

Short Communication

A study to assess the effectiveness of community health nurse led educational module on modifiable risk factors of cardiovascular diseases among adults residing at selected urban areas, Chennai

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ABSTRACT

Knowledge is an important pre-requisite for implementing both primary as well as secondary preventive strategies for cardiovascular disease (CVD). There are no estimates of the level of knowledge of risk factor of heart disease in patients with CVD. Therefore, educating the public with relevant information related to cardiac health will help reduce the spread of non-communicable diseases (NCDs). One of the community-based strategy is to educate participants about cardiac health and CVD. A nurse-led intervention was carried out to bring about a change in the behaviour participants related to modifiable and non-modifiable risk factors related to CVD. The present study indicates the value of educating the public about risk factors associated with CVD.

Keywords: Knowledge, Community nurse, Cardiac health, CVD, Public health

INTRODUCTION

The developing world faces heavy burden of cardiovascular diseases (CVD). Greater urbanization and shift to western life style possibly contribute to such an increase in CVD. People of Asian region, particularly from India show increased visceral adiposity and they are more susceptible to CVD. Therefore, CVD, a non-communicable disease becomes one of the major public health problems and affects community wise health.¹⁻³

Knowledge of modifiable risk factors (smoking, lack of exercise, obesity and consumption of fatty foods) for heart diseases need to be made aware to the community and the common public as a preventive measure. Prevention becomes an effective approach to control the

spread of CVD in developing nations with poor economic resources.⁴⁻⁹

One such preventive measure is the adoption and application of educational module carrying holistic information regarding risk factors related to cardiac health. The adoption and implementation of such module is effective when a community nurse recruits and educates a section of a community. India has many primary community health centres catering to well-defined community in different areas of an urban city.

In the present preliminary study, the knowledge of participants before and after intervention is analysed to bring out the importance of educating the public, about cardiac health and wellness.

METHODS

The current study was undertaken during the month of August 2023. Males and females from 30-60 years residing at selected urban areas under the control of urban primary health centre, Choolai, Chennai taken for the present study

Hypothesis

H1 There will be a significant difference between pre-test and post-test level of knowledge on modifiable risk factors of cardiovascular disease among adults. H2 There will be a significant association between the post level of knowledge regarding modifiable risk factors of cardiovascular disease among adults and selected socio demographic variables.

Assumption

Adults may have verified the level of knowledge regarding cardio vascular disease and its prevention. Explaining education module may help to enhance knowledge and bring out desirable changes in the lifestyle to prevent the cardiovascular disease among adults.

Delimitation

The study is limited to only among adults both male and female in the age of 30-60 years. The study duration limited to 4 weeks only. The sample size is limited to 60 adults.

Conceptual frame work

A conceptual frame work can be defined as a set of concept and assumptions that integrate them into a meaningful configuration. A conceptual frame designed by Bertalanffy and Kenny was adopted. It consists of four factors, input, throughput, output and feedback.

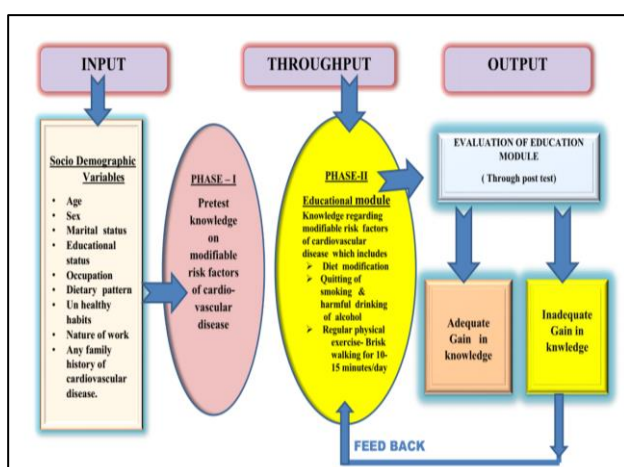


Figure 1: Conceptual frame work of general system theory by Bertalanffy and J. W. Kenny.

The research design selected for this study is quasi experimental one group pre-test post-test design.

Table 1: Statical method.

Group	Pre-test	Intervention	Post-test
Quasi experimental one group pre and post-test	O1	X	O2

O1-pre-test, X-provide education on physical and psychosocial problem among adolescent boys and O2-post-test.

Research variables

The variables mainly include in this study are independent and dependent variable. Dependent variable explained the effect of independent variables.

Independent variable

The independent variable in this study is community health nurse led educational module.

Dependent variable

Dependent variable in the study is knowledge of adults regarding modifiable risk factors of cardiovascular disease.

Demographic variable

Demographic variable in study are adult's age, sex, education, religion, marital status, type of family, occupation, monthly income, family history, dietary pattern, habits, and type of activities of adults and source of information

The obtained data have been classified, grouped and analysed statistically based on the objectives of the study.

Section I: Description of demographic variables of the study participants.

Section II: Assessing the pre-test level of knowledge on modifiable risk factors of cardiovascular disease among adults.

Section III: Determining the effectiveness of educational module on modifiable risk factors of cardiovascular disease.

Section IV: Comparing the pre- test and post -test level of knowledge regarding modifiable risk factors of cardiovascular disease among adults.

Section V: Associating between the post-test mean score level of knowledge on modifiable risk factors of cardiovascular disease with their selected demographic variables.

RESULTS

The majority of the adults belongs to 51 to 60 years which is n=21 (35.00%) and the educational qualification most of them are primary education which is n=19 (31.67%). Most of them belong to Hindu religion is n=49 (81.67%). While discussing the occupational status of the majority of the adults it was observed that the participants were self-employed n=14 (23.33%) with monthly income less than Rs. 15,000/-, n=29 (48.33%). They had no family history of cardiovascular disease n=41 (68.33%). Dietary pattern of adults are mostly mixed pattern n=41 (68.33%). Smoking and alcohol habits were not present in majority of the participants (n=7 (11.67%), habits of alcohol n=5 (8.33%) and no of adults n=48 (80.00%). Their life style was sedentary. (n=14 (23.33%). Common source of information received are from internet and health care workers (n=20 (33.34%) (Table 2).

Above table shows each question wise pre-test percentage of knowledge score on modifiable risk factors of cardiovascular disease among adults. They are having maximum knowledge score for the question “important of healthy diet 66.67%”, and they are having minimum score for question “risk factors of cardiovascular disease that cannot be modified are 23.33%”.

Most of them responded that diet play an important role in maintain cardiac health and they were ignorant of non-modifiable risk factors (Table 3).

Educational module adopted had the following

Flash cards and booklets consist of definition, risk factors of cardiovascular disease, non-modifiable risk factors gender, race, family history and advancing age, modifiable risk factors such as obesity, physical inactivity, smoking and harmful usage of alcohol, signs and symptoms of cardiovascular disease, clinical manifestation of cardiovascular disease, and preventive measures of cardiovascular disease: diet modification-salt restricted, low fat, high fiber diet, habits: quitting of smoking and alcohol and regular physical exercise such as brisk walking exercise 5-10 minutes.

The post-test revealed that the participants’ knowledge had marked improvement to understand the role of modifiable risk factors in promoting cardiac health.

Table 6 shows the pre-test and post-test percentage of knowledge score on regarding modifiable risk factors of cardiovascular disease among adults. In pre-test, they are having maximum knowledge score for the question “the important of healthy diet 66.67%”, and they are having minimum score for the question “the risk factors of cardiovascular disease that cannot be modified are 23.33%” and in post-test they are having maximum knowledge score for the question “the important of healthy diet 66.67%”, and they are having minimum score for the question “the risk factors of cardiovascular disease that cannot be modified are 23.33%” (Table 4-9).

Table 2: Frequency distribution of demographic variable of study participants.

Demographic variables	Number of adults	Percentages (%)
Age (in years)	<30	0
	30 to 40	19
	41 to 50	20
	51 to 60	21
Gender	Male	38
	Female	22
Educational status	Illiterate	16
	Primary education	19
	Secondary	12
	Graduate/others	13
Religion	Hindu	49
	Christian	7
	Muslim	4
Marital status	Married	55
	Unmarried	4
	Widow/widower	1
	Divorced	0
Type of family	Nuclear family	42
	Joint family	18
	Extended family	0
	Single parent	0
Occupation	Employed	13
	Self employed	14
	Home maker	17
	Others	16

Continued.

Demographic variables		Number of adults	Percentages (%)
Monthly income of the family (INR)	≤Rs.15000	29	48.33
	Rs, 15001-20,000	14	23.33
	Rs, 20,001-25,000	8	13.34
	≥Rs. 25,000	9	15.00
Family history of cardio vascular disease	Maternal	10	16.67
	Paternal	4	6.67
	Both	5	8.33
	Nil	41	68.33
Dietary pattern	Vegetarian	10	16.67
	Non vegetarian	8	13.33
	Eggetarian	1	1.67
	Mixed	41	68.33
Habits	Smoking	7	11.67
	Alcohol	5	8.33
	Substance abuse	0	0.00
	Nil	48	80.00
Types of activities	Sedentary	14	23.33
	Moderate work	9	15.00
	Heavy work	4	6.67
	Others	33	55.00
Source of information	News paper	15	25.00
	Television	17	28.33
	Mass health education	8	13.33
	Internet source/ health care worker	20	33.34

Table 3: Distribution of percentage in knowledge score on modifiable risk factors of CVD among adults in pre-test.

Statements	Pre-test knowledge score			
	Correct response		Not correct response	
	N	%	N	%
CVD means	35	58.33	25	41.67
Symptoms of cardio vascular disease can include	39	65.00	21	35.00
The CVD is common in the age of	27	45.00	33	55.00
The risk factors of CVD that cannot be modified are	14	23.33	46	76.67
The important of healthy diet	40	66.67	20	33.33
The diet maintains the heart in good condition	32	53.33	28	46.67
Saturated fats are found in	34	56.67	26	43.33
Bad cholesterol is known as	17	28.33	43	71.67
High fibre diet is	25	41.67	35	58.33
In the following which food is having omega 3 fatty acids	22	36.67	38	63.33
A low salt diet can help you to manage	37	61.67	23	38.33
Low sugar diet can help you to prevent	30	50.00	30	50.00
In the following, which is to be included in your diet?	32	53.33	28	46.67
Obesity increases the	26	43.33	34	56.67
The normal value of body mass index	15	25.00	45	75.00
Benefits of weight loss	36	60.00	24	40.00
The regular physical activity helps to	31	51.67	29	48.33
The type of work more predisposing factor to get CVD	32	53.33	28	46.67
The following techniques can reduce stress and emotion	28	46.67	32	53.33
Smoking can affect the blood circulation by	35	58.33	25	41.67
The healthy benefits of quitting smoking	32	53.33	28	46.67
The following simple exercise to control blood pressure as well as the cholesterol	22	36.67	38	63.33
The main role of regular exercise in prevention of CVD	31	51.67	29	48.33

Continued.

Statements	Pre-test knowledge score			
	Correct response		Not correct response	
	N	%	N	%
The minimum duration of exercise to prevent CVD.	25	41.67	35	58.33
The healthy life style practices include all except	25	41.67	35	58.33

Above table shows each question wise pre-test percentage of knowledge score on modifiable risk factors of CVD among adults. They are having maximum knowledge score for the question “The important of healthy diet 66.67%”, and they are having minimum score for the question “The risk factors of CVD that cannot be modified are 23.33%”.

Table 4: Pretest level of knowledge score.

Level of knowledge	Frequency	Percentage (%)
Inadequate knowledge	44	73.33
Moderate knowledge	16	16.67
Adequate knowledge	0	0.00
Total	60	100

Table 5: Distribution of post-test percentage of knowledge score on modifiable risk factors of CVD among adults.

Statements	Post-test knowledge score			
	Correct response		Not correct response	
	N	%	N	%
CVD means	35	58.33	7	11.67
Symptoms of CVD can include	39	65.00	8	13.33
The CVD is common in the age of	27	45.00	21	35.00
The risk factors of CVD that cannot be modified are	14	23.33	7	11.67
The important of healthy diet	40	66.67	7	11.67
The diet maintains the heart in good condition	32	53.33	10	16.67
Saturated fats are found in	34	56.67	11	18.33
Bad cholesterol is known as	17	28.33	17	28.33
High fibre diet are	25	41.67	9	15.00
In the following which food is having omega 3 fatty acids	22	36.67	10	16.67
A low salt diet can help you to manage	37	61.67	8	13.33
Low sugar diet can help you to prevent	30	50.00	19	31.67
In the following, which is to be included in your diet?	32	53.33	8	13.33
Obesity increases the	26	43.33	8	13.33
The normal value of body mass index	15	25.00	11	18.33
Benefits of weight loss	36	60.00	17	28.33
The regular physical activity helps to	31	51.67	9	15.00
The type of work more predisposing factor to get CVD	32	53.33	15	25.00
The following techniques can reduce stress and emotion	28	46.67	12	20.00
Smoking can affect the blood circulation by	35	58.33	13	21.67
The healthy benefits of quitting smoking	32	53.33	9	15.00
The following simple exercise to control BP and cholesterol	22	36.67	12	20.00
The main role of regular exercise in prevention of CVD	31	51.67	9	15.00
The minimum duration of exercise to prevent CVD.	25	41.67	8	13.33
The healthy life style practices include all except	25	41.67	6	10.00

Above table shows each question wise post-test percentage of knowledge score on modifiable risk factors of CVD among adults after having community health nurse led educational module. They are having maximum knowledge score for the question “the healthy life style practices include all except 90.00%”, and they are having minimum score for the question “the CVD is common in age of 65.00%”.

Table 6: Post-test level of knowledge score.

Level of knowledge	No. of adults	Percentage (%)
Inadequate knowledge	0	0.00
Moderate knowledge	13	21.67
Adequate knowledge	47	78.33
Total	60	100.0

Table 7: Comparison of pre-test and post-test percentage of knowledge score regarding modifiable risk factors of CVD among adults.

Statements	Knowledge score			
	Pretest		Post test	
	N	%	N	%
CVD means	35	58.33	53	88.33
Symptoms of CVD can include	39	65.00	52	86.67
The CVD is common in the age of	27	45.00	39	65.00
The risk factors of CVD that cannot be modified are	14	23.33	53	88.33
The important of healthy diet	40	66.67	53	88.33
The diet maintains the heart in good condition	32	53.33	50	83.33
Saturated fats are found in	34	56.67	49	81.67
Bad cholesterol is known as	17	28.33	43	71.67
High fiber diet is	25	41.67	51	85.00
In the following which food is having omega 3 fatty acids	22	36.67	50	83.33
A low salt diet can help you to manage	37	61.67	52	86.67
Low sugar diet can help you to prevent	30	50.00	41	68.33
In the following, which is to be included in your diet?	32	53.33	52	86.67
Obesity increases the	26	43.33	52	86.67
The normal value of body mass index	15	25.00	49	81.67
Benefits of weight loss	36	60.00	43	71.67
The regular physical activity helps to	31	51.67	51	85.00
The type of work more predisposing factor to get CVD	32	53.33	45	75.00
The following techniques can reduce stress and emotion	28	46.67	48	80.00
Smoking can affect the blood circulation by	35	58.33	47	78.33
The healthy benefits of quitting smoking	32	53.33	51	85.00
The following simple exercise to control blood pressure and cholesterol	22	36.67	48	80.00
The main role of regular exercise in prevention of CVD	31	51.67	51	85.00
The minimum duration of exercise to prevent CVD.	25	41.67	52	86.67
The healthy life style practices include all except	25	41.67	54	90.00

Table 8: Comparison of overall knowledge score before and after community health nurse led educational module.

No. of adults	Pretest, mean±SD	Post-test, mean±SD	Mean difference, mean±SD	Student's paired T test
60	12.03±3.94	20.48±1.38	8.45±3.04	t=16.36, p=0.001***, DF=59, significant

*** very high significant at p≤0.001.

Table 9: Distribution of association between post test level of knowledge score and adults' demographic variables

Demographic variables		Post-test level of knowledge score				N	Chi square test
		Moderate		Adequate			
		N	%	N	%		
Age (in years)	≤40	9	36.00	16	64.00	25	χ2=5.18, p=0.05* (S)
	>40	4	11.43	31	88.57	35	
Educational status	Illiterate	7	43.75	9	56.25	16	χ2=7.35, p=0.05* (S)
	Primary education	4	21.05	15	78.95	19	
	Secondary/ graduate	2	8.00	23	92.00	25	
Family history of CVD	With family history	1	5.26	18	94.74	19	χ2=4.41, p=0.05* (S)
	Without family history	12	29.27	29	70.73	41	
	Non vegetarian/mixed	12	24.49	37	75.41	49	
Habits	With habit	6	50.00	6	50.00	12	χ2=7.09, p=0.01** (S)
	Without habit	7	14.58	41	85.42	48	

*P≤ 0.05 significant S=significant, **P≤0.01 highly significant, NS=not significant.

DISCUSSION

Increasing rates of prevalence of NCDs in India put a heavy toll on Indian economy and, a great concern for public health problem. This is compounded by inadequate health facilities at the primary, secondary, and tertiary levels. Knowledge particularly about the visceral obesity is a major health problem of India and, is one of the main reasons for an increase in NCDs. Approximately 4 million premature deaths occur due to NCDs annually aged between 30-70 years.¹⁰

In the present preliminary study, the pre-test and post-test responses showed that knowledge is an important prerequisite for implementing both primary as well as secondary preventive strategies for CVD. There are no estimates of the level of knowledge of risk factor of heart disease in patients with CVD. Therefore, the efforts and implementation of community-based education regarding cardiac health in particular and general wellness will help prevent and minimize the spread of NCDs. The present study indicates the value of educating the public about health. It is therefore necessary to conduct more studies with more number of participants in various communities will be better way to combat the spread of NCDs and help maintain the health of the public in general.^{11,12}

CONCLUSION

NAFLD is becoming one of the important public health issues. It is also implicated as one of the independent risk factors for CVD. Therefore, creating awareness about NAFLD and its association with CVD will help prevent and promote cardiac as well as hepatic health.

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