



## A STUDY TO ASSESS THE EFFECTIVENESS OF PLANNED TEACHING PROGRAM ON KNOWLEDGE REGARDING RISK FACTORS OF CORONARY ARTERY DISEASE AMONG PATIENTS WITH STABLE ANGINA IN A SELECTED HOSPITAL OF KASHMIR.

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Coronary artery disease (CAD) is the leading cause of death worldwide. It is assuming a serious dimension in developing Countries. In India, an estimated 1.5 million people die of Coronary artery disease every year There has been a considerable increase in the prevalence of coronary heart disease in urban areas of India during the last decade.

So, Nurse should educate the patients about condition, risk factors and modification of risk factors of coronary artery disease so that they can adhere strictly to healthy lifestyle, to prevent further complications.

**Aim:** The aim of the study was to determine the effectiveness of planned teaching program me on knowledge regarding risk factors of coronary artery disease and to find out the association between pre-test knowledge score among patients with stable angina with their selected demographic variables (age, gender, education and residence)

**Materials and methods:** A pre- experimental study was conducted using one group pre- test, post -test design to assess the knowledge regarding risk factors of coronary artery disease among patients with stable angina in selected hospital of Kashmir. The study was conducted in a cardiology department of skims (soura) srinagar. The sample was selected by purposive sampling technique. The sample size was 50. Structured interview schedule was used to assess the knowledge of patients with stable angina, Intervention was done in the form of planned teaching programme and post test was done on 3rd day of intervention.

**Results:** Findings of the study revealed that The (Mean±SD) post-test knowledge score i.e. (30.00±5.07) was greater than (Mean±SD) pre-test knowledge score i.e.(21.24± 4.96) with Mean difference 8.76 which was highly significant( p<0.001). Therefore it is evident that planned Teaching Program me was effective in increasing the knowledge of patients with stable angina regarding risk factors of coronary artery disease.

The association of demographic variables with pre test knowledge scores was analyzed by using chi square test, The study revealed that there was no significant association between the pre -test knowledge score and selected demographic variables (age residence,) But pre test knowledge score has significant association with education and gender. Hence the Null hypothesis which states that "there is no significant association between pre-test knowledge score regarding risk factors of coronary artery disease among patients with stable angina with their selected demographic variables (age, gender, education, residence)" was partially accepted and partially rejected.

**KEYWORDS :** planned teaching programme; risk factors of coronary artery disease, knowledge of patients with stable angina

**Introduction:**

*The most common chronic heart disease is caused by greediness in heart. Go for checkups & learn how to swallow those lumpy pills of generosity (Isaelmore Ayivor)*

Coronary artery disease (CAD), is also called Coronary arteriosclerosis. It is the most common type of heart disease. Coronary artery disease occurs when the arteries that supply blood to heart muscle become hardened and narrowed. Coronary arteries normally supply the myocardium with blood to meet its metabolic needs during varying workload. Myocardial ischemia develops if the blood supply or oxygen content of the blood is inadequate due to occlusion of coronary arteries by build-up of cholesterol and other material, called plaque, on their inner walls. This build-up is called atherosclerosis, with the result they cannot dilate sufficiently to supply the myocardium with blood for normal workload. After several minutes of ischemia, the heart's pumping function is reduced. This reduction deprives the cells of much needed oxygen & glucose. The cells convert to an anaerobic metabolism that leaves lactic acid as waste product. As the lactic acid accumulates, chest pain (angina) or heart attack can occur.

Angina pectoris is a chest pain resulting from myocardial ischemia (in adequate blood supply to myocardium) Angina can be stable or unstable angina; Stable angina, a predictable & consistent chest pain that occurs on exertion and is relieved by rest & nitro-glycerin, Unstable angina; occurs with increasing frequency, severity & duration. The pain is unpredictable, may not be relieved by rest or nitroglycerin<sup>7</sup>.

Risk factors that precipitate coronary artery disease include, both non modifiable risk factors and modifiable risk factors, A non modifiable risk factors are the circumstances over which an individual has no control they are; age, sex, family history of heart disease, post menopausal, race, personality type, Modifiable risk factors are those over which individual may access control they are: Hypertension, diabetes, smoking, physical inactivity, sedentary lifestyle, stress alcohol consumption and high serum cholesterol.

According to existing knowledge, coronary artery disease epidemics are essentially preventable. For example, coronary artery disease

mortality has fallen one-third to one-half in the last three decades in majority of developed countries. The reasons for the accelerated decline in coronary artery disease mortality from 1980-1990 were analyzed. It was found that 25% of the decline was due to primary prevention, 29% due to secondary prevention and 43% was due to improvements in treatments of patients. This demonstrates that modification of risk factors related to lifestyle in the entire nation, rather than advances in management of few with overt CAD is largely responsible for dramatic decline of coronary artery disease mortality in the developed countries

**Need for the study:**

The burden of coronary heart disease is rising both in developed and developing countries. But burden is rising in developing countries; because of much larger population size and wide spread exposure to increased levels of risk factors such as unhealthy diet, physical inactivity, obesity, tobacco use, diabetes, increased blood pressure and abnormal lipid levels.

According to WHO bulletins, 1.2 million Indians died from heart disease in 1990 and predicted that by 2010, 100 million Indians had heart disease (25% of all cardiac patients globally) and by 2020, India will supersede all other nations in terms of coronary artery disease prevalence by 2.6 million deaths.

While coronary artery disease remains the number one cause of death in the western world, angina pectoris is a central component of the burden of coronary disease and affects 6,400,000 Americans, of these 2,400,000 are men and 4,000,000 are women. According to Framingham Heart study, approximately 400,000 new cases of angina occur each year.

Study conducted by **Bahl VK, AIIMS, Delhi** (2006) reported that in year 2020, India will have the largest cardiovascular burden in the world". He adds that among Indians. Coronary artery diseases tend to occur earlier in life than in any other ethnic group

In the state of Jammu and Kashmir, the population like any other developing community is undergoing lifestyle changes but the unusual stress and strain for the last 15 years of the disturbed situation in

state apparently has contributed to increase the prevalence of Coronary artery disease. Therefore an epidemiological study was conducted to assess the prevalence of coronary artery disease in both rural and urban areas of the valley. This study was carried out in the rural and urban areas of the twin districts of Anantnag and Srinagar by random sampling. The total population of the study area comprised of 44,305 persons out of which the target population was 13,893. The study was carried out on 3128 (23%) subjects (2284 males and 844 females) aged 40 years and above. The overall prevalence of coronary heart disease in the population studied by all diagnostic measures was 7.54%. The overall rural prevalence was 6.70% and urban prevalence was 8.37%. Prevalence of CHD was higher in males, i.e. 7.88% and slightly lower in females, i.e. 6.63%.

Public awareness programme is the best instrument in the prevention of occurrence of coronary artery disease by helping people to take care of their own health. Today, coronary artery disease is the most prevalent non-communicable disease, so educating the patients with stable angina, helps them to know about the risk factors and their modification.

This insight leads the investigator to assess the knowledge among patients with stable angina and to prepare and evaluate the effectiveness of planned teaching programme on knowledge regarding risk factors of coronary artery disease.

**Statement of the problem:**

A study to assess the effectiveness of planned teaching program on knowledge regarding risk factors of coronary artery disease among patients with stable angina in a selected hospital of Kashmir.

**Objectives of the study:**

1. To assess the pre-interventional(pre test) knowledge score regarding the risk factors of coronary artery disease among patients with stable angina in a selected hospital of Kashmir.
2. To assess the post-interventional(post test) knowledge score regarding coronary risk factors of coronary artery disease among patients with stable angina in a selected hospital of Kashmir.
3. To assess the effectiveness of planned teaching programme by comparing pre-interventional (pretest) and post-interventional (post test) knowledge scores of the patients with stable angina in a selected hospital of Kashmir.
4. To associate the pre-test knowledge score regarding risk factors of coronary artery disease among patients with stable angina with their selected demographic variables (age, gender, education, residence)

**Hypothesis:**

**H1:** There is significant increase in the post test knowledge score regarding risk factors of coronary artery disease among the patients with stable angina at 0.05 level of significance.

**H2:** There is significant association between pre-test knowledge scores regarding risk factors of coronary artery disease among patients with stable angina with their selected demographic variables (age, gender, education, residence) at 0.05 level of significance.

**Conceptual framework:**

The Conceptual framework of the present study is based on Ludwig Von Bertalanoffys General Systems Theory (1950) or system model developed by WHO in 1985. This model is aimed at assessing “the effectiveness of planned teaching programme on knowledge regarding risk factors of coronary artery disease among patients with stable angina in a selected hospital of Kashmir”. The conceptual frame work for the present study is divided into following phases,i.e input, process, output.

**Materials and Methods:**

The research design selected for this study was Pre Experimental One Group Pre Test Post Test Design, structured interview schedule was administered to the patients with stable angina in a selected hospital of Kashmir, a Pre Test measure & the Treatment/ Intervention was in the form of planned Teaching Programme & the Post Test was taken after giving Intervention.

The study was conducted in a cardiology department of skims soura Srinagar , Kashmir. The sample of 50 stable angina patients on the basis of inclusion and exclusion criteria was selected by using

purposive sampling technique. The tool used for the study i.e structured interview schedule consists of 2 sections . section 1 consisted of Items related to demographic variables such as ( Age, gender, education, residence) section II consists of items related to Anatomy and physiology of heart and blood vessels (4 items), description of coronary artery disease ( 9 items), risk factors of coronary artery disease (12 items), Modification of risk factors of coronary artery disease (15 items). The content validity of structured interview schedule was ensured by submitting the tool to the experts who had specialization in various areas. A pilot study was conducted on 10% of total sample size at cardiology department skims Srinagar. Reliability of tool was established by Karl Pearson's Correlation coefficient. The reliability coefficient of tool was calculated and it was 0.88. Hence tool was found to be reliable.

**Results and Findings**

In this study, 50 patients with stable angina participated. The data and the findings were entered in a master data sheet followed by the analysis and interpretation using descriptive statistics (i.e. frequency, percentage, mean, median and standard deviation) and inferential statistics (i.e. t-test and chi-square) according to the objectives of the study. The results obtained were presented in the following headings: .

**Section I:** Distribution of study subjects with stable angina according to demographic variables.

**Table 1: Distribution of study subjects with stable angina according to demographic variables**

N=50

Age in years	Study subjects	
	Frequency	Percentage
30-40	3	6%
40-50	15	30%
<b>50-60</b>	<b>32</b>	<b>64%</b>
<b>Gender</b>		
<b>Male</b>	<b>35</b>	<b>70%</b>
Female	15	30%
<b>Residence</b>		
Rural	20	40%
<b>Urban</b>	<b>30</b>	<b>60%</b>
<b>Education</b>		
<b>illiterate</b>	<b>25</b>	<b>50%</b>
primary	2	4%
middle	15	30%
secondary	2	4%
graduate	5	10%
postgraduate	1	2%

**SECTION-2:** Analysis and interpretation of knowledge scores of study subjects with stable angina regarding risk factors of coronary artery disease.

**Table 2: Distribution of study subjects with stable angina according to pre test knowledge scores regarding risk factors of coronary artery disease.**

N=50

Pre test Knowledge score	No of study subjects	
	Frequency	Percentage
Highly Adequate (31-40) >75 %	24	48%
Moderately Adequate (21-30) 50-75 %	25	50%
Inadequate (0-20) <50 %	1	2%

The data presented in table. 1 shows that most of the study subjects with stable angina i.e. 25(50%) had moderately adequate knowledge, 24(48%) had inadequate knowledge and only 1(2%) had highly adequate knowledge in the pre test.

**Table: 3 Distribution of study subjects with stable angina according to post- test knowledge score regarding risk factors of coronary artery disease.**

N=50

Post test knowledge score	No of study subjects	
	Frequency	Percentage
Highly Adequate (31-40) >75 %	21	42%
Moderately Adequate (21-30) 50-75 %	25	50%
Inadequate (0-20) <50 %	4	8%

The table.3, depicts that the most the of the study with stable angina i.e. 25 ( 50 %) had moderately adequate, 21(42%) had highly adequate knowledge and 4 (8%) had inadequate knowledge in the post test .

**Table 4: Mean, Median, Range, Standard deviation, Mean percentage of pre-test knowledge score of study subjects with stable angina**

N=50

Pre-test Knowledge score	Mean± S.D	Median	Maximum	Minimum	Range	Mean%
	21.24± 4.96	21	32	12	20	53.10

Table.4 shows that pre-test (Mean±SD) knowledge score of the study subjects with stable angina was (21.24± 4.96), Median was 21, Range was 20, and Mean percentage i.e 53.10%

**Table 5: Mean, Median, Range, Standard deviation, Mean percentage of post-test knowledge score of study subjects with stable angina.**

N=50

Post-test Knowledge score	Mean± S.D	Median	Maximum	Minimum	Range	Mean %
	30.00±5.07	30	40	19	21	75

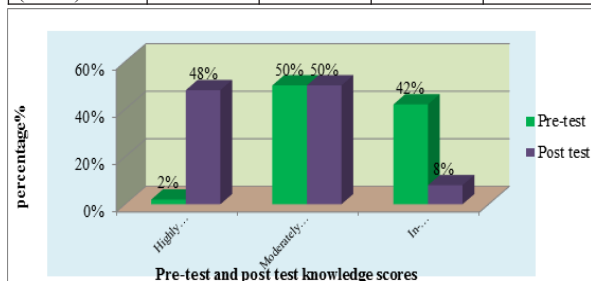
Findings shown in table 5 depicted that Post-test (Mean±SD) knowledge score of the study subjects with stable angina was (30±5.07), Median was 30, Range was 21 and Mean percentage which was 75%.

**Section: 3** Comparison between pre-test and post-test knowledge scores of study subjects regarding risk factors of coronary artery disease.

**Table 6: Frequency and percentage distribution of pre and post test knowledge score of the study subjects with stable angina regarding risk factors of coronary artery disease**

N=50

Pre test and post test Knowledge scores	No of study subjects in Pre-test		No of study subjects in Post-test	
	Frequency	Percentage	Frequency	Percentage
Inadequate (0-20)<50%	24	48%	4	8%
Moderately adequate (21-30)51-75%	25	50%	25	50%
Highly adequate (31-40) >75%	1	2%	21	42%



**Fig 1: Pre test and Post test knowledge level scores of the study subjects with stable angina(N=50)**

The data presented in table. 6 and fig 1, shows that in pre-test most of the study subjects with stable angina i.e. 25(50%) had moderately adequate knowledge, 24(48%) had inadequate knowledge, and least of the study subjects with stable angina i.e 1(2%) had highly adequate knowledge. In the post-test, most of the study subjects with stable angina i.e. 25(50 %) had moderately adequate knowledge, 21(42%) had highly adequate knowledge and only few study subjects with stable angina i.e. 4(8%) had inadequate knowledge regarding risk factors of coronary artery disease.

**Table 7: Comparison between pre-test and post-test knowledge score of study subjects with stable angina according to areas of knowledge of risk factors of coronary artery disease**

N=50

Areas of knowledge	Mean±SD		Mean percentage		Mean difference	Paired t test	P value
	Pre-test	Post test	Pre test	Post test			
i) Anatomy and physiology of heart and blood vessels	1.74± 1.01	2.84± 1.13	43.50	71.00	1.10	7.66	<0.001*
ii) Description of coronary artery disease	4.38± 1.61	6.44± 1.46	48.67	71.56	2.06	10.47	<0.001*
iii) Risk factors of coronary artery disease	7.40± 1.90	9.60± 1.64	61.67	80.00	2.20	13.01	<0.001*
iv) Modification of risk factors of coronary artery disease	7.72± 2.23	11.12 ±2.23	51.47	74.1	3.40	10.73	<0.001*

Significant=\*

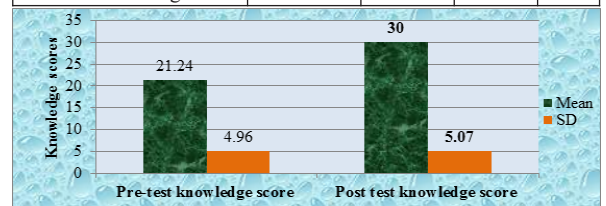
Table.7 shows that (Mean±SD) knowledge score among patients study subjects with stable angina was higher in the areas of “Modification of risk factors of coronary artery disease” i.e. (11.12±2.23) followed by “Risk factors of coronary artery disease” i.e. (7.1 ±1.64) followed by “Description of coronary artery disease” i.e. (6.44±1.46) followed by “Anatomy and physiology of heart and blood vessels” i.e. (2.84±1.13) than those of the respective areas in pretest i.e. (7.72± 2.23), (7.40±1.90), (4.38±1.6), (1.74±1.01) respectively at significance level of <0.001 .

This indicated that there was highly significant difference between pre-test and post-test section wise mean score. Therefore planned teaching programme increased knowledge score of the study subjects with stable angina regarding risk factors of coronary artery disease.

**Table 8: Comparison of Mean and Standard deviation of study subjects with stable angina in the pre test and post test**

N=50

Knowledge score	Mean±S.D	Mean difference	Paired t test	P value
Pre test knowledge score	21.24±4.96	8.760	18.40	*0.001
Post test knowledge score	30.00±5.07			



**Fig 2: Comparison of Mean and standard deviation of the subjects with stable angina in pre test and post-test (N=50)**

It is evident from the data presented in table. 8 and fig 2 that post test (Mean±SD) knowledge score i.e (30± 5.07) of the study subjects with stable angina was higher than pre test (Mean±SD) F=Frequency %age=percentage.

This support the research (H<sub>1</sub>) which states that the mean post test knowledge among study subjects with stable angina regarding risk factors of coronary artery is significantly higher than the mean pre-test knowledge score at the significant level of 0.05, hence Null hypothesis (H<sub>0i</sub>) which states that the there is no significant increase in mean post test knowledge regarding risk factors of coronary artery disease among patients with stable angina was rejected. The mean difference was a true difference not a chance.



## SECTION 4

**Association between pre-test knowledge scores of study Subjects with stable angina regarding risk factors of coronary artery disease with their selected demographic variables (age, gender, residence education).**

To test the association between mean knowledge score and selected demographic variable following null hypothesis was formulated

- $H_0$ . There is no significant association between pre-test knowledge scores regarding risk factors of coronary artery disease among patients with stable angina with their selected demographic variables (age, gender, residence, and education ) at 0.05 level of significance

**Table 9: Association of pre –test knowledge scores of study Subjects with stable angina regarding risk factors of coronary artery disease with their selected demographic variables like age, gender, residence education**

N=50

Demographic Variables	Highly Adequate	Moderately adequate	Inadequate	Chi square Test	P Value
<b>Age in years</b>				3.978	0.409 NS
30-40	0		3		
40-50	0	8	7		
50-60	1	17	14		
<b>Gender</b>				8.846	0.012 *
Male	1	22	12		
Female	0	3	12		
<b>Residence</b>				1.14	0.556 NS
Rural	0	9	11		
Urban	1	16	13		
<b>Education</b>				45.03	0.000 *
Illiterate	0	6	19		
primary	0	0	2		
Middle	0	13	2		
secondary	1	1	0		
graduate	0	4	1		
post graduate	0	1	0		

NS=Non Significant \* =significant

The data presented in table 9 shows that there was no significant association between pre-test knowledge among study subjects with stable angina with selected demographic variables (age, residence). But pre test knowledge score has significant association with education and gender. **Hence the Null hypothesis, which states that “there is no significant association between pre-test knowledge score and selected demographic variables” is partly accepted and partly rejected, it is rejected for education and gender and accepted for age and residence.**

**Discussion:**

According to pre test scores most of study Subjects i.e. (50%) had moderately adequate knowledge, (48 %) had inadequate knowledge, whereas only few of study Subjects (2%) had highly adequate knowledge. The (Mean  $\pm$ SD) knowledge score in the pre test was (21.24 $\pm$ 4.96).

The findings of the present study are consistent with the findings indirect studies conducted by **Padma K and Nagarathnam M** (2015) to assess level of knowledge on diet as a risk factor for coronary artery disease among 200 patients with coronary artery disease attending cardiology OPD, at Shri Venkateshwara Institute of Medical Sciences (SVIMS) Tirupati Andhra-pradesh (India). The findings of the study revealed that, majority of coronary artery disease patients 125 (62.5%) were having inadequate knowledge 64(32%) were having moderate knowledge and 11(5.5%) were having adequate knowledge. (Mean $\pm$ SD) knowledge score was (38.5 $\pm$ 18.2

During post test, majority of study Subjects i.e. 25 (50 %) had moderately adequate, 21(42%) had highly adequate knowledge and 4 (8%) had inadequate knowledge. The (Mean  $\pm$ SD) knowledge score in post test was (30 $\pm$ 5.07) which was higher than that of pre-test (21.24 $\pm$ 4.96). These findings are consistent with the results of studies conducted by **Tawalbeh LI , Ahmad MM** (2014) to assess the effectiveness of cardiac educational program on the level of

knowledge and adherence to healthy lifestyle among 102 patients with coronary artery disease in the north of Jordan (Saudi Arabia). The results revealed that the (Mean $\pm$ SD) knowledge scores before the application of the cardiac educational program was (8.70 $\pm$ 2.94). and the mean knowledge scores differed significantly one week after the application of the program (M= (18,73 $\pm$ 9.24) respectively, F = 17.08, P < 0.01.

The (Mean $\pm$ SD) post-test knowledge score (30 $\pm$ 5.07) was greater than Mean pre-test knowledge score (21.24 $\pm$ 4.96) with Mean difference 8.76 which was highly significant at (p<0.001). Therefore it is evident that Planned Teaching Programme was effective in increasing the knowledge of patients with stable angina. These findings are consistent with the findings of the study conducted by **Alex S , Ramesh A , Sahare V**(2014) Conducted an evaluated study the effectiveness of an Information Booklet on Knowledge Regarding Cardiac Rehabilitation among 50 Clients with Coronary Artery Disease in a selected Cardiac Hospital of Maharashtra India . The findings of the study revealed that the mean percentage of pre test knowledge score was 41.2% and post test knowledge score was 73.4%. The mean percentage gain from pre test to post test was 32.2%. at p<0.05 level of significance. (Mean $\pm$ SD) of pre test knowledge score was (12.36 $\pm$ 2.06). (Mean $\pm$ SD) of post test knowledge score was (22.02 $\pm$ 2.60).

There was no significant association between the pre -test knowledge score and selected demographic variables (age residence,) but pre test knowledge score had significant association with education and gender.

These findings are consistent with the study conducted by **Tawalbeh LI, Ahmad MM** (2014) , the results revealed that there was a strong correlation between the demographics of monthly income ,educational level, and gender and both knowledge and adherence to healthy lifestyle. On the other hand, a negative relationship was found between age and both knowledge and adherence to healthy lifestyle.

From the above findings it was clear that pre-test knowledge score had significant association education and gender. However there was no significant association between age and residence. Thus there was no effect of age and residence on knowledge scores of the study subjects, however education and gender has affected the knowledge scores of the study subjects. But the study has not used residence as the demographic variable as compared to present study.

**Recommendations:**

Keeping in view the findings of the study the following recommendations are made for further studies.

- The similar study can be replicated on a large sample, thereby findings can be generalized.
- A follow up of study can be conducted to evaluate the long term impact of Planned Teaching Programme in terms of knowledge retention.
- A descriptive study can be done on knowledge regarding risk factors of coronary artery disease among patients with stable angina.
- A similar study can be conducted in different settings i.e. communities, industries, schools and other institutions.
- A similar study can be done using other teaching strategies i.e. Self-instructional Modules.
- A similar study can be conducted on normal adults so as to promote primordial prevention.
- Regular antismoking campaigns need to be held to make people aware of risk factors of coronary artery disease.

**CONCLUSION:**

Based on the analysis of the findings, the following inferences were drawn. There was evident increase in the knowledge scores in all the areas included in the study after administration of PTP. Thus it was proved that PTP was effective in improving the knowledge regarding risk factors of coronary artery disease among patients with stable angina in a selected hospital of Kashmir.

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