Effectiveness of Health Education Programme on Knowledge Regarding Risk Factors of Coronary Artery Disease among Adults

Priya Sharma[1], Jansi K[2]

[1]Nursing tutor, Akal College of Nursing, Eternal University Baru Sahib

[2]Associate Professor, Akal College of Nursing, Eternal University Baru Sahib

Abstract: *Coronary artery disease is the most common form of heart disease. Worldwide, Coronary artery disease is becoming pandemic as developing countries experience the epidemiologic transition. To assess the knowledge regarding risk factors of CAD, the investigator chose samples using non randomized control group pre-test post-test design. Samples were selected by using non probability convenience sampling technique. The sample size was 60 comprising 30 participants in experimental group and 30 participants in control group. The data was collected through structured interview schedule. On 1st day after selection of subjects, pre tests were administered to both groups. The next day health education programme on risk factors of CAD was conducted to the experimental group only. Post-test was conducted after 5 days of pre-test for the control group and after 5 days of health education programme to the experimental group. There was a significant difference between pre-test and post-test knowledge scores in experimental group only (t=21.85, p<0.001). Present study findings revealed that the health education programme was effective in improving the knowledge of the adults regarding risk factor of coronary artery disease. So it is recommended that awareness raising programs could be beneficial for prevention of heart disease.*

Keywords: Coronary artery disease, knowledge, effectiveness of health education programme

1. Introduction

Coronary artery disease is the most common form of heart disease. It is estimated that nearly one half of all middle-aged men and one third of middle-aged women in the United States will develop some form of the disease. The 2016 Heart Disease and Stroke Statistics update of the AHA reported that 15.5 million people in the USA have CHD. Coronary artery disease (CAD) is the number one killer in the developed world, with over 7.4 million deaths attributed to CAD in 2012. Cardiovascular disease is the leading global cause of death, accounting for more than 17.3 million deaths per year in 2013, a number that is expected to grow to more than 23.6 million by 2030. In 2013, cardiovascular deaths represented 31 percent of all global deaths. Coronary Heart Disease is the leading cause (45.1 percent) of deaths attributable to cardiovascular disease in the US, followed by stroke (16.5 percent), Heart Failure (8.5 percent), High Blood Pressure (9.1 percent), diseases of the arteries (3.2 percent), and other cardiovascular diseases. A more serious leading cause behind CAD is Type 2 diabetes which is on the verge of becoming a pandemic in India. As type 2 diabetes shares several risk factors in common with coronary artery disease (CAD), such as age, hypertension, dyslipidemia, obesity, physical inactivity, and stress, an increase in the prevalence of diabetes indirectly implicates an escalating risk of CAD as well.

2. Review of Literature

A study was done to explore the prevalence of risk factors for coronary artery disease (CAD) in southern Punjab, Pakistan. The most prevalent coronary artery risk factors were physical inactivity (52.5 %), hypertension (52 %), poor dietary habits (48.5 %), fatty food consumption (47.5 %), obesity (38 %) and smoking (37 %), respectively. Other less common risk factors were diabetes (30 %) and family history of CAD (20 %). A cross sectional study was conducted in the outpatient departments of Guru TegBahadur Hospital, Ludhiana to assess the knowledge regarding preventive measures of CAD. The results revealed that only 15.33% of subjects had good level of knowledge, and 84.67% subject had poor level of knowledge regarding prevention of CAD. The highest mean knowledge score of 14.55 + 0.65 was in the age group of 41-50 years. The study suggested the need of awareness raising program regarding preventive measures of CAD to decrease the burden of such devastating disease.

Problem definition: A quasi experimental study to assess the effectiveness of health education programme on knowledge regarding risk factors of coronary artery disease among adults residing in selected areas of district Sirmour (H.P.).

Research approach: In this study, experimental research approach was used. The purpose behind choosing this approach was to measure the effect of independent variable on dependent variable.

Research design: The research design for the study was non randomized control group pre-test post-test design.
Research setting: The research study was conducted in the selected areas of Karyuth and Doondehriya in district Sirmour, (H.P).

Population
- **Target population:** Adults who were residing in selected areas of district Sirmour, Himachal Pradesh.

- **Accessible population:** Adults in the age range of 20-60 years residing in selected areas of Karyuth and Doon Dehriya in district Sirmour, (H.P) who were available at the time of data collection.
- **Sample:** Adults in the age range of 20-60 years residing in selected areas of Karyuth and DoonDehriya in district Sirmour, (H.P) who fulfilled the inclusion criteria.
- **Sampling technique:** In this study, non-probability convenience sampling technique was used for selection of samples.

3. Criteria for Sample Selection

Inclusion criteria
1) Adults in the age range of 20-60 years
2) Adults who were willing to participate in the study
3) Adults who could understand Hindi or English

Exclusion criteria
1) Adults who were suffering from any form of mental illness.
2) Adults who had attended similar health education programme 7 days prior.

Data collection instruments
Tool: It consists of structured interview schedule which has two sections:
Section A: Questions related to socio-demographic variables of the adults developed by the researcher.
Section B: Questions related to knowledge regarding risk factors of CAD.

4. Results

Section A: Frequency and percentage distribution of socio-demographic variables of the adults

Table 1: Frequency and percentage distribution of socio demographic variables, N=60

Variables	Experimental group		Control Group	
	f	%	f	%
Age in years				
20-30	5	16.7	6	20
31-40	8	26.6	10	33.3
41-50	10	33.3	6	20
51-60	7	23.4	8	26.7
Gender				
Male	10	33.3	16	53.3
Female	20	66.7	14	46.6
Education				
No formal education	3	10	5	16.6
Primary	6	20	4	13.4
Secondary	5	16.7	11	36.6
Higher secondary	14	46.7	10	33.4
Graduation and above	2	6.6	0	0
Occupation				
Private employee	1	3.3	3	10
Government employee	5	16.7	3	10
Self employee	20	66.7	19	63.4
Unemployed	4	13.3	5	16.6
Type of family				
Joint family	23	76.6	20	66.7
Nuclear family	7	23.4	10	33.3
Religion				
Hindu	30	100	30	100
Muslim	0	0	0	0
Sikh	0	0	0	0
Others	0	0	0	0
Family monthly income				
≤ 5000	16	53.4	10	33.3
5001-10000	11	36.7	13	43.4
10001-15000	2	6.6	6	20
≥15000	1	3.3	1	3.3
Family history of CAD				
Yes	1	3.3	8	26.6
No	29	96.7	22	73.4
Dietary habits				
Vegetarian	2	6.7	8	26.6
Non-vegetarian	28	93.3	22	73.4
Personal habits				
Smoking	5	16.6	13	43.3
Alcohol intake	2	6.7	2	6.7
Drug abuse	0	0	0	0
None of the above	23	76.7	15	50

Table 2: Mean and standard deviation of specific areas of knowledge regarding risk factors of CAD, N=60

Knowledge variables	Number of questions	Mean ± SD	Mean percentage (%)
General awareness regarding coronary artery disease and major risk factors	7	1.76 ± 1.55	25.23
Diagnostic tests	4	0.88 ± 0.82	22.08
Prevention	8	2.3 ± 1.26	28.75
Total	19		

Table 6 shows the mean, standard deviation and means percentage of variables which depicts that the mean percentage for the general awareness regarding coronary artery disease and major risk factors was 25.23% with a mean ± SD of 1.76 ± 1.55. The mean percentage was 22.08 regarding diagnostic tests for CAD with mean ± SD of 0.88 ± 0.82. Results have shown a slight higher mean percentage of knowledge regarding prevention and management of CAD which was 28.75 with a mean ± SD of 2.3 ± 1.26.

Section B: Comparison of pre-test and post-test knowledge scores of adults in experimental and control group

Table 3: Comparison of knowledge scores between experimental and control group, N=60

Level of knowledge	Experimental group	Control group	t- value	df	p-value
	Mean ± SD	**Mean ± SD**			
Pre-test	4.56 ± 1.79	5.36 ± 1.35	-1.951	58	0.5
Post-test	15.13 ± 2.12	5.26 ± 1.25	21.85	58	<0.001**
Mean difference	10.57 ± 0.33	-0.1 ± 0.1	25.41	58	<0.001**

**Highly significant at < 0.001 level of significance

Table 8 depicts that mean ± SD of the experimental group in the pre-test was 4.56 ± 1.79 (t= -1.951) whereas in the control group it was 5.36 ± 1.35 (t= -1.951). In the post-test of the groups, mean ± SD in the experimental group was 15.13 ± 2.12 (t=21.85) and for the control group it was 5.26 ± 1.25 (t=21.85). The mean difference in knowledge of the experimental group was 10.57 ± 0.33 SD after the implementation of the health education programme whereas there was no significant increase in the knowledge of the control group as the mean gain obtained in knowledge was -

0.1 ± 0.1 (t=25.41). The calculated p-value (p<0.001) is less than 0.05 level of significance which has shown that research hypothesis is accepted.

Distribution of pre-test and post-test knowledge scores regarding risk factors of CAD among adults in experimental and control group
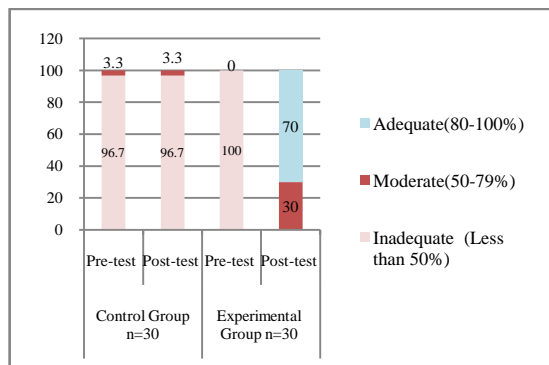

Figure 4: Distribution of pre-test and post-test knowledge scores regarding risk factors of CAD among adults in experimental and control group

Section C: Association between knowledge and selected socio demographic variables

Table 4: Association between knowledge and selected socio demographic variables, N=60

Variable	χ^2 calculated	χ^2 tabulated	df	p value
Age	3.05	7.82	3	.384
Sex	0.77	3.84	1	.378
Education	5.08	9.49	4	.279
Occupation	6.61	7.82	3	.085
Family monthly income	1.33	7.82	3	.722
Family history of CAD	5.76	3.84	1	.016*
Diet	.281	5.99	2	.869
Personal history	.589	5.99	2	.745

* Significant at 0.05 level of significance

Table 9 depicts that for most of the socio demographic variables i.e. age, sex, education, occupation, family monthly income, diet and personal history, the p-value is more than 0.05. For one socio-demographic variable i.e. family history of CAD, it has shown that the p value is less than 0.05 and the calculated chi square value is more than the tabulated value revealing that there is association between knowledge and family history of CAD at p<0.001. Hence the research hypothesis was accepted which says that there will be significant association between the pre-test level of knowledge scores with selected socio demographic variables among adults at 0.05 level of significance.

5. Discussion

Findings related to the pre-test knowledge of the adults regarding risk factors of CAD
This study was consistent with the findings of Rachel. A Hepsi (2014) on adolescents of selected schools on modifiable coronary artery disease risk factors found that 82.5% of the adolescents in the experimental group and 90% of the adolescents in the control group had inadequate knowledge in the pre-test and 17.5% of the adolescents in the experimental group and 10% in the control group had moderate knowledge and none of them had adequate.

Findings related to the comparison between pre-test and post-test knowledge scores
The present study findings is supported by a study conducted by Sharma K Rajesh (2013) to assess the effectiveness of planned teaching programme, on risk factors of coronary artery disease (CAD) to create knowledge and preventive health behavior among administrative employees. The results revealed that in experimental group the post-test mean knowledge score was higher than the mean pre-test knowledge score, (pre-test-4.56, post-test-15.13) whereas in control group there is very slight difference between pre-test and post-test knowledge score (pre test- 5.36, post test- 5.26).

Findings related to the effectiveness of health education programme on knowledge regarding risk factors of CAD
Study is supported by the findings of a study conducted by Ujwala Ramchandra to evaluate the effectiveness of structured teaching programme on knowledge regarding prevention of coronary artery disease among adults which has shown that the calculated paired "t" value (t=14.687) is greater. Hence H1 is to be accepted. This indicates that the gain in knowledge score is statistically significant P value < 0.0001 levels. There for the structured teaching programme on Prevention of CAD is effective in improving the knowledge of adults.

Findings related to association between knowledge and selected socio demographic variables
Similar study done by Sharma RK to find out the relationship between the pre-test knowledge scores and the demographic variables Chi-square test was computed. The computed chi-square value for demographic variables i.e age, sex, marital status, religion, food habits, educational qualification, sitting in office without physical mobility, getting health related information, watching health related programme on TV and attending seminar on heart disease, were less than table value. There was no significant association between these demographic variables and the pre-test level of knowledge, which suggests that the knowledge was independent of the risk factors.

6. Conclusion

The findings concluded that significant percentage of respondents had inadequate knowledge on risk factors of CAD. The pre test results have shown that the adults had inadequate level of knowledge regarding risk factors of CAD. After the implementation of health education programme to the experimental group, post test results shown that majority of adults acquired adequate level of knowledge where as in control group, majority of adults had inadequate level of knowledge. The mean post – test knowledge score was found to be significantly higher than the pre test score in the experimental group only. So it is recommended that awareness raising programs could be beneficial for prevention of heart disease.

7. Future Scope

A study can be replicated to assess the prevalence of CAD in rural areas on a wider sample thereby findings can be generalized for a larger population. A longitudinal study may be conducted to determine the effect of health education teaching programme on the knowledge, risk status and on the preventive health behavior of the adults.

A similar study can be conducted in different settings i.e. industries, hospitals, schools and other institutions. A study may be conducted to assess the association between the risk status for CAD and preventive health behavior for CAD of adults.

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Author Profile

Mrs. Jansi K, RNRM, PCBSc(N), MSc(N), DNA, Professor, ACN, Eternal University, Baru Sahib (H.P), 32 years of work experience in various clinical and educational settings, Worked as staff nurse at St. Marthas Hospital (1984-1989), Nurse Clinician at American Arabian Oil Company, Saudi Arabia, Nursing Matron at Santosh Hospital Bangalore

Priya Sharma, RN, MSN, Nursing Tutor, Akal College of Nursing, Eternal University, Baru Sahib (H.P), Masters in Nursing, Eternal University, Baru Sahib, Graduation from Pt. BD Sharma University of Health Sciences, Rohtak.