

Effectiveness of Structured Teaching Programme on Knowledge of Staff Nurses Regarding Coronary Angiogram at a Selected Hospital, Bangalore

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ABSTRACT

The aim of the study was to assess the effectiveness of Structured Teaching Programme (STP) on knowledge of staff nurses regarding coronary angiogram. The study involved one group pre-test and post-test using pre-experimental design, with non-probability sampling technique in which purposive sampling method was used. Sixty staff nurses working at Kempegowda Institute of Health Science and Research Center were taken as samples (n=60) and requested to mark the structured knowledge questionnaire followed by implementation of STP on the same day and post-test conducted on the 15th day, using the same structured knowledge questionnaire to find out the effectiveness. The results revealed that in posttest there was a significant gain in knowledge of staff nurses with a mean of 23.83+ 2.21 compared to pretest mean of 17.90+ 2.79 and the improvement was statistically significant ($p < 0.05$). There was no significant association found in relation to any of the demographic variables. The overall findings of the study clearly showed that the STP was significantly effective in improving the knowledge of staff nurses regarding coronary angiogram.

Keywords: Effectiveness, structured teaching programme, coronary angiogram, staff nurses, knowledge and structured knowledge questionnaire.

INTRODUCTION

The heart is one of the most important organs in the human body. It is a

hollow muscular organ that pumps blood throughout the blood vessels by repeated, rhythmic contractions. However, there are conditions and diseases that affect the heart and its functions.¹The diagnostic tests in cardiology are methods of identifying heart conditions associated with healthy Vs unhealthy, pathologic heart function³.

According to Rath, among many health predictions in the millennium, the most alarming conditions are heart disease and stroke. But coronary Artery Disease is becoming one of the leading causes for morbidity and mortality in developed countries. The prominent public health problem is emerging now in developing countries like India. The alarming growth of heart disease in India is estimated approximately 10 million people by 2010⁸.

The last few decades have seen an advancement of research in the methods of diagnosing, treating and controlling the coronary artery disease. In 1929 Werner Forssmann exposed a vein in his left arm and introduced a ureteric catheter and advanced it under the fluoroscope and placed in to the right atrium. Credits must be given to Cournand and Ranges (1941) and Richard (1945) who carried out a series of original investigations into right side of the heart and pulmonary artery in human heart. Further development of various cardiac and coronary procedures came rapidly. In 1959 selective coronary arteriography was reported as an excellent

technique and it was modified into percutaneous approach by Ricketts and Abram in 1962 & 1967⁹.

World Health Organization (WHO) has reported that, “approximately 50 million deaths occur throughout the world every year, with almost 80 % of these (40 million) occurs in developing countries due to cardiovascular disease”. It has been estimated that approximately one quarter of all deaths in developing countries and worldwide half of all deaths are due to cardiovascular diseases. Among cardiovascular diseases Coronary Artery Disease (CAD) is the leading disease causing high mortality and morbidity. WHO report stated that coronary disease accounted for more than 8 million deaths worldwide. In industrialized countries CAD is responsible for 1/3rd of total deaths¹⁰.

The tremendous advancements made in medical technology demands for specialized nursing technology in coronary care. The success of this specialization is depending on the competencies of the nursing personnel on the early diagnosis and to 4 provides need based care to promote optimum health in cardiac catheterization. In order to function effectively, the nurses have to strengthen and modify their functional ability through continuous assessment of knowledge and practice¹⁵.

A descriptive study was conducted in Israel to assess the appropriateness of performing coronary angiography in two major teaching hospitals among 499 patients who underwent coronary angiography. The result revealed that angiographies were performed inappropriately in 58% of patients. The investigator concluded that in most of the cases inappropriate coronary angiography are due to error in management before performing angiographies. The study concluded that there is a need for further teaching regarding coronary angiogram¹⁶.

A study was conducted in USA on The Need for Improvement and the Barriers to Adoption of New Technology in coronary angiography .The traditional coronary angiography presents a variety of limitations

related to image acquisition, content, interpretation, and patient safety. Barriers for improvements include, the paucity of clinical outcomes, studies related to new imaging technology, the resistance to changing long-standing practices. The study suggests that there is a need for physician and staff member training regarding coronary angiogram¹⁸.

The review of literature shows that there is a need for staff member training regarding coronary angiogram. Hence the investigator felt the need for improving knowledge of nurses regarding coronary angiogram. This study will highlight the involvement of nurses in care of patients with coronary angiogram. Further this study will help the nursing professionals in gaining an insight regarding coronary angiogram. With this intention the present study attempts to assess the “Effectiveness of structured teaching programme on knowledge of staff nurses regarding coronary angiogram at a selected hospital, Bangalore”.

METHODS AND MATERIALS

Research approach and research design:

For the present study quantitative research approach and pre experimental one group pre-test post-test research design were used to accomplish the stated objectives.

Attribute variable: Age and work experience.

Independent variable: Structured teaching programme on coronary angiogram.

Dependent variable: Knowledge of staff nurses regarding coronary angiogram.

Research setting: Kempegowda Institute of Medical Sciences Hospital and Research Centre, Bangalore, India

Sample and sampling technique: The investigator selected a sample of 60 registered staff nurses using a purposive sampling technique.

Inclusion criteria: Staff nurses who were willing to participate in the study and present at the time of data collection.

Exclusion criteria: Staff nurses who are already exposed to the education programme on coronary angiogram.

Ethical consideration: Institutions Human Ethics committee clearance and permission was obtained from Kempegowda Institute of Medical Science Hospital and Research Center, Bangalore. All the staff nurses involved in the study were informed that the participation will be on voluntary basis and they can withdraw from the study at any time. Prior written informed consent was taken from all the participants.

Description of tool: The tool consisted of following two parts:

Part I Consists of Socio demographic characteristics such as age, sex, professional qualification, marital status, religion, family, monthly family income, and total years of experience.

Part II Consists of 40 items pertaining to knowledge regarding coronary angiogram. It is divided into 5 aspects such as:

- Anatomy and physiology of heart
- History, statistics and definition of coronary angiogram
- Indications and contraindications of coronary angiogram
- Complications of coronary angiogram
- Procedure of coronary angiogram

Scoring Interpretation

Each correct answer was given a score of one and for wrong answer a score of zero. To find out the knowledge scores, the respondents were categorized into three groups.

Adequate knowledge-score of 31 and above (75%-100%)

Moderate Knowledge-score between 21-30 (51%-74%)

Inadequate Knowledge-score below 20 (Below 50%)

Maximum Score = 40, Minimum Score = 0 (Zero)

Reliability of tool: Split Half method with Spearman's Brown Prophecy formula was used to test the reliability of the tool ($r=0.82$).

Development of the Structured Teaching Programme

Structured Teaching Programme (STP) on knowledge of staff nurses regarding coronary angiogram was developed based on literature review, consulting with experts and research guide. The steps adopted in the development of STP were:

- Preparation of first draft of STP content.
- Development of criteria checklist to evaluate the STP Content.
- Content validity of STP.
- Preparation of final draft of STP.

Description of the Intervention Pulmonary Rehabilitation Services Include

- Respiratory muscle retraining
- Nutritional counselling
- Guidelines for cessation of smoking
- Stress relaxation & energy conservation techniques

Data collection procedure

Formal permission was obtained from Administrative Medical Officer and Nursing Director of Kempegowda Institute of Medical Science Hospital and Research Center to conduct the study through the Principal, Kempegowda College of Nursing. The data collection was carried out in Kempegowda Institute of Medical Science Hospital and Research Center, Bangalore from 10/10/2013 to 10/12/2013.

The need for the study and the objectives were explained to the staff nurses. Anonymity and confidentiality was assured and written informed consent was obtained from the participants before conducting the pretest. The investigator collected data from 60 nurses that took 40-45 minutes for each nurse to complete the structured knowledge questionnaire.

After pre-test, the STP was conducted for 60 samples for about 45

minutes by using power point. All the staff nurses cooperated well and participated actively. They came forward with their queries about coronary angiogram and they were satisfied with the answers they received. They also showed a positive attitude in group discussion.

Posttest data was conducted on 8th day after STP by using the same self-administered knowledge questionnaires on coronary angiogram. All the participants were cooperated well with the investigator in both pretest and posttest sessions. The data collection process was terminated by thanking the subjects for their cooperation.

Statistical analysis

Statistics were performed by using SPSS-IBM 20. Results were calculated by using P value <0.05. Chi-square was used to associate the level of knowledge with selected demographic variables. Frequency and percentage distribution was used to analyze the demographic variables.

Description of demographic characteristics

Assessment of knowledge of staff nurses regarding coronary angiogram.

Objective: to assess the knowledge of staff nurses regarding coronary angiogram.

Table 1: Distribution of Aspect wise and overall scores of respondents in Pretest and Post test N= 60

Sl. No	Aspect	Pre-test		Post-test		Paired "t" value
		Mean	SD	Mean	SD	
1	Knowledge regarding anatomy and physiology of heart	2.883	0.865	3.883	0.783	8.588 *
2	Knowledge regarding history, statistics and definition of coronary angiogram	1.45	0.622	2.316	0.536	9.271 *
3	Knowledge regarding indications and contraindications of coronary angiogram	2.966	0.850	3.983	0.503	8.013 *
4	Knowledge regarding complications of coronary angiogram	4.20	0.916	5.583	0.743	9.687 *
5	Knowledge regarding the procedure of coronary angiogram	6.45	1.30	8.066	1.17	8.744 *
6	Overall knowledge score	17.90	2.79	23.83	2.210	23.707 *

* Significant at p <0.05 NS - Non Significant

Table 1 depicts the overall and aspect wise knowledge scores of respondent on coronary angiogram in pretest and posttest. The mean overall posttest mean knowledge score was 23.83 compared to pretest mean score of 17.90 with the knowledge enhancement of 76.7%. Paired 't' test was used to assess the significance difference between pre and posttests (23.707) and this was statically significant (p< 0.05). This result indicated that the

The findings of the study showed that 36.67%(22) of the respondents were in the age group of 21-25 years, 35%(21)of the respondents were in the age between 26-30 years,18.33%(11) of respondents were in the age group 31-35 years and only six (10%) were in the age group of 36 and above. Majority of 59(98.33%) respondents had diploma in nursing as a educational qualification and only one (1.67%) had basic BSc nursing as their professional qualification. With regard to their work experience 23 (38.33%) of respondents had 1-5 years, 18.34 % (11) had between 11-15 years and only 5 (3%) respondents had an experience of years 16 and above.

This present study findings were similar to the findings of Nursing care practices following a percutaneous coronary intervention: results of a survey of Australian and New Zealand cardiovascular nurses. All respondents were registered nurses with an average of 12.3(SD, 7.61) years of clinical experience in the cardiovascular setting.²¹

improvement of knowledge among staff nurses was only because of STP.

The study findings are supported by a study conducted to assess the knowledge of nurses towards coronary angiogram in a Tertiary care Teaching Hospital in Nepal. The result revealed that the mean ± SD age of the respondents was 22.07 ± 2.30 years and their mean ± SD duration of experience was 11.45 ± 2.67 months¹⁷.

The findings are also supported by a similar study conducted To assess the effect

of an educational intervention on nurses knowledge and management of PCI procedures in China. The study concluded that there was a substantial and statistically significant improvement of knowledge after

a lecture based workshop, mean=8.2, SD=1.1 and mean=15.5, SD=1.3 on 18 items, before and after teaching respectively, $p < 0.001^{33}$.

Association between Demographic variables and Pretest Knowledge level on Coronary Angiogram

Objective: to find out the association between pre-test knowledge scores of staff nurses with selected demographic variables.

Table 2: Association between Demographic variables and Pretest Knowledge level on Coronary Angiogram N= 60

Demographic variables	Responses	Overall pretest knowledge		Chi-square value	Df	P-value	Inference
		Below median	Above median				
Age in Years	Less than 25	11	11	0.155	1	3.84	NS
	More than 25	21	17				
Professional qualification	GNM	38	21	0.20	1	3.84	NS
	PBBSc	-	1				
Years of clinical experience	Less than 10	26	18	1.116	1	3.84	NS
	More than 10	7	9				
Marital status	Unmarried	12	8	0.678	2	5.99	NS
	Married	20	17				
	Others	1	2				
Religion	Hindu	8	3	1.415	1	3.84	NS
	Christian	26	23				
Monthly family income	Less than 10000	7	6	0.054	1	3.84	NS
	More than 10000	27	20				
Type of family	Nuclear	12	9	0.590	2	3.84	NS
	Joint	19	13				
	Others	4	3				

* Significant at 5% Level,

NS: Non-significant

Table 2 shows the association between pre-test knowledge scores of staff nurses with selected demographic variables. Chi-Square was used to find out the association between the variables χ^2 and p value indicated that there was no association found in the variables such as age, professional qualification, years of clinical experience, marital status, religion, monthly family income and type of family ($p < 0.00$).

The study findings are similar to the study conducted to assess the knowledge of nurses towards coronary angiogram in a Tertiary care Teaching Hospital in Nepal. The study result revealed that there was no significant association between the total scores and age ($p=0.823$) and the duration of experience ($p=0.239$)¹⁷.

Limitations

- The present study was limited to staff nurses working at Kempegowda Institute of Medical Science Hospital and Research Centre, Bangalore.

- Only single domain knowledge was considered in the present study.
- The study did not use any control group and randomization.
- The sample for this study was limited to 60 staff nurses only.

CONCLUSION

Nurses as competent professionals have responsibility to promote health information and practice among health professionals in the hospitals. Today health care delivery system mainly focus on primary prevention and health education that can be achieved through health education, that brings improvement in knowledge, attitude and practice of nurses working in the various areas like medical ward, surgical ward, pediatric ward, casualty, ICU etc. Nurses should be encouraged to attend continuing education programme through planned teaching, incidental teaching. There is a need to increase knowledge and skill regarding coronary angiogram.

The findings of this study may be utilized as a basis for in-service education of nurses, so that a constant and clear understanding may be created regarding coronary angiogram.

Acknowledgement: We thank all the volunteers engaged in this study protocol. The authors wish to acknowledge everyone who has offered their support throughout this endeavor. Thank you to family and friends who were always there whenever they were needed and whose encouragement and sacrifice has greatly contributed to this work.

Disclosure: None of the above listed authors has competing interests to declare regarding the publication of this article.

Sources of support: Nil

Ethical Approval: Approved

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How to cite this article: George P, Umadevi A K. Effectiveness of structured teaching programme on knowledge of staff nurses regarding coronary angiogram at a selected hospital, Bangalore. *International Journal of Science & Healthcare Research*. 2021; 6(3): 431-437. DOI: <https://doi.org/10.52403/ijshr.20210770>
