Chapter I

INTRODUCTION

“Fit at forty, strong at sixty, independent at eighty”

- (Indian Menopause Society, 2013)

Every living thing, in nature, is susceptible to change. Human beings experience various turning points in their life cycle which may be developmental or transitional. When the women reach the midlife age, menopause transition will occur. Menopause is derived from a Latin word meno (month) and pausia (halt), which essentially marks the end of a women’s period of natural fertility. Meno (menstruation) pause (stops) is technically, the last menstrual flow of a women’s life (Sharma, 2010).

Globally, in 1990, there were 467 million women aged 45 - 50 years. This global figure is expected to raise to 1200 million by the year 2030. Population of post menopausal women ranges between 5 and 8 percent, which makes up a relatively small proportion of the population in the developing countries; whereas in the developed countries menopausal women population makes up to 15% of the total population. By 2030, this proportion is expected to increase drastically around the world (Hill, 2010).

According to US census data from 2014, there are about 37.5 million women reaching the stage of menopause. The average age for menopause is from 40 to 58 years. Only 10% of women stop
menstruation without any menstrual irregularity. Malnourished women reach menopause 4 years earlier than the normal women. Women having the habit of smoking reach the menopause 1.5 years earlier than the normal women. About 75% of women experience hot flashes during the menopausal transition and 57% of them suffer with menopausal symptoms, 22% of them complain that it affects their lives in many ways and they could not cope with out medication. Hormonal replacement therapy, adopted by 50% of the women, may increase the risk of breast cancer (Centre for Disease Control and Prevention - Menopause Statistics, 2011).

Amosa (2011) explains that menopause occurs naturally or induced by surgery, chemotherapy or radiation. It has been described as the time in a woman’s life when she has her last menstrual period. It is the end of a woman’s reproductive life.

Harriet and Heilbrunn (2010) indicated in their report, that the reproductive life of the women has a significant value and meaning in any female’s life. Reproduction starts with menarche and ends with menopause. During this phase, ovary plays an important role for normal development and reproductive function of the woman.

Ovaries are the almond shaped two small organs attached on each side of the uterus and located in the female pelvis. Ovaries are filled with follicles which contain oocytes. Throughout a women reproduction life, about 400 primordial follicles grow into mature
follicles and ovulate. Around the age of 45 years, only few primordial follicles remain to be stimulated by FSH, LH and the production of estrogen by the ovaries decreased as the number of primordial follicles approaches zero. When estrogen production falls low, the estrogen can no longer inhibit the production of gonadotropins, FSH and LH. This loss of ovarian function results in a 90% loss of circulatory estradiol, serum estradiol concentration are often lower than 20pg/ml. *(Robert and Sargis 2007).*

**Rayan, et al., (2010)** conducted a prospective study to evaluate the association between the endogenous hormones and the depressive symptoms among the post menopausal women. The results found that decreased serum estradiol concentration, during menopausal transition, result in three times enhances the risk of depressive symptoms (OR: 3.5; 95% CI: 1.2-9.9). Greater FSH level during transition period linked with depressive symptoms (OR: 2.6; 95% CI: 1.0-6.7).

**France, et al., (2014)** did a longitudinal study to estimate the menopausal status, reproductive hormones during the menopausal transition and the predictors of depressive mood among the midlife women. The findings revealed that the FSH level continuously increases from perimenopause to post menopause and the estrogen level decreases from perimenopause to post menopause. During the perimenopausal state the depressive symptoms are increased when the women reaches the post menopause it was decreased at p<0.001.
The results of the community based study, conducted in India, showed that perimenopausal women are more subjected to physical and psychological problems than the menopausal women. In India, millions of women are going through perimenopause. The Indian demographic and health survey 2009 indicates that 33.8% of the total population is above 40yrs and 20.6% of females are 40 years or above. The research suggests that almost one in five women has gone through the perimenopause in the early 40s (Anumol, 2011).

Vijayalakshmi (2013) stated in her article that, women going through the menopause transition may experience a variety of symptoms ranges from mild level to very severe level. The severity of symptoms can add a considerable struggle for those already dealing with their hectic life. As many as two third of all women report vasomotor symptoms and over 85% report at least one to two menopausal symptom as transition through menopause. The study findings showed that 25% of women experienced menopausal symptoms in severe level, which cause discomfort and greatly diminish the quality of life during the menopausal transition.

Worldwide, the age of menopause is different on various regions. While most women in the United States go through menopause around the age of 51; a small number will experience menopause as early as 50s. When menopause is diagnosed before the age of 40, it is considered to be abnormal (or) premature menopause (Jose, 2010).
Mathew (2012) states in his study that the mean age at menopause in Europe ranges from 50.1 to 52.8 years, in North America it is 50.5 to 51.4 years, in Latin America it is 43.8 to 53 years, and in Asia it is 42.1 to 49.5 years. The frequency of vasomotor symptoms such as hot flash varies widely depending on the geographical region and the stage of menopause. The prevalence of vasomotor symptoms ranges from 74% of women in Europe, 36–50% in North America, 45–69% in Latin America and 22–63% in Asia, as reported in different epidemiological studies.

Umesh (2010) explains that the mean age of menopause in India is 44 years and three months. However, sedentary lifestyles, stress and a diet rich in fat has pushed the urban women into early attainment of menopause. The data of a multi-centric study conducted by the Indian Menopause Society (IMS) across the country, show that the menopausal age among urban women is now between 45 -57.

Priyadarshini (2014) conducted a pilot study to estimate the age at menopause among the menopausal women living in suburban areas, Chennai. The result showed that the women living in suburban areas attain menopause at the age of 44.6 years.

Human life constitutes various specific stages and every one of us has to pass through all the stages. Each stage of human life is very important and unique in nature as certain physical developments take place in their own way. There is no doubt that one stage of life is interconnected with the other. Midlife is a vital
period in human life, especially, for women. One of the most important physiological changes that occur on women is menopause and its transition (Bansal, et al., 2014).

Shah (2014) emphasizes, in his article, that the menopausal transition initiated with infrequent menstrual bleeding and ends with the cessation of menstrual bleeding. This span of time is also referred to as the change of life or the climacteric. During the climacteric women are also experiencing other hormonal and physical, psychological and urogenital changes. For this reason, menopause, sometimes is called the change of life. This change of life or climacteric may divide into three phases. They are perimenopause, menopause, post menopause. The time spans spent by the midlife women during the phases are considered as menopausal transition. During the menopausal transition 60% of women suffer from mild menopausal symptoms and 25% suffer with severe symptoms and 15% from no symptoms.

Cairu, et al., (2011) clearly indicates that during the menopausal transition, women experience various health-related problems such as Somatic, skeletal, cardiovascular, psychological, urogenital and the sexual problems may severely affect the quality of life of the midlife women and these problems perception may differ from age, ethnicity and race. At the end of the menopausal transition, women loss her reproductive capacity. The women may loss her reproductive capacity around 45-60 years. This age group coined as midlife period.
Gaikwad and Sudeep (2012) described that the women’s reproductive health is always important. Reproductive health care of the women starts from menarche to menopause.

Mathew (2012) acknowledged that women could play a crucial role not only in ensuring the health, nutrition and overall well being of the entire family but have an intergenerational impact and significantly influence the health of the future generation. Unfortunately, in India, the nutritional status of women is poor due to varied reasons. Physiological and psychological stress relating to onset of menstruation, child bearing, and menopause poses additional demands for various nutrients in women.

**Need for the Study**

The problems related to menopause were given scant attention till the 1980. From 1981 onwards the concept of menopause emerged and gained attention from the health care system. During that period scientific committee identified there are virtually no data available on the age distribution of menopause and no information on its socio-cultural significance in the developing countries and the committee also addressed the need for menopausal research and made some suggestions and it was recommended to WHO.

The recommended suggestions included: WHO sponsored research should be undertaken to determine the impact on health service needs of the rapidly increasing numbers of menopausal women in developing countries, uniform terminology should be
adopted by health care workers with regard to the menopause, uniform endocrine standards should be developed which can be applied to the description of peri and postmenopausal conditions and diseases, and descriptive epidemiological studies of the age at menopause should be performed in a variety of settings (WHO Statistics, 2011).

Women play an important role in replishing the earth but her reproductive capacity is not permanent as it ceases one day which is coined as menopause. The transition from a potentially reproductive to a non-reproductive state is normally not sudden or abrupt, occurs over a number of years, and is a consequence of biological aging. Midlife women during the menopausal transition may be powerful enough to significantly disrupt their daily activities and sense of well-being. In those cases various different treatments can be tried. During menopause, the estrogen level is getting deprived which may attribute to many physical and psychosomatic problems. These can be managed only through hormone replacement therapy.

Hawkins and Bourne (2012) define menopause as the time of cessation of ovarian function resulting in permanent amenorrhea. According to the World Health Organization statistics, about 25 million women worldwide reached menopause; this number is expected to double by the late 2020s. About 130 million Indian women are expected to live beyond menopause by 2030. With the advent of modern medicine, there is a general
increase in life expectancy, thus many women are likely to live for more than two decades beyond menopause, in an estrogen deficient state and leads to risk for cardiovascular and skeletal disorder. The symptoms experienced by these women can be severe enough to affect the normal lifestyle.

The following figure 2 denotes the demography of menopausal population. It states that above fifty years female population steadily increasing from 1990 to 2030 in region wise. The developing country such as India, china show more dramatic increase in menopausal women population than the developed countries, it is typically tripling or more from 1990 to 2030. It clearly states that India has been a third country which needs the emergency attention towards midlife women population (Sunita and Pattnayak, 2011).

Rahman, Salehin, and Iqbal (2011) enlightened, in his article, that the menopause related symptoms have been extensively studied in western countries, but very little data are available from the developing countries, especially South East Asia.

Akankha and Kumar (2014) did a cross-sectional study to investigate the menopausal symptoms among the midlife women at rural areas of New Delhi. The results showed that there is only little data available on the impact of menopause on women’s health, particularly from rural India. The study identified menopause has its impact towards health and put the women at a risk of various disorders such as coronary heart disease and osteoporosis, breast cancer. Further it was suggested that recent study should focuses on impact of menopausal and mitigate the risks of menopause. It concluded that it’s critically important to identify the health needs of post menopausal women and specific component to be incorporated in the National Health Programme.

According to epidemiological studies, the incidence of heart attacks among women increases drastically with the onset of menopause, a phase that is characterized by the reduction of estrogen production in the body. Of the 80,000 new cases of breast cancer reported every year in Maharashtra, the majority is related to menopausal and post-menopausal women. A mammogram conducted at regular intervals and regular self-examinations are needed to facilitate early detection of breast cancer (Umesh, Times of India, 2012).
According to Indian Menopause Society, the average age of menopause is around 48 years, but it strikes Indian women, especially, North Indian women at the age at 30-35 years due to stress, physical inactiveness and dietary factors. These early attainment of menopause may cause coronary artery diseases, osteoporosis, breast and cervical cancer.

Risk of Cardiovascular Diseases: The incidence of cardiovascular diseases in Indian women noted to have significantly risen. As hormone levels change, during the menopausal transition, the quality of a woman’s cholesterol carriers degrades, leaving her at greater risk for heart disease. The projected deaths from cardiovascular diseases by 2020 are estimated to be 42% of total deaths. There is an increased prevalence of metabolic syndrome which comprises of insulin resistance, altered glucose tolerance or Diabetes, Dyslipidemia, Hypertension, and central obesity.

According to the American Heart Association Statistics, the post menopausal women have ten times increased risk to develop heart attack. There may be a decreased estrogen level contributing to develop heart disease among post menopausal women. Estrogen act on the inner layer of arterial wall and serving to remain the blood vessels flexible and expand to accommodate blood flow. Due to decline in estrogen may enhance the fat deposition by decreasing the flexibility (Goldberg, 2000).
Mathew, et al., (2011) investigated the changes in cardiovascular risk factors during the menopausal transition and carotid artery atherosclerosis in healthy midlife women. The findings showed that an increased LDL and triglycerides and decreased HDL levels were noticed during menopausal transition which may put the women at greater risk to develop coronary heart disease.

This fact also supported by the Study of Women’s Health Across the Nation (SWAN-) – Bone Resorption and Fracture across the Menopausal Transition. The findings show decreased Bone Mineral Density (BMD) and increased level of NTX (N-telepeptide-x) excretion during the menopausal transition. Further, it shows that the chance for fracture risks is high among the women during midlife period (Cauley, et al., 2012).

Raina, et al., (2011) investigated a case control study on risk factor for breast cancer in India. Late menopause increases the risk of breast cancer. The risk increases by almost 3% for each year older at menopause, so that a women has the menopause at 55 rather than 45 which is approximately 30% higher risk. The south Indian study showed an increased risk of breast cancer in women who become menopausal after the age of 50 (OR = 1.87, 95% CI = 1.26 -2.78).

According to Indian Menopause Society, there were about 65 million Indian women over the age of 45 years in the year 2006. Hence, the menopausal health demands even higher priority in
Indian scenario. In India, there is no current health programme that caters to the specific health needs of menopausal women. Moreover, Reproductive and Child Health-II and National Rural Health Mission only address women in the reproductive age group, ignoring those who have passed their reproductive stage. Also very few studies have been conducted in rural areas to understand menopause at micro level (Madukumar and Sudeep, 2012).

Census of India (2011) states that majority of Indian population residing in the rural areas estimated to be 68.84%, therefore, there is an urgent need to focus our health services to menopausal women residing in rural areas. This study is, therefore, expected to bring out the magnitude of suffering due to health issues among the rural midlife women, which can be addressed at proper platform of socio-cultural relevance.

Health is now recognized as the fundamental human right and it is essentially an individual responsibility. It is not a commodity that one individual can bestow on another. No community or state programme of health services can provide health. It has to be earned and maintained by the individual himself, who must accept a broad spectrum of responsibilities, now known as ‘self care’ (Park, 2007).

Women, usually, perceived themselves to be healthy even if they are not healthy. They are usually involved in taking care of family and given second priority to them. Hence, it is required to
create awareness towards self care during menopausal transition and determine their right perception of health during this phase. Since menopause has lots of physical and mental problems, the demands of life are much more. They need how to cope up with problems and demands (Cairu, 2012).

**Joshi (2010)** states, in his article, menopausal health demands priority in Indian scenario due to increase in life expectancy and growing population of midlife women. Hormones are playing a vital role from the menarche till menopause. Especially, the two hormones - progesterone and estrogen - are integral to reproductive ageing are no longer produced during menopause. Specifically, the declined and eventually cessation of estrogen production has been shown to cause a variety of symptoms during menopause, affecting each women differently, which causes vasomotor, psycho somatic, urogenital, cardio vascular and musculo skeletal manifestations that negatively impact the quality of life of menopausal women.

Indian menopause society conducted a multi-centric observational cross-sectional study among 1,667 post menopausal women. The finding shows that 47.26% of the respondents reported hot flush, followed by depression and anxiety 47.97%. There was a cluster of symptoms of physical, somatic, sexual, urogenital, psychological and musculoskeletal symptoms. Also, it suggested that diet, exercise and counseling are essential to prepare the body to cope with this increased vulnerability (Times of India, 2012).
Welson (2004) explains estrogen replacement therapy is highly effective for relief of climatric syndromes in post menopausal women as well as for the prevention of osteoporosis and cardiovascular disease. Recently, publication of results from two large prospective studies, women’s health initiative and heart indicating increased risk of breast cancer, stroke, coronary artery disease with hormone replacement therapy. Due to fear, dislikes of adverse effects and possible long-term risk of hormone replacement therapy, there is increasing interest in effective and safe alternatives for menopausal problems.

Dietary factors may play a major role in estrogen production and metabolism and in symptom occurrence. Asian women, who consume less fat with more soy, reported to have less vasomotor symptoms, as compared to Caucasian women who do not include soy in their diet (Durushah, 2011).

Soy, peanut and dry dates has the flavonoids which are the dominant phytoestrogens sources. Phytoestrogens are selective estrogen enzyme modulators. It binds with the estrogen receptors, act as an estrogenic and pro estrogenic roles. When estrogen deficiency is present phytoestrogen serves as estrogenic activity as a supplementation whereas excess estrogen is present, it serves as an anti estrogenic activity and it maintains the normal level of estrogen. Thus the phytoestrogen which consists of flavonoids effectively balance the estrogen metabolism in the body, further it reduces the short term and long term problems of menopause.
Paul, et al., (2003) explain in their article that phytoestrogen, commonly derived from plants, structurally related to estrogens that have been shown to bind to estrogen receptors and alleviate menopausal symptoms. Also phytoestrogens are currently used by many women as alternative to hormonal replacement therapy for menopausal problems. The sources of phytoestrogens were grains, fruits, vegetables etc. The cheap and best sources of dietary phytoestrogens were grains. Further the dominant grain which poses phytoestrogens are soy, peanut and dry dates.

The investigator had chosen the grains which contains phytoestrogens as a one among the intervention to alleviate menopausal symptoms. Most of the meta analysis study shows that dietary phytoestrogens which includes grains will be the safe to minimize and prevent menopausal problems rather than synthetic hormones.

Jacobs, et al., (1998) did a study on the effectiveness of whole grain intake on the risk of developing ischemic heart disease among the post menopausal women. The result revealed that there was a significant association existing between the whole grains (soy and peanut) consumption and the risk for ischemic heart disease at $p<0.02$. Also, it concluded that the whole grains contain many phytochemicals and antioxidants which may decrease the risk of developing heart disease. And it was suggested consuming whole grains must be investigated for its potential to prevent ischemic heart disease and cancer.
**Caddidy, Bingham and Setchell (2010)** did a study on biological effects of a diet of soy protein, rich in isoflavones, on the menstrual cycle of pre menopausal women at Cambridge, UK. A 50 gms soy protein containing 45 mgs of isoflavones was administered daily for one month. The results indicated that the dietary soy protein significantly (p<0.01) increased the length of the follicular phase and delayed the menstruation. The FSH and LH surge during midcycle was significantly decreased during the dietary intervention. In the follicular phase the plasma estradiol concentration was increased and cholesterol concentration was markedly decreased 9.6 %. These effects are presumed to be due to estradiol and non estrogen properties of isoflavones, which behave as agonists/antagonists. The results of soy protein are potentially beneficial to reduce the risk factors for breast cancer and indicate the low incidence of breast cancer and its correlation with a high soy intake in Japanese and Chinese women.

**Demlow, et al., (2014)** performed a randomized controlled cross-over study to determine the effectiveness of 50 gms of soy isoflavones powder on plasma lipid level among the perimenopausal women. The results revealed that the LDL cholesterol level lowered by 7.6-10.0%. It was significant at p<0.005 level. The HDL cholesterol increased by 10.2% and it was significant at p<0.005. It was concluded that these magnitude effects of soy isoflavones contribute to lower the risk of developing coronary heart disease in perimenopausal women.
Menopause is defined as the permanent cessation of menstruation resulting from the loss of ovarian follicular activity. During the menopausal transition nearly 85% of women are spending more than one third of their lives in the post menopausal period and bear the consequence of this endocrine deficiency state. It is a natural process that happens to every women. As she grows older, awareness about menopausal problems and their management will help all women to cope up with the changing situation.

Puri and Bhatiya (2010) conducted a descriptive study in Chandigarh to assess the status of menopausal problems among women in rural and urban population. Totally, 528 samples were interviewed, among that 302 (56%) were residing in urban area and remaining 44% were from slum area. The most common menopausal symptoms reported by the menopausal women were vaginal symptoms such as vaginal dryness, bleeding, pain, and infection. Calcium supplements were taken by majority 63% of samples. Only 8% of females complained of post menopausal bleeding out of which 14% had it after intercourse. Only 29% women had their pap smear done after being suggested by doctor. The study highlighted the point that there was lack of awareness regarding menopause and related symptoms and it was suggested effective counseling regarding the menopausal problem may help the midlife women to have a high quality of life during menopausal transition.
Meta analysis of 32 interventional studies revealed that the decreased physical activity were highly significant association with severely menopausal symptoms and simple flexibility exercise for 60 minutes per day had a positive effect of menopausal symptoms predominantly psychological and social symptoms (Guinaraes, 2011).

Kim (2014) identified the association between the exercise activity and menopausal symptoms among the perimenopausal women. The result showed that decreased psychological (p<0.012) and physical symptoms (P<0.002) were noticed among the perimenopausal women who performed moderate level of exercise than low level of performing physical activity.

After reviewing the studies cited related to menopause showed that there is a vast gap in minimizing all the problems such as physical, psychological, urogenital and sexual problems of menopause. Though the problems of menopause were multifaceted, the researcher felt, a single intervention may not minimize the multifacet problems of menopause and ensure the women to lead a good quality of life. Evidence showed that the hormones, prescribed to manage the menopausal problems, may put women at a greater risk of developing cancer and other ill effects.

The investigator found in various studies that a variety of interventions can treat only few symptoms of menopause, only few studies explained the combined interventions targeting all the
symptoms of menopause. Hence, the investigator has got a idea of doing further research on offering the three type of intervention to minimize the menopausal symptoms that is i) administering phytoestrogen grains powder, ii) exercise, iii) problem based counseling interventions and compare the best method to manage menopausal symptoms. So it becomes most important to undertake this kind of study which creates an awareness regarding natural remedies rather than switching into hormones and facing its consequences.

In health care system, nurses play a vital role in patient education. According to Virginia Henderson (1966), part of a nurse's role is to improve the patient level of understanding and therefore promote health. Nursing agenda for health care reform by American Nurses Association in 1991 recommends a restructuring of the health care system and focuses on wellness and care rather than illness and cure. Though the menopausal problems are multidimensional, the investigator felt that administering a multimodal intervention will alleviate the menopausal problems and promote the wellness of the midlife women during the menopausal transition.

**Statement of the Problem**

A Study to Assess the Effectiveness of Multimodal Intervention (Phytoestrogen Diet Therapy, Exercise and Counseling) on Prevention and Management of Menopausal Problems Among Midlife Women in Selected Area, Chidambaram.
Objectives

Phase I

1. To identify the common menopausal problems among the midlife women.

2. To assess the intensity of menopausal problems among the midlife women.

3. To associate the menopausal problems with selected demographic and clinical variables.

Phase II

1. To determine the effectiveness of multimodal intervention on menopausal problems and coping ability among the midlife women in the group I.

2. To evaluate the effectiveness of Exercise and Problem Based Counseling Intervention (EPCI) on menopausal problems and coping ability among the midlife women in the group II.

3. To compare the effect of multimodal intervention and EPCI on menopausal problems and the coping ability among midlife women in group I, II and control groups.

4. To compare the biochemical parameters among the midlife women in group I, II and control groups.

Hypotheses

H₁ - There will be a significant reduction of menopausal problems of midlife women who receive multimodal intervention in group I than group II and control groups.

H₂ - There will be a significant difference in the coping ability of midlife women who receive multimodal intervention in group I than midlife women who practice EPCI in group II and midlife women in control groups.
There will be a significant difference in the biochemical parameters of the midlife women who receive multimodal intervention than the midlife women who practice EPCI and midlife women in control groups.

**Operational Definitions**

**Assess:** To judge or estimate the amount, value, quality or importance of something. In this study, it refers to judging the menopausal problems, coping ability, physical ability and estimating the effectiveness of multimodal intervention on menopausal problems, coping ability and physical ability.

**Effectiveness:** it means the desired changes found on women. In this study, it refers to the outcome of multimodal intervention, exercise and counseling in improving physical activity and coping ability by minimizing menopausal symptoms of the midlife women, which was measured through modified menopausal rating scale and brief cope questionnaire.

**Multimodal intervention:** It refers to combined intervention of **phytoestrogen diet therapy, exercise and problem based counseling** to minimize the menopausal symptoms, and promote the physical activity of midlife women.

**Phytoestrogen diet therapy:** it refers to administering grains powder (50 gms of grains power containing 45 mg of isoflavone) for three months to minimize the menopausal symptoms, which was
measured by modified menopausal rating scale and bio chemical parameters.

**Exercise:** it refers to an activity recommended to the midlife women by the researcher for menopausal problems related to their ability. In this study, the importance and steps of general fitness exercises (deep abdominal breathing and pelvic floor) and joint flexibility exercise (special attention focusing on the joints such as toes, ankles, knees, hip, fingers, wrist, elbows, shoulder, spine and waist) was taught to the midlife women to manage the menopausal problems.

**Problem based counseling intervention:** counseling is a process in which a counselor (researcher) facilitates the subjects in solving their own problems. In this study, it refers to certain techniques administered by a nurse to a subject with menopausal problems. In the present study, counseling on self care management was given since the problems affect the subjects at various levels. The counseling includes standing instruction for management of somatic problems, aches and pains, psychological problems, sleep problems, genitor urinary problems, sexual problems and cardiac problems.

**Prevention:** prevention refers to instituting a special precautions or techniques with the person at risk to develop complications. In this study, it refers to instituting a multimodal
intervention and EPCI for the midlife women to prevent the short term and long term problems of menopause.

**Management:** Management refers to a skill or techniques used to resolve the occurrence of problems and prevent the recurrence of such occurrence. In this study, it refers to the intervention adopted by the midlife women to solve the problems of menopause such as short term problems like physical, psychological, urogenital, and cardiac symptoms and long term problems like osteoporosis and coronary heart disease.

**Menopausal problems:** It refers to the problems experienced by the midlife women during the menopausal transition to menopause in terms of physical problems such as somatic problems and aches and pain. Psychological symptoms like mental exhaustion, depressive mood, irritability and sleep problems, genito urinary problems such as urinary and sexual problems and cardiac problems.

**Midlife women:** It refers to the women at the age of 45 to 60 years and at the time of menopausal transition. In this study, it refers to women at the age of 45 to 60 years who were living in selected area.

**Assumptions**

1. Midlife women suffer from menopausal problems.
2. Menopausal problems are treatable and preventable.
3. Multi-modal intervention helps to manage and cope up with the menopausal problems.
4. Multimodal intervention helps the midlife women to keep physically active and prevent and manage the menopausal problems effectively.

**Delimitations**

1. The study is limited to midlife women who underwent natural menopause.

2. The study subjects were selected only from rural areas.

**Conceptual Framework**

Conceptual framework refers to inter related concepts or abstractions that are assembled together in some rational scheme by virtue of their relevance to common theme (Polite and Hungler, 1999).

The conceptual frame work, in this study, is based on Roy’s Adaptation model which views the individuals as open, they are constantly subjected to various external (acquired) and internal (innate) stimuli. Innate and acquired stimuli are the base of the individual whole being. The internal stimuli especially the needs of the individuals are influenced by innate and acquired stimuli. Intentionally or unintentionally external stimuli are also processed into the individuals systems. These stimuli comprehensively transform the throughput with various adaptive modes.

The commonest adaptive modes identified by the theorist are physiological, self concept, interdependence and role functions. When stimuli processed in the input are favorable, the adaptive levels at throughput are enhanced. This response blends well so as
to bring an optimum health in the individuals. The theorist also clarifies any input that is not favorable to the individual and that does not blend with the environment cause a maladaptive response where in there is a constant friction between the stimuli and the environment. This makes the individual to deviate from the optimal health. Illness level depends on the intensity, content and quality of the stimuli.

**Major concept of the theory includes**

- **Adaptation** – goal of nursing, **Person** – adaptive system,

- **Environment** – stimuli, **Health** – outcome of adaptation, **Nursing** – promoting adaptation and health.

Roy also suggested six steps to be followed while caring the patient by applying this theory. They are as follows:

1. assess the behaviors manifested from the four adoptive modes (physiological – physical mode, self concept – group identity mode, role function mode and interdependence mode).
2. assess and categorize the stimuli for those behaviors
3. make a nursing diagnosis based on the persons adaptive state
4. set goals to promote adaptation
5. implement interventions aimed at managing stimuli to promote adaptation
6. evaluate achievement of adaptive goals.
Roy pointed out that by manipulating the stimuli rather than the patient, “the nurse enhances the interaction of the person with their environment, and thereby promoting health”

Considering the theorist views as salient features for the current study, the model was modified to suit the proposed research. The study identifies midlife women as exposed to variety of stimuli (contextual stimuli, focal stimuli and residual stimuli) during menopausal transition and vulnerable to get a hold of menopausal problems, increased level of FSH and LDL on the one hand and decreased level of HDL and ESTRADIOL on the other.

According to Roy’s Adaptation model an individual’s behavior is based on the input, thorough put, output and feedback. In this study, as a part of the input, the researcher identified the stimuli which constantly interact with the person system and that can cause menopausal symptoms, decreases coping, and changes in the biochemical parameters.

The stimuli include focal stimuli as midlife women aged 45-60 years suffering with menopausal problems, contextual stimuli such as occupation of the women, lack of knowledge about menopause and its effects on health, fear and anxiety due to changes in the body, poor spouse and family support, residual stimuli such as duration of menopausal problems. Investigator assessed the behaviours manifested from the various modes like physical (somatic and aches and pains) physiological (BP, weight,
BMI), biological (HDL, LDL, FSH, ESTRADIOL) and the psychological (mental exhaustion, irritability, depression, sleep problems), urogenital (urinary and sexual problems) and cardiac problems.

**Major concept of the theory for the present study includes:**

- Adaptation (goal of nursing) – desirable reduction in the physiological, biological, and psychological parameters
- Person (adaptive system) – menopausal women
- Environment (stimuli) – C. Kothangudi Panchayath
- Health (outcome of adaptation) – adaptive or mal adaptive responses
- Nursing (promoting adaptation and health) – promotion of the desirable reduction in the physiological, psychological parameters through implementing multimodal intervention, exercise and problem based education.

The external stimuli - the health needs related to menopause, implicitly - influence the health of the midlife women. Healthy diet, life style modifications, family support were the health needs identified from the need based assessment of the menopausal women.

The adaptive response for the study includes a desirable reduction in the physiological, biological and psychological, urogenital and psychological domains of the study.

Focusing on the expected adaptive response, a pre assessment level of menopausal problems, coping ability, BP, BMI,
FSH, ESTRADIOL, HDL, and LDL was done by the researcher through accurate measures among the groups. Multimodal intervention, exercise and problem based counseling interventions is a strong input to improve the throughput of the midlife women at various (physical, psychological and psychological) adaptive level. External stimuli in the form of multimodal intervention, exercise and problem based counseling as effectors was intentionally processed and implemented to study group. It was given for a period of twelve weeks. During this period, multimodal intervention (group I), exercise and problem based counseling (group I) was administered to the study group as throughput. Midlife women were given constant feedback to maintain and promote health throughout by providing flash cards on management of menopause whereas control group received only the routine care as process control mechanisms.

After twelve weeks of multimodal intervention to group I. Exercise and problem based counseling interventions to group II and only with routine care to control group, to determine the adaptive goals have been met, a post-assessment level of menopausal problems, coping ability and biochemical parameters was done by the researcher with the same measures in all the three groups.

Output, the post-adaptive response of the menopausal, coping and biophysiological parameters could be evaluated on either of the responses like adaptive responses or mal adaptive
responses. Adaptive responses includes desirable reduction in the menopausal problems, improvement in coping ability and changes in biochemical parameters and mal adaptive response includes no desirable reduction in the menopausal problems and improvement in coping ability no desirable and changes in biochemical parameters. Upon adaptive responses, the investigator would reinforce the multimodal intervention, exercise and problem based counseling intervention as a holistic approach on the individual wellbeing, whereas, upon maladaptive responses, reassessment of the stimuli related to the study will be done until achieving the adaptive response, which is not a part of this study, represented in dotted line.