A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING RISK FACTORS AND PREVENTION OF CORONARY HEART DISEASE AMONG GRADUATE STUDENTS

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ABSTRACT:

Background of the study: CHD is also called Coronary arteriosclerosis, Coronary atherosclerosis. Coronary heart disease (CHD) is the most common type of heart disease. It is the leading cause of death in the United States in both men and women. CHD 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 their inner walls. This build up is called atherosclerosis. As it grows, less blood can flow through the arteries. As a result, the heart muscle can't get the blood or oxygen it needs. This can lead to chest pain or a heart attack. Most heart attacks happen when a blood clot suddenly cuts off the hearts' blood supply, causing permanent heart damage. Over time, CHD can also weaken the heart muscle and contribute to heart failure and arrythmias. Heart failure means the heart can't pump blood well to the rest of the body. Arrhythmias are changes in the normal beating rhythm of the heart.[2]

According to existing knowledge, CHD epidemics are essentially preventable. For example, CHD mortality has fallen one-third to one-half in the last three decades in majority of developed countries. The reasons for the accelerated decline in CHD mortality from 1980-1990 were analyzed. They found that 25% of the decline was due to primary prevention, 29% due to secondary prevention and 43% was due to improvements in treatments of patients. This demonstrates that modification of risk factors related to lifestyle in the entire nation, rather than advances in management of few with overt CHD is largely responsible for dramatic decline of CHD mortality in the developed countries. This is clear proof that the average of CHD reduced with appropriate measures.

Objectives: 1. To assess the knowledge on risk factors and prevention of coronary heart disease among graduate students at a selected college by pre-test.**2**To evaluate the effectiveness of a structured teaching programme on risk factors and prevention of coronary heart disease among graduate students by comparing pre-test and post-test knowledge.**3** To test the association between post-test knowledge of graduate students with their selected demographic variables.

Methodology: One group pre-test and post-test design with an evaluate approach was adopted to evaluate the "effectiveness of structured teaching programme on risk factors and prevention of coronary heart disease among graduate students" in selected college at Bangalore. The study was conducted at Hillside College of Pharmacy, Bangalore. Samples include graduate students of Hillside College of Pharmacy, Bangalore, who fulfils the inclusion criteria were selected by non-probability purposive sampling technique.

Results: The comparison of pre-test and post-test mean score of knowledge revealed "z" value was $z = 35.78$ which showed an extremely significance at $p<0.00001$. Hence the study concluded that structured teaching programme has improved the level of knowledge on risk factors and prevention of coronary heart disease among graduate students.

Conclusion: There was a significant improvement of knowledge among graduate students at Hillside College of Pharmacy after structured teaching programme was conducted. Thus, structured teaching programme on risk factors and prevention of coronary heart disease was an effective intervention in the enhancement of knowledge among graduate students. The present study conducted by the investigator, mainly focused on the structured teaching programme to improve the knowledge on risk factors and prevention of coronary heart disease and was found effective and also the researcher insisted the graduate students take prevention from coronary heart disease.

Index terms: Assess; Coronary Heart Disease; Knowledge; Risk factors; Prevention; Graduate students; Structured teaching programme; Effectiveness.

I. INTRODUCTION

"HEAR YOUR HEART, HEART YOUR HEALTH"

–FAITH SEEHILL

Health is a state of relative equilibrium of the body form and function which results from a successful dynamic adjustment to forces tending to disturb it. It is not passive interplay between body substance and forces impinging upon it but an active body forces working towards readjustment. According to World Health Organization, Health is a state of complete physical, mental, social wellbeing. The harmonious balance of this state of human individual integrated in his environment constitutes health. The state of positive health implies the notion of perfect functioning of body and mind.

Heart is one of the vital organs of human body. It is a roughly cone shaped muscular organ. It is about 10cm (4 inches) long weighs between 250 grams and 350 grams and is about the size of the owner's fist. It is located anterior to the vertebral column and posterior to the sternum. The function of the heart is to maintain a constant circulation of blood throughout the body.

CHD is also called Coronary arteriosclerosis, Coronary atherosclerosis. Coronary heart disease (CHD) is the most common type of heart disease. It is the leading cause of death in the United States in both men and women. CHD 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 their inner walls. This build-up is called atherosclerosis. As it grows, less blood can flow through the arteries. As a result, the heart muscle can't get the blood or oxygen it needs. This can lead to chest pain or a heart attack. Most heart attacks happen when a blood clot suddenly cuts off the hearts' blood supply, causing permanent heart damage. Over time, CHD can also weaken the heart muscle and contribute to heart failure and arrythmias. Heart failure means the heart can't pump blood well to the rest of the body. Arrhythmias are changes in the normal beating rhythm of the heart.

II. NEED OF THE STUDY

In today's world, most deaths are attributable to non-communicable diseases, 32 million and just over half of these, 16.7 million are because of CHD. More than one third of these deaths occur in middle aged adults. In developed countries heart disease is the first cause of death for adult men and women.

A rise in the prevalence of cardiovascular disease in the early half of the twentieth century and a subsequent decline in the latter half have been well documented in industrialized countries. Coronary heart disease is one of the major health problems responsible for increasing mortality and morbidity in Indian communities all over the world. It has been predicted that by 2020 there would be a 111 percent increase in cardiovascular death in India. This increase is much more than 77 percent for China, 106 percent for other Asian countries and 15 percent for economically developed countries.

III. OBJECTIVES

1. To assess the knowledge on risk factors and prevention of coronary heart disease among graduate students at a selected college by pre-test.
2. To evaluate the effectiveness of a structured teaching programme on risk factors and prevention of coronary heart disease among graduate students by comparing pre-test and post-test knowledge.
3. To test the association between post-test knowledge of graduate students with their selected demographic variables.

IV. ASSUMPTIONS

1. Graduate students will respond truthfully and frankly.
2. Tool prepared for the study would be enough to assess the knowledge.
3. Structured teaching programme on risk factors and prevention of Coronary heart disease can bring about desirable changes in the student's life.

V. HYPOTHESIS

H_1: There will be significant difference between pre-test and post-test knowledge on risk factors and prevention of Coronary Heart disease among students.

H_2: There will be significant association of post-test knowledge on risk factors and prevention of Coronary Heart diseases among graduate students with their selected demographic variables.

VI. OPERATIONAL DEFINITIONS:

1. **PRE- EXPERIMENTAL STUDY:** A type of quantitative research conducted to explain relationships why certain events happen and examine causality between structured teaching programme on the risk factors and prevention of coronary heart disease and knowledge of graduate students.
2. **ASSESS**- In this study, assess means to set or determine the amount or value.
3. **EFFECTIVENESS**: It refers to statistically significant improvement of posttest knowledge scores over pretest scores of graduate students after Structured Teaching Program on risk factors and prevention of coronary heart disease.
4. **STRUCTURED TEACHING PROGRAM**: It refers to a Teaching Programme of 60 minutes duration prepared and conducted by the investigator to the graduate students which uses audio visual aids to impart information on risk factors and prevention of coronary heart disease.

5. **RISK FACTORS:** It refers to something that increases a person's chances of developing CHD.
6. **PREVENTION**: In this study, it refers to the steps that can be taken to prevent the occurrence of CHD.
7. **CORONARY HEART DISEASE:** It is defined as acute or chronic form of cardiac disability arising from imbalance between myocardial supply and demand for oxygenated blood.
8. **GRADUATE STUDENTS**: It refers to a student who is studying in B pharm of Hillside College of pharmacy, Bangalore.

VII. DELIMITATION

1. The study includes graduate students who are willing to participate.
2. Delimited to Bangalore City.
3. The study is limited only to graduate students.

VIII. MATERIALS AND METHODS

Pre – experimental research approach using the one group pre-test, post-test design **(Figure-1)** was adopted because this study intended to measure the gain in knowledge of graduate students were given structured teaching programme. So, this can be represented as-
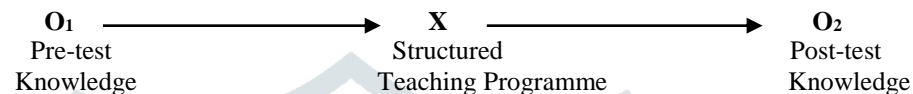
$$O_1 \longrightarrow X \longrightarrow O_2$$

Pre-test   Structured   Post-test
Knowledge   Teaching Programme   Knowledge

FIGURE 1: ONE GROUP PRETEST, POST –TEST DESIGN

The investigator introduced a base measure before and after a structured teaching programme, which was depicted as O_1 and O_2 respectively. In the present study the measure was knowledge of graduate students regarding risk factors and prevention of coronary heart disease. The intervention was the structured teaching programme which is depicted as X.

Phase-1

The target population selected for the study was graduate students. The accessible population for the study was graduate students of B pharm at Hillside College of Pharmacy, Bangalore. By Non-Probability Purposive Sampling Technique 60 graduate students were selected from accessible population, who met the inclusion criteria. The structured knowledge questionnaire was prepared to assess the knowledge regarding risk factors & prevention of coronary heart disease based on the review of literature, personal experience of the investigator and existing need of the prevention of coronary heart disease among graduate students.

Tool was validated by experts and reliability was established by Test – Retest Method.

Phase-2

Pre-test was conducted by administrating the knowledge questionnaire to measure the knowledge of graduate students on the first day. On the same day after the pre-test structured teaching programme on risk factors & prevention of coronary heart disease will be administered. Post-test was done with the same tool after seven days.

Phase-3

Analysis and interpretation of the data was done. Association was done with post-test knowledge scores and selected demographic variables. The effectiveness of structured teaching programme on risk factors & prevention of coronary heart disease among graduate students.

8.1 VARIABLES UNDER STUDY

A concept which can take on different quantitative values is called variables. **(Kothari, C.R. 2006)[35]**
Two types of variables were identified in this study.
1. **Independent variable** – Structured teaching programme for graduate students.
2. **Dependent variables -** Knowledge score of graduate students on risk factors and prevention of coronary heart disease before and after treatment.

8.2 RESEARCH SETTING

The present study was conducted at Hillside College of Pharmacy, Bangalore in B pharm classroom with 60 students.

8.3 RESEARCH POPULATION

Target Population: In the present study target population are the graduate students.
Accessible Population: The accessible population for the study was the graduate students studying in B pharm at Hillside College of Pharmacy, Bangalore.

8.4 THE SAMPLE

The sample for the present study comprised of 60 graduate students in B pharm of Hillside College of Pharmacy, Bangalore.

8.5 SAMPLING TECHNIQUE

60 Students were selected by Non-probability purposive sampling technique from HillsideCollege of Pharmacy, Bangalore.

8.6 SAMPLE SELECTION CRITERIA

The sampling frame structured by the investigator included the following criteria.

Inclusion Criteria

1. The students studying in the selected college at Bangalore.

2. Students who were willing to participate.

3. Students who are present at the time of data collection.

Exclusion Criteria

1. Students who are not present at the time of data collection.
2. Students who are not interested in study can be excluded in the study.

8.7 DEVELOPMENT AND DESCRIPTION OF THE TOOL

After an extensive review of literature, discussion with the experts and with the investigator's professional experience, structured knowledge questionnaire was developed.

8.7.1 DATA COLLECTION TOOL

This consists of 2 parts

Part I: Assessment of demographic variables

Demographic variables include age, gender, religion, marital status, dietary habits, bad habits, family income, lifestyle, family history of heart disease and source of getting information about coronary heart disease.

Part II: Assessment of level of knowledge on risk factors & prevention of Coronary Heart Disease.

Knowledge – 50 questions

It consists of 7 divisions.

a) Anatomy & Physiology – 5 items.

b) Definition – 2 items

c) Risk factors – 15 items

d) Clinical manifestations – 4 items

e) Diagnostic evaluations – 2 items

f) Prevention – 19 items

g) Management – 3 items

Each item has 1 correct response and each correct response carries '1' mark and each wrong answer carries '0' mark.

8.7.2 SCORING AND INTERPRETATION

Scoring for knowledge

Range	Interpretation
1 – 12	Poor
13 – 24	Average
25 – 37	Good
38 – 50	Excellent

INTERVENTION

Structured teaching programme on risk factors and prevention of coronary heart disease.

8.7.3 RELIABILITY

The reliability of the tool was established by test retest method for knowledge questionnaire. The reliability score was r = **0.874** for knowledge. The 'r' value indicated the highly positive correlation, which showed that the tool is reliable, feasible and practicable to conduct the main study.

8.7.4 PILOT STUDY

The predominant objectives of the pilot study were to help the investigator to become familiar with the use of tool and to find out any difficulties to conduct the main study. It also aimed to assess the feasibility of the study, clarity of language and make plans for analysis thus helping in finalizing the tool. The investigator obtained the written permission from the concerned authority. Pilot study was conducted from 15 – 23rd May 2019 at Hillside College of pharmacy.

A total of 6 students who fulfilled the inclusive criteria for sample selection were selected using non-probability purposive sampling technique. The investigator administered structured knowledge questionnaire and structured teaching programme given to

the students which took approximately 1 hour 30 minutes to complete the process. Post-test level of knowledge was assessed on 8th day using the same knowledge questionnaire.

The analysis of pilot study revealed that the objectives of the study could be fulfilled, based on this information investigator proceeded with the actual data collection for the main study. The tool was found to be feasible and practicable. No further changes were made in the tool after the pilot study.

8.7.5 PROCEDURE FOR DATA COLLECTION

Written permission was obtained from the administrative authority and research ethical committee of Hillside College of Nursing and Hillside College of Pharmacy, Bangalore prior to the data collection. The study was carried out in the same way as that of the pilot study. A total of 60 samples were allocated by the non-probability purposive sampling for the study.

A brief introduction of self and explanation on the purpose of the study was given. At first demographic details were obtained through structured questionnaire regarding demographic data. The investigator gave thorough description about the tool and data collection procedure and intervention. The investigator administered structured knowledge questionnaire and structured teaching given with Power Point Presentation for students took approximately 1 hour 30 minutes to complete the process. On 8th day, Post-test level of knowledge was assessed using the same knowledge questionnaire.

8.8 PLANS FOR DATA ANALYSIS

The data obtained were analysed by using both descriptive and inferential statistics.

Descriptive statistics
1. Frequency and percentage distribution to analyze demographic variables of students.
2. Mean and standard deviation to analyze will be used to analyze pre and posttest knowledge on risk factors and prevention of coronary heart disease.

Inferential statistics
1. "Z" test to compare the pre-test and posttest level of knowledge on risk factors and prevention of coronary heart disease.
2. Chi- square test was used to associate selected demographic variables and posttest knowledge scores.

The analyzed data will be presented in the form of tables, figures and graphs.

IX.   RESULTS & FINDINGS

The present educational programme was prepared with the aim of improving the knowledge of graduate students regarding the risk factors and prevention of coronary heart disease. In order to achieve the objectives of the study, one group pre-test post-test experimental design was adopted for the study. An evaluative approach was adopted for the study. Non probability purposive sampling technique was used to select the respondents. The sample for the study comprises 60 graduate students to whom the structured teaching programme was administered.

The data findings have been organized and presented under following sections:

Section A: Description of the demographic variables.

Section B: Assessment of pre-test and post-test level of knowledge regarding risk factors and prevention of coronary heart disease among graduate students.

Section C: Effectiveness of structured teaching programme on knowledge regarding risk factors and prevention of coronary heart disease among graduate students.

Section D: Association of post-test knowledge regarding risk factors and prevention of coronary heart disease among graduate students with their selected demographic variables.

SECTION - A DESCRIPTION OF THE DEMOGRAPHIC VARIABLES

- Percentage distribution of graduate students according to the age (in years) shows that highest percentage 50(83.33%) were age group of 20-25 years. One Sixth of them 10(16.66%) were in the age group of 26-30 years.
- -Analysis revealed that 23(38.33%) were male and 37(61.66%) were females respectively.
- It is evident that majority of the students i.e., 73.33% of them were Hindus. A small number 15% belonged to the Christians and 11.66% belonged to the Muslim religion.
- Among all the participants 83.33% of the samples were single and 16.66% were married.
- It is apparent that maximum students i.e., 50% were vegetarian, 20% were non-vegetarian and 30% were mixed.
- It is evident that majority of students 91.6% had no bad habits, 3.33% were alcoholic and 5% were smokers.
- The findings indicated that 18.33% had their family income <5000, 46.66% had their family income between Rs.5000-10000 and 35% had >10000.
- It is evident that maximum number of students 73.33% were sedentary worker, 23.33% were moderate worker and 3.33% were heavy worker.
- Half of the samples 50% had family history of heart disease and half of them 50% had no family history of heart disease.
- It is apparent that maximum students i.e., 58.33% were got information of coronary heart disease from Internet, TV. 11.66% were got from Physician and 30% were got from Health campaign.

Section – B Assessment of pre-test and posttest level of knowledge regarding risk factors and prevention of coronary heart disease among graduate students.

The mean score of post-test knowledge score (43.86) was apparently higher than the pre-test knowledge score (8.83), S.D. post-test knowledge score (±6.33) was apparently higher than the pre-test knowledge score (±4.20).

Section C: Effectiveness of structured teaching programme on knowledge regarding risk factors and prevention of coronary heart disease among graduate students.

Themean post-test knowledge score (43.86) was apparently higher than the pre-test knowledge score (8.83). The mean difference (35.03), S.D. post-test knowledge score (±6.33) was apparently higher than the pre-test knowledge score (±4.20) and computed "z" value (35.78) at the level of $p<0.00001$ shows that extremely significant difference between the pre-test and post-test knowledge scores. This indicated that the structured teaching programme imparted to graduate students had extremely significant improvement in the post-test level of knowledge regarding risk factors and prevention of coronary heart disease. **Hence research hypothesis H$_1$ is accepted**.

Section D: Association of post-test knowledge regarding risk factors and prevention of coronary heart disease among graduate students with their selected demographic variables.

The demographic variable family history of heart disease had shown statistically significant association with post-test level of knowledge regarding risk factors and prevention of coronary heart disease at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post-test level of knowledge among graduate students. **Hence hypothesis H$_2$ is accepted.**

X.　RECOMMENDATIONS

The study recommends the following for achieving this end.

- A comparative study can be carried out to assess the factors leading to the development of CHD between rural and urban population.
- A study can be conducted in larger sample for better generalization.
- A comparative study can be conducted to compare the effect of structured teaching programme among experimental group and control group without intervention.
- A similar study can be conducted by the different types of non-pharmacological measures.
- A study can be conducted along with medical interventions.

XI.　ACKNOWLEDGEMENT

XII.　REFERENCES

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