Quasi Experimental Study to Assess the Effect of Planned Teaching Programme on the Knowledge Regarding Modifiable Risk Factors of Coronary Artery Disease among Adolescents in Selected Junior Colleges

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Abstract

Introduction: Stress and anxiety have adverse effects on the body system. One of which is on circulatory system, that is, the blood vessels and the blood but the individual continues to remain asymptomatic due to the gradual onset and progressive damage occurring to the blood vessels, coronary artery disease (CAD) (arthrosclerosis). According to the WHO, in 2013 CAD was most common cause of death globally, resulting in 8.14 million deaths (16.8%) up from 5.74 million deaths (12%) in 1990. In the United States in 2010 about 20% of those over 65 had CAD, while it was present in 7% of those 45–64, and 13% of those 18–45. Rates are higher among women then male of given age. This study shows that cardiovascular risk factor is highly prevalent among school children, importantly; school children lack adequate knowledge regarding cardiovascular risk factors. School based intervention is required for cardiovascular risk reduction in childhood.

Aim: The aim of the study was to assess the effect of planned teaching programme (PTP) on knowledge regarding modifiable risk factors of CAD among adolescents in selected junior college.

Subject and Method: One group pre- and post-test research design was adopted. A structured teaching program and questionnaire administered to asses pre- and post-test knowledge regarding risk factors of CAD among adolescents.

Results: We observed that knowledge measured after PTP was significantly better ($P < 0.05$). There were no associations of knowledge with any demographic variables.

Conclusion: Planned teaching was effective measured to improve knowledge regarding modifiable risk factors of CAD among adolescents in selected junior college.

Keywords: Coronary artery disease, modifiable risk factors, planned teaching programme, World Health Organization

INTRODUCTION

"Today's adolescents are tomorrow's adults"

"What is life, if full of care we have no time to stand and stare."

(W. H. Davis)

These words stand true in today's modern world, where every man is too busy to take someone's time out even for him. Every individual puts an effort to make his living comfortable, but

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does not realize how much of stress and anxiety he exerts on his body in the process.

Stress and anxiety has an adverse effect in the body system. One on which is circulatory system, that is, the blood vessels and the blood but the individual continues to remain asymptomatic due to the gradual onset and progressive damage occurring to the blood vessels, coronary artery disease (CAD) (arthrosclerosis).

The heart is the engine of human life. Beating almost 100,000 times a day more than 36 million times each years, endlessly beating examines the heart as a muscle. Pushing approximately five quart of blood in an endless course to deliver to every cell of the human body.[1]

According to the WHO, In 2010 about 20% of those over 65 had CAD, while it was present in 7% of those 45–64, and 1.3% of those 18–45 rates are higher among women then male of given age.[2]

Galhothra *et al.* 2008, according to their study, adolescent is a fascinating period of life and it is the most important age after childhood in all societies. Peer influences and education are of highest importance and these experiences ultimately influence pattern of their future lifestyle occupation skills and leadership. It is also a vital period because of the so-called socialization process, namely, transmission of attitude, customs, behavior, and habit formation. Thus, adolescents are the vulnerable group for adapting any unhealthy practices under peer influences. At present, there is a renewed awareness that the determinant of chronic disease in later life and healthy behavior is well established by the end of adolescent period. Once the adolescent become an adult his ideas and values are a most fixed and then it is difficult to expect a great change in behavior and attitude. A focus on children and adolescent in primary prevention of health risk and disorders such as hypertension and cardiovascular disease have been suggested in many reports, published throughout the world. Such as a focus is important in India as it has a huge adolescents and children population along with economic, social, and health inequalities among children population. Around 22% of the Indian population falls into the adolescent age group of 10–19 years.[3]

Baigen black conducted study in 2009 related to cardiovascular disorder is a generic term for disorder of heart and blood vessels. Over 64 million people have some type of cardiovascular disease. Although heart disease is primary thought of as disease affecting older adult, it is third killer of adult ages between 25–44 years and the second leading cause of death in adult age between 45 and 64 years.[4]

Mohan *et al.* in 2001 taken study from journal of medicine, regarding cardiovascular disease continues to be a major cause of morbidity and mortality in western societies approximately two out of three incidents of myocardial infarction (MI) occur without warning and of note, one third of first MI's are fatal; 20% of patients die out of hospital and 13% die within the first 24–48 h of hospitalization.[5]

The researcher felt the CAD is increasing from adolescent period so providing knowledge regarding risk factors of CAD will help to prevent further risk of getting CAD.

Subject and Methods

100 adolescents who were fulfilling the inclusion criteria were selected through convenient sampling technique. One group pre-post-test design was used. The adolescent was included who was available at the time of data collection and was willing to participate the study. The subjects excluded were if they already had knowledge regarding disease.

Study tool
The study tool used for data collection was questionnaire consisted of two sections1 contained demographic variables of the subjects. The demographic variables included were age gender education, dietary pattern, and smoking habit.

Data collection procedure
Before starting, the study researcher was obtained written permission from college principal. The procedure was explained to the participants. The consent was obtained and data collected using structure questionnaire. After this procedure, the adolescent was subjected to structure teaching program. Post-test was done on 7th day after intervention. The same tool was used to assess the effectiveness of structured teaching program. The total duration spent with each student for conducting pre-test, structured teaching program and post-test was 2 h. The score obtained and considered as pre and post-test score.

Statistical analysis
Data were presented as frequency, percentages, mean, and slandered deviation. Paired *t*-test was used to compare mean within group. Chi-square test was used to measure association between demographic variables. $P < 0.05$ was considered significant.

Results

Demographic variables
Table 1 depicts distribution of sample in relation to their age, educational qualification, dietary pattern, and habit of smoking. Maximum sample 30 (50%) was from age group between16 and 17 years. Then 29 (48.3%) sample were from age group of 15–16 years. Only 1 (1.7%) sample was aged between 17–18 years. Samples according to their demographic data education. The entire sample 60 (100%) studied up to 11th standard. Data about dietary pattern. Maximum 36 (60%) students were non vegetarians. Rest of the students 24 (40%) were vegetarians. Data about students according to their habit of smoking. All the 60 (100%) samples did not have habit of smoking.

Table 2 shows data about dietary pattern. Maximum 36 (60%) students were non vegetarians. Rest of the students 24 (40%) were vegetarians. Students according to their habit of smoking. All the 60 (100%) samples did not have habit of smoking.

Table 1: Distribution of sample in relation to the age, education of adolescents, *n*=60

Demographic Variables	Frequency	Percent
Age		
15–16 years	29	48.3
16–17 years	30	50.0
17–18 years	1	1.7
Total	60	100
Education		
11th standard	60	100
12th standard	0	0
Total	60	100

Table 2: Distribution of sample in relation to the habit and dietary pattern and habit of smoking

Demographic Variables	Frequency	Percent
Dietary pattern		
Vegetarian	24	40.0
Non vegetarian	36	60.0
Total	60	100
Habit of smoking		
Yes	0	0
No	60	100
Total	60	100

Table 3: Distribution of pre- and post-test knowledge score *n*=60

Overall knowledge levels of adolescents about CAD	Range	Pre-test		Post-test	
		F	%	F	%
Poor knowledge	0–7	0	0	0	0
Average knowledge	8–15	18	30	0	0
Good knowledge	16–23	37	61.7	18	30
Excellent knowledge	24–30	5	8.3	42	70
Total		60	100	60	100

CAD: Coronary artery disease

Table 4: Effectiveness of planned teaching programme by comparing pre-test and post-test overall knowledge

Overall knowledge comparison	Mean	SD	MD	SEMD	*t* value	*P* value
Overall knowledge						
Pre-test	17.77	3.72	7.25	0.53	13.6	0.000
Post-test	25.02	2.69				

df=59, level of significance is 0.05 for "*t*" table value of 2.00

Effect of planned teaching program on knowledge regarding modifiable risk factors of CAD

Table 3 depicts that in pre-test, few 18 (30%) sample were in average knowledge range then 37 (61.7%) samples were in good knowledge range. Very few 5 (8.3%) samples were in excellent knowledge range. None of the sample were in poor knowledge range whereas, the post-test score shows that shift of sample from lower knowledge to higher knowledge level improved results as 18 (30%) sample were in good knowledge range and rest 42 (70%) samples were in excellent knowledge range. None of the sample were in poor and average knowledge category.

Comparisons of pre and post mean score of overall knowledge the calculated t value is found to be 13.36 for overall knowledge. As the calculated value is statistically greater than the table "*t*" value 2.00 at 0.05 level of significance with the degree of freedom being 59 so null hypothesis (H$_0$) is rejected and alternate hypothesis (H$_1$) is accepted. This show there is a significant difference in the mean of pre- and post-test knowledge of the sample [Table 4].

Association of demographic variables with knowledge score

All calculated "*F*" value is less than their respective "*F*" table value at 0.05 levels. Thus, there no statistical significant different between the group of the demographic variable age, education, dietary pattern, and smoking habits with respect to their pre-test knowledge means scores. Hence, null hypothesis (H$_0$) is accepted.

DISCUSSION

According to Lewis and Heitkemper, atherosclerosis is the major cause of CAD. Arteriosclerosis and atherosclerosis are condition that develop over a long period (beginning in early childhood), and progress without symptoms throughout adult life.[6]

The early changes of atherosclerosis develop in childhood and adolescent due to overall effect of a number of risk factors.

The aim of this study was to find out the need for people who are risk for developing CAD so they can able to use that knowledge for preventive measures.

Although cardiovascular disease typically occurs in middle age or later, risk factors are determined to a great extent by behaviors learned in childhood and continued into adulthood such as dietary habits and smoking. According to the WHO (CVD-Atlas, 2012) worldwide, 18 million children under 5 years old are overweight, and 14% of 13–15 year old students around the world currently smoke cigarettes. Throughout the world, these risks are starting to appear earlier. Physical activity decreases markedly in adolescence, particularly in girls, in the USA physical activity decreased precipitously, especially in girls, beginning around age 10 years.[7]

There was significant differences in pre- and post-test mean scores well as t value regarding knowledge which showed that planned teaching was effective. The study also can be correlated with other study conducted by Vishwanathlyer, Fithima, Rachel, Mohamad *et al.,* Ahmad and Tawalben, Shresh *et al.* who conducted study on effectiveness of planned teaching program on knowledge regarding CAD. The finding reveals that the planned teaching programme is an effective strategy for improving the knowledge.[8-13]

CONCLUSION

This research also helps the researcher to understand the importance of providing knowledge regarding prevention of modifiable risk factors of CAD.

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Conflicts of Interest

All authors declare that they have no conflicts of interest.

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