# CHAPTER I
## INTRODUCTION

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1.1 INTRODUCTION

No longer is obesity a luxury of the rich; instead, it is an affliction of the poor. But it should come as no surprise because many aspects of contemporary life promote it (Walter Willet).

Globalization of the world economy has become a fashionable subject for the international economic community. In fact globalization may afford a weak disguise for a movement that attempts to integrate developing nations into the western socioeconomic and health care models. This scenario was one of the recommendations of the World Bank Report a decade ago. Many in the public health arena felt very strongly that this strategy was quite inappropriate for most developing nations (World Development Report, 1993). Globalization does not apply just to economic changes but also to the human diet and lifestyle (Zimmet, 2000). So tragically the diabetic epidemic is linked to the socioeconomic revolution and its impact on the traditional way of life, including nutritional and physical activity patterns.

The millennium is greeted with conflicts in different parts of the globe and evidence that while some populations are afflicted by diseases of affluence, others are threatened by malnutrition and preventable epidemics (Murray and Lopez, 1997). Globalization changes many features of modern life including diets. As trade changes, diets can be become more secure (hunger becomes less of a problem) but the cheapening of calories, the reliance on important food and the influence of food marketing drive up consumption and drive down nutrient density. Obesity, diabetes and other chronic diseases are not far behind. Fully 11% of global trade is in food (Chopra et al, 2002). Its impact is so profound that it has changed the relationship between income and fat consumption. Whereas fat intake was once higher in those with higher incomes, the reverse is now true (Popkin et al, 1999).

Obesity and type 2 diabetes are epidemics in the people of many developing nations and in the economically franchised minorities of many developed countries including the United States, Canada and Australia. Obesity has reached epidemic proportion globally with approximately 1.6 billion adults and at least 20 million
children under the age of 5 being overweight. Overall 2.7 million deaths are attributable to low fruit and vegetable intake and 1.9 million deaths are attributable to physical inactivity (WHO Report, 2000).

Obesity in the developing world can be seen as a result of series of changes in diet, physical activity, health and nutrition collectively known as “nutrition transition”. As poor countries become more prosperous they acquire some of the benefits along with some of the problems of industrialized nations. This includes obesity (Popkin, 1999).

Obesity is becoming a significant public health issue (NHS CRD, 1997) with substantial costs to the health service. Surveys indicate that the prevalence of obesity is increasing across all age groups (Bonellie and Raab, 1997; Reilly et al, 1999) with some variation between different ethnic groups (NHS CRD, 1996). Importantly body weight is a sensitive predictor of health risk associated with coronary heart disease, stroke and diabetes mellitus (Shaper et al, 1997) and the evidence suggests that even modest weight loss has health benefits (NHS CRD, 1997).

Over nutrition leading to obesity is common in the developed countries. In the developing countries it is already common in the more privileged sections and is becoming a problem amongst the less affluent social groups. Although the exact relationship of obesity to health and disease cannot be clearly defined, there is agreement that in adult life overweight is associated with increased mortality rates and that there is an association between obesity and ischemic heart disease, hypertension and diabetes mellitus (June and Wolff, 1997).

Obesity also causes disability and reduces the quality of life by reducing physical fitness, work capacity and respiratory function, by exacerbating osteoarthritis, by increasing liability to postoperative complications and poor obstetric performances and by causing emotional and social disability, especially in women. Because about one-third of adult obesity originates in childhood or adolescence and obesity in children tends to persist into adult life, prevention during childhood is of major importance (June and Wolff, 1997).
The effects of socioeconomic status on the development of fatness are complex. In general, taking the world as a whole, fatness follows the gross national product, the per capita income and the average consumption of fats and animal protein. The leanest nations are the poorest nations and the fattest nations the richest. Within more affluent countries, however obesity is more prevalent in the low socioeconomic groups, though even here the relationship is complex and may alter during life. In many countries the poorer socio economic groups tend to be less accessible to health education and thus may not yet be as aware of the deleterious effects of obesity as the more affluent groups are (June and Wolff, 1997).

Health education should include the important subject of nutrition and because obesity is such a common nutritional disorder, a discussion of its prevention is appropriate. Such education should start in childhood and continue through adolescence into adult life. During the antenatal period and when their children are young, parents are likely to be particularly receptive to advice aimed at ensuring the good health of their children. At present doctors and nurses often find themselves ill prepared to give either specific dietary advice to patients or education on nutrition in the community. The subject of nutrition deserves much greater emphasis in undergraduate and postgraduate training. Dietitians, in addition to their involvement with individual patients, contribute to the education in nutrition of other health workers, as well as of the community including teachers. Many communities and hospitals lack adequate dietetic services, especially for children (June and Wolff, 1997).

Even while malnutrition continues to be a critical issue, with 47% of children born in the country being under weight, obesity in women is also increasing by becoming a significant health problem, particularly in cities and among those who are educated least up to the high school level. According to the survey, the problem of obesity was most acute in Delhi and Punjab, with more than 3 out of 10 women in the metropolis and the northern state being obese. Obesity was taken up as one of the items for surveys as it was a major factor for a number of chronic ailments (NFHS Report, 2000).
Health promotion strategies need to be more effective in encouraging health as well as healthy eating among young people. The New Year is often associated with resolutions regarding lifestyle, which provide community nurses with the opportunity to support clients in making lifestyle changes. Unfortunately smoking cessation is often associated with weight gain (NHS CRD, 1997) which requires nurses to promote careful eating and exercise, if one health problem is not to be replaced by another. Weight loss is not easily achieved or maintained. Therefore it is important to have long term strategies to support clients. All health professionals need to become actively involved in promoting healthy living, if health risks associated with obesity are to be minimized and the costs are not to cripple the health service budget in the next century (While, 2000).

1.2 BACKGROUND OF THE STUDY

In 1992 Singapore's health ministry launched a national programme promoting a healthy lifestyle to redress the common risk factors for chronic disease such as obesity, physical inactivity and cigarette smoking. Different age groups in the population were targeted including school children. The educational ministry's "trim and fit programme" for primary, secondary and pre university schools aims to reduce obesity in fitness of the pupils using a multidisciplinary approach targeting overweight students, parents, teachers and the school environment. Under the programme nutrition education is integrated into the formal school curriculum. The food and drink sold in the school canteen are subject to control measures, and water coolers are provided in all schools to encourage the students to drink more plain water. Schools that achieve good health outcomes will be presented with the 'trim and fit' awards annually. At schools overweight students participate in special physical exercise programme and messages on healthier nutrition choices are reinforced. Since the implementation of this intervention, the prevalence of obesity has declined from 16.6 % to 14.6 % between 1992 and 2000 among primary students (11–12yrs), from 15.5% to 13.1% among secondary students. School based intervention has reduced obesity in Singapore (Sahota et al, 2001).
Obesity is an epidemic disease that may affect brain function (Muller et al, 2008). Smoking is the number one cause of cancer in smokers but obesity is the main cause of cancer in non smokers, according to a research study by British scientist. Non smokers can prevent cancers by eating healthy diet and staying away from junk food (Krishna, 2007).

In May 2004 the WHO officially launched the ‘Global Strategy on Diet, physical Activity and Health’. Lying at its heart is the recognition that many of the risk factors associated with non communicable diseases, particularly poor diet and physical inactivity have begun to move beyond the countries of the west.

Reilly et al (1999) referred an epidemic of adult obesity and advocated efforts to prevent obesity in childhood. A study of Von Kries et al (1999) suggested that breast feeding is a protective factor against the development of obesity, with longer duration of breast feeding providing increased protection. The diets of children of all ages appear to fall short of the ideal (Gregony et al, 1995; Merchant, 1998), with excessive consumption of dietary fat and confectionery being commonplace. The decline in the amount of physical activity undertaken by children may also causes obesity (Davies et al, 1994).

Midthjell et al (1999) conducted a study in Norway to determine whether changes in mean BMI and the prevalence of obesity were associated with the changes in the prevalence of diabetes found out that a substantial increase in mean BMI and the prevalence of obesity occurred in younger age groups at the same time an increase in the prevalence of diabetes.

A population based cross sectional study conducted in Southern Brazil by Gigante et al (1997) with the objective of determining the prevalence of obesity and risk factors of obesity in adult concluded that the prevalence for the overall population was of 21%, which was highest among women (25%) than for men (15%).

A study reported that overweight and obesity are prevalent in the adult population of Southern Iran and both were frequent more among women than men. The frequency for either overweight or obesity in Iran is expected to increase further
as life becomes increasingly sedentary unless early intervention by promotion of healthy life styles and provision of nutritional information to the public is implemented (Pishdad, 1996).

An estimated 97 million adults in the US, 55% of the population were overweight or obese (BMI >25) (WHO Report, 2007). The NHANES study of 1988-1994 indicated that 27% of females and 21% of males were obese (BMI >30). Prevalence of obesity increased from 12% in 1991 to 18% in 1998.

Larsen (2001) examined the relationship between knowledge, attitude and behavioral factors and obesity to determine how these factors influence obesity status in West Philadelphia female adolescents. The study result showed that physical inactivity and no perception of ideal body size emerged as the most important contributory factor to obesity status.

In a study Saskin et al (2003) found no association between birth weight and either adult BMI or the cross sectional area of the thigh.

Juan et al (2002) in a study seen that mean BMI was significantly higher in those who were inactive in their leisure time than in those who reported vigorous activity. Obesity decreased with increasing level of leisure time physical activity in both men and women.

Berine and Rourke (2000) used a weight loss strategy (education and medical advice) in Americans. A higher percentage of women (46%) than men (33%) were trying to lose weight, when both sexes used similar weight loss strategies. Education and medical advice to lose weight were strongly associated with trying to lose weight. The respondents who were trying to lose weight reported that they were using fewer calories and ≥ 150 min/week leisure time physical activity.

Tiikkainen and Tamminnen (2003) conducted a study to find out whether fat accumulation in liver is associated with features of insulin resistance independent of obesity. The study showed that women with high liver fat had features of insulin resistance including higher fasting serum triglyceride and insulin concentration than with low liver fat group.
Gunnell and Frankel (1998) examined associations between childhood overweight and adult disease. By this cohort study it was found that all causes and cardiovascular mortality were associated with higher childhood BMI's compared with those with BMI's between the 25th and 49th centiles, the hazard ratio for all cause mortality in those above the 75th BMI centile for their age and sex was 1.5 and for ischemic heart disease it was 2. High BMI in adults was known to be associated with raised blood pressure and abnormal lipid profiles.

Berkey et al (1998) conducted a study at Boston, USA to analyze the effects of adolescent and adult obesity and birth size on BP in young adult. The result of the study was that for women, adolescent and early adult obesity appeared to be the stronger determinants of higher BP, although smaller head and chest circumference at birth. The study concluded that adult weight and weight gain are the major determinants of adult BP.

1.3 NEED AND SIGNIFICANCE OF THE STUDY

The prevalence of obesity in the developed world is increasing. Obesity is associated with an increased risk of developing several co-morbid diseases ranging from cardiovascular disease to cholelithiasis and nonalcoholic fatty liver disease. The etiology of obesity is multi factorial, involving a complex interaction among genesis, hormone and the environment. The available evidence and recommendation for non pharmacological management of obesity includes dietary therapy, physical therapy and behavioral therapy (Kaila and Raman, 2008).

Obesity and overweight together constitute one of the top ten global health problems as per the recent surveys conducted by the WHO. Obesity statistics reveals that overweight adults in the entire world are one billion and children (under five years of age) are more than 22 million. By 2015 approximately overweight persons will be 2.3 billion. Obese people are 300 million in 2007 and by 2015 obese people will be 700 million. Obesity is a problem not only in developed but also in developing countries, where at present 115 million people are affected (WHO Report, 2007).
In America more than 3 Lakhs death are linked to obesity annually. In India 120 million urban Indians are seriously obese. The Indian capital, New Delhi, is called as obesity capital, where 45% males and 55% females are suffering from severe obesity (WHO Report, 2006).

Obesity is a worldwide problem and by the year 2010 obesity associated chronic diseases such as cardio vascular diseases, type 2 diabetes, sleep apnea and hypertension will lead the cause of death in developing countries far outpacing the current realities of starvation and infectious diseases (Nancy, 2005).

A balanced deficit diet that supplies 500-1000 K cal less than total daily energy expenditure should promote the loss of 1-2 pounds per week. To prevent weight regain it is also necessary to teach clients better diet management skills, even if they use meal replacement formulas or very low calorie diet regimen to begin weight loss. More severe calorie restrictions are difficult to maintain for longer periods and require vitamin and mineral supplementation. Clients on low calorie diets should consume about 60 gm of protein/day (25% of total calorie) (Nancy, 2005).

The two overarching goals for this decade are
1. To increase quality and year of healthy life and
2. To eliminate health disparities.

Ten leading health indicators that reflect the major public health concerns facing Americans in the 21st century have been identified as physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization and access to health care (Dept of health and Human service, 2000).

The basic therapeutic approach to overweight is to modify eating patterns through improving the quality of food eaten. Specific modifications include (1) decreasing portion size (2) modifying the composition of the diet through substitution and modification of foods consumed and (3) changing eating behaviors.

Another cornerstone of a healthy lifestyle is healthy activity. People who are active throughout life live longer and are healthier than their less active
counterparts. More than 60% of adult do not achieve the recommended level of regular physical activity and 40% of adult get no leisure time physical activity. Physical inactivity is a serious nationwide problem resulting in a significant burden of unnecessary illness and premature death. It is associated with increased risk of coronary heart disease, type 2 diabetes, hypertension and obesity.

An exercise programme should be part of the overall care of the obese client. Exercise is an important way to increase the energy expenditure and to facilitate weight loss (Nancy, 2005).

Benefits of physical activity include

1) weight maintenance 2) lower BP 3) Improved mood 4) relief from depression 5) Improved sense of well being 6) decreased risk of type 2 diabetes 7) reduced mortality from coronary heart disease 8) increased levels of peak bone mass.

A written exercise prescription specifies recommended activity. The exercise prescription has four major elements such as mode or type of activity engaged in, intensity with which the activity is performed, duration of time and frequency.

The minimum goal for an exercise programme is a moderate intensity physical activity performed for a total of at least 60 minutes in most days of the week. People’s daily routine can serve as the mode of exercise.

Obesity significantly affects the quality of life and reduces the average life expectancy. The effective treatment of obesity should address both the medical and social burden of this disease. Obesity needs to be treated within the health care system as any other complex diseases, with empathy and without prejudice. Both health care providers and patients should know that the obesity treatment is a lifelong task. They should also set realistic goals before starting the treatment, where as keeping in mind that even a modest weight loss of 5-15% significantly reduces obesity related health risks (Hainer et al, 2008).

Essential treatment of obesity includes low calorie low fat diets, increased physical activity and strategies contributing to the modification of life style. Regular physical activity, cognition behavior modification of lifestyle and administration of
anti obesity drugs improve weight loss maintenance. Hainer et al (2008) and Egawala et al (2007) evolved the efficiency of a community based weight reduction programme with exercise and diet modification for overweight adults. Result showed that the mean BMI decreased from 27.2 Kg /m$^2$ to 25.3 Kg /m$^2$ in the intervention group and from 26.4 Kg /m$^2$ to 26.1 Kg /m$^2$ in the control group.

Obesity is an escalating global phenomenon. In some countries nearly 30 - 50% of the population is obese (Misra, 2003). Proper diet, exercise and behavior modification are the foundation of treating obesity (AAFP, 2000).

Obese women are at greatest risk of developing breast cancer. In a research study conducted by Umea University Scientists, out of 1000 obese women under study 561 women were diagnosed with breast cancer. High blood sugar levels in obese women are the major culprit for the rise in breast cancer risk. Severity of breast cancer rises with increase in weight. Breast cancer recurrence is also high in obese women. Disciplined diet and regular exercise help in reducing obesity levels in the population. In the research obese and overweight women showed lower survival rates than normal weight women (Krishna, 2006).

There is a strong evidence that weight loss reduces the risk factors for diabetes and cardio vascular disease, reduces blood pressure, reduces serum triglycerides and increases high density lipoprotein (HDL) cholesterol and produces some reduction in total serum cholesterol and low density lipoprotein (LDL) cholesterol, reduces blood glucose levels in overweight and obese persons (Krishnan, 2006).

Obesity and its associated disorders are a growing epidemic across the world. Many genetic, physiological and behavioral factors play a role in the etiology of obesity. Diet and exercise are known to play a vulnerable role in the treatment and prevention of obesity and associated disorders such as hypertension, heart disease and diabetes (Wilborn et al, 2005).

As per WHO Report (2007) one in every ten children and one in every five adults are now obese in the world. Obesity reduces life expectancy which causes direct effect on economy.
There is a high prevalence of obese women in the infertile population and numerous studies have highlighted the link between obesity and infertility (Zain and Norman, 2008).

John Locke, the British Philosopher 300 years ago wrote as “*A sound mind in a sound body is a short but full description of a happy state in this world.*” The research conducted for all these days proved it correct.

Obesity has emerged as a major public health problem in India. Approximately 4 out of 10 adults in urban India are either overweight or obese. The increase in obesity is linked to corresponding increase in co-morbidities including type 2 diabetes, hyper lipidema, hypertension, heart disease, metabolic syndrome, sleep apnea, liver and gallbladder diseases and several form of cancer (eg. breast, prostate and colon). Obese individuals have 50% to 100% increased risk of death from all causes when compared with normal weight individuals. In 2007, 55% of death in India was from chronic non communicable diseases with the toll expected to rise to 70% of all deaths by 2015. In an already stretched health care system this huge burden will incur additional costs which are conservatively estimated at INR 1000 crore (Nutrition vista, 2009).

According to WHO report (2007) the obese epidemic is increasing faster in developing countries than in the developed world. One out of ten urban Indian children is overweight India is now under fat tsunami. Obesity in the western countries is associated with poverty while in developing countries it is the problem of the rich. A stout person is always a laughing stock.

As the prevalence of obesity in women is increasing in Kerala also and predispose to diabetes, cardio vascular disease, hypertension, breast cancer, infertility and osteoarthritis, the investigator selected this study with a view to reduce obesity through diet modification and physical activity.

1.4 STATEMENT OF THE PROBLEM

A study to assess the effectiveness of educational intervention in management of adult obese females in rural community of Thiruvananthapuram district.
1.5 OPERATIONAL DEFINITIONS

1.5.1 Effectiveness

The term is defined as the state of producing intended result. In this study it reveals the evaluation of educational intervention implemented to obese women in reducing their weight.

1.5.2 Educational intervention

In the present study it pertains to individualized and group teaching using teaching material and demonstrations to change the attitude towards obesity and to improve the knowledge and practice of obese women regarding obesity.

1.5.3 Management

Literally it means the directories. For the purpose of this study it refers to the treatment modalities of obesity. Diet modification and physical activity are the treatment modalities adopted in this study.

1.5.4 Adult obese women

Women in the age of 20-55yrs and BMI ≥ 27 kg/ m² are the adult obese women of this study.

1.5.5 Knowledge

Knowledge is the state of awareness or understanding with conscious mind. In this study knowledge refers to the awareness or understanding about obesity and its management through diet modification and physical activity as measured by an interview schedule.

1.5.6 Attitude

Attitude refers to the mental readiness to do things. In this study it is the tendency of obese women to be in favour or against obesity.

1.5.7 Practice

For this study it is doing or performing frequently certain acts (diet modification and physical activity) based on the knowledge about management of obesity.
1.6  OBJECTIVES

1.6.1 General Objectives

Determine the prevalence of obesity of adult females in rural community and evaluate the effectiveness of an educational intervention in management of obesity among obese female adults.

1.6.2 Specific Objectives

1. Determine the prevalence of obesity of adult females in rural community.
2. Determine the association of obesity to socio demographic factors.
3. Assess the knowledge of obese women before and after the intervention.
4. Assess the attitude of obese women before and after the intervention.
5. Evaluate the effectiveness of educational intervention in the management of obesity among obese female adults.

1.7  DELIMITATIONS

1. The study was limited to obese women in the age of 20 - 55 years.
2. Obese women of only Manickal and Mangalapuram gramapanchayats were included in the study.
3. Reported practice was assessed from obese women.
4. Study was limited to 9 months after the educational intervention.

1.8  THEORETICAL FRAMEWORK

Nola J Pender’s Revised Health Promotion Model (2006) is selected as the theoretical framework for this study. The Health Promotion Model is a competence or approach oriented model, in which the motivational source for behavior change is based on the individual’s subjective value of the change that is, how the client perceives the benefits of changing the given health behavior. The HPM does not include “fear” or “threat” as a motivating source for changing health behavior (Pender et al, 2006). The main variables in the revised HPM is individual characteristics and experiences, behavior-specific cognition and affect and behavior outcome. The variables and their interrelationships are described below.
1.8.1 Individual characteristics and Experiences

The importance of an individual’s unique personal factors or characteristics and experiences will depend on the target behavior for health promotion. There is flexibility in the HPM to select those characteristics that are relevant to the particular health behavior.

Prior related behavior includes previous experience, knowledge and skill in health promoting actions. In this study prior related behavior includes positive attitude, poor knowledge and poor practice towards obesity among obese women.

Personal factors are categorized as biological, psychological and socio cultural. In this study the personal factors are categorized as biological (age, height, weight, BMI and BP), psychological (attitude towards obesity) and socio cultural (religion, residence, income, education and occupation). Some personal factors can influence health behaviors.

1.8.2 Behavior- Specific cognitions and Affect

This set of variables is considered to be of major motivational significance for acquiring and maintaining health-promoting behaviors. Behavior-specific cognitions constitute a critical “core” for intervention, because they can be modified through nursing interventions. They include the following:

1.8.2.1 Perceived benefits of action

Anticipated benefits or outcomes affect the person’s plan to participate in health promoting behaviors and may facilitate continued practice. Prior positive experience with the behavior or observations of others engaged in the behavior is a motivational factor.

In this study anticipated benefits include obesity reduction. During follow up visits of every 3 months, 6 months and 9 months, BMI of the subjects were assessed and education on diet modification and physical activity is again stressed as a motivation factor.
FIG. 1.1 THEORETICAL FRAMEWORK BASED ON NOLA J. PENDER'S HEALTH PROMOTION MODEL (REVISED, 2006)
1.8.2.2 Perceived barriers to action

A person’s perceptions about available time, inconvenience, expense and difficulty in performing the activity may act as barriers. Perceived barriers to action affect health promoting behaviors by decreasing the individual’s commitment to a plan of action.

In this study perceived barriers such as poor knowledge regarding obesity, its complications and management, positive attitude towards obesity, lack of time and poor outdoor physical activity affect health promoting behaviors by decreasing obese women’s commitment to a plan of action to reduce obesity.

1.8.2.3 Perceived self-efficacy

This concept refers to the conviction that a person can successfully carry out the behavior necessary to achieve a desired outcome. Often people, who have serious doubts about their capabilities, decrease their efforts and give up, whereas those with a strong sense of efficacy exert greater effort to master problems or challenges.

In this study the perceived self-efficacy are improving the knowledge and practice regarding diet modification and performing daily physical activity, which can be strongly adopted by the obese women to reduce obesity.

1.8.2.4 Activity related affect

The subjective feelings that occur before, during and following an activity can influence whether a person will repeat the behavior again or maintain the behavior.

In this study the positive attitude towards diet modification and increased physical activity and the negative attitude towards obesity are the subjective feelings, which can influence the obese women to repeat the behavior again or maintain.

1.8.2.5 Interpersonal influences

Interpersonal influences are a person’s perceptions concerning the behaviors, beliefs or attitudes of others.
In this study family, peers and health providers are the sources of interpersonal influences that can influence a person’s health promoting behaviors. Interpersonal influences include expectations of significant others, social support and learning through observing others.

1.8.2.6 Situational influences

Situational influences are direct and indirect influences on health promoting behaviors and include perceptions of available options, demand characteristics and the aesthetic features of the environment.

In this study obese women’s perception of available options include easy access to healthy alternatives such as providing a healthy family menu, engaging in household work, avoiding more kitchen machines and walking for short distances by avoiding vehicles. Demand characteristics can directly affect healthy behaviors through self regulation such as registering in a health clubs or/and taking declaration to reduce obesity. Individuals are more apt to perform health promotion behaviors, if they are comfortable in the environment versus feeling alienated. Providing a safe environment for physical activity such as walking and make it interesting with group walking. Acceptance of the society is another comfortable environment for physical activity especially engaging in brisk walking and other outdoor exercises.

1.8.3 Commitment to a plan of Action

Commitment to a plan of action involves two processes: Commitment and identifying specific strategies for carrying out and reinforcing the behavior. Strategies are important because commitment alone often result in “good intentions” and not actual performance of the behavior.

In this study an interventional package on obesity management will help the obese women to change the attitude (positive to negative) towards obesity, to increase the knowledge and practice regarding diet modification and to increase physical activity for obesity reduction. During the consecutive visits the subjects were encouraged for carrying out and reinforcing the behavior.

1.8.4 Immediate competing demands and preferences

Competing demands are those behaviors, over which an individual has a low level of control. Competing preferences are behaviors, over which an individual
has a high level of control; however, this control depends on the individual’s ability to be self-regulating or to not “give-in”.

In this study, obese women prefer the food which contains low carbohydrate, low fat, high vegetables, and high fruits and drinks more water over a high carbohydrate, high fat food by self-regulation (High control). As the women is engaged with more family responsibilities (competing demands), she is missing the routine exercise and not responding to the responsibility. It may cause a more negative outcome (Low control).

1.8.5 Behavioral outcome

Health promoting behavior, the outcome of the Health promotion Model, is directed towards attaining positive health outcome for the client. Health promoting behaviors should result in improved health, enhanced functional ability, and better quality of life in all stages of development.

In this study, the outcome of Health promotion Model are creating a negative attitude towards obesity, increased knowledge regarding the complications and management of obesity, improved practice on obesity reduction by diet modification and increased physical activity. Continued practice of the above will reduce obesity by showing decreased BMI and the women attain positive health.

1.9 HYPOTHESIS

1.9.1 Null hypothesis

Educational intervention on management of obesity will not influence the obese women in reducing their weight.

1.9.2 Alternate hypothesis

Educational intervention on management of obesity will significantly influence the obese women in reducing their weight.

1.10 RESEARCH METHODOLOGY IN BRIEF

The study was aimed to determine the prevalence of obesity and to assess the effectiveness of educational intervention for weight reduction in adult obese
females in rural community. The sample for the study was 420 obese women within the age group of 20 - 55 years from Mangalapuram and Manickal gramapanchayats of Thiruvananthapuram district. For the study, in phase I descriptive approach (survey method) and in phase II pre test - post test control group design of the experimental approach was selected as design. After recording the anthropometric data (wt, ht, BMI, WHR) and blood pressure a pre-test was done using structured interview schedule and assessed knowledge and attitude towards obesity and its management. In the interview the reported practice regarding obesity reduction was also assessed by asking the diet pattern and activities of a full day including physical activity with the help of nutrition diary and practice assessment schedule. A pamphlet regarding obesity was distributed to control group and an intervention package (pamphlet, education and demonstration) was administered to case group. After 3 months post test was done for both group to reassess the knowledge and attitude towards obesity. The anthropometric data, BP, modified diet pattern and physical activity pattern were again assessed and recorded in three consecutive visits after 3, 6 and 9 months. Collected data were analyzed by using appropriate statistical methods and interpreted accordingly.

1.11 FORMAT OF THE REPORT

The report is divided into 6 chapters. The first chapter is introduction which contains background of the study, need and significance of the study, statement of the problem, operational definitions, and objectives of the study, theoretical framework, and methodology in brief and format of the report. Chapter II is concerned with the review of related literature. Chapter III describes methods and materials and Chapter IV consists of observations and interpretation of findings. Chapter V reveals the discussion and Chapter VI shows the summary, conclusions, recommendations and suggestions for future research.

1.12. CONCLUSION

The dramatic advancement in scientific technology, the so called modernization, leads to the development of modern diseases of civilization like coronary artery disease. The looming threats of escalating epidemics of modern
diseases like diabetes and coronary artery disease would have profound national and
global implications in the day and the age of global economy. A large body of
evidence suggests that the incidence of lifestyle diseases in Kerala is on the rise.
Hence the early identification of at risk individuals and appropriate intervention in
the form of weight reduction, changes in dietary habits and increased physical
activity could greatly help to prevent or at least delay the onset of non communicable
diseases in India. It is important to have long term weight loss strategies and make
most of them fruitful with counseling sessions. Nurses and all other health
professionals need to become actively involved in promoting healthy living, if health
risks associated with obesity are to be minimized.