



EFFECTIVENESS OF LIFESTYLE ADAPTATION PACKAGE ON KNOWLEDGE, SKILL AND REHABILITATION WELLNESS AMONG POST CORONARY ARTERY BYPASS GRAFT PATIENTS IN A SELECTED SETTING

¹ Kavikulrani B.,* , ² Jolly R., ³ Kanchana S., ⁴ Celina D.

1-M.Sc. Nursing Student, 2-Professor cum Head of the Department, Medical-Surgical Nursing, 3-Professor cum Principal, 4-Professor cum Vice Principal, Omayal Achi College of Nursing, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai, Tamil Nadu, India.

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Corresponding Author:

Kavikulrani B.

Email ID:

Kaviyabharathy910@gmail.com

Mobile No:

7358206750

ABSTRACT

Background: Coronary Artery Bypass Graft (CABG) surgery is the most demanding treatment for Coronary Artery Disease (CAD). Cardiac rehabilitation helps to alleviate the intensity of post-operative complications and enhance awareness and skill in coping with lifestyle changes. **Aim and objective:** To assess the effectiveness of a Lifestyle Adaptation Package (LAP) on knowledge, skill, and rehabilitation wellness among post-coronary artery bypass graft patients. **Methodology:** A quantitative approach and quasi-experimental pre-test post-test with control group design was chosen for this study among 60 post-CABG patients at a selected setting. A non-probability purposive sampling technique was used to select samples who fulfilled the inclusion criteria. The structured knowledge questionnaire, observational checklist and RAND 36-item health survey 1.0 questionnaire were used to assess the pre and post-test level of knowledge, skill and rehabilitation wellness respectively, for both the experimental and control group. LAP which consisted of education using power point presentation, demonstration and re-demonstration of post-CABG exercises was administered to the experimental group whereas the routine hospital-based care was provided to the control group. **Results:** The study findings revealed that 80%, 76.67% and 66.67% of samples had gained adequate knowledge, good level of skill and an optimum level of wellness respectively in the post-test. The calculated student's paired t-test was found to be statistically very highly significant at $p=0.001$ for all the three dependent variables in the experimental group. Similarly, in the experimental group, the calculated post-test unpaired 't' value $t=17.73$, $t=22.42$ and $t=14.70$ for knowledge, skill, and rehabilitation wellness respectively, showed a very high statistical significance at $p=0.001$. Significant levels of correlation and association were also

identified for selected variables in the experimental group. **Conclusion:** The study results depicted that LAP was effective in improving the knowledge, skill and rehabilitation wellness of post-CABG patients which can significantly enhance their adaptability and compliance towards lifestyle modification, thereby increasing their quality of life.

Keywords: Lifestyle Adaptation Package, knowledge, skill, rehabilitation wellness, post-coronary artery bypass graft, post-CABG exercises.

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I INTRODUCTION

Cardiovascular disease is the leading cause of death globally. The term refers to a collection of diseases which affect the heart and blood vessels. These conditions can be genetic in nature or triggered by infection, but the major influences on the development of cardiovascular disease are environmental factors including a high saturated fat intake and a sedentary lifestyle. One of the most common cardiovascular diseases is atherosclerosis, heart attack or stroke, arrhythmias, and heart failure.¹

CAD has been associated with multiple risk factors that can be broadly categorised into non-modifiable and modifiable factors. Non-modifiable factors include gender, age, family history, and genetics. Modifiable risk factors include smoking, obesity, lipid levels, and psychosocial variables.²

CAD is generally managed with medical treatment but in some cases may require surgical intervention and more precisely, Coronary Artery Bypass Graft (CABG) surgery. CABG aims to restore blood flow to the ischemic myocardium by bypassing atheromatous blockages in coronary arteries with harvested venous or arterial conduits and provides functional restoration, viability and anginal symptom relief.²

In 2020, about 2 in 10 deaths from CAD happened in adults less than 65 years old.³ About 150,000 bypass surgeries are done annually in India, of which 60 per cent are being done on beating heart and the remaining 40 per cent are done with the aid of the heart-lung machine.^{4,5}

CABG alone can improve QOL much after 12 months, but there is still the necessity of multidisciplinary rehabilitation which focuses on lifestyle intervention, information about progression, patient education, peer education and psychological support to promote a faster recovery of health and reduce the risk for post-CABG patients.⁶

Statement of the problem

A quasi-experimental study to assess the effectiveness of a Lifestyle Adaptation Package on knowledge, skill, and rehabilitation wellness among Post Coronary Artery Bypass Graft patients in selected setting.

Objectives

1. To assess the pre-test and post-test level of knowledge, skill, and rehabilitation wellness regarding the Lifestyle Adaptation Package (LAP) among post-CABG patients in the experimental and control group.
2. To assess the effectiveness of the Lifestyle Adaptation Package on the level of knowledge, skill, and rehabilitation wellness among post-CABG patients in the experimental and control group.
3. To correlate between the mean differed levels of knowledge, skill, and rehabilitation wellness among post-CABG patients in the experimental and control group.
4. To associate the selected background variables with mean differed levels of knowledge, skill, and rehabilitation wellness among post-CABG patients in the experimental and control group.

Null hypotheses

NH₁: There is no significant effect of the Lifestyle Adaptation Package on knowledge, skill and rehabilitation wellness among post-CABG patients in the experimental and control group.

NH₂: There is no significant relationship between the mean differed level of knowledge, skill and rehabilitation wellness among post-CABG patients in the experimental and control group.

NH₃: There is no significant association of selected background variables with the mean differed knowledge, skill, and rehabilitation wellness score among post-CABG patients in the experimental and control group.

Conceptual framework

Imogene King's Goal Attainment Theory was adopted for the study

II MATERIALS AND METHODS

A quantitative research approach was considered to be the most appropriate to achieve the set of the objectives in this study. A quasi-experimental pre and post-test with control group design was used in this study conducted at Frontier Lifeline Hospital (FLL), Chennai. The investigator adopted a non-probability purposive sampling technique. The study population comprised post-CABG patients in the selected setting with a total of 60 samples

(30 patients each in the experimental and control group) selected based on the inclusion criteria.

Inclusion Criteria: Patients

- aged between 40-70 years
- in the 2nd post-op day following CABG
- receiving treatment in the selected post-operative wards
- who had not developed any major post-operative complications
- who continued follow up consultation at FLL at 2 weeks post-op
- who are able to understand Tamil/English

Exclusion Criteria: Patients who are

- critically ill
- medically contraindicated to do post-CABG exercises
- severely visual/hearing impaired
- physically/mentally differently abled

Development and description of the tool

The tool for data collection had 4 sections:

Section I: Personal data sheet was used to collect the background variables. It consists of

- ***Demographic variables (9):*** Age, gender, education, occupation, type of job, family type, family size, family monthly income, area of residence.
- ***Lifestyle variables (5):*** Diet, habit of smoking, habit of alcohol, exercise pattern, sleep.
- ***Clinical variables (5):*** Presence of co-morbid illness, previous surgical history, indication for CABG, type of CABG, the graft used for CABG.
- ***Family health variable (1):*** Family history of heart disease.
- ***Anthropometric measurements (3):*** Height (in cm), weight (in kg), BMI (kg/m²)
- ***Bio-physical and biochemical variables (3):*** Blood pressure (mmHg), random blood glucose level (mg/dL), total cholesterol level (mg/dL).

Section II: Structured Knowledge Questionnaire comprised 25 questions formulated under the sub-heading to assess the level of knowledge of post-CABG patients regarding overview

of coronary artery disease, general information of cardiac rehabilitation, rehabilitation wellness including lifestyle adaptation measures as pain management, wound care, diet, exercises, sleep, drug therapy, and follow up.

Scoring Key:

Each correct answer is given “1” mark, whereas each wrong answer is given “0” mark. The raw score was converted to percentage to interpret the level of knowledge. The overall score was 25 with a maximum score of 25 and a minimum score of 0. The total score was then converted into percentages and the level of knowledge was interpreted as follows.

Interpretation of scores

The level of knowledge was categorised as:

Score	Percentage	Level of knowledge
≤12	≤50	Inadequate knowledge
13-18	51-74	Moderately adequate knowledge
19-25	≥75	Adequate knowledge

Section III: Observational Checklist was developed by the investigator to assess the level of skill regarding Post-CABG exercises. This section consisted of 20 steps of post-CABG exercises which includes deep breathing and coughing exercise, arm exercise, neck stretch, trunk rotation, leg straightening, and shoulder rolls.

Scoring key

Each step performed appropriately was scored as “2” marks, partly appropriate scored as “1” mark and an inappropriate response was given “0” mark. The overall score was 40, maximum score was 40 and the minimum score was 0.

Interpretation of scores

The level of skill was categorised as:

Scores	Percentage	Level of skill
0-20	≤50	Poor
21-30	51-74	Fair
31-40	≥75	Good

Section IV: RAND 36-item Health Survey 1.0 Questionnaire was used to assess the rehabilitation wellness. This is a standardised tool consisting of 36 questions relating to

general, physical, psychological, and social wellbeing, developed by Ron D. Hays, Leo S. Morales.

Scoring key:

The overall score is 3600, maximum score is 3600 and minimum score is 0 based on the RAND score key.

Interpretation of scores

The level of rehabilitation wellness was categorised as:

Scores	Percentage	Level of skill
<900	<25	Poor health
901-1800	25-50	Fair health
1801-2700	51-75	Good health
2701-3600	>75	Optimum health

Data collection procedure

After obtaining formal permission and informed written consent, the investigator obtained background data details from the experimental group samples by the interview method, following which the pre-test level of knowledge was assessed using a structured knowledge questionnaire, skill was observed by observational checklist and rehabilitation wellness was assessed by the RAND 36-health item survey 1.0 questionnaire by interview method on the 2nd post-op day. Following this, the Lifestyle adaptation package was administered as explained before, and the samples were instructed to repeat each exercise for about 3-5 minutes, twice daily.

The post-test level of knowledge and skill was assessed on the 7th post op day, and rehabilitation wellness was assessed after the two weeks post-discharge. Similarly, the pre-test and post-test were conducted for the control group and immediately after completion of post-test, on the same day, LAP was administered for the control group. The reinforcement of learning for samples from both the groups was done with the help of a pictorial booklet and ongoing communication was maintained via phone calls after their discharge.

Ethical considerations

The study proposal and plan was granted formal ethical approval by the International Centre of Collaborative Research which is the official ethics review board of Omayal Achi

College of Nursing, Chennai, India. Consent was obtained from the Head of the institution, and the Hospitals. Written informed consent was obtained from the participants after a clear explanation of the study purpose, type of data required, nature of commitment, participation, procedure and potential benefits, and the right to withdraw from the study at any point in time was explained. Confidentiality of all personal details disclosed by the samples and full privacy was assured.

III RESULTS

Distribution of background variables of the post-CABG patients.

- **Demographic variables**

Regarding the demographic variables of post-CABG patients in the experimental and control group, 13(43.33%) were in the age group of 51-60 years, and 24(80.00%) in the experimental group and 25(83.33%) in the control group were males respectively. With respect to education, 12(40.00%) in the experimental group had completed their primary schooling and 10(33.33%) in the control group had primary or higher secondary. Regarding occupation, 11(36.67%) and 13(43.33 %) were skilled workers in the experimental and control group and 22(73.34%) and 19(63.34%) were moderate workers.

A majority of the samples, 23(76.67%) in the experimental group and 26(86.67%) in the control group belonged to nuclear families. Most of samples, 17(56.67%) in the experimental group and 14(46.67%) in the control group had 3-4 members in their family. Regarding the family monthly income, 12(40.00%) and 10(33.34%) had an average monthly income of Rs.18,497 - 30,830 in the experimental and control group. The majority of the samples, 19(63.33%) and 20(66.67%), in the experimental and control group were from urban areas.

- **Lifestyle variables**

With regard to the lifestyle variables of post-CABG patients in the experimental and control group, 26(88.87%) in the experimental group and 25(83.33%) in the control group were non-vegetarians; 20(66.67%) and 19(63.33%) in the experimental group and

13(43.33%) and 15(50.00%) in the control group consumed fruits and green leafy vegetables respectively, for 1-2 days/week.

Many of them, 20(66.67%) in the experimental group and 29(63.33%) in the control group, ate whole grains on 1-2 days in a week. An equal number of 19(63.33%) in experimental and control groups ate salty foods for about 1-2 days and 14 (46.67%) in the experimental group and 11(36.67%) in the control group consumed meat/poultry/egg for 1-2 days and 3-4 days in a week respectively. The majority of the samples in both groups, 19(63.33%) and 17(56.67%), ate deep fried items 1-2 days in a week. Regarding the frequency of consumption of other food items, 17(56.67%) in the experimental and 11(36.67%) in the control group had it for 1-2 days in a week although 16(53.33%) in the control group did not consume such food items.

In both the experimental and control group, the majority, 22(73.33%) and 23(76.67%), did not smoke but a few of them, 8(26.67%) in the experimental and 7(23.33%) in the control group respectively, were smokers who used cigarettes for more than 10 years with a frequency of about 1-3 times per day. The majority of them in both the groups, 20(66.67%) and 21(70.00%) in the experimental and control group respectively, had no habit of alcohol consumption. Among 10(33.33%) in the experimental group and 9(30.00%) in the control group who consumed alcohol, 8(80.00%) and 6(66.67%) respectively, usually consumed Brandy/whisky and 2(20.00%) and 3(33.33%) respectively, consumed rum. In both the experimental and control group 10(100%) and 9(100%) samples respectively, consumed 1001-1500 ml of alcohol 1-3 times per day for more than 10 years.

With respect to exercise patterns, all samples in both groups, 30(100.00%), had the habit of exercising, of which 27(90.00%) and 24(80.00%) in the experimental and control group respectively, used to walk. In both the groups, an equal number of 19(63.33%) samples performed moderate intensity exercise and 30(100.00%) exercised regularly on all days with 16(53.33%) exercising for 31-60 minutes. Regarding sleep pattern, 30(100.00%) in both groups had uninterrupted/normal sleep with a majority of them, 25(83.33%) in the experimental and 24(80.00%) in the control group, sleeping for 6-8 hours duration in 24 hours.

- **Clinical variables**

Most of the samples, 17(56.67%) in the experimental and 19 (63.33%) in the control group, had no history of comorbid illness. In the experimental and control group, 7(53.85%) and 8(72.73%) respectively, had more than one system affected by comorbid illness; 7(53.85%) in the experimental group and 5(45.45%) in the control group had chronicity of illness for 6-10 years. All samples with comorbidities, 13(100.00%) and 11(100.00%) in the experimental and control group respectively, were on regular treatment and none of the 30(100%) samples in both the groups had any significant previous surgical history. Most of the samples, 24(80.00%) in the experimental and 22(73.33%) in the control group, were diagnosed with triple vessel disease. All the 30(100%) samples in both the groups underwent off-pump CABG and only the saphenous vein was used for grafting.

- **Family health variables**

The majority of the samples in both the groups, 25(83.33%), had no history of family heart disease. An equal number in both the groups, 5(16.67%), had a family history of heart disease of which 3(60.00%) affected were mothers and 2(40.00%) were siblings of the samples; 3(60.00%) in both groups had heart disease for the past 2-5 years and were on regular treatment.

- **Anthropometric variables**

Most of the samples in both groups, 14(46.67%), 20(66.67%) and 22(73.33%) in the experimental group and 16(53.33%), 18(60.00%) and 20(66.67%) in the control group had a height of 151-160cm, weight of 61-80 kg and normal BMI, respectively.

- **Biophysical and biochemical variables**

With respect to biophysical and biochemical variables, the study participants in both the groups, 17(56.67%) and 20(66.67%) in the experimental and control group respectively, had normal systolic/diastolic blood pressure ranging from 120-139/80-89. Majority of the samples, 24(80.00%), in both the groups had normal random blood glucose within 70-140mg/dL and all samples, 30(100.00%), had normal level of total cholesterol (<200mg/dL). Both groups were homogenous with regard to the selected variables as identified by the non-significant calculated value obtained through the Chi-square test.

Assessment of overall pre and post-test level of knowledge, skill and rehabilitation wellness

N=60

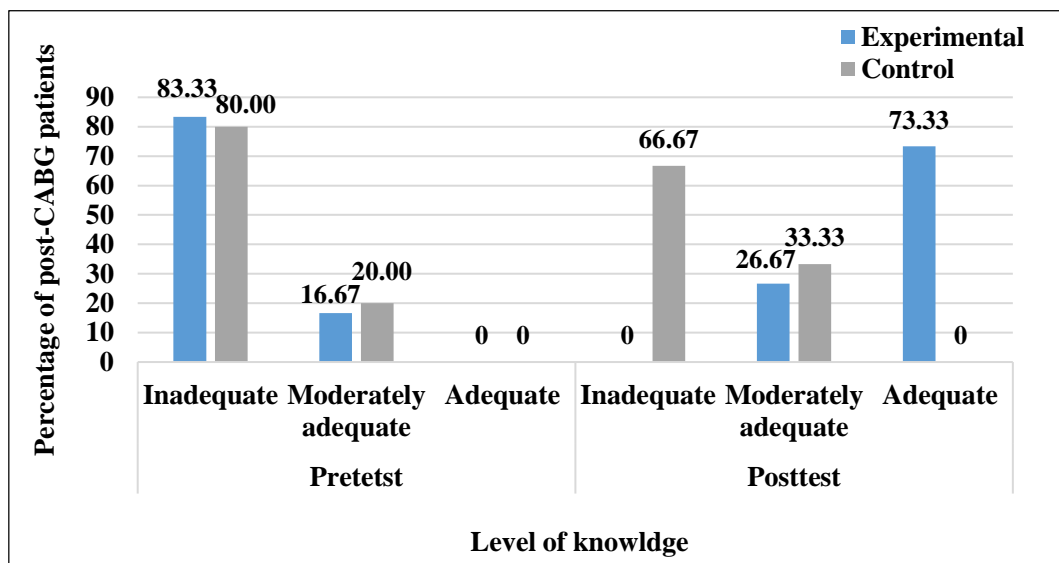


Figure 1: The overall pre and post-test level of knowledge

Figure 1 depicts the overall level of pre and post-test level of knowledge regarding LAP in the experimental and control group. In the pre-test, the majority of the patients, 25(83.33%) and 24(80.00%) in the experimental and control group respectively, had inadequate knowledge regarding LAP. The post-test results showed that 22(73.33%) in the experimental group had gained adequate knowledge, whereas most samples, 20(66.67%), in the control group continued to have inadequate knowledge.

N=60

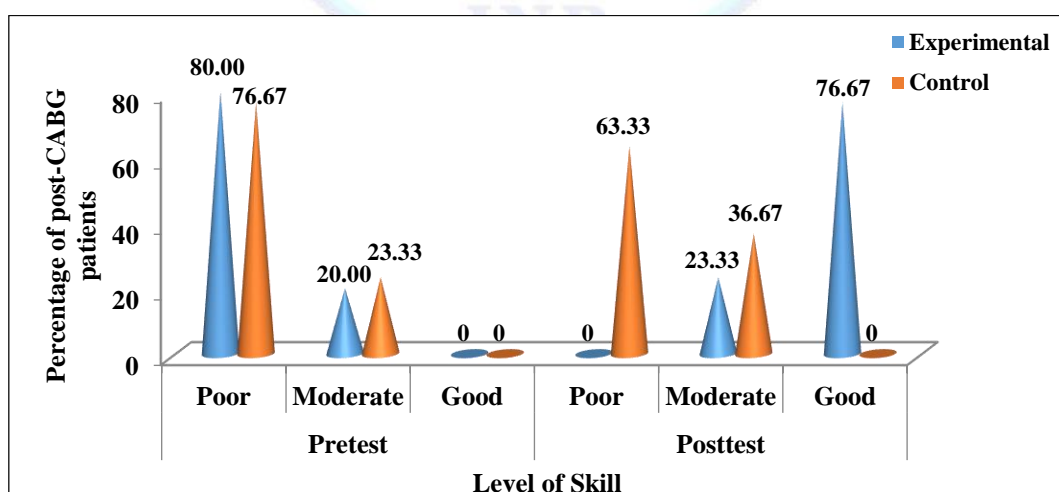


Figure 2: The overall pre and post-test level of skill

Figure 2 depicts the overall pre-test and post-test level of skill regarding LAP in the experimental and control group. In the pre-test, the majority of the patients, 24(80.00%) and

23(76.67%) in the experimental and control group respectively, had poor skill regarding LAP. The post-test results showed that 23(76.67%) in the experimental group had gained good level of skill, whereas most samples, 19(63.33%), in the control group continued to have poor skill.

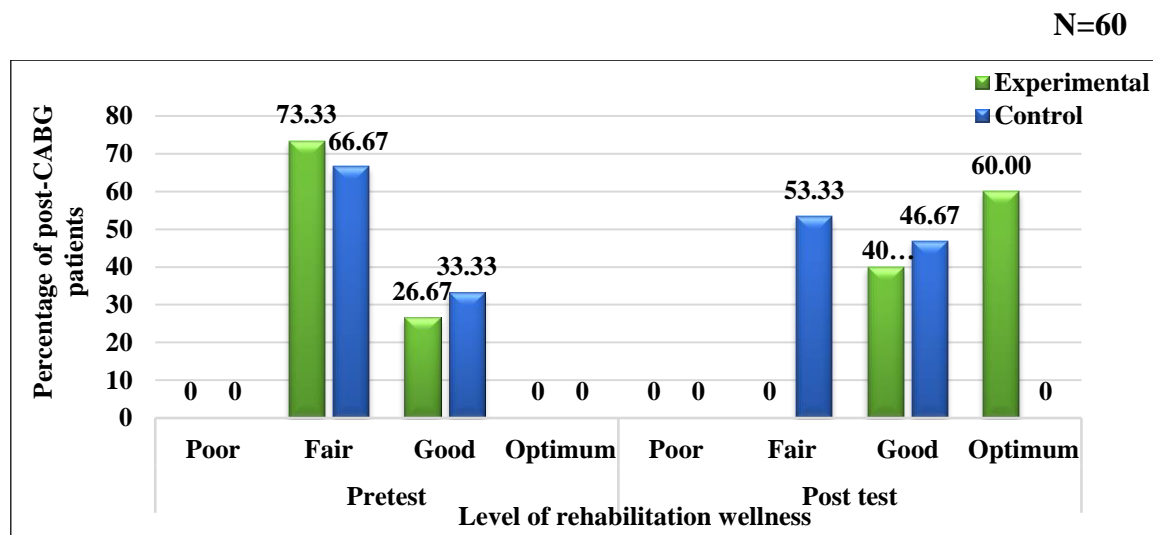


Figure 3: The overall pre and post-test level of rehabilitation wellness

Figure 3 depicts the overall level of pre and post-test level of rehabilitation wellness regarding LAP in the experimental and control group. In the pre-test, the majority of the patients, 22(73.33%) and 20(66.67%) in the experimental and control group respectively, had fair level of wellness regarding LAP. The post-test results showed that 18(60.00%) in the experimental group had gained optimum level of wellness whereas most samples, 16(53.33%), in the control group continued to have fair level of wellness.

Assessment of domain-wise pre and post-test knowledge, skill and rehabilitation wellness mean score

Table 1: Pre-test and post-test domain-wise knowledge mean score

N=60 (30+30)

Group	Domain-wise	Max score	Pre-test		Post-test	
			Mean score	% of Mean score	Mean score	% of Mean score
Experimental	Coronary artery disease	5	2.23	44.60	4.07	81.40
	Cardiac rehabilitation	3	1.17	39.00	2.43	81.00
	Pain management	2	0.40	20.00	1.63	81.50
	Wound care	2	0.43	21.50	1.53	76.50
	Diet	3	1.17	39.00	2.43	81.00
	Exercise	4	1.33	33.25	3.10	77.50

	Sleep	2	0.43	21.50	1.60	80.00
	Drug therapy	2	0.43	21.50	1.28	64.00
	Follow up	2	0.70	35.00	1.30	65.00
	Total	25	8.30	33.20	19.37	77.48
Control	Coronary artery disease	5	2.30	46.00	3.05	43.40
	Cardiac rehabilitation	3	1.13	37.67	0.88	40.00
	Pain management	2	0.50	25.00	2.00	28.50
	Wound care	2	0.53	26.50	1.28	33.50
	Diet	3	1.03	34.33	1.52	37.67
	Exercise	4	1.23	30.75	2.60	33.50
	Sleep	2	0.53	26.50	0.70	32.50
	Drug therapy	2	0.50	25.00	0.80	31.50
	Follow up	2	0.67	33.50	0.67	38.50
	Total	25	8.43	33.72	13.50	36.40

Table 1 shows the pre-test and post-test domain-wise knowledge mean score in the experimental and control group. Among the post-CABG patients in the experimental group, the pre-test total mean knowledge score was 8.30(33.20%) which had increased to 19.37(77.48%) in the post-test. On the other hand, in the control group the pre-test total knowledge scores had a very negligible change from 8.43(33.72%) to 13.50(36.40) in the post-test. In the experimental group, the domains of coronary artery disease, cardiac rehabilitation, pain management, diet and sleep showed the highest gain in percentage of mean knowledge score.

Table 2: Pre-test and post-test domain-wise skill mean score

N=60(30+30)

Group	Domain-wise	Max score	Pre-test		Post-test	
			Mean score	% of Mean score	Mean score	% of Mean score
Experimental	Deep Breathing & Coughing Exercise	8	2.90	36.25	6.00	75.00
	Arm Exercise	6	2.47	41.17	4.73	78.83
	Neck Stretch	6	2.50	41.67	4.93	82.17
	Trunk Rotation	6	2.03	33.83	4.73	78.83
	Leg Straightening	6	2.27	37.83	4.93	82.17
	Shoulder Rolls	8	2.53	31.63	5.90	73.75
	Total	40	14.70	36.75	31.23	78.08

Control	Deep Breathing & Coughing Exercise	8	2.73	34.13	3.00	37.50
	Arm Exercise	6	2.40	40.00	2.50	41.67
	Neck Stretch	6	2.67	44.50	2.90	48.33
	Trunk Rotation	6	1.90	31.67	2.00	33.33
	Leg Straightening	6	2.10	35.00	2.17	36.17
	Shoulder Rolls	8	2.57	32.13	2.67	33.38
	Total	40	14.37	35.93	15.23	38.08

Table 2 signifies that in the experimental group, the pre-test total mean score was 14.70(36.75%) which had increased to 31.23(78.08%) in the post-test. In the control group, the total mean score has just increased from 14.37(35.93%) in the pre-test to 15.23(38.08%) in the post-test. In experimental group, the highest gain in percentage of mean skill score was observed in the domain of neck stretch and leg straightening.

Table 3: Pre-test and post-test domain-wise rehabilitation wellness mean score

N=60(30+30)

Group	Domain-wise	Pre-test	Post-test
		% of Mean score	% of Mean score
Experimental	Physical functioning	43.67	65.80
	Role limitations due to physical health	42.33	69.43
	Role limitations due to emotional problems	44.00	80.77
	Energy/ fatigue	46.33	73.17
	Emotional well-being	51.27	71.17
	Social functioning	51.75	75.65
	Pain	44.77	67.15
	General health	49.33	74.13
	Total	46.68	72.15
Control	Physical functioning	42.67	45.43
	Role limitations due to physical health	43.33	45.73
	Role limitations due to emotional problems	45.33	46.77
	Energy/ fatigue	46.67	49.27
	Emotional well-being	51.67	52.43
	Social functioning	51.85	52.32
	Pain	46.40	47.33
	General health	49.67	51.03
	Total	47.20	48.79

Table 3 denotes that in the experimental group, the pre-test total % of mean score was 46.68% which had increased to 72.15% in the post-test. In the control group, the total % of mean score had very minimal change from 47.20% in the pre-test to 48.79% in the post-test. In the experimental group, the highest gain in percentage of mean rehabilitation wellness score was observed in the domain of role limitation due to emotional problems.

Effectiveness of the Lifestyle Adaptation Package on knowledge, skill and rehabilitation wellness among post-CABG patients

Table 4: Comparison of pre and post-test knowledge, skill and rehabilitation wellness mean score regarding LAP within the experimental and control group

N=60 (30+30)

Variable	Group	Pre-test		Post-test		Mean Difference	Student's paired t-test
		Mean	SD	Mean	SD		
Know-ledge	Experimental	8.30	2.09	19.37	1.87	11.07	t=23.20 P=0.001*** (S)
	Control	8.43	3.29	9.10	2.56	0.67	t=1.93 P=0.06 (NS)
Skill	Experimental	14.70	2.05	31.23	3.18	16.53	t=26.87 P=0.001*** (S)
	Control	14.37	1.47	15.23	2.27	0.86	t=1.89 P=0.06 (NS)
Rehabilitation wellness	Experimental	373.45	34.96	577.27	52.21	203.81	t=21.96 P=0.001*** (S)
	Control	377.58	37.27	390.32	46.09	12.73	t=1.94 P=0.06 (NS)

***Very highly significant at p=0.001, S-Significant, NS-Not significant

Table 4 signifies that in the experimental group, the pre-test mean score for knowledge, skill and rehabilitation wellness was 8.30, 14.70 and 373.45 which had increased to 19.37, 31.23 and 577.27 respectively in the post-test. The calculated t value for knowledge, skill and rehabilitation wellness was t=23.20, t=26.87 and t=21.96 respectively, which showed very high statistical significance at p=0.001.

In the control group, the pre-test mean score had just increased from 8.43, 14.37 and 377.58 to 9.10, 15.23 and 390.32 in the post-test, which showed no statistical significance when tested using the student paired t-test.

Table 5: Comparison of pre and post-test level of knowledge, skill and rehabilitation wellness mean score regarding LAP between the experimental and control group**N=60 (30+30)**

Variable	Assessment	Experimental (n=30)		Control (n=30)		Mean Difference	Student's independent t-test
		Mean	SD	Mean	SD		
Know-ledge	Pre-test	8.30	2.09	8.43	3.29	0.13	t=0.18 P=0.85 (NS)
	Post-test	19.37	1.87	9.10	2.56	10.27	t=17.73 P=0.001*** (S)
Skill	Pre-test	14.70	2.05	14.37	1.47	0.33	t=0.72 P=0.47 (NS)
	Post-test	31.23	3.18	15.23	2.27	16.00	t=22.42 P=0.001*** (S)
Rehabilitation wellness	Pre-test	373.45	34.96	377.58	37.27	4.13	t=0.44 P=0.66 (NS)
	Post-test	577.27	52.21	390.32	46.09	186.95	t=14.70 P=0.001*** (S)

***Very highly significant at p=0.001, S-Significant, NS-Not significant

Table 5 depicts that in the pre-test there was no statistically significant difference noted on comparison of mean knowledge, skill and rehabilitation wellness scores between the experimental and control group. In the post-test, the mean difference score was 10.27, 16.00 and 186.95 with t value of t=17.73, t=22.42 and t=14.70 for knowledge, skill and rehabilitation wellness respectively. These values showed very high statistical significance at p=0.001. This shows that LAP had significantly improved the knowledge, skill and rehabilitation wellness of post-CABG patients in the experimental group.

Correlation between the mean differed level of knowledge, skill and rehabilitation wellness among post-CABG patients

Table 6: Correlation between the mean differed level of knowledge, skill and rehabilitation wellness**N=60**

Group	Variables	Mean difference ±SD	Karl Pearson Correlation Coefficient	Interpretation
Experimental (n=30)	Knowledge Vs Skill	11.07±0.48 16.53±0.62	r=0.46 p=0.01**	Moderate positive correlation
	Knowledge Vs Rehabilitation wellness	11.07±0.48 203.82±9.28	r=0.44 p=0.01**	

	Skill Vs Rehabilitation Wellness	16.53±0.62 203.82±9.28	r=0.40 p=0.01**	
Control (n=30)	Knowledge Vs Skill	0.67±0.34 0.87±0.45	r=0.17 p=0.34	Poor positive correlation
	Knowledge Vs Rehabilitation Wellness	0.67±0.34 12.73±3.79	r=0.16 p=0.30	
	Skill Vs Rehabilitation Wellness	0.87±0.45 12.73±3.79	r=0.15 p=0.32	

**Highly significant at p=0.01, S-Significant, NS-Not Significant

Table 6 reveals the correlation between the mean differed score of knowledge, skill and rehabilitation wellness among post-CABG patients in the experimental and control group, analysed using the Karl Pearson Correlation Coefficient. There was highly significant moderate positive correlation observed between the mean differed levels of knowledge, skill and rehabilitation wellness with an r value of r=0.46, r=0.44 and r=0.40, respectively at p=0.01 in the experimental group.

In the control group, the comparison of these variables revealed only a poor positive correlation.

Association of selected background variables with mean differed knowledge, skill and rehabilitation wellness score among post-CABG patients in the experimental and control group

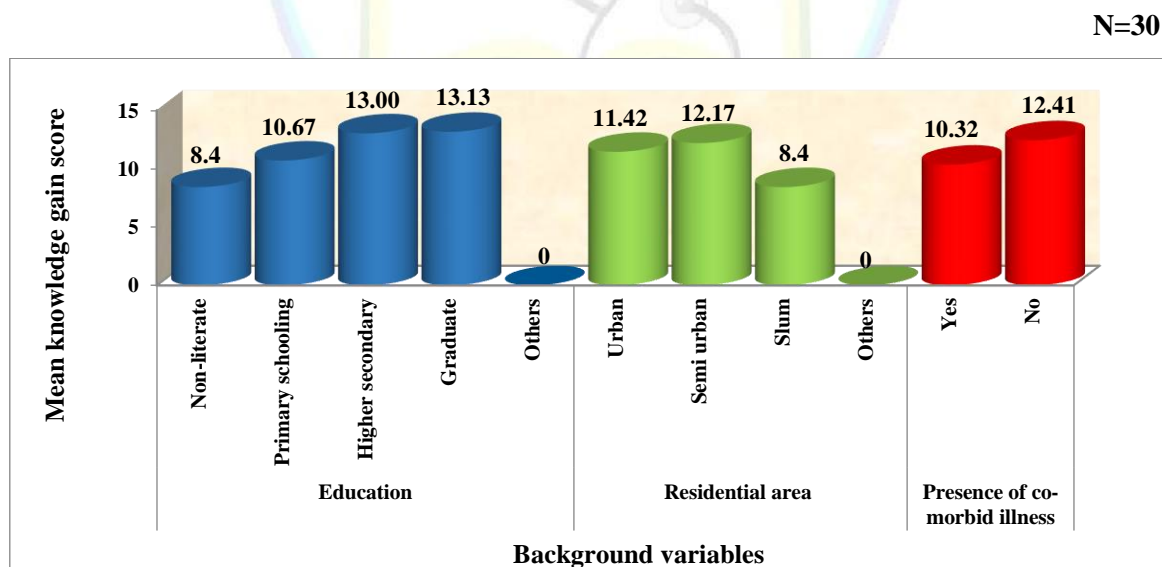


Figure 4: Association of selected background variables with knowledge mean in the experimental group

Figure 4 reveals a significant association of different background variables such as education (graduates), residing area (semi urban) and co-morbidities (no comorbidities) with

knowledge gain score which was statistically significant at $p=0.01$, $p=0.05$ and $p=0.05$ respectively.

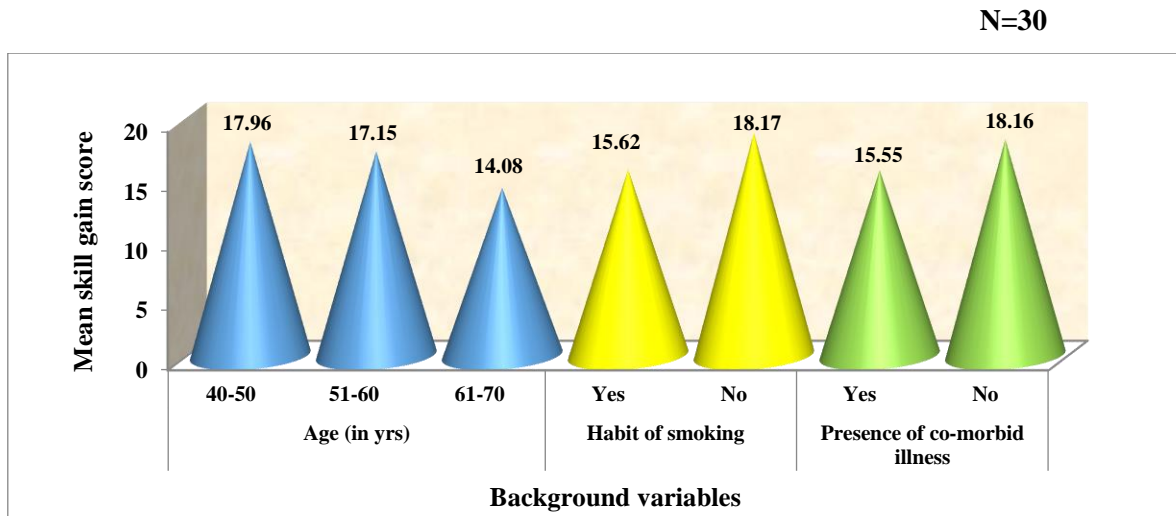


Figure 5: Association of selected background variables with mean skill in the experimental group

Figure 5 reveals the association between background variables and skill mean. A high statistically significant association was identified for background variables such as age (40-50years), smoking (non-smokers) and comorbidities (no comorbidities) with skill gain score at $p=0.05$.

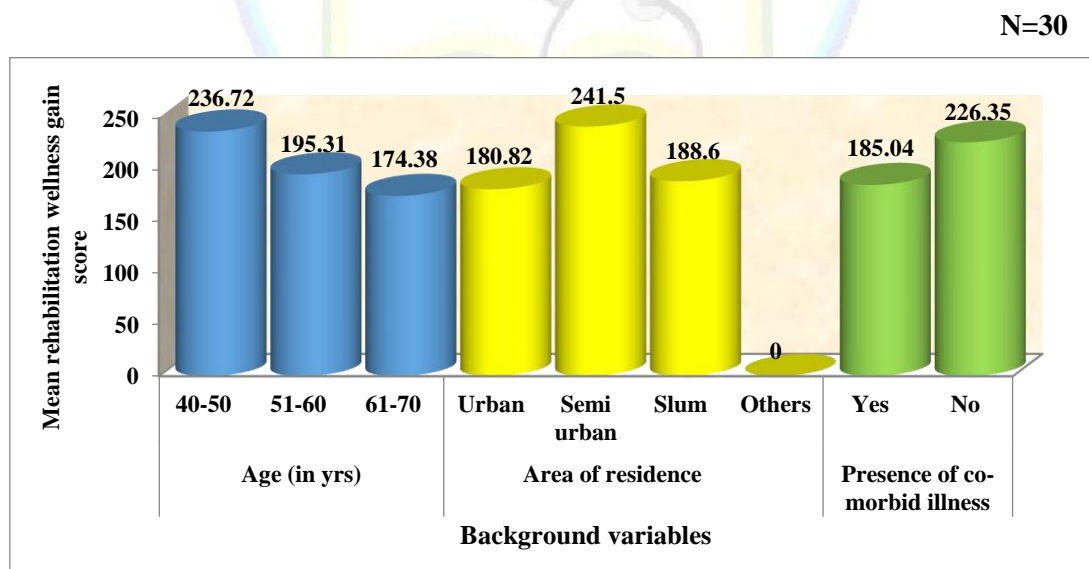


Figure 6: Association of selected background variables with mean rehabilitation wellness score in the experimental group

The figure 6 shows the association between background variables and rehabilitation wellness gain score. A high statistically significant association was identified for background

variables such as age (40-50 years), area of residence (semi-urban) and presence of comorbidities (no comorbidities) with rehabilitation wellness gain score at $p=0.05$.

The rest of the background variables in the experimental group and none of the variables in the control group showed any statistically significant association with the mean differed knowledge, skill and rehabilitation wellness gain score.

V DISCUSSION

Concerning the comparison of the means of knowledge, skill and rehabilitation wellness score regarding LAP among post-CABG patients in the experimental group, the pre-test mean score for knowledge, skill and rehabilitation wellness was 8.30, 14.70 and 373.45 which had increased to 19.37, 31.23, and 577.27 respectively in the post-test. The calculated 't' value for knowledge, skill and rehabilitation wellness was $t=23.20$, $t=26.87$ and $t=21.96$ respectively, which showed very high statistical significance at $p=0.001$. In the control group, the mean score had only minimal increase from 8.43, 14.37 and 377.58 in the pre-test to 9.10, 15.23 and 390.32 in the post-test, which showed no statistical significance when tested using the student-paired t-test.

The comparison of pre and post-test level of knowledge, skill and rehabilitation wellness mean score between the experimental and control group revealed that in the pre-test, there was no statistically significant difference noted, whereas in the post-test, the mean difference score was 10.27, 16.00 and 186.95 with t values of $t=17.73$, $t=22.42$ and $t=14.70$ for knowledge, skill and rehabilitation wellness respectively. These values showed very high statistical significance at $p=0.001$.

These study findings were consistent with the study performed by Kandakurti, P. K., et al (2020) among 60 post-CABG samples divided into 2 groups to measure the effectiveness of supervised versus unsupervised home-based CR. Education and exercise were important components of the CR program. The study findings showed statistical significance in both groups and concluded that both supervised and unsupervised home-based CR improved the health-related quality of life and prevented complications among post-CABG patients.⁷

The correlation between variables in the experimental group was calculated using Karl Pearson's Correlation Coefficient. There was highly significant moderate positive

correlation observed between the mean differed levels of knowledge, skill and rehabilitation wellness with the value of $r=0.46$, $r=0.44$ and $r=0.40$ respectively, in the experimental group. This indicated that the enhancement of knowledge and improved skill following LAP influenced a favourable enhancement in the level of rehabilitation wellness of post-CABG patients.

A high statistically significant association was identified for the background variables of education, area of residence and presence of co-morbidities in the experimental group. Among these variables, samples who were graduates, living in semi urban area, and were free of comorbidities had higher knowledge gain score at $p=0.01$, $p=0.05$ and $p=0.05$.

Association of background variables with mean differed skill score at $p=0.05$ was identified for samples aged between 40-50 years, non-smokers and those who were comparatively healthier in the experimental group.

Association of background variables with mean differed rehabilitation wellness score at $p=0.05$ was identified for samples aged between 40-50 years, residing in semi urban area and no comorbidities in the experimental group. The rest of the background variables in the experimental group and none of the variables in the control group showed any statistically significant association with the mean differed knowledge, skill and rehabilitation wellness gain score.

The study results revealed that LAP had significantly improved the knowledge, skill and rehabilitation wellness of post-CABG patients in the experimental group. This proved the effectiveness of LAP in enhancing the ability of post-CABG patients to adapt better to modifications in their lifestyle, comply with the treatment regimen and thereby, enhance their quality of life.

Nursing implications

Nurse educators can incorporate LAP in the nursing curriculum at various levels, emphasising the importance of cardiac rehabilitation for post-CABG. The nurse must educate the patients about LAP to promote post-CABG cardiac rehabilitation wellness and to bring about a desirable change in lifestyle pattern. Clinical nurses can ensure the implementation of LAP to improve the quality of life among post-CABG patients. Administrators can provide cost-effective healthcare services to post-CABG patients by creating the standard interventional package as a module and incorporating it into the regular post-CABG protocol.

Nurse researchers can initiate more research studies in cardiovascular disease, especially on post-CABG wellness promotion.

Limitations

The researcher found difficulty in getting setting permission to conduct the study. The data was collected by interview method considering the post-op day in both groups. The investigator had access to only limited related Indian reviews and nursing studies regarding knowledge, skill, and rehabilitation wellness for post-CABG patients.

V CONCLUSION

The present study aimed to assess the effectiveness of the Lifestyle Adaptation Package among post-CABG patients. The study findings revealed that in comparison to the control group, the experimental group showed a statistically significant improvement in the level of knowledge, skill and rehabilitation wellness following the administration of the Lifestyle Adaptation Package which was devised by the investigator. Hence, the Lifestyle Adaptation Package can be incorporated as an integral component of the comprehensive healthcare services rendered to post-CABG patients to augment their adaptability and compliance towards lifestyle modification, thus enhancing QOL.

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VIII CONFLICT OF INTEREST: None declared

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X CONTRIBUTORS

KB: Conceptualisation of the study, collection and analysis of the data, writing the manuscript, finalised the manuscript and will act as the guarantor of the paper.

JR: Conceptualisation of the study, writing and finalisation of the manuscript; edited and critically evaluated the manuscript. **KS & CD:** Guided throughout the study process; edited and critically evaluated the manuscript.