



A PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF SELF-INSTRUCTIONAL MODULE ON KNOWLEDGE AND ATTITUDE REGARDING PREVENTION OF CORONARY ARTERY DISEASE AMONG TYPE 2 DIABETIC PATIENTS IN SELECTED HOSPITALS AT BENGALURU

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ABSTRACT

Diabetes mellitus is a chronic, metabolic disease characterized by elevated levels of blood glucose, which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. The aim of the study was to assess the effectiveness of Self-Instructional Module on knowledge and attitude regarding prevention of Coronary artery disease (CAD) among type 2 diabetic patients. A pre-experimental one group pre-post test study design was adopted and convenience sampling technique was used to select 60 diabetic patients from selected hospitals. Their pre and post test knowledge was assessed by self-administrated questionnaire and 5 points Likert scale was used to assess the attitude. The results revealed that the mean posttest (23.5) was more than mean pre-test (17.52) for knowledge and attitude. The value of paired t-test was (14.616) and it was found significant at $p < 0.05$ level. The study concluded that the Self-instructional module (SIM) was significantly effective in improving the level of attitude.

KEYWORDS : Knowledge, attitude, Type 2 diabetic patient's Self-instructional module.

BACKGROUND

Coronary artery disease (CAD) is also called coronary arteriosclerosis and it is the most common type of heart disease. CAD happens when the arteries that supply blood to heart muscle become hardened and narrowed. This is due to the build-up of cholesterol and other material, called plaque, on arteries inner walls leading to chest pain (angina) or a heart attack, causing permanent heart damage. People with diabetes mellitus (DM) are two to three times more likely to have cardiovascular disease than people without diabetes. High levels of blood glucose can make the blood coagulation system more active, increasing the risk of blood clots. Diabetes mellitus (DM) is also associated with high blood pressure and cholesterol levels, which lead to increased risk of cardiovascular complications such as angina, CAD, myocardial infarction, stroke, peripheral artery disease (PAD), and congestive heart failure.

Since limited nursing research studies addressed on preventive aspects of CAD among type 2 diabetic patients, the investigator felt that strengthening the knowledge of preventive aspects of coronary artery disease in type 2 diabetic population might reduce their risk of developing the coronary artery disease, the mortality rate and improves the of quality of life. Awareness of preventive measures is an important predictor in preventing diabetes mellitus. The present study is designed to assess the knowledge and attitude level of coronary artery disease population and administer a self-instructional module which will educate them about the measures to be followed.

RESEARCH OBJECTIVES

1. To assess the pre-test and post-test level of knowledge and attitude regarding prevention of coronary artery disease among type 2 diabetic patients.
2. To assess effectiveness of Self-instructional module regarding prevention of coronary artery disease among type 2 diabetic patients.
3. To find out association between pre-test level of knowledge and attitude scores with selected socio-demographic variables regarding prevention coronary artery disease among type 2 diabetic patients.

METHODS

Research design

Pre-experimental one group pre test -post test design

Setting of the study

The setting is the general location and condition in which data collection takes place in the study. The investigator selected two private hospitals from Bengaluru, Karnataka.

Population

The target population for the study was all type 2 diabetic patients.

Sampling

Convenience sampling technique was used to select 60 type 2 diabetic patients. The inclusion criterion includes type 2 diabetic patients who have been diagnosed within 3-5 years between 40 to 65 years and the patients who can read and understand English and Kannada. The exclusion criteria include the patients with other types of diabetes mellitus and Patients with other co-morbidities and complications.

Instruments

Self-administered questionnaire Consist of 14 Demographic information and Self-Structured knowledge questionnaire of 30 questions.

5points Likert scale: Consist of 10 statements to assess the type 2 diabetic patient's attitude regarding prevention coronary artery disease. The Patients with overall score of < 50 % have inadequate knowledge, 51 % -75 % indicate Moderate knowledge and > 75 % indicate adequate knowledge. The patients with overall score of < 50 % indicate Low attitude, 51 % -75 % indicate moderate attitude and > 75 % indicate high attitude.

Data Collection

The initial step of the study was to conduct pre-test to assess the pre-test level of knowledge using self-structured questionnaire among 60 patients of type 2 diabetes mellitus and attitude was assessed by using 5 points Likert scale. Self-Structured modules was given to type 2 diabetic patients and after 7 days Post-test level of knowledge and attitude was assessed by using a self-structured questionnaire and the level of attitude was assessed by using 5 points Likert scale.

Data analysis

The data was collected based on demographic variables and outcome measures was computerized. Analysis and interpretation was done by mean of descriptive and inferential statistics. Frequency and percentage distribution were used to

present the socio- demographic data. Range, mean and standard deviation percentage were used to assess the level of knowledge and attitude regarding prevention of coronary artery disease among type2 diabetic patients. Paired 't' test was used to compare pre and post- test knowledge scores, and pre –post test attitude scores. Chi -square was used to find out the association between knowledge and attitude with selected demographic variables.

Ethical Approval

The proposed study was conducted after obtaining the approval from the institutional ethical committee and the official permission from the medical directors of each hospital. Written informed consent was obtained from all the participants. The investigator explained the purpose, method and the extent of the study. Assurance was given to them that anonymity of each individual would be maintained, with regard to the information collected. Confidentiality was assured to the participants.

RESULTS

A number of 60 participants enrolled in this study. All the subjects belonged to the age between 40 to 65. In the pre-test level of knowledge 83.3% of the respondents had inadequate knowledge, remaining 15% had moderate knowledge. In post knowledge 46.7% had moderate knowledge and 45% adequate knowledge. In the pretest level of attitude shows that 31.7% of the respondents had low attitude, 35 % of the respondents had moderate attitude.

In posttest 75% of the respondents had high attitude and none of participates is found to be with low attitude. The value of paired t-test was (14.616) and it was found significant at $p < 0.05$ level. The study concluded that the Self –instructional module (SIM) was significantly effective in improving the level of knowledge and attitude.

Table 1: - Distribution of Subjects According to Demographic data

Sl.n o	Demographic Variables	Categories	Frequency	Percentage (%)
1	Age	a. 40-51 years	19	31.7
		b. 51-6years	28	46.7
		c. 60-65years	13	21.7
2	Gender	a. MALE	14	23.3
		b. FEMALE	46	76.7
3	Religion	a) Hindu	39	65.0
		b) Muslim	21	35.0
4	Education	a) School level	35	58.3
		b) Graduate	5	8.3
		c) Post graduate	16	26.7
		d) Illiterate	4	6.7
5	Marital status	a) Married	48	80
		b) Un Married	4	6.7
		c)Widower/widow	4	6.7
6	occupation	Heavy worker	21	87.5
		Moderate worker	26	
		Sedentary worker	13	12.5
7	Income	< 5000	18	30.0
		> 10,000-	42	70.0
8	habits	Smoker/tobacco	11	18.3
		NIL	49	81.7
9	Dietary habits	Vegetarian	45	75.0
		Non vegetarian	15	25.0
10	Physical activity	a) mild	18	30.0
		b) moderate	22	36.7
		c) vigorous	20	33.3
11	Known c/o Hypertension	a)Yes	13	21.7
		b)No	47	78.3

12	Previous Information	a) Friends and relatives	5	8.3
		b) Health personals	52	86.7
		c) Mass media	3	5.0
13	Duration of illness	3-5 years	60	100.0
14	Adherence to Treatment	a)Yes	43	71.7
		b)No	17	28.3

Table:2.1. Range, mean, standard deviation and mean percentage of pre and post test level of knowledge

S.no.	Knowledge Aspects	State ments	Rang e	Mean	SD	Mean (%)
1	Pre-test level of knowledge	30	4-24	11.58	4.08	38.6
2	Post-test level of knowledge	30	12-30	21.35	4.07	71.16

The above table shows Range, Mean, SD, Mean percentage on prevention of coronary artery disease among type 2 diabetic patients The pretest range is 4-24 mean 11.58, standard deviation is 4.08 and the mean percentage is 38.6% The post test range is 12- 30, Mean is 21.35, standard deviation is 4.07 and the mean percentage is 71.16%.

Table: 2.2- Frequency distribution of respondents according to pre and posttest level of attitude

Knowledge Level	Classification of Respondents			
	Pre test		Post test	
	Number	Percentage(%)	Number	Percent age(%)
Inadequate (0-50%)	50	83.3	05	8.3
Moderate (51-75%)	9	15	28	46.7
Adequate (76-100%)	1	1.7	27	45
Total	60	100	60	100

Table above shows the pretest and posttest level of knowledge on prevention of coronary artery disease among type 2 diabetic patients. In the pre-test 83.3% of the respondents had inadequate knowledge, remaining 15% of the respondents had moderate knowledge and 1.7% of them were found to be with adequate knowledge. In posttest, only 8.3% of the respondents had inadequate knowledge, 46.7% of the respondents had moderate knowledge. Where 45% of the respondents had adequate knowledge in posttest It evidenced that there is an increase in the knowledge

Table :2.3-Range, mean, standard deviation and mean percentage of pre and Post test level of attitude

S. no.	Attitude	Staements	Range	Mean	SD	Mean (%)
1	Pertest attitude	10	5-28	17.52	4.616	43.8
2	Post-test attitude	10	3-40	23.5	10.17	58.75

The above table shows the pretest and posttest level of attitude on prevention of coronary artery disease among type 2 diabetic patients. The pretest range is 5-28 mean 17.52, standard deviation is 4.616 and mean percentage is 43.8% and the post test range is 3-40, mean is 23.5, standard deviation is 10.17, and mean percentage is 58.75.

Table: 2.4 -Frequency distribution of samples according to pre and posttest level of attitude

Attitude Level	Classification of Respondents			
	Pre test		Post test	
	Number	Percent age(%)	Number	Percenta ge(%)
Low attitude (0-50%)	45	75	22	36.7

Moderate attitude (51-75%)	15	25	21	35
High attitude (76-100%)	00	00	17	28.3
Total	60	100	60	100

The above table shows the pretest and posttest level of attitude on prevention of coronary artery disease among type 2 diabetic patients. In the pre-test a 25% of the respondents had moderate attitude, remaining 75% of the respondents had high attitude and none of them is found to be with low attitude. In posttest, 36.7(31.7%) of the respondents had low attitude, 35 % of the respondents had moderate attitude and 28.3% of the respondents had high attitude.

Table 3.1-Outcomes of paired t-test analysis on comparison of pre and post test level of knowledge

Aspects	Max. Score	Respondents Knowledge Scores			Seof Mean Diff	Mean diff	Paired t-Test	Df	p value	Inference
		Mean	SE of Mean	Mean %						
Pre test	30	11.58	0.528	38.6	0.668	9.767	14.616	59	0.05	S*
Post-test	30	21.35	0.527	71.16						

The table above represents the mean pretest and posttest knowledge. The paired t-test is carried out and it is found significant at $p < 0.05$ level, hence hypothesis (H1) is accepted. It provides the evidence that the SIM is significantly effective in improving level of knowledge.

Table3.2-Outcomes of paired t-test analysis on comparison of pre and posttest level of attitude

Aspects	Max. Score	Respondents attitude Scores Mean diff			SE of Mean Diff	Mean diff	Paired t-Test	Df	p value	Inference
		Mean	SE of Mean	Mean %						
pre test	40	17.52	.596	43.8	1.409	5.98	4.246	59	< 0.05	HS
post test	40	23.50	1.313	58.75						

The above table represents the mean pretest and posttest attitude. the paired t-test is carried out and it is found significant at $p < 0.05$ level, hence the research hypothesis (h1) is accepted. it provides the evidence that the sim is significantly effective in improving level of attitude.

Table 4.1 - association between levels of knowledge with their selected demographic variables n = 60

S.no	Demographic Variables	Respondents	Below median	Above median	Total	Chi square	Df	p value	Sign
1	Age	41-51 years	13	6	19	9.698	2	<0.05	S*
		51-60 years	10	18	28				
		61-65 years	2	11	13				
2	Gender	Male	8	6	14	1.799	1	>0.05	NS
		Female	17	29	46				
3	Religion	Hindu	15	24	39	0.471	1	>0.05	NS
		Muslim	10	11	21				

4	Education	School level	13	22	35	2.929	3	>0.05	NS
		Graduate	3	2	5				
		Post graduate	6	10	16				
		Illiterate	3	1	4				
5	Marital status	Married	21	27	48	6.558	4	>0.05	NS
		Un Married	0	4	4				
		Widower /widow	3	1	4				
		Heavy worker	1	3	4				
6	occupation	Heavy worker	13	8	21	7.343	2	<0.05	S*
		Moderate worker	10	16	26				
		Sedentary	2	11	13				
7	Income	5001-10,000	12	6	18	6.612	1	<0.05	S*
		> 10,000	13	29	42				
8	habits	Smoker/ tobacco	8	3	11	5.346	1	<0.05	S*
		Nil	17	32	49				
9	Dietary habits	Vegetarian	16	29	45	2.766	1	>0.05	NS
		Non vegetarian	9	6	15				
10	Physical activity	Mild	3	15	18	7.524	2	<0.05	S*
		Moderate	10	12	22				
		Stannous	12	8	20				
11	Known c/o Hypertension	Yes	5	8	13	0.070	1	P >0.05	NS*
		No	20	27	47				
12	Previous Information	Friends and relatives	2	3	5	0.100	2	P >0.05	NS*
		Health personals	22	30	52				
		Mass media	1	2	3				
13	Duration of illness	3-5 years	25	35	60	NA			
14	Adherence to Treatment	Yes	18	25	43	0.002	1	P >0.05	NS*

Sassociation Present, Ns-no Association

Association was found between pretest knowledge and demographic variables such as age chi square (9.698), occupation chi square (7.343), income chi square (6.612) and habit chi square (5.346) at 5% level ($p < 0.05$).

Table 4 -2 Association between levels of attitude with their selected demographic variables

Sl no	Demographic Variables	Respondents	Below median	Above median	Total	Chi square	Df	P value	Sign
1	Age	41-51 years	13	6	19	1.606	2	>0.05	NS
		51-60 years	17	11	28				
		61-65 years	6	7	13				
2	Gender	Male	7	7	14	0.761	1	>0.05	NS
		Female	29	17	46				
3	Religion	Hindu	23	16	39	0.049	1	>0.05	NS
		Muslim	13	8	21				
4	Education	School level	21	14	35	4.375	3	>0.05	NS
		Graduate	2	3	5				
		Post graduate	12	4	16				
		Illiterate	1	3	4				

5	Marital status	Married	30	18	48	4.371	4	>0.05	NS
		Un Married	3	1	4				
		Widower / widow	2	2	4				
		Heavy worker	1	3	4				
6	occupati on	Heavy worker	14	7	21	0.812	2	>0.05	NS
		Moderate worker	14	12	26				
		Sedentary	8	5	13				
7	Income	5001-10,000	11	7	18	0.013	1	>0.05	NS
		> 10,000	25	17	42				
		Nil	31	18	49				
8	habits	Smoker /tobacco	5	6	11	1.187	1	>0.05	NS*
		Nil	31	18	49				
9	Dietary habits	Vegetaria n	30	15	45	3.333	1	>0.05	NS*
		No vegetarian	5	6	11				
10	Physical activity	Mild	12	6	18	3.106	2	>0.05	NS
		Moderate	10	12	22				
		Stannous	14	6	20				
11	Known c/o Hyperten sion	Yes	9	4	13	0.589	1	>0.05	NS
		No	27	20	47				
12	Previous Informati on	Friends and relatives	1	4	5	4.850	2	>0.05	NS
		Health personals	34	18	52				
		Mass media	1	2	3				
13	Duration of illness	3-5 years	36	24	60	NA			
14	Adheren ce to Treatme nt	Yes	26	17	43	0.014	1	>0.05	NS
		No	10	7	17				

*S-ASSOCIATION PRESENT, NS-NO ASSOCIATION

No association was found between pretest attitude and demographic variables.

DISCUSSION

The study reveal that there was a significant difference in the mean scores of level knowledge and attitude among type 2 diabetic patient between the pre-test and post-test. The outcomes of paired t-test analysis showed a significant difference on level of knowledge and attitude among type 2 diabetic patients between the pre-test and post - test. It provides the evidence that the Self -instructional module(SIM) was significantly effective in improving the level of knowledge and attitude. Association was found between pretest knowledge and demographic variables such as age chi square (9.698), occupation chi square (7.343), income chi square (6.612) and habit chi square (5.346) at 5% level ($p < 0.05$).

CONCLUSION

Self -instructional module(SIM) was effective in increase the level of knowledge and improve the level of attitude regarding prevention of coronary artery disease among type 2 diabetic

patients. Staff nurses and student nurses practicing in hospitals as well as in community need to Nursing students have to be educated regarding prevention of coronary artery disease. Nurse educators should emphasize the proper assessment and management of CAD among patient with modifiable risk factors as well as provide opportunity for students to apply the knowledge. Organize in-service education and conference for the nurses to improve the knowledge regarding prevention of coronary artery disease. The result of the study can be use for evidence based nursing practice and publish in nursing journals with the recommendations and serves as a guide conduct similar studies in varying settings.

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