Study concluded that teaching program cans effectively increased nurse's knowledge.

Assessment of aspect wise effectiveness of STP

The effectiveness of the study was analyzed with the pre test and post test knowledge enhancement among staff nurses. The enhancement mean score regarding general information on external counter pulsation therapy are 40.84% and its paired 't' shows 8.43, purpose was 59.25% and paired 't' test shows 17.04, indication was 54.2% and its paired 't' test shows 14.03, 23.5% in contra indication and its paired 't' test shows 2.77, 54.25% in preparation of patients and its paired 't' test shows 10.59, 35.16% in advantage and its paired 't' test shows 6.74, 55% in disadvantage and its paired 't' test shows 7.09, 52.71% in procedure and its paired 't' test shows 14.69, 18.2% in mechanism and its paired 't' test shows 2.84, 31.2% in after care and its paired 't' test shows 2.73, 12.5 in side effect and its paired 't' test shows 2.15 among staff nurses. Hence the research hypotheses H_1 is accepted i.e. There will be significant difference between pre and post test knowledge scores of staff nurses on external counter pulsation therapy after administering structured teaching program.

Objective 3: To find out the association between knowledge score with selected demographic variables

An association of selected baseline variables in relation to their knowledge was studied using Chi-square test. The findings reveal that there was significant association between pre test knowledge score and professional experience and family income at $p<0.05$. Hence the research hypothesis H_2 is accepted i.e. there will be significant association between the knowledge scores of staff nurses on ECP therapy with selected demographic variables. In post test demographic variables such as age, gender, professional qualification, professional experience, duration of experience as a cardiac nurse, family income, previous information and source of information is significant with post test knowledge score. Hence H_2 is accepted. Variables like age, gender, professional qualification, duration of experience as a cardiac nurse, previous information and source of information in the pre test was found to be not significant. Hence the research hypothesis H_2 is rejected and null hypothesis is accepted. A study was done to find out relationship of effectiveness of structured teaching programme on staff nurses with selected variables, i.e. age, professional qualification, duration of experience, in-service education on first aid management and emergency care of burn patients. Result shows that the knowledge of the staff nurses are related

with demographic variables. Study concluded that there was highly statistical significant association between the knowledge scores of staff nurses who attended in-service education. A study was done to evaluate nurses' knowledge on complementary and alternative medicine (CAM) and relation with demographic variables in five metropolitan hospitals. Data were analysed using descriptive and non-parametric statistics. Result shows that nurses knowledge was positively associated with their demographic variables include age, professional experiences, areas of experiences and source of experiences. Study concluded that knowledge of the nurses are influenced by their demographic variables.

Summary

This chapter deals with summary of the whole study, explanation and is based on the objective. The present study was concerned with "to assess effectiveness of structured teaching programme on external counter pulsation therapy among staff nurses working in selected hospitals at Bangalore."

The study conducted with following objectives

- To assess the existing knowledge level on external counter pulsation therapy among staff nurses.
- To evaluate the effectiveness of structured teaching programme on external counter pulsation therapy by comparing pre test and post test knowledge score.
- To find out the association between knowledge score with selected demographic variables.

The study was based on the following assumptions

- The staff may have the basic knowledge regarding external counter pulsation therapy.
- Structured teaching program may enhance the knowledge of staff nurses regarding external counter pulsation therapy.
- Staff nurse knowledge may vary with selected demographic variables.

The study attempted to examine the following research hypotheses

H1: There will be significant differences between pre test and post test knowledge scores on external counter pulsation therapy among staff nurses after structured teaching program.

H2: There will be significant association between knowledge score on external counter pulsation therapy with selected demographic variables.

In the present study the conceptual framework adopted was based on Stufflebeams evaluation CIPP model. In this theory, there are four concepts: Context evaluation, input evaluation, process evaluation and product evaluation. According to this model in context evaluation includes assessment of demographic variable and pre test knowledge on ECP therapy among staff nurse by administering structured knowledge questionnaire. Input evaluation refers to development of STP on ECP therapy with appropriate teaching aids. Process evaluation refers to administering STP on ECP therapy. Product evaluation refers to assessment of knowledge of ECP therapy after STP (post test).

In the present study the review of literature was organized and presented under the following aspects.

- Studies related to the prevalence of coronary artery diseases.
- Studies related to the purpose of external counter pulsation therapy.
- Studies related to effect of external counter pulsation therapy.
- Studies related to the effectiveness of structured teaching programme on staff nurses.

The research design of the present study was pre experimental one group pre test post test design with purposive sampling technique was used to draw the samples. The results were analyzed by using descriptive and inferential statistical analysis. The structured knowledge questionnaire (tool) comprised the two sections.

Part A: contains the demographic data 8 items and
Part B: contains 11 parts and total numbers of questions are 36.

The content validity of the tool was established by 8 experts. The tool was found to be reliable and feasible. The reliability of the tool was established by using Test-Retest method. The reliability Co-efficient is 0.965.

$$\text{Raw score method} = \frac{\frac{\Sigma XY - XY}{n}}{S_1 S_2}$$

Where X = Test score.
Y = Retest score.
ΣXY = Summation of test X retest scores.
n = Total number of samples.
S_1S_2 = SD of variable X and Y.

Pilot study was conducted at Jupiter hospital, malleswaram, Bangalore in the month of august. The purpose of the pilot study was to:

- Evaluate the effectiveness of STP on ECP therapy among staff nurses.
- Determine the method of statistical analysis

The main study was conducted in the month of 11 October 2010 to 11 November 2010 in Pristine hospital, west of chord road, Bangalore. Obtained formal prior permission from the director of the pristine hospital, west of chord road, Bangalore. The sample size was 40 staff nurses and selection of the sample was done according to inclusion and exclusion criteria. After obtaining the consent from the staff nurses, the pre test knowledge was assessed by using structured knowledge questionnaire; followed by structured teaching program was conducted on the same day. On the 7th day after administering structured teaching program, the post test knowledge of staff nurses were assessed using the same structured knowledge questionnaire to evaluate the effectiveness of structured teaching program on ECP therapy. The data obtained were analyzed in terms of achieving the objectives of the study by using descriptive and inferential statistics.

Findings related to demographic characteristics

- Majority of the staff nurses were in the age group of 21-25 years 18(45%).
- Majority of respondents 32(80%) were female.
- Diploma nursing and Bsc nursing students are 20 (50%) respectively.
- Majority of respondents have 1-6 year experience 25(62.5%).
- Majority of respondents have 1-3 year experience in cardiac ward 27 (75%).
- Majority of respondents have family income between Rs. 4000-6000 28 (70%).
- Majority of respondents have previous information about ECP therapy 21 (52.5%).
- Majority of respondents have the source of information from print media 15 (71.42%)

Findings related to knowledge enhancements

The overall pretest mean% knowledge score was 28.22%, and post test mean% knowledge score was 74.44%, with mean% enhancement of knowledge score as 46.22% which was statistically significant as observed between pre and post test score with paired 't' test 25.61 at $p<0.05$ level. Overall observation showed that the structured teaching program on ECP therapy among staff nurse was effective in enhancement of knowledge score. Hence H_1 is accepted i.e., there will be significant difference between pre and post test knowledge scores of staff nurses on ECP therapy after administering structured teaching program.

Findings related to association of knowledge score with selected demographic variables among adolescents

In pre test knowledge score of the staff nurse are significant with demographic variables such professional experience and family income at $p< 0.05$, hence H_1 was accepted. Other variables such as age group, gender, professional qualification, areas of experience as a cardiac nurse, previous information, source of information found to be non significant hence H_{02} is accepted. In post test level of knowledge score there was significant association between knowledge score with age, gender, professional qualification, professional experience, duration of experience as a cardiac nurse, afamily income, previous information regarding ECP therapy and source of information is found to significant, Hence, hence $H0_2$ is accepted.

Conclusion

Statement of the problem: "A study to assess effectiveness of structured teaching programme on external counter pulsation therapy among staff nurses working in selected hospitals at Bangalore."

The following conclusions were drawn on the basis of the findings of the study. The present study conducted to assess the effectiveness of STP on ECP therapy among staff nurses highlights that the pre-test mean knowledge scores was 28.22% while post-test mean knowledge scores was 74.44%. Further the statistical obtained 't' value was 25.61, which is significant at 5% level. There exists a significant difference between pre-test and post-test knowledge scores among participants.

So, this indicates that STP on ECP therapy is effective to increase the knowledge among staff nurses. Hence the research hypothesis H_1 is accepted. The findings revealed that there is significant association between pre-test knowledge scores of staff nurses on ECP therapy with demographic variables such as professional experience and family income. Hence H_2 is accepted .But there is no significant association between pre-test knowledge scores of ECP therapy with demographic variables such as age group, gender, professional qualification, and duration of experience as a cardiac nurse, professional experience and source of information. Hence H_2 is rejected and null hypothesis is accepted.

The findings revealed that there is significant association between post-test knowledge scores of staff nurses on ECP therapy with demographic variables such as age group, gender, professional qualification, professional experience, family income, previous information and source of information. Hence H_2 is accepted. The primary aim of this study is to assess the effectiveness of STP on ECP therapy among staff nurses working in the selected hospitals at Bangalore. The study concluded that, the structured teaching program on ECP therapy was very effective among the staff nurses.

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