# AN EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF SELECTED INTERVENTIONAL PACKAGE ON KNOWLEDGE, LIFESTYLE AND BIO PHYSIOLOGICAL PARAMETERS IN REDUCTION OF MODIFIABLE RISKS OF CARDIOVASCULAR DISEASES AMONG ADULTS AT SELECTED URBAN COMMUNITIES, TAMIL NADU.

## SYNOPSIS

Of the thesis to be submitted to The Tamil Nadu Dr. M.G.R. Medical University in partial fulfilment of the requirement for the award of the degree of



**DOCTOR OF PHILOSOPHY**
**IN NURSING**

By

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# CHAPTER – 1

## INTRODUCTION

**BEAT THE HEART DISEASE AND FEEL THE HEALTHY BEAT**

### 1.1 BACKGROUND OF THE STUDY

Cardiovascular disease (CVD) is a general term for conditions affecting the heart or blood vessels. It is usually associated with a build-up of fatty deposits inside the arteries known as atherosclerosis and an increased risk of blood clots. It can also be associated with damage to arteries in organs such as the brain, heart, kidneys and eyes[1].

CVD is globally considered as the leading cause of death with 80% of CVD related deaths being reported from low and middle income countries like India, but it can often largely be prevented with a healthy lifestyle. Coronary atherosclerosis is a chronic disease with stable and unstable periods. During unstable periods with activated inflammation in the vascular wall, patients may develop CVD. After decades of study, risk factors for the development of atherosclerotic cardiovascular disease have been identified. These risk factors include older age, male sex, a positive family history, hypertension, dyslipidemia, diabetes, cigarette smoking, and obesity[2].
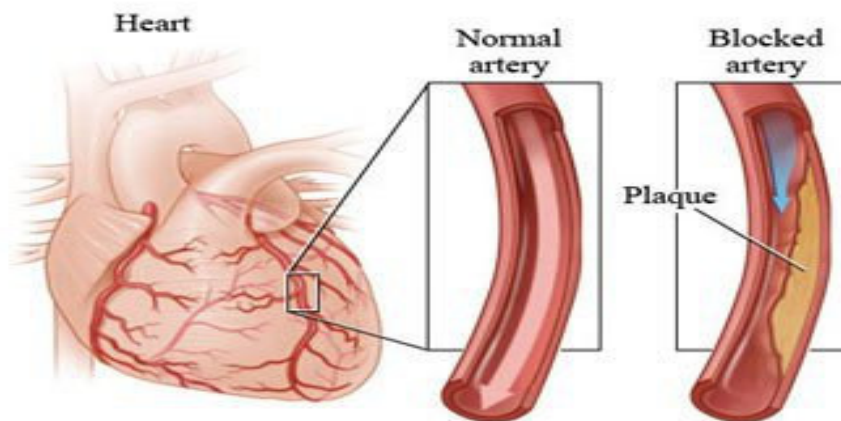


**Fig.1.1: Atherosclerotic Cardiovascular Disease[3].**

**Source:** Atherosclerotic Cardiovascular Disease MEDIGOD.COM.2016.[3]

**GLOBAL SCENARIO**

CVDs are the number 1 cause of death globally: more people die annually from CVDs than from any other cause. An estimated 17.7 million people died from CVDs in 2015, representing 31% of all global deaths. Of these deaths, an estimated 7.4 million were due to coronary heart disease and 6.7 million were due to stroke. Over three quarters of CVD deaths take place in low and middle-income countries.

Out of the 17 million premature deaths occurred under the age of 70 due to non communicable diseases in 2015, 82% are in low and middle-income countries and 37% are caused by CVDs. Most CVDs can be prevented by addressing behavioural risk factors such as tobacco use, unhealthy diet, obesity, physical inactivity and harmful use of alcohol using population-wide strategies.

People with CVD or who are at high cardiovascular risk due to the presence of one or more risk factors such as hypertension, diabetes, hyperlipidaemia or already established disease need early detection and management using counselling and medicines, as appropriate **(Dorairaj Prabhakaran, AHA, 2016)**[4].

CVDs are the number 1 cause of death globally, more people die annually from CVDs than from any other cause. An estimated 17.7 million people died from CVDs in 2015, representing 31% of all global deaths. Of these deaths, an estimated 7.4 million were due to coronary heart disease and 6.7 million were due to stroke **(WHO, 2017)**[5].

The pattern and global burden of disease has evolved considerably over the last two decades from primarily communicable, maternal, and perinatal causes to non communicable disease (NCD). CVD has become the single most important and largest cause of NCD deaths worldwide, at over 50% **(McAloon C.J, 2016)**[6].

**INDIAN SCENARIO**

CVDs have now become the leading cause of mortality in India. A quarter of all mortality is attributable to CVD. Ischemic heart disease and stroke are the predominant causes and are responsible for > 80% of CVD deaths. The Global Burden of Disease study estimate of age-standardized CVD death rate of 272 per

1,00,000 population in India is higher than the global average of 235 per 1,00,000 population. Some aspects of the CVD epidemic in India are particular causes of concern, including its accelerated build-up, the early age of disease onset in the population and the high case fatality rate. In India, the epidemiological transition from predominantly infectious disease conditions to non communicable diseases has occurred over a rather brief period of time. Premature mortality in terms of years of life lost because of CVD in India increased by 59%, from 23.2 million (1990) to 37 million (2010). Despite wide heterogeneity in the prevalence of cardiovascular risk factors across different regions, CVD has emerged as the leading cause of death in all parts of India, including poorer states and rural areas.

The progression of the epidemic is characterized by the reversal of socioeconomic gradients; tobacco use and low fruit and vegetable intake have become more prevalent among those from lower socioeconomic backgrounds. In addition, individuals from lower socioeconomic backgrounds frequently do not receive optimal therapy, leading to poorer outcomes. Countering the epidemic requires the development of strategies such as the formulation and effective implementation of evidence-based policy, reinforcement of health systems, and emphasis on prevention, early detection, and treatment with community-based studies are testing these strategies **(Prabhakaran 2016)** [7].
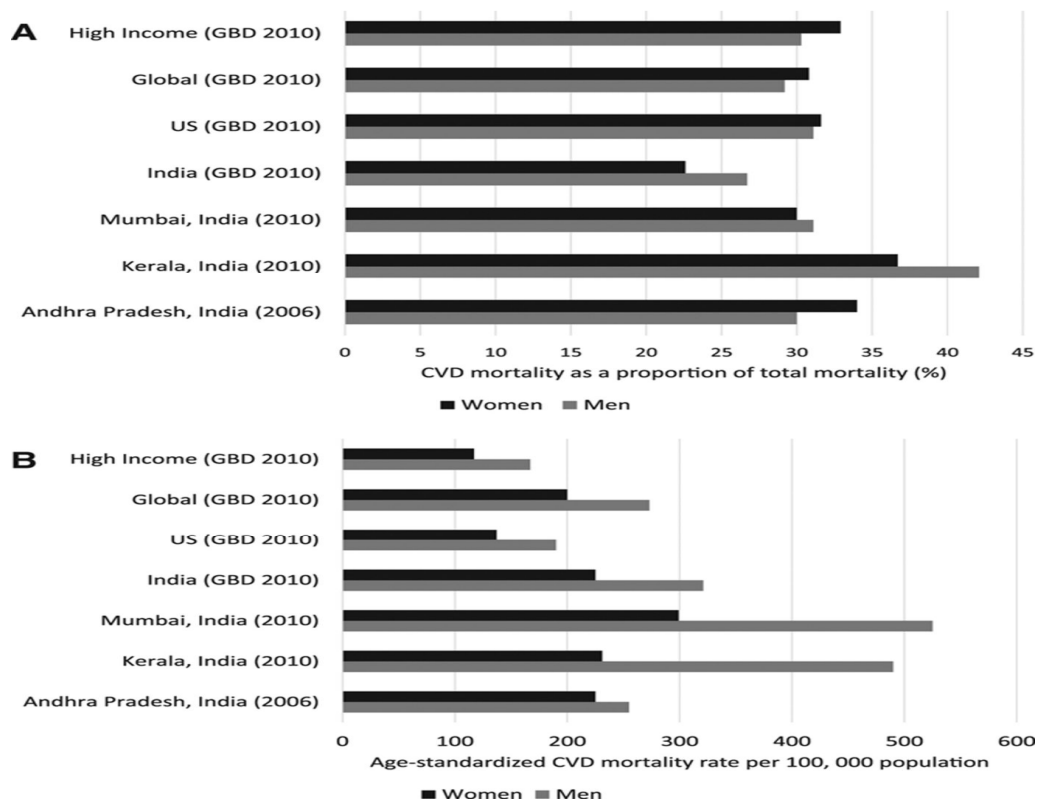
**Fig.1.2: Prabhakaran 2016, CVD mortality rate worldwide[7]**

**Source:** Current Epidemiology and Future Directions. Circulation AHA. 2016[7]

**STATE SCENARIO**

The investigator underscored the point that mortality rate due to cardio vascular diseases in Tamil Nadu was 360-430 per 1 lakh population, the highest in the country. Quoting statistics, Dinesh Varma said 10.4 per cent of population in the State suffer from diabetes, 20 percent from high blood pressure and 23 per cent were overweight **(HINDU, 2013)** [8].

**1.2 SIGNIFICANCE AND NEED FOR THE STUDY**

CVD refers to a group of illnesses that have to do with the heart and the blood vessels that carry blood around the body. Some of these illnesses include: High blood pressure, coronary heart disease which includes heart attacks **(HINDU, 2013)**[9].

Risk factors are conditions or habits that make a person more likely to develop a disease. They can also increase the chances that an existing disease will get worse .Each risk factor greatly increases a woman's chance of developing heart disease. But having

more than one risk factor is especially serious, because risk factors tend to "gang up" and worsen each other's effects. So, the message is clear: Every woman needs to take her heart disease risk seriously and take action now to reduce their risk **(AHA, 2018)**[10].

The global burden of non-communicable diseases at the 65th annual World Health Assembly in May, the World Health Organization and member states established the first global targets on non-communicable diseases. The goal is to reduce premature mortality from cardiovascular disease, cancer, diabetes, chronic respiratory disease and other non-communicable diseases by 25% by 2025 **(Department of health and health services, 2017)**[11].

A study to assess the effectiveness of primary care health education interventions designed to promote healthy lifestyles on physical activity levels and cardiovascular risk. A computer-aided search on pub med and Scopus was performed to identify relevant studies published from January 2000 to October 2016. Two authors independently selected studies for inclusion and extracted data, including intervention characteristics and outcome measures, namely physical activity and cardiovascular risk or risk factors. Of the 212 identified studies, 15 met the inclusion criteria. The 15 studies enrolled 6727 participants; the sample size varied between 74 and 878 adults. Fourteen studies assessed physical activity by questionnaire and only one study used accelerometry. Eight of the 15 studies showed improvements in the physical activity levels after the intervention, ranging from 5% to 26% in those where significant changes between groups were detected. Most studies reported significant positive effects of the health education interventions on cardiovascular risk factors, mainly on lipid profile, blood pressure and cardiovascular risk score. The health education interventions in primary care, seem to improve daily physical activity, cardiovascular risk factors and risk score **(WHO, 2013)**[12].

The progression of the epidemic is characterized by the reversal of socioeconomic gradients; tobacco use, low fruit and vegetable intake have become more prevalent among those from lower socioeconomic backgrounds. In addition, individuals from lower socioeconomic backgrounds frequently do not receive optimal therapy, leading to poorer outcomes. Countering the epidemic requires the development of strategies such as the formulation and effective implementation of evidence-based

policy, reinforcement of health systems, emphasis on prevention, early detection and treatment with the use of both conventional and innovative techniques. Several ongoing community-based studies are testing these strategies **(Ana Ramoa Castroa, 2017)**[13].

Behavioural risk factors are often related and closer adherence to a healthier lifestyle might reduce the risk of coronary heart disease. Several studies indicate that lifestyle change not only prevents but also controls the progress of cardiac diseases and reduces the occurrence of cardiac events in the patients with cardiovascular diseases **(Dorairaj Prabhakaran, 2016 )**[14].

Also the investigator had personal experience of witnessing the clients with risk factors like diabetes mellitus, hypertension, obesity, smoking, alcoholism and tobacco chewing. Since people had poor knowledge on risks of CVD and unhealthy life styles pattern which may put them into the risks of CVD. Yet screening and educating the people to reducing these risk factors through improving the knowledge by creating awareness and life style modifications are a significant challenge for the investigator who is in the field of health professional .So this scenario motivated investigator to conduct the study on reduction of modifiable risks of CVD among adults at selected community.

# CHAPTER – 2

## AIMS AND OBJECTIVES

**2.1 TITLE**

Effectiveness of selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases.

**2.2 STATEMENT OF THE PROBLEM**

A study to assess the effectiveness of selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardio vascular diseases among adults at selected urban communities, Tamil Nadu.

**2.3 OBJECTIVES OF THE STUDY**

1. To evaluate the effectiveness of selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults in experimental and control group.
2. To correlate the level of knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults in experimental and control group.
3. To associate the pre and post test mean difference level of knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults with their selected demographic variables of experimental and control group.

**2.4 OPERATIONAL DEFINITIONS**

**2.4.1 Effectiveness**

It refers to the outcome of selected interventional package on knowledge, lifestyle and bio physiological parameters of modifiable risks of CVDs which was assessed by knowledge structured interview questionnaire on CVDs, check list on lifestyle assessment on modifiable risks of CVDs and cardiovascular assessment tool to identify the bio physiological parameters of modifiable risks of CVDs which was performed after selecting the participant by screening using modified Framingham 10 years CVD risk assessment tool**.**

**2.4.2 Selected interventional package**

It refers to the combination of nursing interventions which includes a) Nurse Led Education, b)Nurse Led Discussion and  c) Nurse Led Demonstration  on modifiable risks of CVDs.

**a) Nurse Led Education**

It was explained about knowledge on CVDs which includes general awareness, risk factors, signs and symptoms, diagnostic evaluation, prevention and life style changes of CVD for 30-45 min with the help of the power point presentation among group of 10-15 adults.

**b) Nurse Led Discussion**

It was discussed about prevention of modifiable risks of CVDs which includes diet control, aerobic exercises, beat stress & cessation of tobacco, smoking and alcohol by motivational interviewing which includes counselling and guidance for 30- 45 min using booklet and clarifying the doubts among group of 10-15 adults and which was assessed by tracker.

**c) Nurse Led Demonstration**

It was demonstrated about the reduction of modifiable risks of CVDs by yoga technique which includes stress relaxation therapy, breathing exercises and meditation for 30-45 min among group of 10-15 adults by using video method.

**2.4.3 Knowledge**

It refers to level of understanding & awareness on CVDs by adults which was assessed by questionnaire.

**2.4.4 Lifestyle**

It refers to adult's day to day practice related to diet, exercise, habits (smoking, tobacco chewing and alcoholism consumption) and stress. This was assessed by check list on lifestyle pattern.

### 2.4.5 Bio physiological parameters

It refers to the important element to consider in evaluation of BMI, waist circumference, blood pressure, blood sugar (FBS & PPBS) and hyperlipidemia (Total cholesterol, HDL, LDL, VLDL and triglyceride) of modifiable risks of CVDs.

### 2.4.6 Reduction of Modifiable risks of cardio vascular diseases

It refers to controlling the identifiable changeable risk factors of CVDs such as obesity, increased blood pressure, increased blood sugar, high cholesterol, physical inactivity, poor dietary pattern, smoking, tobacco exposure and harmful use of alcohol which was assessed by check list on lifestyle assessment and cardiac risk assessment tool.

### 2.4.7 Adults

It refers to at the age group of 20 to 50 years who have modifiable risks of CVDs.

### 2.8 NULL HYPOTHESES

**NH$_1$:** There is no significant difference in knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults in experimental and control group.

**NH$_2$:** There is no significant correlation between knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults in experimental and control group.

**NH$_3$:** There is no significant association of pre and post test mean difference level of knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults with their selected demographic variables of experimental and control group.

### 2.9 ASSUMPTIONS

1. Adults may have modifiable risks of CVD.
2. The selected interventional package may increase the level of knowledge and may change the way of lifestyle on modifiable risks of CVDs among adults.
3. The selected interventional package (Nurse led education, Nurse led discussion and Nurse led demonstration) may reduce the level of bio physiological parameters of modifiable risks of CVDs.
4. Adult's awareness may promote healthy lifestyle.

# CHAPTER – 3

## REVIEW OF LITERATURE

Review of literature was done in the major online databases and published reports. The important points pertaining to the review of literature for the present study are presented below.

### 3.1 Summary of literature

Extensive review of literature was conducted under the topic of cardiovascular diseases, studies related to reduction of CVD; CVD related knowledge, lifestyle and intervention for reduction of CVDs and selected intervention. Many studies showed that prevalence of CVD is rapidly increasing day by day. Studies also reported that people living in both urban and rural community in India shown lack of awareness about this condition .The evidence from related literature prove that various factors influence the lifestyle pattern of community people living with cardiac risk. Many interventions are proved effectiveness for improving the lifestyle pattern with education.

### 3.2 Gaps in literature

- Many studies related to have modifiable risks of cardiovascular diseases.
- Selected interventional studies are much limited.
- Studies related to lifestyle pattern on CVD are supportive studies for reduction of modifiable risks of CVDs.
- Studies on reduction of bio physiological parameters are very minimal.

### 3.3. What the study Adds

- The selected interventional studies would guide in prevention of cardio vascular diseases among adults with cardiac risk.
- The findings would add to the life style changes on people with cardiac risk in the urban area.
- This study would highlight the adults with cardiac risk factors in urban communities.
- This study enhanced the importance of selected interventional package.
- This study chosen for adults as a community life style change.

- The selected interventional package is becoming a CVD risk reduction, which is a key element in CVD prevention.
- The selected interventional package on cardiovascular risk reduction is used as a prevention role approach such as improve knowledge on CVD life style changes & risk reduction of bio physiological parameter on CVD.
- The selected interventional package was covered almost all the importance of knowledge on cardio vascular risk reduction such as general awareness on CVD ,risk factor , symptoms , diagnostic evaluation , prevention and life style modification.

| S.No. | Study topic | Total studies | International studies | National studies |
|-------|-------------|---------------|----------------------|------------------|
| 1 | CVD Risk assessment | 43 | 25 | 18 |
| 2 | Knowledge on CVD | 52 | 37 | 15 |
| 3 | Lifestyle on CVD | 26 | 14 | 12 |
| 4 | Reduction of Bio physiological parameters on CVD | 29 | 18 | 11 |

# CHAPTER – 4

## RESEARCH METHODOLOGY

Research methodology gives detailed description about validation and reliability of the data. This chapter deals with the methodology adopted for the study[17].

This chapter includes selecting the research approach, research design, variables, setting of the study, population, sample, sample size, criteria for sample selection , sampling technique, development and description of the tool, intervention tool, content validity of the tool, reliability of the tool, ethical considerations, pilot study, data collection procedure and plan for statistical analysis[16].

**4.1 RESEARCH APPROACH** In view of the nature of the problem and to accomplish the objectives of the study. The quantitative research approach was adopted for this study.

**4.2 RESEARCH DESIGN** True experimental – pre and post test only design was adopted.

## SCHEMATIC REPRESENTATION

| Sampling Method | PRELIMINARY PHASE | Group | Pretest | Intervention | Post Test | | |
|---|---|---|---|---|---|---|---|
| | | | PHASE I | | PHASEII | PHASEIII | PHASE IV |
| CLUSTER SAMPLING METHOD | Randomized experimental participants were Selected through cluster sampling method by using screening tool (Modified Framingham 10 years CVD risk assessment tool)based on inclusive criteria) | Experimental | Pretest level of knowledge, lifestyle and bio physiological parameters of cardio vascular diseases was assessed using structured questionnaire, Check list assessment and cardiac risk assessment tool. | Selected interventional package on Nurse led education, Nurse led discussion and Nurse led demonstration for 30 min-45min for each group of 10-15 adults. Each intervention was done in three alternate days by convenient time of groups. | Post test level of knowledge was assessed. **(After 2 months)** | Post test level of lifestyle pattern was assessed. **(After4 months)** | Post test level of bio physiological parameters of modifiable risks of cardio vascular diseases was assessed. **(After6 months)** |
| | | | | | Self-monitoring chart (diet, exercise, yoga, habit and stress) was assessed by end of first and third month and motivation and reinforcement was done immediately after assessing self-monitoring chart to all the participants. | | |
| | Same as above | Control | Same as above | **No intervention** | Posttest was assessed by same as above | | |

**4.3 VARIABLES**

**4.3.1. Dependent Variables**

The dependent variables are knowledge, lifestyle & bio physiological parameters of modifiable risks of CVDs among adults.

**4.3.2 Independent Variables**

Selected intervention package (Nurse led education, Nurse led discussion and Nurse led demonstration) on modifiable risks of CVDs.

**4.3.3 Extraneous Variables**

Age, gender, religion, education status, type of occupation, type of work pattern, marital status, place of presently residing, type of family and family monthly income.

**4.4 SETTING OF THE STUDY**

The study was conducted at Avadi municipality, with population of about 3.5 lakh which is the most populous municipality located in Poonamallee sub district of Thiruvallur district in the state of Tamil Nadu in India. The researcher was selected two wards (Experimental and Control group) with the distance of 6 kilometres in between Solaivaram and Shanthi Nagar colony. The total population of adults with CVD risk was 1800 in two wards.

**4.5 POPULATION**

**4.5.1 Target Population**

The target population for the study was included all the adults with modifiable risks of CVDs with the age group of 20 - 50 years residing in all over urban community, Tamil Nadu.

**4.5.2 Accessible Population**

The Accessible population consist of adults between 20-50 years residing at 2 urban wards which comes under the Avadi, Municipality and available during data collection. The accessible population was 1800 adults with modifiable risks of CVDs who were living at urban communities.

**4.6 SAMPLES**

In the present study adults with modifiable risks of CVDs and one who fulfilled the sample selection criteria were the samples of the study.

**4.7 SAMPLE SIZE**

The sample size was Maximum of 304 adults which were 152 in the experimental group & 152 in the control group. After attrition the sample size was 150 in the experimental group and 150 in the control group. Totally 300 samples participated in the study.

**4.8 CRITERIA FOR SAMPLE SELECTION**

**Inclusive Criteria**

1. Adults with one modifiable risk of CVDs.
2. Adults with the age group of 20 to 50 years.
3. Adults who were willing to participate in the study.
4. Adults who can understand Tamil or English.
5. Adults living in the selected urban communities.

**Exclusive Criteria**

1. Adults with severe score of modifiable risks of CVDs (Modified Framingham 10 years CVD risk assessment tool).
2. Adults with self -reported pre-existing CVDs.
3. Adults who were pregnant.
4. Adults with post history of preeclampsia.
5. Adults who attained menopause.
6. Adults who were mentally incapacitated.
7. Adults who were under hormonal treatment.
8. Adults who were having any sensory impairment.
9. Adults who were taking any renal treatment, CNS treatment, blood disorders like bone marrow insufficiency treatment etc.
10. Adults who underwent educational programme on CVDs.
11. Adults who were having contra indication to do yoga therapy

**4.9 SAMPLING TECHNIQUE**

The cluster sampling technique was used to select the samples for experimental and control group by power analysis determination. Urban community with extreme geographical proximity was selected for experimental and control group in order to avoid contamination.
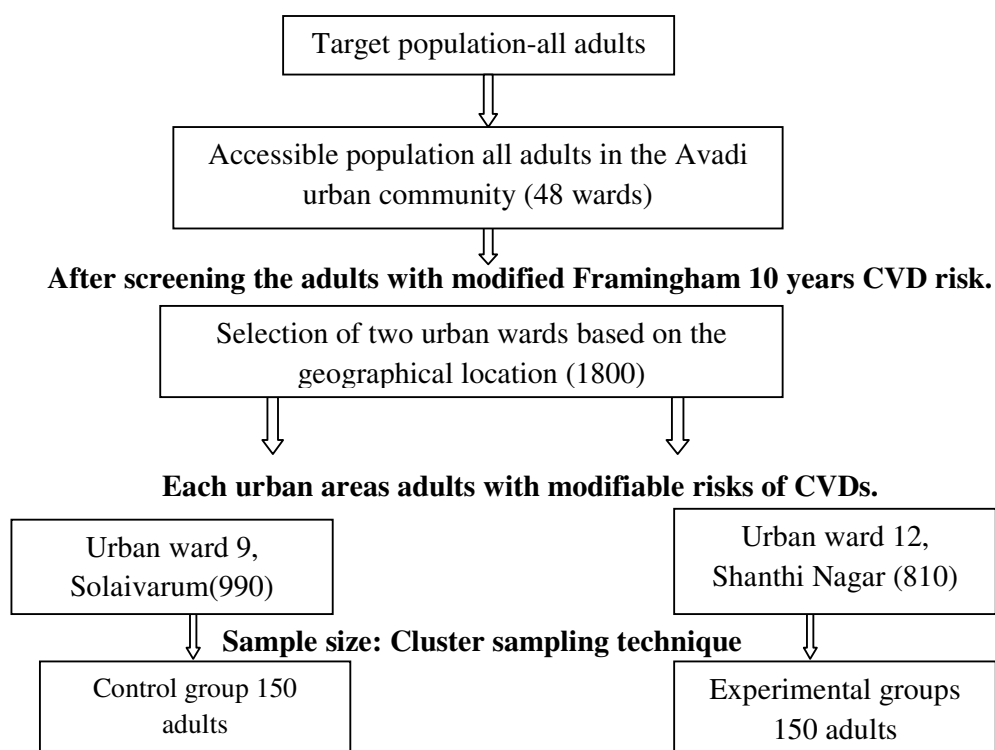
**Fig.4.1: Sampling technique of adults with CVD risk.**

## 4.10 DEVELOPMENT AND DESCRIPTION OF THE TOOL

**PART-I:**

**Section A:** Screening the adults to identify the modifiable risks of CVDs by modified framingham10 years cardiovascular risk assessment tool(Age, HDL, total cholesterol, blood pressure, blood sugar and tobacco use.

**Interpretation:**

| Score | Level of Risk |
|---|---|
| <10% | Low risk |
| 10%-20% | Moderate risk |
| 21%-30% | High risk |
| >30% | Severe risk |

**PART – II:**

**SECTION B:** Background variables of modifiable risks of cardiovascular diseases:

**(a) Demographic Variables**

Age, gender, religion, education status, type of occupation, type of work pattern, marital status, place of residence, type of family and family monthly income.

**(b) CVD Risk Variables**

Type of food, duration of activity per day, transport to office/outside, time spent leisure activities/ week, work in night shift, interrupted sleep pattern, family history of alcohol use, habit of alcoholism, age of onset of alcoholism, cut down on alcoholism, family history of tobacco chewing or smoking use, habit of smoking use, age of onset of smoking use, type of smoking, attempts to quit smoking  use, habit of other  type of tobacco using, type of tobacco chewing, family history of heart disease, history of hronic disease, type of chronic disease, master health up regularly, how often do you check.

**PART – III:**

**It has three sections:**

**Section C:** Assessment of the knowledge by structured interview questionnaire on modifiable risks of CVDs

| Items | No. of  questions |
|---|---|
| General awareness on CVDs | 6 |
| Risk factors of CVDs | 6 |
| Signs and symptoms & diagnostic evaluation of CVDs | 6 |
| Prevention of modifiable risks of CVDs | 6 |
| Life style changes on reduction of CVDs | 6 |

**Scoring key:**

Each item is a closed ended multiple choice questions with a single correct answer. Scoring for each correct answer was '1' and for the wrong answer and unattended question were '0'andtotal score 'was'30.

'Maximum score '30' and minimum score 0, The raw score was converted to percentage to interpret the level of knowledge.

| Score | Level  of knowledge |
|---|---|
| <50% | Inadequate knowledge |
| 50-75% | Moderate adequate knowledge |
| >75% | Adequate Knowledge |

**Section D:** Assessment of the lifestyle by using checklist on lifestyle on modifiable risks of CVDs.

The lifestyle pattern included were diet[18], exercise, habits and stress. The diet consists of 15 items, exercise consists of 5 items, habits consist of 5 items and stress consists of 5 items.

| Interpretation | Scoring keys: |
|---|---|
| Positive items | 4, 3, 2, 1, 0 |
| Negative items | 0, 1, 2, 3, 4 |

Maximum score was 120 and minimum score was 0 .The raw score was converted to percentage to interpret the level of healthy lifestyle.

| Score | Level of lifestyle |
|---|---|
| < 50% | Unhealthy lifestyle |
| 50-75% | Moderately healthy lifestyle |
| >75% | Healthy lifestyle |

**Section E:** Assessment of the bio physiological parameters of modifiable risks of CVDs by CVD risk assessment tool.

(BMI, waist circumference, blood pressure, blood sugar, total cholesterol, HDL, LDL, VLDL and triglyceride).

Tool was prepared by the researcher with the standardized measurement score.Maximum score was 36 and minimum score was 0 .The raw score was converted o percentage to interpret the level of reduction of bio physiological parameters of modifiable cardiovascular risk.

| Score | Level of CVD risk |
|---|---|
| <12 | Low risk |
| 13-18 | Mild risk |
| 19-24 | Low Moderate risk |
| 25-30 | Moderate risk |
| >30 | High moderate risk |

**4.11 INTERVENTION TOOL**

   The intervention tool includes a) Nurse led education, b) Nurse led discussion and c. Nurse led demonstration on modifiable risks of CVD[15].

**a) Nurse led education:** knowledge regarding CVD education was given by Power point presentation[14]: It was conducted 30-45 min among group of 10-15 adults. It included the following contents are:

- General assessment of CVD
- Risk factors of CVD
- Signs and symptoms of CVD
- Diagnostic evaluation of CVD
- Prevention of CVD and
- Lifestyle modification of CVD.

**b) Nurse led discussion:** Healthy lifestyle pattern was discussed by providing booklet and clarifying the doubts about life style changes to the every participant. .It was discussed by 30- 45 min among group of 10-15 adults. The follow up of lifestyle changes was assessed by end of the fourth month.

The booklets contents included are:

Say 'No' to ABCD and Say 'Yes' to DABC

- **D**iet control
- **A**erobic exercises
- **B**eat stress and
- **C**essation of tobacco, smoking and alcohol by motivational interviewing which includes counseling and guidance

**c) Nurse led demonstration:** The video was prepared by the investigator to demonstrate the different methods of yoga for 30-45 min for group of 10-15 adults.

The video demonstrations includes following

- Stress relaxation therapy
- Breathing exercises and
- Meditation.

Self monitoring chart was monitored on first and third month after the intervention and reinforcement was done regarding diet, exercise, yoga, habit and stress reduction.

**4.12 CONTENT VALIDITY OF THE TOOL**

The developed tool was given to expert in the field of Medical surgical nursing, community health nursing, advisory committee members, medical expert, dieticians, psychologists, physiotherapist and bio-statistician for content validity. Based on their suggestions and recommendation the tool was modified and final draft of tool was prepared.

**4.13 RELIABILITY OF THE TOOL**

In order to establish reliability of the tool , test retest method was used for the structured knowledge questionnaire, inter rater method was used for lifestyle changes assessment check list and bio physiological parameters of cardiac vascular assessment questionnaire and its correlation coefficient   r-values are r'=0.89**,** 0.84 and 0.94 respectively. whereas each bio physiological variable reliability was BMI:0.90, Abdominal width:0.89, BP – Systolic:0.90, BP – Diastolic:0.85, Blood Sugar – Fasting: 0.89, Blood Sugar – Post Prandial: 0.89, Cholesterol : 0.89, Triglyceride:0.90, HDL:0.89, LDL:0.85 .

The reliability score were high for the components of knowledge, life style and bio physiological parameters are very high and therefore it is good tool for assessing the effectiveness if selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardio vascular diseases among adults.

**4.14 ETHICAL COSIDERATIONS**

The investigators considered and followed the ethical principles while proceeding the pilot study.

1. Obtained clearance from the ICCR.
2. Obtained content validity from the experts.
3. Obtained written consent from the head of the institutions.
4. Obtained formal permission from the municipality office and area counselor of urban community.
5. Obtained informed consent from the participants after explaining the purpose of the study, type of data to be collected, nature of commitments, participants, procedure and potential benefits.

6. Confidentiality was maintained throughout study and not discussed with others participants about the data collected and result findings.

7. Explained to the participants about the rights, rights to withdraw/with hold the information to the investigator.

8. Given investigators contact information to the participants and urban leader.

9. Explained to the participants about the potential benefits/risk of study.

## 4 .15 PILOT STUDY

The pilot study was conducted after obtaining ethical committee clearance from the ICCR, written formal permission from the principal Omayal Achi College of Nursing and written formal permission from municipality office and area counsellor of urban committee at Ayanavaram and Informed oral and written consent were obtained to the participants who were living with modifiable risks of CVDs after screening procedure.

The investigators was selected 40 samples (21 in experimental and 19 in control group) based on screening tool and who fulfilled the inclusive criteria. Informed consent was obtained from each participant. Pre test knowledge was assessed by structured interview questionnaire for 20-30 min, life style was assessed by checklist questionnaire for 20-30 min on following the different days and bio physiological parameters investigation was assessed before the intervention.

The intervention was given on three separate days, Nurse led education by using PPT on knowledge regarding cardio vascular diseases was explained on the first day of visit for 30-45 min, Nurse led discussion and counselling were done by providing booklets on reduction of modifiable risks of cardio vascular diseases on the second day of visit for 30-45 min and Nurse led demonstration was done regarding yoga by using video on the third day of visit for 30-45 min among participants of 10-15 adults. The same method was followed to all the groups. After a month post test level of knowledge, following that a second month lifestyle assessment and third month bio physiological parameters of modifiable risks of cardio vascular diseases were assessed by phases using the same method of pre assessment techniques.

## 4.16 DATA COLLECTION PROCEDURE

The main study was conducted after obtaining ethical committee clearance from the ICCR, written formal permission from the principal Omayal Achi College of Nursing

and written formal permission from municipality office and area counsellor of urban committee at Avadi.

**Preliminary phase**: The investigator selected 300 participants which includes 150 in experimental and 150 in control group based on screening tool of modified Framingham 10 years CVD risks assessment was used to select the participant .The participant for the study was selected from the adults who fulfilled the inclusive and exclusive criteria through cluster sampling technique of probability sampling technique. After the screening the adults were informed oral and written consent was obtained from each participant who was having modifiable risks of cardio vascular diseases. The purpose of the study and confidentiality was explained to the participants living with modifiable risks of cardio vascular diseases.

**Phase-I :** Pre test knowledge was assessed by structured interview questionnaire for 20-30 min, assessment of lifestyle was assessed by checklist questionnaire for 20-30 min on following different days and bio physiological parameters investigation was assessed .

**Intervention:** The intervention was given on initiation of Nurse led education, Nurse led discussion and Nurse led demo on reduction of modifiable risks of CVDs on three separate days. Nurse led education was done by power point presentation regarding CVDs on the first day of visit for 30-45 min. Nurse led discussion and counseling was done by providing booklets on reduction of modifiable risks of CVDs on the second day of visit for 30-45 min and Nurse led demonstration was done regarding yoga by using video on the third day of visit for 30-45 min among participants of 10-15 adults. The same method was followed to all the groups.

**Phase –II:** Two months later (after 8weeks of pre test) post level of knowledge was assessed to assess the achievement of selected interventional package on reduction of modifiable risks of CVDs.

.**Phase –III:** Four months later (after16 weeks of pre test) post test level of lifestyle assessment was done to assess the selected interventional package on reduction of modifiable risks of CVDs.

**Phase –IV:** Six months later (after 24 weeks of pre test) post test level of bio physiological parameters on modifiable risks of cardio vascular disease was assessed to assess the effectiveness of selected interventional package on reduction of modifiable risks of CVDs. Self monitoring chart was monitored on first and third month after the intervention and reinforcement was done immediately regarding diet, exercise, yoga, ill habits and stress reduction. A similar scheme of data collection was implemented for the participants in the control group with the exception of interventions by the investigator.

## 4.17 PLANS FOR DATA ANALYSIS

Data collection was analyzed by using descriptive and inferential statistics

### Descriptive Statistics

Frequency and percentage distribution was used to analyze the background variables. Frequency, percentage distribution, Mean and standard deviation was used to analyze the pre and post test level of knowledge, life style & bio physiological parameters among adults with modifiable risks of CVDs.

### Inferential Statistics

't' test was used to assess the effectiveness of interventional package on reduction of modifiable risks of CVDs. t- test was used to find the mean difference in the level of knowledge, life style & bio physiological parameters in the experimental and control group. Correlation coefficient was assessed by Karl Pearson correlation coefficient to find the relationship between the level of knowledge, life style & bio physiological parameters in the experimental & control group. Chi square test was used to find out the association of the level of knowledge, life style & bio physiological parameters with selected variables in the experimental & control group.

# CHAPTER – 5

## DATA ANALYSIS AND FINDINGS

## PART-I

**SECTION 5.1:**

**Table 5.1.1: Prevalence of CVD risks based on modified Framingham 10 years CVD risk assessment tool**

**N=1800**

| Level of Risk | | No. of Adults | % |
|---|---|---|---|
| Low risk | (<10%) | 1521 | 84.5 |
| Moderate risk | (10%-20%) | 260 | 14.4 |
| High risk | (21%-30%) | 19 | 01.1 |
| Severe risk | (>30%) | 0 | 00.0 |
| **Total** | | **1800** | **100.0** |

The table 5.1.1 shows that majority, 84.5% of low risks of CVD using modified Framingham 10 years CVD risk assessment tool.

## PART – II

**SECTION 5.2: DESCRIPTION OF BACKGROUND VARIABLES OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES.**

**(a) DEMOGRAPHIC VARIABLES OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES AMONG ADULTS :**

**Table 5.2.1 :Frequency and percentage distribution of demographic variables of modifiable risks of cardiovascular diseases among adults with respect to age, gender, religion, education status, type of occupation, type of work pattern , marital status, place of residence, type of family and monthly family income.**

**N=300 (150+150)**

| Demographic Variables | | Group | | | |
|---|---|---|---|---|---|
| | | Experimental (N=150) | | Control (N=150) | |
| | | n | % | n | % |
| **Age** | 20 -30 years | 26 | 17.3 | 18 | 12.0 |
| | 31 -40 years | 79 | 52.7 | 85 | 56.7 |
| | 41 -50 years | 45 | 30.0 | 47 | 31.3 |
| **Gender** | Male | 43 | 28.7 | 34 | 22.7 |
| | Female | 107 | 71.3 | 116 | 77.3 |
| **Religion** | Hindu | 106 | 70.7 | 101 | 67.3 |
| | Christian | 34 | 22.7 | 38 | 25.3 |
| | Muslim | 10 | 06.7 | 11 | 7.3 |

| Demographic Variables | | Group | | | |
|---|---|---|---|---|---|
| | | Experimental (N=150) | | Control (N=150) | |
| | | n | % | n | % |
| **Educational status** | Non literate | 25 | 16.7 | 21 | 14.0 |
| | Primary school | 33 | 22.0 | 25 | 16.7 |
| | Middle school | 34 | 22.7 | 30 | 20.0 |
| | High school | 26 | 17.3 | 38 | 25.3 |
| | Intermediate | 6 | 04.0 | 8 | 05.3 |
| | Graduate & above | 26 | 17.3 | 28 | 18.7 |
| | Profession | 0 | 00.0 | 0 | 00.0 |
| **Type of Occupation** | Unemployed | 52 | 34.7 | 43 | 28.7 |
| | Unskilled worker | 8 | 05.3 | 11 | 07.3 |
| | Semi skilled worker | 45 | 30.0 | 47 | 31.3 |
| | Skilled worker | 12 | 08.0 | 12 | 08.0 |
| | Clerical shop owner, Farmer | 6 | 04.0 | 8 | 05.3 |
| | Semi-Profession | 6 | 04.0 | 7 | 04.7 |
| | Profession | 21 | 14.0 | 22 | 14.7 |
| **Type of Work pattern** | Sedentary | 25 | 16.7 | 36 | 24.0 |
| | Moderate | 47 | 31.3 | 42 | 28.0 |
| | Heavy | 78 | 52.0 | 72 | 48.0 |
| **Marital status** | Married | 106 | 70.7 | 101 | 67.3 |
| | Unmarried | 21 | 14.0 | 31 | 20.7 |
| | Separated | 0 | 00.0 | 0 | 00.0 |
| | Widowed | 23 | 15.3 | 18 | 12.0 |
| | Others | 0 | 00.0 | 0 | 00.0 |
| **Place of Residence** | Own family | 92 | 61.3 | 98 | 65.3 |
| | Parents | 19 | 12.7 | 12 | 08.0 |
| | Relatives | 18 | 12.0 | 21 | 14.0 |
| | Friends | 0 | 00.0 | 0 | 00.0 |
| | Alone | 21 | 14.0 | 19 | 12.7 |
| **Type of family** | Nuclear family | 99 | 66.0 | 89 | 59.3 |
| | Joint family | 34 | 22.7 | 41 | 27.3 |
| | Extended family | 17 | 11.3 | 20 | 13.3 |
| **Monthly family income** | < Rs.1589 | 0 | 00.0 | 0 | 00.0 |
| | Rs.1590 – 4726 | 14 | 09.3 | 18 | 12.0 |
| | Rs.4727 – 7877 | 30 | 20.0 | 26 | 17.3 |
| | Rs.7878- 11,816 | 19 | 12.7 | 20 | 13.3 |
| | Rs.11817-15753 | 46 | 30.7 | 52 | 34.7 |
| | Rs.15,754-31,506 | 10 | 06.7 | 8 | 05.3 |
| | >Rs.31507 | 31 | 20.7 | 26 | 17.3 |

The table 5.2.1 shows the demographic variables of adults those who were participated with modifiable risks of cardiovascular diseases at selected urban communities.

**5.2. 2: CARDIOVASCULAR DISEASES RISK VARIABLES AMONG ADULTS:**
**Table 5.2.2: Frequency and percentage distribution of cardiovascular diseases risk variables with modifiable risks of cardiovascular diseases among adults.**

**N=300 (150+150)**

| CVD risk variables | | Group | | | |
|---|---|---|---|---|---|
| | | Experimental (N=150) | | Control (N=150) | |
| | | n | % | n | % |
| **Type of food** | Vegetarian | 27 | 18.0 | 24 | 16.0 |
| | Non-Vegetarian | 104 | 69.3 | 112 | 74.7 |
| | Ova-Vegetarian | 19 | 12.7 | 14 | 09.3 |
| | Lacto-Vegetarian | 0 | 00.0 | 0 | 00.0 |
| **Duration of activity per day** | <6 hours | 0 | 00.0 | 0 | 00.0 |
| | 6-8 hours | 103 | 68.7 | 97 | 64.7 |
| | 9-10 hours | 21 | 14.0 | 20 | 13.3 |
| | 11-12 hours | 12 | 08.0 | 14 | 09.3 |
| | > 12 hours | 14 | 09.3 | 19 | 12.7 |
| **Transport to office/outside** | By cycle | 2 | 01.3 | 6 | 04.0 |
| | By Two wheeler | 47 | 31.3 | 42 | 28.0 |
| | By Four  wheeler | 20 | 13.3 | 24 | 16.0 |
| | By Public transport | 72 | 48.0 | 70 | 46.7 |
| | By walk | 9 | 06.0 | 8 | 05.3 |
| **Time spent leisure activity/week** | < 5 hours | 79 | 52.7 | 65 | 43.3 |
| | < 10 hours | 29 | 19.3 | 36 | 24.0 |
| | < 15 hours | 17 | 11.3 | 19 | 12.7 |
| | > 15 hours | 25 | 16.7 | 30 | 20.0 |
| **Work in night shift** | Yes | 19 | 12.7 | 20 | 13.3 |
| | No | 131 | 87.3 | 130 | 86.7 |
| **How many weeks per month** | < 2 weeks | 12 | 63.2 | 10 | 50.0 |
| | > 2 weeks | 7 | 36.8 | 10 | 50.0 |
| **Interrupted sleep pattern** | Yes | 34 | 22.7 | 40 | 26.7 |
| | No | 116 | 77.3 | 110 | 73.3 |
| **History of Day time sleep** | Yes | 50 | 33.3 | 38 | 25.3 |
| | No | 100 | 66.7 | 112 | 74.7 |
| **Family history of Alcohol use** | Yes | 23 | 15.3 | 24 | 16.0 |
| | No | 127 | 84.7 | 126 | 84.0 |
| **Generation** | First generation | 12 | 52.2 | 12 | 50.0 |
| | Second  generation | 9 | 39.1 | 6 | 25.0 |
| | Third  generation | 2 | 08.7 | 6 | 25.0 |
| **Personal habit of Alcoholism** | Yes | 18 | 12.0 | 21 | 14.0 |
| | No | 132 | 88.0 | 129 | 86.0 |
| **Age of onset of alcoholism** | <15 years | 2 | 11.1 | 8 | 38.1 |
| | 15 -30 years | 9 | 50.0 | 7 | 33.3 |
| | >30 years | 7 | 38.9 | 6 | 28.6 |
| **Felt to cut down on your alcoholism** | Yes | 10 | 55.6 | 12 | 57.1 |
| | No | 8 | 44.4 | 9 | 42.9 |

The table 5.2.2 shows the CVD risk variables of adults those who were participated in this study.

**Table 5.2.3: Frequency and percentage distribution of cardiovascular diseases risk variables with modifiable risks of cardio vascular diseases among adults.**

N=300 (150+150)

| CVD risk variables | | Group | | | |
|---|---|---|---|---|---|
| | | Experimental (N=150) | | Control (N=150) | |
| | | n | % | n | % |
| Family history of tobacco chewing or smoking use | Yes | 31 | 20.7 | 25 | 16.7 |
| | No | 119 | 79.3 | 125 | 83.3 |
| Generation | First generation | 10 | 32.3 | 11 | 44.0 |
| | Second generation | 8 | 25.8 | 8 | 32.0 |
| | Third generation | 13 | 41.9 | 6 | 24.0 |
| Habit of smoking use | Yes | 47 | 31.3 | 39 | 26.0 |
| | No | 103 | 68.7 | 111 | 74.0 |
| Age of onset of smoking use | <15 years | 20 | 42.6 | 14 | 35.9 |
| | 15 -30 years | 18 | 38.3 | 17 | 43.6 |
| | >30 years | 9 | 19.1 | 8 | 20.5 |
| | No | 19 | 40.4 | 17 | 43.6 |
| Type of smoking | Cigarette | 35 | 74.5 | 32 | 82.1 |
| | Beedi | 12 | 25.5 | 7 | 17.9 |
| | Sigar | 0 | 00.0 | 0 | 0.0 |
| Attempts to quit smoking use | Yes | 28 | 59.6 | 22 | 56.4 |
| | No | 19 | 40.4 | 17 | 43.6 |
| Habit of other type of tobacco using | Yes | 29 | 19.3 | 26 | 17.3 |
| | No | 121 | 80.7 | 124 | 82.7 |
| Type of chewing | nil | 124 | 82.7 | 120 | 82.2 |
| | Kaini | 12 | 08.0 | 15 | 10.3 |
| | Gutka | 5 | 03.3 | 6 | 4.1 |
| | Pan | 8 | 05.3 | 5 | 3.4 |
| | Hans | 1 | 00.7 | 0 | 0.0 |
| Family history of heart disease | Yes | 24 | 16.0 | 18 | 12.0 |
| | No | 126 | 84.0 | 132 | 88.0 |
| Type of relationship | Paternal | 10 | 41.7 | 7 | 38.9 |
| | Maternal | 11 | 45.8 | 8 | 44.4 |
| | Both | 3 | 12.5 | 3 | 16.7 |
| | Sibling | 0 | 00.0 | 0 | 00.0 |
| History of chronic disease | Yes | 36 | 24.0 | 26 | 17.3 |
| | No | 114 | 76.0 | 124 | 82.7 |
| Type of chronic diseases Diabetes | 0 -5 years | 18 | 50.0 | 8 | 30.8 |
| | 6 -10 years | 14 | 38.9 | 14 | 53.8 |
| | 11 -15 years | 4 | 11.1 | 4 | 15.4 |
| | >15 years | 0 | 00.0 | 0 | 00.0 |
| HT | 0 -5 years | 20 | 55.6 | 11 | 42.3 |
| | 6 -10 years | 14 | 38.9 | 9 | 34.6 |
| | 11 -15 years | 2 | 05.6 | 6 | 23.1 |
| | >15 years | 0 | 00.0 | 0 | 00.0 |

| CVD risk variables | | Group | | | |
|---|---|---|---|---|---|
| | | Experimental (N=150) | | Control (N=150) | |
| | | n | % | n | % |
| **DM & HT** | Nil | 11 | 30.6 | 3 | 11.5 |
| | 0 -5 years | 6 | 16.7 | 5 | 19.2 |
| | 6 -10 years | 12 | 33.3 | 10 | 38.5 |
| | 11 -15 years | 7 | 19.4 | 8 | 30.8 |
| | >15 years | 0 | 00.0 | 0 | 00.0 |
| **OTHERS** | Nil | 15 | 58.3 | 9 | 34.6 |
| | 0 -5 years | 12 | 16.7 | 12 | 46.2 |
| | 6 -10 years | 9 | 25.0 | 5 | 19.2 |
| | 11 -15 years | 0 | 00.0 | 0 | 00.0 |
| | >15 years | 0 | 00.0 | 0 | 00.0 |

The table 5.2.3 shows the CVD risk variables of adults those who were participated in this study.

**Table 5.2.4: Frequency and percentage distribution of CVD risk variables of modifiable risk of cardio vascular disease among adults.**

N=300(150+150)

| CVD risk variables | | Group | | | |
|---|---|---|---|---|---|
| | | Experimental (N=150) | | Control (N=150) | |
| | | n | % | n | % |
| **Whether taking treatment for chronic health problem?** | Yes | 27 | 75.0 | 19 | 73.1 |
| | No | 9 | 25.0 | 7 | 26.9 |
| **Do you do master health up regularly?** | Yes | 78 | 52.0 | 70 | 46.7 |
| | No | 72 | 48.0 | 80 | 53.3 |
| **How often do you check** | Once in six months | 28 | 35.9 | 33 | 47.1 |
| | Once in a year | 25 | 32.1 | 22 | 31.4 |
| | More than a year | 25 | 32.1 | 15 | 21.4 |

The table .5.2.4 shows the CVD risk variables of adults those who were participated in this study.

## PART – III

**SECTION5.3: EFFECTIVENESS OF SELECTED INTERVENTIONAL PACKAGE ON KNOWLEDGE, LIFESTYLE AND BIO PHYSIOLOGICAL PARAMETERS IN REDUCTION OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES AMONG ADULTS.**

**A) ASSESS THE EFFECTIVENESS OF SELECTED INTERVENTIONAL PACKAGE ON KNOWLEDGE IN REDUCTION OF MODIFIABLE RISKS OF CARDIOVASCULAR DISEASES AMONG ADULTS.**

**Table 5.3.1: Comparison of pre and post-test level of mean knowledge scores in experimental and control group**

N=300(150+150)

| | S. No. | Domains | Knowledge score | | | | Mean difference | Student independent t-test |
|---|---|---|---|---|---|---|---|---|
| | | | Experiment | | Control | | | |
| | | | Mean | SD | Mean | SD | | |
| **Pretest** | 1 | General awareness | 3.23 | 2.18 | 3.01 | 2.24 | -0.22 | t=0.86, P=0.39, (NS) |
| | 2 | Risk Factors | 2.47 | 1.62 | 2.76 | 1.99 | 0.29 | t=1.37, P=0.17, (NS) |
| | 3 | Symptoms | 2.44 | 1.84 | 2.67 | 2.24 | 0.23 | t=0.98, P=0.32, (NS) |
| | 4 | Prevention | 2.80 | 2.09 | 3.04 | 2.23 | 0.24 | t=0.96, P=0.33, (NS) |
| | 5 | Lifestyle modification | 2.26 | 1.85 | 2.35 | 1.89 | 0.09 | t=0.43, P=0.66, (NS) |
| | | **TOTAL** | **13.21** | **6.24** | **13.84** | **6.19** | **0.63** | **t=0.88, P=0.37, (NS)** |
| **Posttest** | 1 | General awareness | 4.69 | 1.85 | 3.12 | 2.23 | 1.57 | t=6.64, P=0.001***, (S) |
| | 2 | Risk Factors | 4.31 | 2.00 | 2.91 | 2.02 | 1.40 | t=6.03, P=0.001***, (S) |
| | 3 | Symptoms | 4.13 | 2.03 | 2.79 | 2.27 | 1.34 | t=5.39, P=0.001***, (S) |
| | 4 | Prevention | 4.53 | 2.03 | 3.16 | 2.23 | 1.37 | t=5.55, P=0.001***, (S) |
| | 5 | Lifestyle modification | 4.46 | 2.19 | 2.47 | 1.91 | 1.99 | t=8.38, P=0.001***, (S) |
| | | **TOTAL** | **22.11** | **5.42** | **14.44** | **6.28** | **7.67** | **t=11.33, P=0.001***(S)** |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.1 shows that in the pre test, adults had 13.2 knowledge score in experimental group and adults had 13.84 knowledge score in control group. So the mean difference was 0.63 and it is not statistically significant at p<0.001 level.

In the post test, adults had 22.11 knowledge score in experimental group and adults had 14.44 knowledge score in control group. So the mean difference was 7.67 and it is statistically significant at p<0.001 level.

**Table 5.3.2: Comparison of pre and post test level of mean knowledge scores within experimental and control group**

**N=300(150+150)**

| Group | | N | Mean | SD | Mean gain score | Paired t-test |
|---|---|---|---|---|---|---|
| Experimental | Pre-test | 150 | 13.21 | 6.24 | 8.90 | **t=14.06 p=0.001*** (S)** |
| | Post-test | 150 | 22.11 | 5.42 | | |
| Control | Pre-test | 150 | 13.84 | 6.19 | 0.60 | t=1.93 p=0.06(NS) |
| | Post-test | 150 | 14.44 | 6.28 | | |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.2 shows that in experimental group, adults had 13.21 knowledge mean score in pretest and adults had 22.11 knowledge mean score in posttest. So the difference is 8.90, this difference is large and it is statistically significant.

Whereas control group, adults had 13.84 knowledge mean score in pretest and adults had 14.44 knowledge mean score in posttest. So the difference is 0.60, this difference is small and it is not statistically significant. It was calculated using student paired t-test.

**Table 5.3.3: Comparison of pre and post test level of mean knowledge scores between experimental and control group**

**N=300(150+150)**

| Group | | N | Mean | SD | Mean gain score | Independent t-test |
|---|---|---|---|---|---|---|
| Pretest | Experiment | 150 | 13.21 | 6.24 | 0.63 | t=0.88 p=0.37 (NS) |
| | Control | 150 | 13.84 | 6.19 | | |
| Posttest | Experiment | 150 | 22.11 | 5.42 | 7.67 | **t=11.33 p=0.001*** (S)** |
| | Control | 150 | 14.44 | 6.28 | | |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.3 shows that in pre test, there is no statistically significant difference between experimental and control group. In post test, there is a statistically significant difference between experimental and control group. It was calculated using student independent t-test.

**B) ASSESS THE EFFECTIVENESS OF SELECTED INTERVENTIONAL PACKAGE ON LIFESTYLE IN REDUCTION OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES AMONG ADULTS.**

**Table 5.3.4: Comparison of pre and post test level of mean life style scores in experimental and control group**

N=300(150+150)

| | S.No. | Domains | Life style changes score | | | | Mean difference | Student independent t-test |
|---|---|---|---|---|---|---|---|---|
| | | | Experiment | | Control | | | |
| | | | Mean | SD | Mean | SD | | |
| **Pretest** | 1 | Diet | 34.63 | 5.08 | 34.93 | 5.68 | 0.30 | t=0.47, P=0.63, (NS) |
| | 2 | Exercise | 9.85 | 2.42 | 9.90 | 5.59 | 0.05 | t=0.11, P=0.91. (NS) |
| | 3 | Habits | 10.64 | 4.16 | 10.73 | 5.79 | 0.09 | t=0.16, P=0.87, (NS) |
| | 4 | Stress | 10.66 | 1.99 | 10.97 | 3.56 | 0.31 | t=0.92, P=0.35, (NS) |
| | | **TOTAL** | **65.78** | **7.45** | **66.53** | **13.01** | 0.75 | **t=0.61, P=0.54, (NS)** |
| **Posttest** | 1 | Diet | 46.76 | 2.64 | 35.47 | 6.56 | 11.29 | t=19.56, P=0.001, ***(S) |
| | 2 | Exercise | 14.33 | 2.79 | 10.61 | 5.64 | 3.72 | t=7.23, P=0.001, ***(S) |
| | 3 | Habits | 16.43 | 2.95 | 11.45 | 5.77 | 4.98 | t=9.41, P=0.001, ***(S) |
| | 4 | Stress | 14.89 | 2.13 | 11.49 | 3.88 | 3.4 | t=9.39, P=0.001, ***(S) |
| | | **TOTAL** | **92.41** | **6.27** | **69.02** | **13.99** | **23.39** | **t=18.68, P=0.001, ***(S)** |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.4 shows that in pre test, adults had 65.78 life style score in experimental group and adults had 66.53 life style score in control group .So the difference was 0.75, and it is not statistically significant difference.

In post test, adults had 92.41life style score in the experiment group and adults had 69.02 life style score in the control group. So the difference was 23.39 and it is statistically significant difference.

**Table 5.3.5: Comparison of pre and post test level of mean lifestyle scores within experimental and control group**

N=300(150+150)

| Group | | N | Mean | SD | Mean gain score | Paired t-test |
|---|---|---|---|---|---|---|
| Experiment | Pre-test | 150 | 65.78 | 7.45 | 26.62 | **t=36.05 p=0.001*** (S)** |
| | Post-test | 150 | 92.41 | 6.27 | | |
| Control | Pre-test | 150 | 66.59 | 12.88 | 2.49 | t=1.94 p=0.06 (NS) |
| | Post-test | 150 | 69.02 | 13.99 | | |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.5 shows that in experimental group, adults had 65.78 lifestyle changes score in pretest and adults had 92.41 lifestyle score in posttest. So the difference is 26.62, this difference is large and it is statistically significant.

Whereas in control group, in pretest adults had 66.59 lifestyle changes score and in posttest adults had 69.02 lifestyle score, so the difference is 2.49, this difference is small and it is not statistically significant. It was calculated using student paired t-test.

**Table 5.3.6: Comparison of pre and post test level of mean lifestyle scores between experimental and control group**

N=300(150+150)

| Group | | N | Mean | SD | Mean gain score | Independent t-test |
|---|---|---|---|---|---|---|
| Pre test | Experimental | 150 | 65.78 | 7.45 | 0.74 | t=0.61 p=0.54(NS) |
| | Control | 150 | 66.53 | 13.00 | | |
| Post test | Experimental | 150 | 92.41 | 6.27 | 7.67 | **t=23.38 p=0.001*** (S)** |
| | Control | 150 | 69.02 | 13.99 | | |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.6 shows that in pre test, there is no statistically significant difference between experiment and control group. In post test, there is a statistically significant difference between experiment and control group. It was calculated using student independent t-test.

**C) ASSESS THE EFFECTIVENESS OF SELECTED INTERVENTIONAL PACKAGE ON BIOPHYSIOLOGICAL PARAMETERS IN REDUCTION OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES AMONG ADULTS.**

**Table 5.3.7: Comparison of post test level of bio physiological parameters scores in experimental and control group.**

N=300(150+150)

| Bio physiological parameters | Group | | | |
|---|---|---|---|---|
| | Experimental (N=150) | | Control (N=150) | |
| | n | % | n | % |
| Low risk | 130 | 86.67% | 112 | 74.67% |
| Mild risk | 20 | 13.33% | 35 | 23.33% |
| Low moderate risk | 0 | 0.00% | 3 | 2.00% |
| Moderate risk | 0 | 0.00% | 0 | 0.00% |
| High moderate risk | 0 | 0.00% | 0 | 0.00% |
| **Total** | **150** | **0.00%** | **150** | **0.00%** |

The table 5.3.7 shows that comparison of the post test level of bio physiological parameters scores between experimental and control.

**Table 5.3.8: Comparison of pre and post test level of mean bio physiological parameters scores within experimental and control group**

N=300(150+150)

| Group | | N | Mean | SD | Mean gain score | Paired t-test |
|---|---|---|---|---|---|---|
| Experimental | Pre-test | 150 | 9.77 | 3.31 | 2.52 | **t=10.78** **p=0.001*** (S)** |
| | Post-test | 150 | 7.25 | 2.77 | | |
| Control | Pre-test | 150 | 9.55 | 2.97 | 0.24 | t=1.89 p=0.06 (NS) |
| | Post-test | 150 | 9.31 | 3.03 | | |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.8 shows that in experimental group, adults had 9.77 bio physiological parameters score in pretest and adults had 7.25 bio physiological parameters score in posttest. So the difference is 2.52, this difference is large and it is statistically significant.

Considering in control group, adults had 9.55 bio physiological parameters score in pretest and adults had 9.31 bio physiological parameters score in posttest. So the difference is 0.24, this difference is not statistically significant. It was calculated using student paired t-test.

**Table 5.3.9: Comparison of pre and post test level of mean bio physiological parameters scores between experimental and control group**

N=300(150+150)

| | Group | N | Mean | SD | Mean Difference | Student independent t-test |
|---|---|---|---|---|---|---|
| Pre test | Experimental | 150 | 9.77 | 3.32 | 0.22 | t=0.60p=0.54 (NS) |
| | Control | 150 | 9.55 | 2.97 | | |
| Post test | Experimental | 150 | 7.25 | 2.77 | 2.04 | **t=6.11** **p=0.001*** (S)** |
| | Control | 150 | 9.31 | 3.03 | | |

**P>0.05 not significant ***P<0.001 very high significant NS=not significant S=Significant**

The table 5.3.9 shows that in pre test, there is no statistically significant difference in experiment and control group. In post test, there is a statistically significant difference in experiment and control group. It was calculated using student independent t-test.

**SECTION 5.4: CORRELATION OF PRE AND POST TEST LEVEL OF KNOWLEDGE, LIFESTYLE AND BIO PHYSIOLOGICAL PARAMETERS IN REDUCTION OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES AMONG ADULTS IN EXPERIMENTAL AND CONTROL GROUP.**

**Table 5.4.1: Correlation between knowledge gain score, life style score and bio physiological parameters score in reduction of modifiable risks of cardio vascular diseases in experimental and control group.**

**N=300(150+150)**

| Correlation between | Experiment group | | Control group | |
|---|---|---|---|---|
| | **Mean difference Mean ±SD** | **Karl Pearson Correlation coefficients** | **Mean difference Mean ±SD** | **Karl Pearson Correlation coefficients** |
| **Knowledge Vs Life style** | 8.91±7.76 Vs 26.63±9.05 | r= 0.48 P=0.001*** | 0.60±1.94 Vs 2.49±7.10 | r =0.17 P=0.46 |
| **Knowledge Vs Bio-physiological** | 8.91±7.76 Vs -2.52±2.86 | r= -0.42 P=0.001*** | 0.60±1.94 Vs -0.25±1.60 | r =-0.14 P=0.39 |
| **Life style Vs Bio-physiological** | 26.63±9.05 Vs -2.52±2.86 | r= 0.36 P=0.01** | 2.49±7.10 Vs -0.25±1.60 | r =0.16 P=0.41 |

**\*\*\*p<0.001, S – Significant, N.S – Not Significant**

The table .5.4.1 shows the correlation between knowledge gain score, life style score and bio physiological parameters score of adults those who were participated in this study.

**SECTION 5.5: ASSOCIATION OF MEAN DIFFERENCE OF PRE AND POST TEST LEVEL OF KNOWLEDGE, LIFESTYLE AND BIO PHYSIOLOGICAL PARAMETERS IN REDUCTION OF MODIFIABLE RISKS OF CARDIO VASCULAR DISEASES AMONG ADULTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.**

**Association between level of knowledge gain score and demographic variables in experimental group**

The association between knowledge gain score and age, gender and type of family had statistically significant.

Similarities of other statistical significance of the association of mean difference were calculated using one way ANOVA F-test /t-test.

# CHAPTER – 6

## DISCUSSION

### 6. 1. Demographic characteristics of study participants

In the experimental group 52.7% of participants were in the age group of 31-40 years, 71.3% of female were in the study. Around 70.7% of the study participants belongs to Hindu religion, 22.7% of adults had middle school of education 34.7% of the adults occupation were unemployed and 52.0% of work pattern were heavy worker. Around 70.7% of marital status were married, 61.3% of adults place of residence had own family, 66.0% of adults were in nuclear family adults and 30.7% of adults had monthly income Rs.11817-15753.

In the control group 56.7% of participants were in the age group of 31-40 years, 77.3% of female were in the study .Around 67.3% of the study participants belongs to Hindu religion, 25.3% of adults had high school of education. 31.3% of the adults were semiskilled worker and 48.0% of work pattern were heavy worker. Around 67.3% were married, 65.3% of adults place of residence were own family, 59.3% of adults had nuclear family and 34.7% of adults had monthly income Rs.11817-15753.

### 6.2 Comparison of pre and post test level of knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardio vascular diseases among adults in experimental and control group.

With regard to the overall pre test of mean knowledge score among adults in experimental group was 13.21 with the SD of 6.24 and in control group was 13.84 with the SD of 6.19. In the control group, pre test mean knowledge score was 22.11 with the SD of 5.42 and post test mean knowledge score was 14.44 with the SD of 6.28. This shows that there was a significant improvement in the knowledge score among adults in the experimental group.

With regard to the overall pre test of mean lifestyle changes score among adults in experimental group was 65.78 with the SD of 7.45 and in control group was 66.59 with the SD of 12.88.In the control group, pre test mean lifestyle changes score was 92.41 with the SD of 6.27 and post test mean lifestyle changes score was 69.02 with the SD of 13.99 .This shows that there was a significant improvement in the lifestyle changes score among adults in the experimental group.

With regard to experimental group in pre test they were having 9.77 bio physiological parameters score and in post test they were having 7.25 score, so the

difference is 2.52, this difference no large and small, it is statistically significant. With regard to control group, in pre test they were having 9.55 bio physiological parameters score and in post test they were having 9.31 score, so the difference is 0.24, this difference is not statistically significant. It was calculated using student paired t-test.

**6.3 Effectiveness of selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardio vascular diseases among adults.**

An adult in experimental group gained the knowledge on reduction of modifiable risks of CVD among adults at selected urban communities was29.66% knowledge score whereas control group gained only 2.00% knowledge score. Differences and generalization of knowledge score between pre test and post test score was calculated using and mean difference with 95% CI and proportion with 95% CI.

An adults in experimental group gained the lifestyle score on reduction of modifiable risks of Cardiovascular disease among adults at selected urban communities was 22.19% lifestyle score whereas control group gained only 2.08% lifestyle score. Differences and generalization of life style score between pre test and post test score was calculated using and mean difference with 95% CI and proportion with 95% CI.

An adults in experimental group reduced the risks of bio physiological parameters score on reduction of modifiable risks of cardiovascular diseases among adults at selected urban communities. In experimental group bio physiological parameters score was $\chi2=1.28$ P=0.52(NS) whereas control group bio physiological parameters score was $\chi2=8.43$P=0.02*(S). Statistically there is a significant difference between experimental and control group. It was calculated using chi-square test.

**6.4 Correlation of pre and post test level of knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardio vascular diseases among adults in experimental and control group.**

There is a significant positive moderate correlation between knowledge gain score and life style changes gain score. It means knowledge increases their life style

changes gain score is r= 0.48P=0.001***also increases moderately in experimental group, whereas control group no positive correlation.

There is a significant negative moderate correlation between knowledge gain score and Bio-physiological reduction score. It means knowledge increases their Bio-physiological score is r= -0.42, P=0.001***reduces moderately in experimental group, whereas control group no positive correlation.

There is a significant positive moderate correlation between life style changes gain score and Bio-physiological reduction score. It means life style changes gain score is r= 0.36P=0.01** increases their Bio-physiological score reduces fairly in experimental group, whereas control group no positive correlation.

**6.5. Association of mean difference of pre and post-test level of knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardio vascular diseases among adults with their selected demographic variables.**

The analysis of association of selected demographic variables with knowledge, life style and bio physiological parameters scores were done by using one-way analysis of variance and student independent t-test. It was revealed that there was statistical significance among adults with their selected demographic variables.

# CHAPTER – 7

## SUMMARY, CONCLUSION, NURSING IMPLICATIONS AND LIMITATIONS.

The objectives of the study were to evaluate the effectiveness of selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults at selected urban communities.

## SUMMARY

Cardio vascular disease is globally considered as the leading cause of death with 80 % of cardiovascular disease related deaths being reported from low and middle income countries like India. The present study was conducted to evaluate the effectiveness of selected interventional package on knowledge, lifestyle and bio physiological parameters in reduction of modifiable risks of cardiovascular diseases among adults and to know about the various aspects of cardio vascular diseases and develop healthy lifestyle pattern regarding cardio vascular diseases.

## CONCLUSION

The study concludes that selected interventional package is an effective intervention strategy to reduction of modifiable risks of cardio vascular diseases among adults living with cardiac risks. People living in urban community with cardiac risks can be prevented from many diseases and complications because of this selected interventional package. It will also help the adults living with cardiac risks to lead healthy life style along with reduction of cardiac risks.The family members those who are living among adults with cardiac risks can prevent cardiac risks and disease by adhering the life style changes through selected interventional packages.

## NURSING IMPLICATIONS

1. Community health Nurse needs to educate and counsel general adults about the importance of healthy life style practices which leads a happy life.
2. Community health Nurse should involve in many awareness activities and maintain the lifestyle change pattern among urban community members.
3. The selected interventional package needs to be focused as a vital component while providing the preventive health care services at all the levels of care.

**Nursing Administration**

1. Community health nurse administrator can adopt the selected interventional package as a strategy to reduction of modifiable risks of cardio vascular diseases.

2. Community health nurse administrator need to take vital role in screening the cardiac risks by identifying, forming and coordinating team of volunteers in the urban community to implement the selected interventional package.

3. Community health nurse administrator can organize in-service education programme for the health personnel in preventing and screening the modifiable risks of cardio vascular diseases.

**Nurse Education**

1. Nurse educator can organize seminars, workshops, continuing nursing education and training programme on healthy life style pattern on regarding cardiac risks.

2. Nurse educators need to select and organize the learning experience for students nurse regarding knowledge on role of diet, exercises, stress reduction and life style.

3. Nurse educator can device a curriculum for training the community volunteers and self help group members on screening and reduction of modifiable risks of cardio vascular diseases.

**Nursing Research**

1. The findings of the study need to be communicated in the indexed journal and the importance of effectiveness of selected interventional package information need to be disseminated.

2. The present study findings can be utilized for other researches like meta analysis and secondary analysis.

3. The findings of the study can help to expand the scientific body of knowledge.

**RECOMMENDATIONS**

1. A similar study can be conducted on a large sample size and in different settings.

2. A comparative study can be conducted among adolescent and adults risks of CVD

3. A similar study can be done in rural areas.

**LIMITATIONS**

1. The study was only conducted in urban community.

2. There were two attrition in experimental and control group .The attrition was due to house changing and not copes up by intervention.

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