



# “A Study To Evaluate The Effectiveness Of Structured Teaching Program On Knowledge Regarding Risk Factors And Prevention Of Coronary Artery Diseases Among Third Year BSc. Nursing Students Of Selected Colleges Of The City”.

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**Abstract:** **Aim:** The study aims to find the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students. **Problem statement:** “A study to evaluate the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students of selected colleges of the city”. **Primary objective:** The primary objective of study was to find the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students. **Secondary objective:** 1. To assess the knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students. 2. To assess the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students. 3. To associate the pre-test knowledge score with selected demographic variables. **Method:** The study was quasi- experimental non-equivalent control group design in nature. Quantitative research approach was adopted for study. Sample size was 60 that consisted of 30 Third year B.Sc. nursing students from experimental and control group. Non probability purposive sampling technique was used for the data collection. **Result:** The experimental group showed significant improvements in knowledge, attitude, and health behavior regarding the prevention of modifiable coronary artery disease risk factors compared to the control group. Post-test scores in the experimental group were significantly higher across all areas, including knowledge of anatomy, disease information, risk factors, and prevention. The paired and unpaired t-tests showed statistically significant differences ( $p < 0.001$ ) between pre- and post-test scores in both groups, with the experimental group demonstrating a greater increase. **Interpretation and conclusion:** The structured intervention in the experimental group was effective in improving nursing students' knowledge and health behavior's regarding coronary artery disease prevention. This indicates that targeted educational programs can play a vital role in enhancing preventive health practices among

future healthcare professionals. **Keyword's** : Structured teaching program, coronary artery diseases and third year BSc. Nursing students.

## INTRODUCTION

The heart is the engine of human life. Beating almost 100,000 times a day, more than 36 million times each year, Endlessly Beating examines the heart as a muscle, pushing approximately five quarts of blood in an endless course to deliver oxygen to every cell of the human body. Coronary artery disease is a condition in which the blood supply to the heart muscle is partially or completely blocked. The heart muscle needs a constant supply of oxygen-rich blood. The coronary arteries, which branch of the aorta just after it leaves the heart, deliver this blood. Coronary artery disease can block blood flow, causing chest pain (angina) or a heart attack (also called myocardial infarction).<sup>1</sup> According to Lewis, the heart and the blood vessels comprise the cardiovascular system (CVS). Cardiovascular diseases (CVDs) include diseases of the heart, vascular diseases of the brain and diseases of the blood vessels, which affect the normal function of the heart. Coronary artery disease (CAD) is the most common type of cardiovascular disease and account for the majority of deaths.<sup>2</sup> Coronary artery disease is the leading cause of morbidity and mortality in many developed countries and will be an increasing problem for developing nations.<sup>3</sup>

## BACKGROUND OF THE STUDY

Nearly 42% of the decrease in CAD mortality has been attributed to treatment (including 11% secondary prevention), 13% of heart failure treatment, 8% to initial treatment of acute myocardial infarction and 3% to - 5 - hypertension treatment. About 58% of the decline has been attributed to population wide risk factors reductions. The above data and similar experiences in Finland and other countries, strongly support the view that population wide primary prevention and individual healthcare approaches go hand in hand to reduce the population burden of CVDs. (WHO - CVD Atlas, 2012).<sup>10</sup> Cardiovascular disease is the major cause of death in the world. Coronary artery disease (CAD) is the most common type of cardiovascular disease and accounts for the majority of these deaths. Patients with CAD can be asymptomatic or develop chronic stable angina. Atherosclerosis is the major cause of CAD. Inflammation and endothelial injury plan a central male in the development of atherosclerosis. Endothelial lining can be injured because of tobacco use, hyperlipidemia, hypertension, and diabetes.<sup>11</sup>

## NEED OF THE STUDY

According to WHO cardiovascular disease is the world's leading killer, accounting for 16.7 million or 29.2 per cent of total global deaths in 2003. With modernization, a large proportion of Asians are trading healthy traditional diets for fatty foods, physical jobs for deskbound sloth, the relative calm of the countryside for the stressful city. Heart- attack victims are just the first wave of a swelling population of Asians with heart problems. While deaths from heart attacks have declined more than 50 per cent since 1960 in many industrialize countries, 80 per cent of global cardiovascular diseases related deaths occur in low and middle-income populations. In India in the past five decades, rates of coronary disease among

urban populations have risen from four percent to 11 per cent.<sup>14</sup>

### **Problem statement**

“A study to evaluate the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students of selected colleges of the city”.

### **Objectives:**

**Primary objective:** The primary objective of study was to find the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students.

**Secondary objective:** 1. To assess the knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students.

2. To assess the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students.

3. To associate the pre-test knowledge score with selected demographic variables.

### **Hypothesis**

**H0:** There is no significant effect of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students of selected colleges of the city ( $p = 0.05$  level of significance).

**H1:** There is significant effect of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students of selected colleges of the city ( $p = 0.05$  level of significance)

### **REVIEW OF LITERATURE**

The review of literature for the present study is arranged under the following headings:

1. Prevalence of Coronary artery disease (CAD)
2. Risk factors of coronary artery diseases
3. Risk factors of coronary artery diseases prevalence in adolescents
4. Risk Factor Modification of coronary artery diseases
5. Effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases.

### **RESEARCH APPROACH**

In this study, evaluative research approach was used to identify and document the aspects of situation as it occurs naturally. An Evaluative approach is more appropriate to assess the “A study to evaluate the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of

coronary artery diseases among third year BSc. Nursing students of selected colleges of the city”

## RESEARCH DESIGN

An experimental design in which data are collected from research subjects both before and after the introduction of the experimental intervention also referred to as a before - after design to assess the effectiveness of structured teaching program on knowledge regarding risk factors and prevention of coronary artery diseases among third year BSc. Nursing students of selected colleges of the city.

## POPULATION

**Target population:** In this study target population is Third Year B.Sc Nursing Students.

**Accessible population:** In this study, accessible population consisted of Third B.Sc Nursing Students in selected city.

## SAMPLING

**Sample:** samples were B.Sc. Nursing Students at selected areas.

**Sampling technique:** Non probability - convenient sampling technique was used .

## Data and Sources of Data

After obtaining permission from concerned authorities, the investigator has fixed the date and time for data collection in consultation with peoples. According to pre-planned date and time, the investigator has visited the collage and collected from 25/12/2023 to 02/01/2024.

**Pre-test:** As per tentative schedule, the investigator has visited and handed over the SAQ with instructions to handover after 30 minutes. And, they were requested to read the question one by one and put ( $\surd$ ) mark on right option mentioned below each question. The doubts were clarified and collected the filled in tool after 30 minutes. **Intervention:** On the same day of pre-test, the structured teaching program conducted immediately after obtaining filled in pretest. Accordingly, the investigator asked each people to read and understand regarding prevention of coronary artery diseases . Further, the peoples were informed regarding date and time for post test. **Post test:** The post test was conducted using same tool used for pre-test After the data gathering process the researcher thanked all the study samples as well as the authorities for their cooperation.

## PLAN FOR DATA ANALYSIS

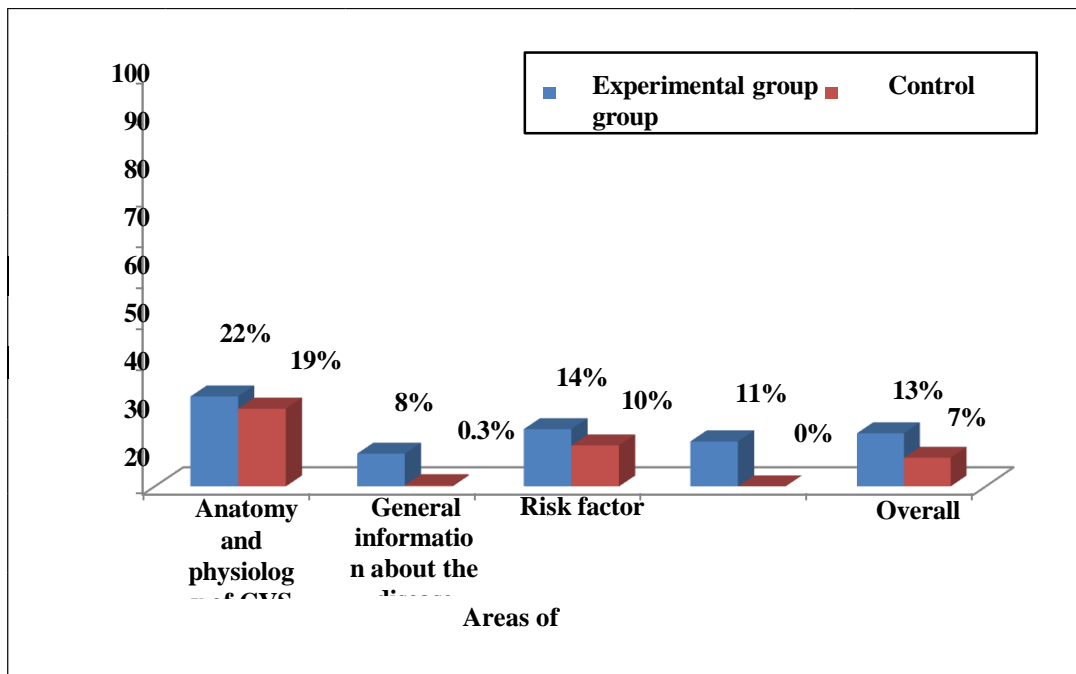
The data collected was planned to analyse by using both descriptive and inferential statistics based on objectives and hypothesis of the study. The descriptive statistics includes; mean median, mode, mean percentage and standard deviation. The inferential statistics includes; student unpaired t test, paired t test, Chi square are test, reliability analysis.

However, the tabulated data were planned to analyze underfollowing heading –

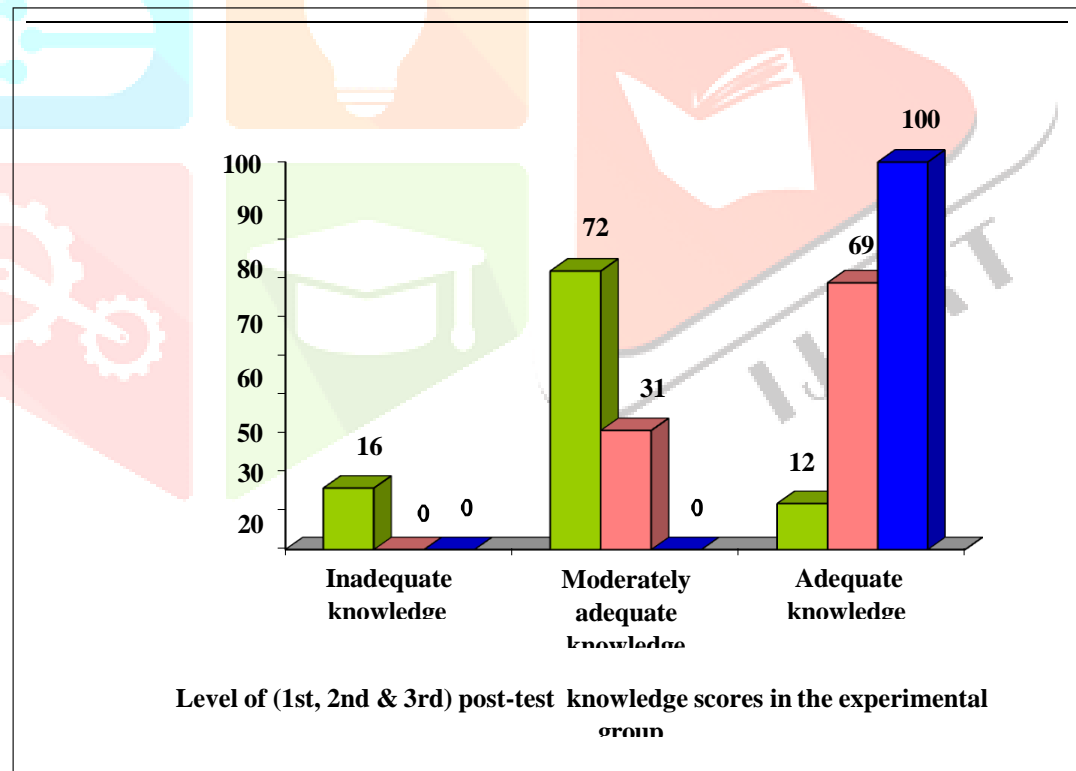
**SECTION – I:** Distribution of Third year BSc nursing students according to the demographic variables in experimental and control groups.

Demographic variables	Experimental group		Control Group	
	Freq	%	Freq	%
<b><u>1. Age in years</u></b>				
a) 19 – 20	20	67	25	83
b) 20 years and above	10	33	05	17
<b><u>2. Gender</u></b>				
a) Male	10	33	12	40
b) Female	20	67	18	60
<b><u>3. Religion</u></b>				
a) Hindu	22	73	20	67
b) Muslim	02	7	02	7
c) Christian	06	20	08	27
d) Others	00	0	00	0
<b><u>4. Dietary habits</u></b>				
a) Vegetarian	05	17	07	23
b) Non-Vegetarian	25	83	23	77
<b><u>5. BMI</u></b>				
a) Normal	20	67	20	66
b) Overweight	05	17	05	17
c) Obesity class I	02	7	02	7
d) Obesity class II	03	10	03	10
<b><u>6. Blood Pressure</u></b>				
a) Normal	25	83	27	90
b) Prehypertension	02	7	01	3
c) Stage I hypertension	03	10	02	7
<b><u>7. Education of father</u></b>				
a) Professional or Honour	1	3	2	7
b) Graduate or post graduate	4	13	5	17
c) Intermediate	4	13	4	13
d) High school	3	10	3	10
e) Middle school	4	13	4	13
f) Primary school	8	27	7	23
g) Illiterate	6	20	5	17

**SECTION – II:** Percentage distribution of Third year BSc nursing students according to areas of pre-test knowledge, scores of adolescents in the experimental and control groups regarding prevention of selected modifiable coronary artery disease risk factors.



**Fig- 1:** Percentage distribution of nursing students according to areas of knowledge scores (pre-test) in experimental and control group regarding prevention of selected modifiable coronary artery disease risk factors.



**Fig- 2:** Percentage distribution of adolescents according to level of post-(1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup>) scores on knowledge in experimental group prevention of selected modifiable CAD risk

**ANALYSIS AND INTERPRETATION**

**Table- 2:** Area wise comparison of the pre-test and 3<sup>rd</sup> post-test mean, SD, paired ‘t’ and unpaired ‘t’ test of nursing students on knowledge, and health behavior regarding prevention of selected modifiable coronary artery disease risk factors in experimental group and control group.

Area	Max. score	Experimental group Pre-test scores		Experimental group Post-test (3 <sup>rd</sup> ) scores		Paired ‘t’ test p-value	Control group Pre-test scores		Control group Post-test (3 <sup>rd</sup> ) scores		Paired ‘t’ test p-value	Unpaired ‘t’ test p-value
		Mean	SD	Mean	SD		Mean	SD	Mean	SD		
<b>Knowledge</b>												
Anatomy & Physiology of CVS	2	0.44	0.49	1.93	0.26	34.1 p<0.001	0.37	0.48	0.35	0.48	0.68	38.83 p<0.001
General information about the disease	3	0.24	0.44	2.82	0.39	59.78 p<0.001	0.01	0.07	0.08	0.29	3.39 p<0.001	75.63 p<0.001
Risk factor	14	1.92	1.19	13.21	0.65	110 p<0.001	1.39	1.02	1.72	1.21	5.13 p<0.001	42.21 p<0.001
Prevention	6	0.67	0.82	5.76	0.43	69.53 p<0.001	0	0	0.29	0.50	7.84 p<0.001	110 p<0.001
Overall	25	3.27	1.87	23.7	0.904	180.02 p<0.001	1.77	1.34	2.46	1.49	8.32 p<0.001	160 p<0.001
<b>Attitude</b>												
Risk fact	40	10.13	1.69	39.97	0.18	240 p<0.001	10.66	1.23	10	0.99	9.78 p<0.001	400 p<0.001

ors												
Prevention	60	14.45	2.06	59.6	0.63	280 p<0.001	15.52	1.82	14.68	1.46	10.05 p<0.001	380 p<0.001
Overall	100	24.58	3.35	99.5	0.65	290 p<0.001	26.17	2.48	24.68	1.99	13.23 p<0.001	480 p<0.001
<b>Health Behavior</b>												
Diet	56	14.86	0.89	54.79	1.35	360 p<0.001	16.4	1.36	15.69	1.14	9.31 p<0.001	300 p<0.001
Smoking	8	7.98	0.13	7.54	0.98	5.97 p<0.001	6.68	2.16	6.56	2.13	3.12 p<0.001	5.61 p<0.001
Physical Activity	24	6.57	0.95	13.96	2.7	33.85 p<0.001	4.65	0.64	4.48	0.54	4.36 p<0.001	46.19 p<0.001
Overall	80	29.41	1.34	76.28	4.43	140 p<0.001	27.7	2.96	26.74	2.39	10.28 p<0.001	130 p<0.001
<b>n = 60 ( 30 + 30)</b>												

**Table- 3:** Comparison of mean, SE, paired and unpaired ‘t’ tests of pre-test and post- test knowledge, attitude, and health behavior scores among nursing students in control and experimental groups.

S. No	Parameter	Group	Mean , SE	Significance Unpaired ‘t’ test		Significance Paired ‘t’ test	
				Con-Exp Pre test	Con-Exp Post test	Contr ol Pre -Post	Experime ntal Pre – Post
1	Knowledge	Con – Pre test	1.77 , 0.08	t = 9.196 P <0.001	t = 163.091 P <0.001	t = 8.326 P <0.001	t = 127.345 P <0.001
		Con - Post test	2.46 , 0.11				
		Exp - Pre test	3.27, 0.14				
		Exp - Post test	23.72, 0.07				

2	Attitude	Con – Pre test	26.17, 0.19	t = 5.103 P <0.001	t = 478.488 P <0.001	t = 13.232 P <0.001	t = 294.858 P <0.001
		Con - Post test	24.68, 0.15				
		Exp - Pre test	24.58, 0.25				
		Exp - Post test	99.57, 0.05				
3	Health Behavior	Con – Pre test	27.73, 0.22	t = 23.080 P <0.001	t = 129.662 P <0.001	t = 10.289 P <0.001	t = 226.792 P <0.001
		Con - Post test	26.74, 0.18				
		Exp - Pre test	120.51, 4.01				
		Exp - Post test	146.00, 4.02				

**Table- 4:** Association of pre-test knowledge score with selected demographic variables

Demographic variables	Experimental group		Control group		$\chi^2$ value	p- value
	Freq	%	Freq	%		
<b><u>1. Age in years</u></b>					6.62	NS
a) 19 – 20	20	67	25	83		
b) 20 years and above	10	33	05	17		
<b><u>2. Gender</u></b>					2.12	NS
a) Male	10	33	12	40		
b) Female	20	67	18	60		
<b><u>3. Religion</u></b>					1.65	NS
a) Hindu	22	73	20	67		
b) Muslim	02	7	02	7		
c) Christian	06	20	08	27		
d) Others	00	0	00	0		
<b><u>4. Dietary habits</u></b>					2.20	NS
a) Vegetarian	05	17	07	23		
b) Non-Vegetarian	25	83	23	77		
<b><u>5. BMI</u></b>					3.12	NS
a) Normal	20	67	20	66		
b) Overweight	05	17	05	17		
c) Obesity class I	02	7	02	7		
d) Obesity class II	03	10	03	10		
<b><u>6. Blood Pressure</u></b>					2.13	NS
a) Normal	25	83	27	90		
b) Prehypertension	02	7	01	3		
c) Stage I hypertension	03	10	02	7		
<b><u>7. Education of father</u></b>					4.36	NS
a) Professional or Honour	1	3	2	7		
b) Graduate or post graduate	4	13	5	17		
c) Intermediate	4	13	4	13		
d) High school	3	10	3	10		
e) Middle school	4	13	4	13		
f) Primary school	8	27	7	23		
g) Illiterate	6	20	5	17		

Above table shows there is no significant association between pre-test knowledge score with selected demographic variables.

## CONCLUSION

The structured intervention in the experimental group was effective in improving nursing students' knowledge and health behavior's regarding coronary artery disease prevention. This indicates that targeted educational programs can play a vital role in enhancing preventive health practices among future healthcare professionals.

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