

Effect of Planned Teaching Programme on Knowledge Regarding Cardiac Rehabilitation among Staff Nurses

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Abstract

With a view to improve cardiac rehabilitation, an evaluative study was undertaken to assess the impact of planned teaching programme on 40 staff nurses of a hospital in Belgaum (Karnataka). The findings indicated that there was significant improvement in knowledge of staff nurses along various parameters after administering planned teaching programme.

Everyday, the heart quietly does its business, pumping blood and oxygen to organs and sustaining human life. It's as natural as breathing, but when someone is suddenly smitten with a heart attack or faces the onset of cardiac disease, the consequences can be enormous, impacting not only the body but the person's emotional state. With age, individuals become more susceptible to cardio vascular diseases. Deaths due to cardiovascular disease account for 24 percent of total deaths, mortality is higher in urban than in rural areas, and is much more prevalent among the upper and middle classes. In 1960, this represented four percent of all deaths, versus more than 50 percent in 1990. According to World Health Organisation, coronary artery disease death rates are currently about three times higher than stroke rates.

In the 1950s, Hellerstein presented his methodology for the comprehensive rehabilitation of patients recovering from an acute cardiac event. Cardiac rehabilitation is the restoration of a person to optimal state of function in 6 areas: physical, physiologic, mental, spiritual, economic and vocational. The purpose of cardiac rehabilitation is to provide comprehensive, multifaceted treatment, education, and secondary prevention for cardiac patients and individuals with heart disease risk factors, to aid recovery and prevent recurrence of heart problems.

Cardiac rehabilitation is an education programme designed to improve the patient's quality of life after a heart attack or another heart problem. It is important for the nurses in cardiac unit to become familiar with various types of cardiac problems (Singh, 2010).

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Objectives

The objectives of the study were: (1) To assess the knowledge regarding cardiac rehabilitation among staff nurses, (2) To evaluate the effectiveness of planned teaching programme (PTP) on knowledge regarding cardiac rehabilitation among staff nurses, and (3) To find the association between the pre-test knowledge scores with selected socio demographic variables among staff nurses.

Hypotheses

H₁: The mean post-test knowledge scores of the nurses exposed to PTP will be significantly greater than their mean pre-test knowledge scores at 0.05 level of significance.

H₂: There will be a statistically significant association between the pre-test level of knowledge scores and selected socio demographic variables at 0.05 level of significance.

Review of literature

Knowledge regarding cardiac rehabilitation: In a retrospective study by University of Newcastle to assess the Staff nurses' knowledge on cardiac rehabilitation with 157 cardiovascular nurses the overall mean score for the knowledge scale was 9.6 (SD 1.9), which was significantly higher ($t=7.5$, $p<0.001$). The nurses' score was not significantly associated with experience or place of work. For the misconception scale the mean score for nurses was 6.8 (SD 1.5), which was significantly higher ($t=6.85$, $p<0.001$) for nurses working in specialised cardiac wards and well experienced nurses had significantly higher scores. The study concluded that advanced training personnel should enhance nurses' skills in patient education and rehabilitation. Staff nurses should be provided with knowledge on cardiac rehabilitation and risks so that they can educate patients accordingly.

In an observational study by the School of Nursing & Midwifery, University of Western Sydney,

Table 1: Pre-test and post-test frequency and percentage distribution of knowledge scores of subjects regarding cardiac rehabilitation (n = 40)

Knowledge level	Pre-test		Post-test	
	Frequency F	Percentage (%)	Frequency f	Percentage (%)
Poor < 37.5% score [1-15]	19	47.5	-	0.0
Average 38.5-45 % score [16-18]	19	47.5	-	0.0
Good > 46 % score [19- 40]	2	5.0	40	100.0
Total	40	100.0	40	100.0

Table 2 : Mean difference (d) , Standard error of difference (SEd) and paired 't' test values of knowledge scores of subject (n = 40)

Mean Difference (d)	Standard error of difference (SEd)	Paired 't' Test		
		Calculated	39 df	Inference
16.6	1.89	8.78	2.021	*

df = 39, * - Significant at 0.05 level of significance

Table 3: Association between the pre-test level of knowledge scores and selected socio demographic variables: Chi- square (χ^2) test to determine the association (n=40)

Demographic Variables	Category Sample		Respondents Knowledge						χ ² value Cal df	
			Poor		Average		Good			
			f	(%)	f	(%)	f	(%)		
Age Group (years)	20-25	17	8	20.0	7	17.5	2	5.0	3.216	NS
	26-30	20	10	25.0	10	25.0	0	0.0		
	31 - 35	3	1	2.5	2	5.0	0	0.0		
Gender	Male	19	10	25.0	8	20	1	2.5	0.412	NS
	Female	6	9	22.5	1	25.0	1	2.5		
Years of experience	1-5	32	16	40.0	14	35.0	2	5.0	3.252	NS
	6-10	7	2	5.0	5	12.5	0	0.0		
	11-15	1	1	2.5	0	0.0	0	0.0		
Educational qualification	GNM	23	12	30.0	10	25.0	1	2.5	1.831	NS
	BSc	8	3	7.5	5	12.5	0	0.0		
	PCBSc	9	4	80.0	4	80.0	1	2.0		

* - Significant at 0.05 level of significance, NS - Non significant

Sydney, Australia during June 2005 and March 2009 on 150 Staff nurses on cardiac rehabilitation, full marks (10/10) were awarded to 46 percent of respondents, while almost 90 percent of total responses were graded as 8/10. This study emphasised cardiac rehabilitation as an essential part of the curriculum since majority of staff had an average score.

Literature related to effectiveness of cardiac rehabilitation programme: A descriptive study in Jabalpur, India involving 74 patients who underwent coronary artery bypass surgery (CABG) evaluated them prior to surgery and initiated lifestyle changes based on Diet, Relaxation, Exercise, Attitude and Motivation (DREAM) concept on discharge post-operatively. Patients were advised unsupervised walking exercise based on target heart rate of 60-75 percent. Follow-up was made every 15 days. The outcomes were functional capacity as measured by treadmill test 3 months post-operatively, lipid and glucose profiles and anthropometric indices like body mass index and waist to hip ratio. Results showed that there was a favourable change in

functional capacity, resting rate, pressure, fasting blood sugar, total cholesterol, triglycerides and anthropometric indices. The study concluded that a cardiac rehabilitation programme can be used for secondary prevention of coronary artery disease in India.

A cohort study at the Peter Munk Cardiac Centre, USA to know the effectiveness of cardiac rehabilitation programme in reducing risk of death among patients with heart disease in 2006 involving 105 patients indicated that participating in cardiac rehabilitation after a cardiac illness, such as a heart attack, can reduce the risk of death by approximately 25 percent, a reduction similar to that of other standard therapies such as cholesterol-lowering medications (statins) and aspirin. The cardiac rehabilitation programmes reduced the risk of death in patients with heart disease and improved their quality of life. Study suggested that every patient discharged from the hospital with a heart condition should be referred to a cardiac rehabilitation programme.

Methodology

An evaluative approach was used to assess the effectiveness of PTP through the difference between the pre-test and post-test knowledge scores; a one group pre-test post-test pre-experimental research design was adopted. The target population for the study consisted of staff nurses of ICCU of Heart foundation of KLE's Dr Prabhakar Kore Hospital, Belgaum. The sample consisted of 40 Staff nurses selected by using purposive sampling technique.

Data collection: Data was collected using structured knowledge questionnaire which had 4 items of demographic variables and 40 items of various areas of cardiac rehabilitation.

The plan included: (i) Organisation of data in a master sheet; (ii) Tabulating data in terms of frequency, percentage, mean and SD; (iii) Classification of knowledge score was done ($x+SD$)=Good, ($x+SD$) to ($x-SD$)=Average, ($x-SD$)=poor knowledge score; (iv) Analysis and interpretation of the data to assess the effectiveness of PTP on Cardiac Rehabilitation among Staff nurses using paired 't' test; (v) Chi-square was used to determine the association between pre-test knowledge score and with selected demographic variables.

Results

Majority of the Staff nurses (n=20, 50%) were between the age group of 26 to 30 years; majority of staff nurses were female (n=21, 52.5%), 19 (47.5%) were male; majority of staff nurses (n=32, 80%) had experience between 1 to 5 years; majority of staff nurses (n=23, 57.5%) had completed GNM.

Table 1 reveals that in pre-test 19 (47.5%) subjects had poor knowledge, 19 (47.5%) had average and 2 (5%) had good knowledge, whereas in post-test all the subjects 40 (100%) had good knowledge scores. Table 2 reveals that calculated paired 't' value ($t_{\text{calculated}} = 8.78$) is greater than tabulated value ($t_{\text{tabulated}} = 2.021$). Hence H_1 is accepted. This indicates that the gain in knowledge score is statistically significant at $p < 0.05$ levels. Therefore, PTP on cardiac rehabilitation is effective to improve the knowledge of staff nurses.

Table 3 reveals χ^2 value computed between the pre-test levels of knowledge with selected socio-demographic variables.

- The $\chi^2_{\text{calculated}}$ value (3.216) was less than $\chi^2_{\text{tabulated}}$ value (9.49). Hence $H_{2.1}$ was rejected. There was no significant association between knowledge scores and age.
- The $\chi^2_{\text{calculated}}$ value (0.412) was less than $\chi^2_{\text{tabulated}}$ value (5.99). Hence $H_{2.2}$ was rejected. There was no significant association between knowledge scores and gender.
- The $\chi^2_{\text{calculated}}$ value (3.252) was less than $\chi^2_{\text{tabulated}}$ value (9.49). Hence $H_{2.4}$ was rejected. There was no significant association between knowledge scores and years of experience.
- The $\chi^2_{\text{calculated}}$ value (1.831) was less than $\chi^2_{\text{tabulated}}$ value (9.49). Hence $H_{2.3}$ was rejected. There was no significant association between knowledge scores and educational qualification.

Discussion

Socio-demographic variables (Fig 1-4): Majority of the Staff nurses ($n=20$, 50%) were between the age group of 26 to 30 years. Majority of staff nurses ($n=21$, 52.5%) were female; 19 (47.5%) were male. Majority of the staff nurses ($n=32$, 80%) had experience between 1 to 5 years and majority of the staff nurses ($n=23$, 57.5%) had completed GNM.

Pre-test and post-test knowledge scores on cardiac rehabilitation: Mean of pre-test was 8.52, median 16, mode 30.96, range 11 and Standard deviation 7.14 and of post-test, mean was 31.6, median 32, mode 31, range 9 and standard deviation 5.66. There is considerable difference of mean 23.08, median 16, mode 0.04, range 2 and standard deviation 1.48 of pre-test and post-test knowledge scores.

The pre-test and post-test frequency and percentage of knowledge scores of subjects regarding cardiac rehabilitation revealed pre-test 19 (47.5%) subjects had poor knowledge; 2 (5%) had good knowledge, whereas in post-test all the subjects 40 (100%) had good knowledge scores.

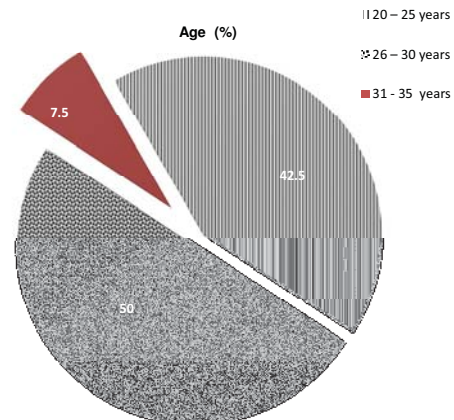


Figure 1: Percentage distribution of subjects according to 'Age'

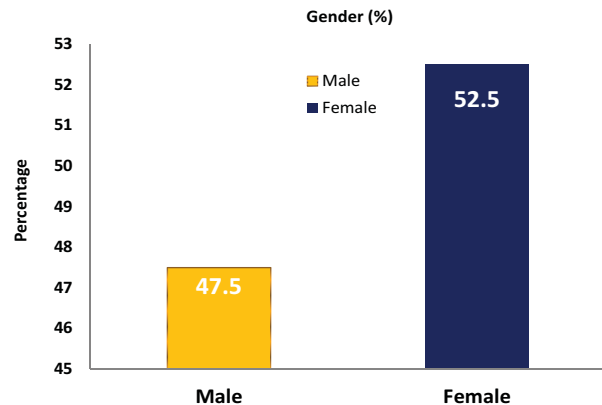


Figure 2 : Percentage distribution of subjects according to 'Gender'

Effectiveness of PTP on cardiac rehabilitation: The mean difference between pre-test and post-test knowledge score was a true difference and not a chance difference. This indicates that the planned teaching was significantly effective in increasing the knowledge of Staff nurses. The overall mean knowledge score of pre-test was 8.52 and post-test is 31.6 with standard deviation of pre-test 7.14 and post-test 5.66. The mean difference of pre-test and post-test is 16.6 and standard error of difference 1.89. The obtained 't' value ($t_{\text{calculated}} = 8.78$) is greater than the table value ($t_{\text{tabulated}} = 2.021$) at 0.05 level of significance. Therefore 't' value is found to be significant. It shows that there will be significant difference between pre-test and post-test knowledge score of Staff nurses regarding cardiac rehabilitation. Therefore the research hypotheses is accepted.

In a randomised controlled trial of cardiac rehabilitation in elderly patients with heart failure in Gwent Healthcare Trust, Nevill Hall Hospital, Abergavenny, Monmouthshire (UK), to determine whether a cardiac rehabilitation programme improved the outcomes of an outpatient heart failure clinic (standard care) for 60+ years patients, with chronic heart failure, 200 patients (60-89 years, 66% male) were randomised. Both standard care and experimental groups attended clinic with specialist nurse every 8 weeks. Interventions included exercise prescription, education, dietetics, occupational

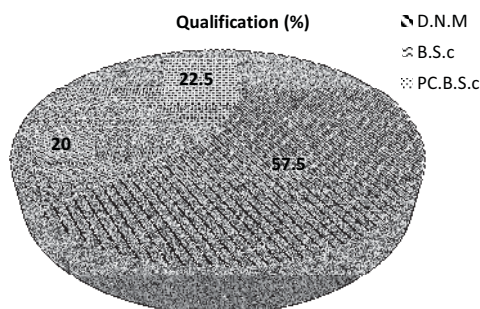


Figure 3: Percentage distribution of staff nurses according to 'Educational qualification'

therapy and psychosocial counselling. There were significant improvements in 7-min walking distance (meters) at 28 weeks between the groups ($p < 0.001$). The experimental group had fewer admissions ($p < 0.01$) and spent fewer days in hospital ($p < 0.001$). The study concluded that cardiac rehabilitation offers an effective model of care for older patients with heart failure.

Association between pre-test level of knowledge with socio-demographic variables: Variables of age ($\chi^2 = 3.216$), gender ($\chi^2 = 0.412$), Educational qualification ($\chi^2 = 1.831$) and years of experience ($\chi^2 = 3.252$) were found to be non-significant at 0.05 level. Thus it can be interpreted that there is no significant association between the pre-test levels of knowledge with selected socio-demographic variables.

Nursing implications

The study findings have implications in nursing administration, nursing education, nursing practice, and nursing research.

Nursing administration: The nurse needs to conduct education through the mass media on cardiac rehabilitation. Organising such programme requires efficient teamwork and planning. The nurse administrators should encourage innovative ideas in the appropriate teaching material.

Nursing education: The nursing curriculum should lay emphasis on cardiac rehabilitation in providing

information on health, so that the staff nurses when posted to hospital and community set-up will be able to give an education regarding cardiac rehabilitation and its importance.

Nursing practice: Since young people in the community are prone to develop cardiac diseases measures should be taken by the nurse to motivate health personnel to maintain healthy environment in and around the community, assessment of knowledge serves as a base to provide counselling service to the Staff nurses.

Nursing Research: An experimental study could be conducted to find out the effectiveness of cardiac rehabilitation on different aspects among the different samples in different settings.

Recommendations

- A similar study can be done to assess the attitude and practice of Staff nurses regarding cardiac rehabilitation.
- The study can be replicated on larger samples for a better generalisation.
- Video-assisted teaching programme can be conducted among the student nurses regarding cardiac rehabilitation.
- Planned teaching can be conducted among the other groups regarding cardiac rehabilitation.

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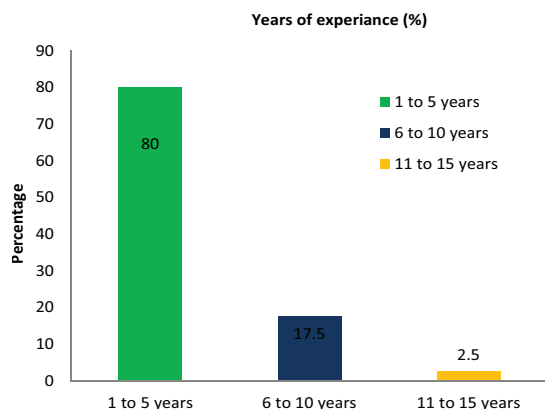


Figure 4: Percentage distribution of staff nurses according to 'Years of experience'