Original Research Article

A Study to Evaluate the Effectiveness of Self Instructional Module on Knowledge Regarding Prevention of Coronary Artery Disease among Middle Aged Women in Selected Urban Area, Bangalore

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ABSTRACT

Introduction: Cardiovascular disease (CVD) though has been perceived as a disease mainly affecting men. It is now becoming more accepted that cardiovascular disease is also the leading cause of death in women. Women have died from coronary artery disease than cancer (including breast cancer, chronic lower respiratory disease, Alzheimer disease and accidents combined).
Objective: The study was under taken to evaluate the effectiveness of self-instructional module on knowledge regarding prevention of coronary artery disease among middle aged women.
Method: A pre experimental research design was conducted on 60 middle aged women using purposive sampling. A structured knowledge questionnaire was used to collect the data. The data was analyzed using descriptive and inferential statistics and interpreted in terms of objectives and hypothesis of the study. The level of significance was set at 0.05 levels.
Results: The mean pretest knowledge score was 30.3% (SD of $\pm$ 12.9) whereas the mean post-test knowledge score was 87.8% (SD of $\pm$ 9.0). A significant association was found between the socio demographic variables such as age, menopause, dietary pattern, non-vegetarian preferred and sleeps pattern and the mean pretest knowledge scores of middle aged women on prevention of coronary artery disease (χ^2 value 15.61, 6.53, 5.44, 9.24, 7.59 at p< 0.05).
Conclusion: The findings concluded that self-instructional module was effective in enhancing the knowledge of middle aged women regarding the prevention of coronary artery disease.
Keywords: Coronary artery disease, knowledge, self-instructional module, middle age women, prevention

INTRODUCTION

Cardiovascular disease (CVD) has been perceived as a disease mainly affecting men. It is now becoming more accepted that CVD is also the leading cause of death in women. Over a lifespan, approximately the same proportion of the female population as the male population dies of complications resulting from CVD in the United States. [1]

Women have died from coronary artery disease than cancer (including breast cancer, chronic lower respiratory disease, Alzheimer disease and accidents combined). [2]

Coronary heart disease is the most common type of heart disease. In 2013, this disease caused over 8.1 million deaths globally. Major risk factors of coronary heart disease include smoking, physical inactivity, unhealthy diet, excessive alcohol consumption, overweight and obesity, elevated blood pressure, suboptimal blood

lipid levels, and increased blood glucose levels or diabetes. While coronary heart disease typically occurs in middle-age or later, its incidence usually reflects a cumulative exposure to coronary heart disease risk factors over decades. [3]

Heart disease in women is similar in many ways to heart disease in men. Like men, women can have high blood pressure and heart attacks. In fact, these are more prevalent in women than previously thought of the approximately 500,000 heart attack deaths each year, almost half occur in women, according to American Heart. Heart attack is almost unheard of in young women, and in the age group 45 to 54, six times as many men as women have heart attacks. [4]

Cardiovascular deaths in India are estimated to be 2.5 million per year. Prevalence of coronary artery disease in India is 3-4 folds higher than in America and Europe. It has been believed that public awareness programme & community education is the best instrument to create the knowledge and in the prevention of occurrence of coronary artery disease by helping people to take care of their own health. [5]

The general consensus is that heart disease is more prevalent in men but a recent study has revealed an alarming fact that women in India are equally prone to cardiovascular diseases. In India, in fact women are more at risk of heart disease today than 3 three years ago. The study was conducted in twelve leading metro and non-metro cities of India on 1.6 lakh urban Indians out of which, 32 % respondents were females and 92 % of all female respondents were less than 60 years of age. [6]

From the available literature reviewed it is evident that the prevalence of coronary artery disease among women varies across the world and it is one of the alarming problems in India. So the researcher is interested to evaluate the effectiveness of self-instructional module on knowledge regarding prevention of coronary

artery diseases among middle age women in selected urban area at Bangalore.

Objectives

- Assess the level of knowledge of middle age women on prevention of coronary artery disease in a selected urban area, Bangalore.
- Evaluate the effectiveness of a self-instructional module on knowledge regarding coronary artery disease among middle age women.
- Find the association of mean pretest knowledge score of middle age women regarding coronary artery disease with their selected socio demographic variables.

MATERIALS AND METHODS

The research design used in the study was pre- experimental one group pre test and post test design. The setting of the study was at Hegde Nagar (urban area), Bangalore. Non Probability purposive sampling technique was used. The target population for the study comprised of middle aged women (35-55years) residing by door to door survey after getting formal written permission from respective Medical Officer of the K. Narayanpura PHC at Bangalore. The study sample size consisted of 60 respondents those who fulfilled the inclusion criteria. Confidentiality was assured. Written consents were obtained. Women who are challenged mentally or found difficulty to complete questionnaire were excluded. Self-administered knowledge questionnaire prepared by researcher with 30 items related to coronary artery disease was used and data was analyzed by descriptive and inferential statistics on the basis of the objective and hypothesis of the study.

A questionnaire was administered to each of the respondents. Doubts were clarified in between. On an average it took approximately 30 minutes to complete the test. Then SIM was provided at the completion of the study with a brief explanation about its objectives and

contents. On the day 8th post test was conducted for all respondents.

Scoring and interpretation

The questions are phrased in multiple choice forms with four options, three as distracters and one as correct response. The correct response is given a score of one and incorrect response a zero score.

Table 1 Range of Resulting Knowledge Score

Knowledge score	Range	Percent (%)
Adequate knowledge	21-30	76- 100
Moderate knowledge	11-20	51-75
Inadequate knowledge	1-10	less than 50

Development of self-instructional module (SIM)

The SIM on knowledge regarding prevention of coronary artery disease was prepared after reviewing the research and non-research literature and seeking opinion of the subject guide.

The steps followed in the development of SIM are as follows.

1. Review of literature.
2. Organization of the content of SIM.
   a) General information regarding coronary artery disease.
   b) Risk factor and causes of coronary artery disease.
   c) Clinical manifestation and diagnosis of coronary artery disease.
   d) Prevention of coronary artery disease.
3. Assessment of the content validity of SIM.
4. Preparation of final draft of the SIM.
5. Editing the module.

Demographic data was analyzed by frequencies and percentage. The knowledge score before and after the administration of the self-instructional module was calculated by mean, standard deviation and 't' test. The effect of SIM was analyzed by paired 't' test. Association of socio-demographic variables with pre test knowledge score was done by chi square test.

RESULTS

Respondents Pre test Knowledge level on prevention of coronary artery disease

In table 2 shows that the samples 47(78.3%) out of 60 had inadequate level of knowledge, 13(21.7%) of them had moderate knowledge and none of them who participated in the study had adequate knowledge regarding prevention of coronary artery disease.

Table 2: Classification of Respondents Pre test Knowledge level on prevention of coronary artery disease   n=60

Knowledge Level	Category	Respondents	
		Number	Percent (%)
Inadequate	≤ 50 % Score	47	78.3
Moderate	51-75 % Score	13	21.7
Adequate	> 75 % Score	0	0.0
Total		60	100.0

Respondents aspect wise Pre test mean knowledge scores on prevention of Coronary artery disease

In table 3 shows that 42.2% of respondents gained the highest mean percentage score on risk factors and causes of coronary artery disease, and on other aspects such as knowledge on general information, clinical manifestation and diagnosis, the mean percentage aspect wise pre test knowledge scores were 20.8%, 24.4%, and 30.3% respectively.

Table 3: Classification of Respondents aspect wise Pre test mean knowledge scores on prevention of Coronary artery disease   n=60

No	Knowledge Aspects	Statements	Max Score	Respondents Knowledge			
				Mean	SD	Mean (%)	SD (%)
I	General information of CAD	2	2	0.42	0.6	20.8	30.7
II	Risk factors and Causes of CAD	3	3	1.27	0.7	42.2	22.7
III	Clinical manifestation and Diagnosis of CAD	3	3	0.73	0.6	24.4	20.1
IV	Prevention of CAD	22	22	6.67	3.1	30.3	14.1
Combined		30	30	9.08	3.9	30.3	12.9

Respondents based on overall of Post test knowledge scores on prevention of coronary artery disease

In table 4 shows that the samples 45(75%) out of 60 had adequate level of knowledge, 15(25%) of them had moderate knowledge. It is seen that in the post test that none of the

samples were having inadequate knowledge regarding prevention of coronary artery disease.

Table 4: Classification of respondents based on overall of Post test knowledge scores on prevention of coronary artery disease n=60

Knowledge Level	Category	Respondents	
		Number	Percent(%)
Inadequate	≤ 50 % Score	0	0.0
Moderate	51-75 % Score	15	25.0
Adequate	> 75 % Score	45	75.0
Total		60	100.0

Respondents based on aspect wise Post test Mean Knowledge scores on Prevention of Coronary artery disease

In table 5 shows that the respondents gained the highest mean percentage score of 88.8% in the aspect prevention of coronary artery disease and on other aspects such as knowledge on general information, risk factors and causes, clinical manifestation and diagnosis, the mean percentage aspect wise post test knowledge scores were 82.5%, 84.4%, 87.2%, and in combined 87.8% respectively.

Table 5: Classification of Respondents based on aspect wise Post test Mean Knowledge scores on Prevention of Coronary artery disease   n=60

No	Knowledge Aspects	Statement	Max. Score	Respondents Knowledge			
				Mean	SD	Mean (%)	SD (%)
I	General information of CAD	2	2	1.65	0.5	82.5	23.8
II	Risk factors and Causes of CAD	3	3	2.53	0.7	84.4	23.1
III	Clinical manifestation and Diagnosis of CAD	3	3	2.62	0.5	87.2	17.3
IV	Prevention of CAD	22	22	19.53	2.3	88.8	10.5
	Combined	30	30	26.33	2.7	87.8	9.0

Aspect wise Mean Pre test and Post test Knowledge on Prevention of Coronary artery disease

In table 6 shows the aspect wise comparison of the pre-test and post –test mean knowledge scores of the middle aged women regarding prevention of coronary artery disease. A paired 't' test was done to compare the mean pre-test and post-test knowledge scores on each aspects.

- For general information of coronary artery disease, the obtained 't' value is 13.81 which is found to be significant at 0.05 level t=1.96 (59df).
- In the area of risk factors and causes of coronary artery disease, the obtained 't' value is 10.79 which is also significant at 0.05 level t =1.96 (59df).

- Regarding clinical manifestation and diagnosis of coronary artery disease, the mean post test knowledge was found higher than the pre test knowledge scores. The obtained 't' value is 16.66 is significant at 0.05 level t=1.96 (59df).
- In the area of prevention of coronary artery disease area, the 't' value obtained is 28.68 which is found to be significant at 0.05 level t=1.96 (59df).

From the above statistical information, it is evident that the self-instructional module was significantly effective in enhancing the knowledge regarding prevention of coronary artery disease among middle aged women in selected urban area on all aspects.

Table 6: Classification of Respondents based on aspect wise Mean Pre test and Post test Knowledge on Prevention of Coronary artery disease   n= 60

No	Knowledge Aspects	Respondents Knowledge (%)						Paired 't' Test
		Pre test		Post test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	General information of CAD	20.8	30.7	82.5	23.8	61.7	34.6	**13.81***
II	Risk factors and Causes of CAD	42.2	22.7	84.4	23.1	42.2	30.3	**10.79***
III	Clinical manifestation and Diagnosis of CAD	24.4	20.1	87.2	17.3	62.8	29.2	**16.66***
IV	Prevention of CAD	30.3	14.1	88.8	10.5	58.5	15.8	**28.68***
	Combined	30.3	12.9	87.8	9.0	57.5	13.6	**32.75***

* Significant at 5% level   t (0.05, 59df) = 1.96

Association between Demographic variables and Pre- test Knowledge level on Prevention of Coronary artery disease

To determine the association between selected socio-demographic variables and the mean pre test knowledge level of middle aged women regarding prevention of coronary artery disease, a null hypothesis (H_0) was developed i.e. there is no significant association between the mean pre test score knowledge score of middle aged women and their selected socio demographic variables.

Inference:

From the table, it is evident that with regard to age group, the obtained chi-square (χ^2) value 15.61 is more than the table value (7.815, 3df, P<0.05) at 5% level of significance, based on this, the research hypothesis is accepted and null hypothesis is rejected, therefore there was significance association between age group and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to the education of middle age women, the obtained (χ^2) value 0.26 is less than the table value (7.815, 3df, P>0.05) at 5% level of significance, based on this, the research hypothesis is rejected and null hypothesis is accepted, therefore there was no significant association between the education and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regards to the, nature of occupation the obtained (χ^2) value 1.99 is less than the table value (7.815, 3df, P>0.05) at 5% level of significance, based on this, the research hypothesis is rejected and null hypothesis is accepted, therefore there was no significant association between the nature of occupation and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to the number of working hours, the obtained (χ^2) value 0.14 is less than the table value (5.991, 2df, P>0.05) at 5% level of significance, Hence, the research hypothesis is rejected and null hypothesis is accepted, therefore there was no significant association between the number of working hours and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to menopause, the obtained Chi-square (χ^2) value 6.53 is more than the table value (3.841, 1df, P<0.05) at 5% level of significance, based on this, the research hypothesis is accepted and null hypothesis is rejected, therefore there was significance association between menopause and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to religion, the obtained (χ^2) value 0.39 is less than the table value (5.991, 2df, P>0.05) at 5% level of significance, based on this, the research hypothesis is rejected and null hypothesis is accepted, therefore there was no significant association between the religion and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to diet, the obtained chi-square (χ^2) value 5.44 is more than the table value (3.841, 1df, P<0.05) at 5% level of significance, based on this, the research hypothesis is accepted and null hypothesis is rejected, therefore there was significance association between diet and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

When the socio-demographic variables prefer non vegetarian food considered, the obtained (χ^2) value 9.24 is more than the table value (7.815, 3df, P<0.05) at 5% level of significance. Hence, the research hypothesis is accepted and null hypothesis is rejected, therefore there was significance association between preference of non vegetarian food and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to sleep pattern, the obtained chi-square (χ^2) value 7.59 is more than the table value (5.991, 2df, P<0.05) at 5% level of significance, based on this, the research hypothesis is accepted and null hypothesis is rejected, therefore there was significance association between sleep pattern and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

With regard to the source of information on coronary artery disease, the obtained (χ^2) value 0.66 is less than the table value (7.8155, 3df, P>0.05) at 5% level of significance, based on this, the research hypothesis is rejected and null hypothesis is accepted, therefore there was no significant association between the source of information and pre test level knowledge of the middle aged women regarding prevention of coronary artery disease.

Table 7: Association between Demographic variables and Pre- test Knowledge level on Prevention of Coronary artery disease n=60

Demographic Variables	Category	Sample	Knowledge Level				χ^2 Value	P Value
			Inadequate		Moderate			
			N	%	N	%		
Age group (years)	35-40	27	23	85.2	4	14.8	**15.61***	P<0.05
	41-45	19	16	84.2	3	15.8		
	46-50	10	8	80.0	2	20.0		
	51-55	4	0	0.0	4	100.0		
Education	Primary	19	15	78.9	4	21.1	0.26 NS	P>0.05
	Secondary	25	20	80.0	5	20.0		
	Degree	11	8	72.7	3	27.3		
	Post graduate	5	4	80.0	1	20.0		
Nature of Occupation	Business	14	10	71.4	4	28.6	1.99 NS	P>0.05
	Labour	21	17	80.9	4	19.1		
	Service	20	17	85.0	3	15.0		
	Farmer	5	3	60.0	2	40.0		
Number of Working hours	Below 6	17	13	76.5	4	23.5	0.14 NS	P>0.05
	6-10	35	28	80.0	7	20.0		
	>10	8	6	75.0	2	25.0		
Menopause	Yes	28	26	92.9	2	7.1	**6.53***	P<0.05
	No	32	21	65.6	11	34.4		
Religion	Hindu	18	15	83.3	3	16.7	0.39 NS	P>0.05
	Muslim	30	23	76.7	7	23.3		
	Christian	12	9	75.0	3	25.0		
Dietary pattern	Vegetarian	21	20	95.2	1	4.8	**5.44***	P<0.05
	Non vegetarian	39	27	69.2	12	30.8		
Non vegetarian preferred	No	21	20	95.2	1	4.8	**9.24***	P<0.05
	Daily	12	6	50.0	6	50.0		
	Weekly	23	18	78.3	5	21.7		
	Monthly	4	3	75.0	1	25.0		
Sleep pattern (hours)	Less than 6	12	6	50.0	6	50.0	**7.59***	P<0.05
	6-10	35	29	82.9	6	17.1		
	>10	13	12	92.3	1	7.7		
Source of information	Mass media	11	8	72.7	3	27.3	0.66 NS	P>0.05
	Relatives	32	26	81.3	6	18.7		
	Health care personnel	11	8	72.7	3	27.3		
	Friends	6	5	83.3	1	16.7		
Combined		60	47	78.3	13	21.7		

Significant at 5% Level   **NS: Non-significant**

DISCUSSION

The main aim of the study was to evaluate the effectiveness of self instructional module on knowledge regarding prevention of coronary artery disease among middle aged women in selected urban area at Bangalore. Findings of this study revealed that self instructional module had significant effect on prevention of coronary artery disease.

In the present study, mean knowledge about risk factors and causes of coronary artery disease found that 42.2% of respondents gained the highest mean percentage but it is contrast to studies

conducted in Kerala poor mean knowledge regarding risk factors of CAD. [7]

It was observed that the 78.3% of respondents had inadequate knowledge scores about coronary artery disease which is very similar to the study conducted in Oman 60.5% had inadequate CHD knowledge scores. [8]

With regard to sleep pattern, the majority of respondents 82.9% sleep 6-10 hours per day which is similar to the study conducted in U.S that sleep durations are independently associated with a modestly increased risk of coronary events. [9]

CONCLUSION

Coronary artery disease can be prevented with better lifestyle choices, such as quit smoking, regular exercises, regular medical checkups, reduce alcohol consumption and eating a healthy diet. For practicing healthy lifestyle they should have sufficient knowledge on all these areas.

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