

**A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON  
MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL  
WOMEN AT GANAPATHY MAANAGAR IN  
COIMBATORE DISTRICT.**



**By**

**Reg.No:301921101**

**A DISSERTATION SUBMITTED TO THE TAMILNADU  
Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI IN  
PARTIALFULFILLMENT OF REQUIREMENT  
FOR THE DEGREE OF MASTER OF  
SCIENCE IN NURSING**

**OCTOBER 2021**

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**EXTERNAL**

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**A DISSERTATION SUBMITTED TO THE TAMILNADU  
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**OCTOBER 2021**

## **PLAGIARISM CERTIFICATE**

This is to certify that the dissertation work titled “**A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN AT GANAPATHY MAANAGAR IN COIMBATORE DISTRICT**” of the candidate with registration number **301921101** for the award of M. Sc Nursing in the Branch of Obstetrics and Gynaecology Nursing. I personally verified the **PLAGARISM CHECKER X. COM** website for the purpose of plagiarism check. I found that the uploaded thesis file contains from introduction to conclusion pages and results shows **17%** of plagiarism in the dissertation.

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## ABSTRACT

**Statement of the problem:** A study to assess the effectiveness of soya bean on menopausal symptoms among post menopausal women at GanapathyMaanagar in Coimbatore District. **Objectives of the study:** a) To assess the level of menopausal symptoms before administering soya bean among post menopausal woman in experimental and control group. b) To determine the effectiveness of soya bean in reduction of menopausal symptoms among post menopausal women. c) To assess the level of menopausal symptoms after administering soya bean among post menopausal woman in experimental and control group. d) To find the association between menopausal symptoms with selected demographic variables. **Methodology:** The quantitative approach - quasi-experimental, pre test, post test design was selected to study the effectiveness of Soya bean on Menopausal symptoms among Post Menopausal Women. The researcher adopted non probability convenient sampling technique and 60 postmenopausal women were selected for the study from GanapathyMaanagar, Coimbatore. They are divided into two groups, 30 in experimental group and 30 in control group. The investigator used Heinemann Menopausal rating scale to assess the menopausal symptoms. **Results:** In the experimental group, the pretest score of menopausal symptoms among post menopausal women was  $18.73 \pm 3.11$  and the post test mean score was  $12.50 \pm 2.50$ . The mean difference score was 6.23 (14.16%). The calculated paired 't' test value of  $t = 15.145$  was found to be statistically significant at  $p < 0.0001$  level. The findings indicate that there was significant reduction in the level of menopausal symptoms in the post test. This clearly infers that administration of soya bean among post menopausal women in the experimental group was found to be effective in reduction of menopausal symptoms in the post test. In the control group, the pretest score of menopausal symptoms among post menopausal women was  $18.50 \pm 3.15$  and the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was 0.2 (0.45%). The calculated paired 't' test value of  $t = 1.989$  was not found to be statistically significant. This clearly infers that there was no significant reduction in the level of menopausal symptoms among post menopausal women in the control group. On comparison between experimental and control group, the preassessment level of menopausal symptoms in the experimental group, the pretest mean score was  $18.73 \pm 3.1$ , the post test mean was  $12.5 \pm 2.5$ , (4.5table) and the mean difference score was 0.23%. The calculated student independent 't' test value of  $t = 0.289$  was not found to be statistically significant. This clearly infers that there was significant difference in the level of menopausal symptoms score among post menopausal women between the two groups in which the



experimental group had significant reduction in the level of menopausal symptoms score than the control group. The preassessment level of menopausal symptoms in the control group, the pretest mean score was  $18.5 \pm 3.2$ , the post test mean score was  $18.3 \pm 3.1$  and the mean difference score was 5.8(13.18%). The calculated student independent 't' test value of  $t = 8.013$  was found to be statistically significant at  $p < 0.001$  level. This clearly infers that there was no significant difference in the level of menopausal symptoms score among post menopausal women between the two groups. **Conclusion:** This study shows that soya bean plays a vital role in reducing the menopausal symptoms among postmenopausal women. It is cost effective and more convenient to prepare.

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*Dedicated to Almighty  
God, Lovable Parents,  
Husband, Sisters,  
Brother, Friends &  
Well wishers*



# CHAPTER-I

## INTRODUCTION

**“Awareness is the first step in Healing”**

### 1.1 BACKGROUND OF THE STUDY

Human life constitutes various specific stages, which each of has to pass through. Each stage of human life is very important and unique in nature as certain physical development takes place in its own way. There is no doubt that one stage of life is interconnected with the other. Midlife is a period of transition for both men and women. In literature women is quoted as “Kshamaya Dharithri”, who plays versatile role in the entire life span. She undergoes significant changes in life, when her reproductive years end her body and psyche experiences a host of physical and emotional changes, starting from the age of forty-five.

**WHO** defined menopause as the permanent cessation of menstruation due to loss of ovarian follicular activity. The word “menopause” literally means the end of monthly cycles from the Greek word ‘pausis’ meaning ‘to stop’ and ‘meno’ meaning ‘month’ because the word “menopause” was created to describe this change in human females where the end of fertility is traditionally indicated by the permanent stopping of monthly menstruation or menses.

The average age of menopause in western world is 51 years where as in India it is 44.3years with a life expectancy of 71 years. Menopause brings about many physical, physiological, psychological and social changes in a women’s life and this worsens health related quality of life. Post menopausal women can be considered a risk population even though menopause itself is not considered as a disease. Many women believe that once they have crossed the threshold of twelve months without periods, they won’t have to face the discomforts that are associated with menopause. In majority of the women, they gradually stop feeling symptoms but it is not true always.

The symptoms of menopause can be distressing, particularly as they occur at a time when women have important roles in society, within the family and at the workplace. Hormonal changes that begin during the menopausal transition affect many biological systems.

Accordingly, the signs and symptoms of menopause include central nervous system-related disorders, metabolic, weight, cardiovascular and musculoskeletal changes, urogenital and skin atrophy and sexual dysfunction. Common symptoms include hot flashes – short and sudden feelings of heat, usually in the face, neck and chest, which can make your skin red and sweaty, night sweats – hot flashes that occur at night, difficulty sleeping – this makes you feel tired and irritable during the day, a reduced sex drive (libido), problems with memory and concentration, vaginal dryness and pain, itching or discomfort during sex, headaches, mood changes, such as low mood or anxiety, palpitations – heartbeats that suddenly become more noticeable, joint stiffness, aches and pains, reduced muscle mass, recurrent urinary tract infections (UTIs). Other changes are skin changes, locomotor system changes like menopausal arthropathy, osteoarthritis, fibrosis, backache may be age related. **Mary Elizabeth (2017).**

Menopausal problems are treated by hormonal and non-hormonal therapies. The most commonly used hormone therapies are estrogen, progesterones, or combined progesterone therapy. The non-hormonal treatments include nutritional, diet like soya bean, green leafy and supplementary calcium and vitamins. The conventional treatment for menopausal symptoms is hormone replacement therapy. Hormone replacement therapy may be good at relieving some of those torturous menopausal symptoms by replacing the lost hormones in the female body. But analysis from the Women's Health Initiative indicates that combination hormone therapy increases cancer and heart disease risk.

Soya bean is commonly called wonder bean since it is an excellent source of nutrients such as proteins, fats, carbohydrates, vitamins and minerals. It contains 43 gm of protein per 100 gm which is the highest among the pulses. It also contains 19.5 gm of fat, 21 gm of carbohydrate and provides 432 kcal per 100 gm. Soybean also contains a family of chemical compounds called phytoestrogens. Phytoestrogens have chemical structures similar to the estrogens produced in the body and it is believed that eating foods rich in phytoestrogens can help alleviate low estrogen production in the body. According to the National Institutes of Health, soy and soy-based foods containing phytoestrogens may be a natural alternative to hormone therapy during menopause.

A double blinded randomized study conducted to assess the effect of soya protein in tertiary care centers to assess the effect of soy protein containing isoflavones on quality of life

in post-menopausal women. A sample of 93 healthy, ambulatory women were randomly assigned to receive 20 grams of soya protein containing 160 mg of isoflavones versus matched placebo (20gm whole protein milk) and quality of life was assessed by menopause-specific quality of life questionnaire . The study results revealed that there was a significant improvement in all four quality of life scales (vasomotor, psychosexual, physical and sexual) among the women taking soy protein and no changes were seen in placebo, the study concluded that use of soya improved the quality of life in post menopausal women. **Melby (2018)**

A growing range of complementary and alternative medicines have flooded the market and are commonly used to treat problems with menopause. Most of these therapies rely on soy isoflavones which are phytoestrogen having more closeness to estrogen B receptors. This has been contributed to the widespread use of non-hormonal soy isoflavone therapies to treat menopausal symptoms with clinical proof of their effectiveness. Soybean or soya bean (glycine max) is a legume species that is commonly cultivated with more uses for its edible bean. Popular uses of soya include soya milk, soya sauce, fermented bean paste and tempeh. Soybeans contain some of the large quantities of phytic acid, dietary minerals and vitamin B. A high source of isoflavones is a soya bean and soya products. Soya consists of the highest isoflavone concentration.

Even though menopause is a universal phenomenon for every woman, the experience is not universal. The experience of menopause varies in each woman and there is no fixed pattern and no chain of events. The onset and duration is indefinite and the end is unpredictable. Although menopause is a natural physiologic event in the life of a woman, it should be considered as a challenge for identification, management and prevention of organic disease in a woman.

## **1.2 NEED FOR THE STUDY**

India has a large population, with 71 million people over 60 years of age. There are over 300 million menopausal women worldwide and 70 million in India. Because the life expectancy for women since 2000 has increased from 50 to 81 years in India.

The transition through menopause is a life event that can profoundly affect quality of life. Transition of menopause is related to different physical and mental changes that may affect

women's health. Studies show that the physical, psychological, social, and sexual changes in menopause have an adverse effect on women's quality of life. It has been expressed that 96% of women have menopausal complaints and their quality of life is affected not only physically and psychologically but also socially. It is reported that the quality of life of women is especially unfavorably marked in the perimenopausal and early post menopausal periods.

Four of five women experience physical and psychological symptoms around menopause with different degrees of severity and impact on quality of life. Studies show that 87% of women who report hot flashes experience daily symptoms, and a third of them experience more than 10 days. Its prevalence is approximately 40% in the early menopausal transition and 60–80% in the first 2 years after menopause. Vulvovaginal symptoms affect up to 45% of post menopausal women. An ideal health evaluation, therefore, would take account of an assessment of the patient's physical health, a measure of physical, social, and psychological functioning, and a measure of quality of life. Such an assessment would include main physical, psychological, social, and spiritual dominions of life.

A study was conducted to assess the menopausal related symptoms and their impact on the women's quality of life. The study showed that the most severe symptoms of vasomotor, psychosocial, physical and sexual domains were, hot flashes (29%), experiencing poor memory (48.3%), being dissatisfied with their personal life (44.8%), Low backache (41.9%), and change in sexual desire (36.8%). The overall scores of menopausal quality of life for each domain are indicated that the highest mean score in sexual domain ( $3.19 \pm 1.99$ ), followed by psychosocial ( $2.94 \pm 1.45$ ). It can be concluded that the most severe symptoms of vasomotor, psychosocial, physical and sexual domains were, hot flashes, poor memory, dissatisfaction with personal life, low backache, and change in sexual desire. While the mean scores of each domain suggest that menopausal symptoms were associated with decrease in women quality of life.

Various studies have found that the menopause is associated with deteriorating quality of life. Menopause may be accompanied by health problems with decreasing estrogen levels. With the restrictions in important conversations in our Indian society, women must remember that menopause is not an illness. It is a natural part of life and must be addressed more openly and freely with the purpose of creating awareness. Though its symptoms can be difficult to cope with, eating right nutrition regularly may help the transition be a little smoother.

In recent years, nutraceuticals such as phytoestrogens and herbal derivatives have gained popularity due to their claimed ability to relieve menopausal symptoms. Nutraceuticals are defined as foods, parts of foods, or botanicals that provide medical and health benefits, such as the prevention and treatment of disease. The word “phytoestrogen” comes from the Greek term for plant (“phyto”) and from the term “Estrogen”, that is a hormone that influences the female fertility in vertebrates. Phytoestrogens are compounds found in plants.

Isoflavones are polyphenolic compounds usually represent most common categories of phytoestrogens. They are structurally similar to 17 beta estradiol and are found in the Fabaceae family. Before metabolism, they are hydrolysed into aglycones by the microflora present in the human digestive tract by the enzymes present in the gastrointestinal tract. A survey found that 70% of women would be satisfied with a non hormonal intervention that provided at least a 50% reduction in hot flashes **Veeramani(2019)**.

Isoflavones as an alternative to estrogen therapy found in soya bean may be potentially safe in women who are looking for relief from menopausal symptoms. Due to the potential undesirable health consequences and many adverse effects caused by hormonal therapies, numbers of women are searching for herbal therapies or secondary metabolites from plants as alternatives to treat typical menopausal symptoms. This trend has been increasing since last decade.

A study conducted to assess the effectiveness of soya bean consumption on menopausal symptoms among post menopausal women between 45-56 years. The study results revealed that post-assessment mean 11.5 was lesser than pre-assessment mean 14.5 in experimental group. The obtained "t" value 7.761 was highly significant at 0.05 level. The study concluded that soya bean consumption was effective on menopausal symptoms.

Effective doses of individual soya isoflavones in menopause vary according to the type of soya foods chosen. Target range of 40-80 mg of isoflavones per day is needed for adequate relief. Women with severe menopausal symptoms may see quicker results with daily intake. Women suffering from hot flashes and night sweats may have to use soya consistently in higher quantity to obtain good long term results **(2016)**.

There is a demand for menopausal health in Indian scenario due to increase in number of menopausal women who live one third of their life in this hormone deficient state. Health personnel's can identify and help the women to understand and cope up with the various changes taking place in her body and thus equip them to face the challenge. Hence the researcher felt the need to assess the effectiveness of soya bean on menopausal symptoms among post menopausal women.

### **1.3 STATEMENT OF PROBLEM:**

A study to assess the effectiveness of soya bean on menopausal symptoms among post menopausal women at Ganapathy Maanagar in Coimbatore District.

### **1.4 OBJECTIVES OF THE STUDY:**

- ✓ To assess the level of menopausal symptoms before administering soya bean among post menopausal woman in experimental and control group.
- ✓ To determine the effectiveness of soya bean in reduction of menopausal symptoms among post menopausal women.
- ✓ To assess the level of menopausal symptoms after administering soya bean among post menopausal woman in experimental and control group.
- ✓ To find the association between menopausal symptoms with selected demographic variables.

### **1.5. ASSUMPTIONS:**

- Menopausal symptoms differ from each women.
- Soya bean contains all free of the macro nutrients required for good nutrition such as protein, carbohydrate, fat, vitamins and minerals including calcium, folic acid and iron which are used to alleviate the menopausal problems.
- Soya bean has no side effect on women with menopausal symptoms.
- Women those who consume soya bean will experience less menopausal symptoms.

### **1.6. HYPOTHESIS:**

**H<sub>1</sub>:** There will be a significant reduction in menopausal symptoms among post menopausal women after consumption of soya bean.

**H<sub>2</sub>:** There will be a significant association between menopausal symptoms with selected demographic variables.

### **1.7 DELIMITATIONS:**

- The study is limited only to post menopausal women age between 45 – 56 yrs who attained natural menopause.
- The study is limited only for four weeks.

### **1.8 OPERATIONAL DEFINITIONS:**

#### **Study**

A detailed investigation and analysis of a subject or situation.

#### **Assess**

Refers to decide the quality or value of something.

#### **Effectiveness:**

Statistical significant difference in menopausal symptoms before and after administration of soya beans in Post menopausal women.

#### **Soya beans:**

It is a legume like family of peas. Cleaned 100 grams of soya beans should be soaked in water about 8-10 hours and boiled in water with salt to taste and administered to each post menopausal women for 3 weeks.

#### **Menopausal symptoms:**

It refers to the symptoms experienced by the post menopausal women which is measured through Heinemann Menopause Rating Scale, which is a Menopause Rating Scale (MRS) and is developed in response to the lack of standardized scales to measure the severity of post menopausal symptoms.

#### **Post menopausal women:**

The women who had the permanent cessation of menstruation (after 12 months of amenorrhea).

### **1.9 PROJECTED OUTCOME:**

Soya bean 100 gm of daily for 21 days will help in reducing the menopausal symptoms in post menopausal women

### **1.10 CONCEPTUAL FRAMEWORK:**

The conceptual framework adopted for the study was based on J. W. Kenny's Open System Model (1999) for effect of soya bean on menopausal symptoms among postmenopausal woman

#### **INPUT:**

Input in this study is conducting a pre-test to assess the level of menopausal symptoms in post menopausal women. Input is something put into a system or expended into operation to achieve output or a result. The input includes age, religion, educational status, occupation, type of family, dietary pattern, age of menarche, marital status, parity, and habits. After collecting the data using the questionnaire, the group was divided into two, one is the experimental group and another one was the control group. Pre-assessment of the menopausal problems were assessed by using Heinemann menopausal rating scale by questionnaire. The main aspect in input leads to the throughput.

#### **THROUGHPUT:**

Throughput is a process that converts the input into a final product or outcome. This study plans for intervention of providing 100 grams of soya bean for 21 days to post menopausal women, which is the throughput.

#### **OUTPUT:**

An output is the final product or service provided by a system. Adaptive responses were the reduction of menopausal symptoms. In this study, there was a maximum reduction of menopausal symptoms in post menopausal women in the experimental group.

#### **FEEDBACK:**

A feedback is the information of responses of the environment in the output. In this study, the feedback is when there is no improvement in reduction of menopausal symptoms among post menopausal women.





## CHAPTER – II

### REVIEW OF LITERATURE

A review of literature is an eventual aspect of scientific study. It involves the systematic identification, location, serving and summary of the written material that contains information on are search problem. It broadens the views of the investigator regarding the problem under investigation, helps in focusing on the specially conserving the study.

Review of literature involves systematic identification, location, scrutiny and summary of written materials that contain information on research problem. The literature review is based on an extensive survey of books, journals and international nursing index. Research and non-research literature were reviewed to broaden the understanding and gain insight into the problem under study.

The literature relevant to this study was reviewed and arranged in the following

- 1. Literature related to menopausal symptoms**
- 2. Literature related to isoflavone.**
- 3. Literature related to effect of soya bean consumption in menopausal symptoms.**

#### **2.1. Review of literature related to menopause.**

**Rahman, A. et.al., (2021)** conducted a descriptive study to assess the menopausal symptoms using modified menopause rating scale (MRS) among middle age women in Sara Wale. The result of study was the mean age of menopause was 51.2 years (range 47-56 years). The most prevalent symptoms reported were joint and muscular discomfort (81.2%), physical and mental exhaustion (66.1%) and sleeping problems (53.2%). Followed by symptoms of hot flushes and sweating (41.6%), irritability (37.9%), dryness of vagina (36.6%), anxiety (36.58%), and depressive mood (32.6%). Other complaints noted were sexual problem (31.9%), bladder problem (13.8%) and heart discomfort (18.3%). It was concluded that the prevalence of menopausal symptoms using modified MRS in this study correspond to other studies on Asian women.

**Yali A. Bair, Ellen B. Gold, (2019)** conducted a surveillance study to assesses the quality of life among middle-aged post menopausal women , in which a sample of 5519 Finnish

women who were 42–46 and received a menopause-specific questionnaire. Only 5% of the older and 36% of the younger women were totally asymptomatic. Altogether, 2% of the younger and 11% of the older women had severe climacteric symptoms. In the younger age group, a high symptom intensity was associated with living in town, having a low level of professional education, and being unemployed/laid off, whereas in the older age group, the experience of severe symptoms was associated with those having a couple relationship. Altogether 95% of women in the productive working age (52–56-years-old) surprisingly suffer from mild, moderate, or severe climacteric symptoms. Further even up to 64% of the younger women (42–46-years-old) suffered from similar symptoms.

**Manson JE, et al., (2018)** conducted a population based survey on a representative sample of 495 Singaporean migrant women aged 45 to 60 to determine the prevalence of menopausal symptoms. The mean age of participants was 47 years and the classical menopausal symptoms found were hot flashes (18.6%), vaginal dryness (21.7%) and night sweats (8.7%). The most prevalent symptom reported was low backache with aching muscle joints (52.4%). The most well-known effect of these is the "hot flash" or "hot flush", a sudden temporary increase in body temperature. These symptoms were reported due to hormonal changes underlying menopause, which are caused by aging, other health states, psychosocial factors and life style.

**LuronZuro, (2017)** conducted a comparative study to assess the menopausal symptoms and its prevalence in France. Sample included 45-60 year older females of peri- and post menopausal vegans (Vg: n=123), vegetarians (Veg: n=74), and omnivores (Omnivorous: n=248). The technique for data collection was by survey method by asking structured questionnaire. The study showed that there was a significant difference between diet groups on physical symptoms. There was a significant difference between diet groups on mental symptoms adjusted for social support and age,  $F(2, 440) = 3.52$ ,  $p = 0.030$ ,  $\eta^2 = 0.016$ ; pairwise comparisons showed that Veg reported greater severity of mental symptoms than Vg. A vegan diet may benefit women who seek a natural menopausal therapy and are willing to modify their dietary choices.

**Vemer HM, et.al., (2016)** conducted a descriptive study to assess severity of the menopausal symptoms among women between 41 and 59 years of age were evaluated using

Greene scale for climacteric symptoms, Cooper questionnaire for psychosomatic symptoms of stress, Smilkstein Family Apgar for family dysfunction,. Vasomotor symptoms in the pre-menopause are associated with increased risk of anxiety, depression, somatic symptoms, sexual dysfunction, and stress. Psychological symptoms are frequent in the pre-menopause and are associated to vasomotor symptoms.

## **2.2 Review of literature related to menopausal symptoms.**

**Debora J Matthew, (2021)** conducted a community-based cross-sectional study among 315 women aged 45-55 years from rural areas of Uttar Pradesh. Data were collected through interviews. Menopause specific quality of life questionnaire (MENQOL) was used to assess the frequency and severity of symptoms. Most prevalent symptom within study subjects was body ache 165 (81.7%). Frequencies of some classical symptoms were 134 (66.3%) reported "hot flashes", 139 (68.8%) and 134 (66.3%) reported "lack of energy" and decrease in "physical strengths" respectively. The less frequently reported symptom was increase in facial hair 20 (9.9%). Scores of Physical domain were significantly more in post menopausal group  $P < 0.002$  while the scores of psychological domain were significantly high in menopause transition group  $P < 0.003$ .

**Matthew Susan, Jeffrey Trocio, (2021)** conducted a retro-respective study among 102 randomly selected menopausal woman to assess the prevalence of menopausal symptoms among woman who were prescribed Hormone therapy (HT). The results of the study stated that the most common menopausal symptoms were hot flashes (40%), night sweats (17%), insomnia (16%), vaginal dryness (13%), and mood disorder (12%).

**Brototi Roy, MeenaYadav, (2020)** conducted a cross-sectional study of 200 post menopausal woman at Delhi. a pre-tested questionnaire was given to a random population of post menopausal symptoms and the coping strategies adopted by them. the mean age of menopause of the sample population was 47-48 years and body mass index seemed to affect the age of onset of menopause. the majority of women experienced post menopausal symptoms, with 92.28% experiencing more than one symptoms, ranging from fatigue, sleep disturbances to severe symptoms such as anxiety, palpitations and joint pains.

**Mishra et.al., (2019)** conducted a nationally representative cohort study among 695 women aged 45 to 55 years in England, Scotland, and Wales. A small proportion of women (10%, n=63) had a severe psychological symptom profile that peaked at or in the year after menopause. For vasomotor symptoms, 14% of women (n=83) had the early severe profile that also peaked around early post menopause and then declined noticeably; 11% (n=67) had the late severe profile of bothersome symptoms that increased rapidly in perimenopause and remained high for four years or more after menopause.

**DoyelDasgupta et.al., (2018)** conducted a longitudinal study in one of the indigenous ethnic groups known as “Lodha” of West Bengal, a state located in eastern India. Study areas have been selected using multistage random sampling techniques. Each of the administrative units was randomly selected. We identified 404 post menopausal participants on the basis of the criteria fixed for the study: the participants were between the ages of 40 and 55 years, had attained natural menopause, were married, had at least one child, and had no history of hysterectomy or other major gynaecological problems. We have excluded childless participants from the study to ensure that all participants have been exposed to certain reproductive events/behaviour in life (like pregnancy, lactation, and parity) that modify the reproductive hormonal levels of participants. Finally 313 of these participants were available or volunteered to participate. Thus the total participation rate was 77.5.9% The study shows that during menopause the vaginal mucosa becomes weakened, loses its rugae, and appears pale and almost transparent because of decreased vascularity. It showed that tribal study participants who had the history of heavy menstrual discharge and breastfeed their child for short time are more likely to be affected with the estrogen deficient symptoms like vaginal problems during her menopausal life. Whereas for a caste study participants, who had the history of scanty menstrual discharge and less number of live births, the chance of these types of problems increased.

**EngidaYisma (2017)** conducted a multi-stage cross-sectional study on 226 perimenopausal and post menopausal women aged 35-49 years in Ethiopia. Data on socio-demographic characteristics, menopause status and an 11-item Menopause Rating Scale (MRS) were collected using Interviewer-Administered Questionnaire. The results of the study were the most prevalent types of menopausal symptoms reported from MRS were somatic sub scale (65.9)%, while psychological (46.0%) and urogenital subscale symptoms (30.5%) were also prevalent. The most commonly reported individual symptoms were: hot flushes (65.9% (95%

CI: 59.4%–72.1%)), difficulty falling asleep (49.6% (95% CI: 42.9%-56.3%)), depressive mood (46.0% (95% CI: 39.4%-52.8%)), irritability (45.1% (95% CI: 38.5%-51.9%)), and anxiety (39.8% (95% CI: 33.4%-46.5%)). The study provides the first presentation of menopausal symptoms among perimenopausal and post menopausal women in Ethiopia.

**Gupta and Ray (2017)** conducted a study to compare the post menopausal symptoms of women from rural and urban areas of West Bengal, India. A well detailed questionnaire was used to collect the data. The study confirmed review literature on distress during the menopausal transition and their impact on the quality Of [www.iosrjournals.org](http://www.iosrjournals.org) 4 | Page rural-urban differences in reporting of menopausal problems like hot flushes and night sweats 2.5 times higher in rural women. Psychosomatic symptoms such as giddiness, rapid heartbeat, numbness of the extremities, feeling of tiredness, head ache and breast pain were significantly 2-3 times higher among rural women.

**RumaDutta (2016)** a cross-sectional study was conducted among 782 post menopausal women to estimate the prevalence of hot flashes, sweating, depressive mood, anxiety, irritability and sleep related symptoms, and joint pain in Punjab. The cluster sampling method was adopted and 30 clusters were randomly selected by the Probability Proportionate to Size method. A structured questionnaire was used to collect the information. the study shows that the overall prevalence of any one symptom among the study participant was 88.1% among the post menopausal symptoms, the most frequently reported ones were vasomotor symptoms (61.9%), followed by sleep related symptoms (39.1%), and anxiety 35.4%. Only 46% of the post-menopausal women who had any one symptom had taken treatment. The reasons for not taking treatment for the menopausal symptoms among the study participants were mainly their financial constraints (56.1%) and family problems (35.2%).

### **2.3 Literature Related to effectiveness of soya bean in menopausal symptoms.**

Soy is high in isoflavones. Isoflavones are a type of phytoestrogen. Phytoestrogens are chemicals found in plants that work like estrogens. Soy products may improve menopausal symptoms, such as hot flashes

**Li-Ru Chen and Kuo-Hu Chen , (2021)**, conducted a Kupperman Menopause Index study to assess the vasomotor syndromes (VMS), such as hot flash and sweating after

menopause in Indonesia. Nevertheless, because the severity and frequency of hot flash and sweating are individualized and such symptoms often subside over time even without any treatment. It is difficult to quantify vasomotor symptoms. A total of 45 women completed the study. After 3 months of soy isoflavone supplementation hot flushes significantly decreased in percentage, number and severity (100% to 31.1%;  $3.9 \pm 2.3$  to  $0.4 \pm 0.8$  and  $2.6 \pm 0.9$  to  $0.4 \pm 0.8$ , respectively,  $p < 0.001$ ). MRS scores (total and for subscales) reflecting general menopausal symptoms also significantly decreased compared to baseline. Regarding mood, after three months total HDRS scores and the rate of women presenting depressed mood (scores  $\geq 8$ ) significantly decreased ( $16.3 \pm 5.4$  to  $6.9 \pm 5.2$  and 93.3% to 28.9%, respectively,  $p < 0.05$ ). There was no effect on blood pressure levels or BMI values after treatment. It also reported that 72 mg of isoflavones retrieved from soybeans and red clover significantly decreased hot flashes over 6 months of treatment.

**Mindy S. Kurzer, (2019)** conducted a meta-analysis study on the major effects in premenopausal women consuming 45–200 mg/d of isoflavones. A total of 41 studies were included in the analyses. Soy consumption appears to exert modest hormonal effects in both pre- and post menopausal women. The effects are generally in the direction of providing health benefits, although they are quite small and of uncertain clinical significance. Further research must be performed to clarify the magnitude and significance of the hormonal effects of soy consumption, and, if effects are seen, to establish whether the responsible components are the isoflavones or some other soy constituent. The study showed decreased estrogens and no effects on endometrial biopsy results. These results suggest that soy consumption exerts modest estrogenic effects, likely as a result of the presence of soy isoflavones and thus reduce the menopausal symptoms.

**Kaiser Permanente, (2019)** conducted a cross-sectional study to assess herbal alternative for menopause in the US and analyze the effectiveness of soy protein on menopausal symptoms. In study, recruited 351 menopausal women between the ages of 45 and 55 y who had  $\geq 2$  vasomotor symptoms/d; 52% were in the menopausal transition and 48% were post menopausal. Participants were randomized to 1 of 5 interventions: multibotanical plus soy dietary counseling vs. multibotanical vs. black cohosh vs. estrogen therapy vs. placebo. The women in the soy food intervention group reported an average of 0.6 servings/d of soy at baseline and increased dietary soy by 1.1 servings/d between baseline and 3 mo. A serving was

defined as 240 mL of soy milk or 1/4 cup (60 mL) of soy nuts. At 12 months, the multibotanical plus soy intervention group had higher (worse) symptoms relative to placebo ( $P = 0.016$ ). The study did not detect differences  $< 1.5$  vasomotor symptoms/d between treatment groups.

**Chen MN, (2018)** conducted a control study to assess the efficacy of phytoestrogens for the relief of menopausal symptoms in Beijing. The mean age of the subjects ranged from 49 to 58.3 and 48 to 60.1 years, respectively, in the placebo and phytoestrogen groups. The number of participants ranged from 30 to 252, and the intervention periods ranged from 3 to 12 months. Meta-analysis of the seven studies that reported KI data indicated no significant treatment effect of phytoestrogen as compared to placebo (pooled mean difference = 6.44,  $p = 0.110$ ). Meta-analysis of the ten studies that reported hot flush data indicated that phytoestrogens result in a significantly greater reduction in hot flush frequency compared to placebo (pooled mean difference = 0.89,  $p < 0.005$ ). Meta-analysis of the five studies that reported side-effect data showed no significant difference between the two groups ( $p = 0.175$ ). The results were phytoestrogens appear to reduce the frequency of hot flushes in menopausal women, without serious side-effects.

**BU Nwosu (2015)** conducted a randomized, double-blind, placebo-controlled trial study to assess the effect of dietary soy supplementation on hot flashes in post menopausal women. Among 104 post menopausal women, 51 patients took 40 gm of isolated soya protein daily and 53 patients took 60 gm placebo (casein) daily. The study lasted for 12 weeks and using analysis of covariance baseline in mean number of moderate to severe hot flushes including night sweats during treatment was analyzed. The study results revealed that in women taking soy had a 26% reduction in mean number of hot flushes by week 3 and 33% reduction by week 4 and 45% reduction by week 12 versus 30% reduction obtained with placebo group. Study concluded that soy protein diet reduces hot flushes in menopausal women.

**Silvina Leviset.al., (2018)** conducted a cross-sectional study in China and investigated the effect of soy products on hot flashes in perimenopausal ( $n = 817$ ) and post menopausal ( $n = 582$ ) women 40–60 y old. Among post menopausal women, an omnivorous diet decreased the prevalence of hot flashes (OR = 0.38; 95% CI = 0.17–0.85). One main dish made from whole soybeans or texturized vegetable soy protein was supplied by the study to provide a daily intake of 165 mg of conjugated isoflavones. Compliance with the soy diet was 73%. In 68% of the



women consuming soy foods, the percentage of superficial cells, an indication of estrogenicity, did not change; it increased in 19% and decreased in 13%. Among the women in the control group, 71% showed no change, 8% had an increase, and 21% had a decrease. The study did not detect differences  $< 1.5$  vasomotor symptoms/d between treatment groups.

**Marcio L. Griebeler (2018)**, A cross-sectional study conducted in Israel to know the effectiveness of soy milk products on perimenopausal symptoms recruited 145 women ages 43–65 y to receive a soy-rich diet or usual diet in a 2:1 ratio for 12 wk. The dietary intervention consisted of daily consumption of foods known to contain high concentrations of soy isoflavones and included tofu, soy drink, and miso plus flaxseed, substituting one-fourth of their caloric intake. Participants were evaluated with the Menopause Symptom Questionnaire, which includes questions on vasomotor and genitourinary symptoms. Although 82% of the women reported eating all or part of their assigned foods, the study does not report the actual amount consumed. Hot flashes and vaginal dryness scores were significantly reduced in both groups.

**Mansoreh Nourozi, et al., (2016)** conducted a placebo control study to find out whether or not soy milk is a phytoestrogen product and can improve the quality of life of the Iranian post menopausal women. Participants of this randomized clinical trial were 57 healthy post menopausal women. All eligible women were randomly divided into two groups of soy milk (study group) and control (control group). Individuals in the SG (n = 34) received 500 ml soy milk including genistein (28.86 mg/dl) and daidzein (8.25 mg/dl) per day, while the participants in the control group (n = 23) received 500 ml low fat cow milk per day during 8 months. Both groups also took daily calcium-D capsules (500 mg calcium and 200 IU D3). The quality of life of all participants was examined twice (at the baseline and the end of the eighth month) using the menopause-specific quality of life (MENQOL) questionnaire. A total of 57 healthy post menopausal women with a mean age of 52.13 (3.05) years were included in this study. Despite the significant but weak difference was observed between study and control group in the sexual domain score (the mean of percent change: 0.46% vs. 33.94%, respectively;  $p = 0.031$ ), while significant relationship was found between the soy milk consumption and improvement in the domains studied (vasomotor, psychosocial and physical). Overall findings showed that soy milk does improve the quality of life in post menopausal women.

## CHAPTER III

### METHODOLOGY

"Methodology in research is defined as the systematic method to resolve a research problem through data gathering using various techniques, providing an interpretation of data gathered and drawing conclusions about the research data. Essentially, a research methodology is the blueprint of a research or study."- **Murthy &Bhojanna**

This chapter includes the description of the research approach, the research design, setting of the study, population, sampling technique, details of instruments, description of tools,content validity, testing of tool, pilot study,data collection procedure,plan for data analysis.

#### RESEARCH APPROACH AND DESIGN

##### Research Approach

Research approach is plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation.In this study, quantitative research approach was used to assess the effectiveness of soya bean consumption on menopausal symptoms among post menopausal women.

##### Research Design

Research design is the blue print for conducting the study that maximizes control over factor that could interfere with the validity of the findings.

The quasi experimental research design was adopted for conducting this study.

<b>Group</b>	<b>Pretest</b>	<b>Treatment</b>	<b>Posttest</b>
<b>E</b>	O <sub>1</sub>	X	O <sub>2</sub>
<b>C</b>	O <sub>1</sub>	-	O <sub>2</sub>

**Keys:**

E - Experimental group

C - Control group.

O1 -Pre Assessment of Menopausal symptoms.

X - Intervention.

O2 - Post Assessment of Menopausal symptoms.

**3.2 VARIABLES OF THE STUDY****Variables****Independent Variable**

In this study the independent variable refers administration of cooked Soya bean 100gms daily.

**Dependent variable**

In this study the dependent variable refers to post menopausal symptoms.

**3.3 SETTINGS OF THE STUDY**

The study was conducted in GanapathyMaanagar, Coimbatore District. This village is situated at a distance of 8 kms from PPG College of Nursing, Coimbatore.

**3.4 POPULATION AND SAMPLING**

In this study the population comprises of postmenopasalwomen with menopausal symptoms.

**3.4.1 Sample technique and sample size**

- ❖ Non-probability convenient sampling technique was used to select the samples.
- ❖ The sample size for the present study was 60 women with menopausal symptoms in GanapathyMaanagar, Coimbatore, 30 samples were assigned in the experimental group and 30 were in control group.

### **3.4.2 Sample selection criteria**

#### **Inclusion criteria**

The study includes

- ✓ Women who attained menopause naturally.
- ✓ Women with post menopausal symptoms
- ✓ Women were willing to participate.
- ✓ Women who understands and speaks Tamil and English.
- ✓ Women age between 45 – 56 yrs.

#### **Exclusion criteria**

The study excluded

- ✓ Women not present at the time of data collection.
- ✓ Women on hormonal treatment.
- ✓ Women on psychotropic medications.
- ✓ Recent trauma in women's life.
- ✓ Women with unnatural menopause, (examples - surgical and cancer).

### **3.5 Instruments and tools for data collection**

#### **Selection of the tool**

The instrument used in this study consists of two parts, which are as follows:

#### **Part 1**

##### **Demographic Variables Proforma**

The demographic variables included in the Proforma were age, religion, education, type of family, income, occupation, parity, dietary pattern, marital status, age of menarche, habits.

#### **Part 2**

##### **Menopausal Rating Scale (Heinemann)**

It consists of 11 items to assess the menopausal symptoms of women. It is a standardized Rating scale.

The responses will be measured in a scale of:

None - 0

Mild - 1

Moderate - 2

Severe - 3

Very severe - 4

<b>Menopausal Symptoms</b>	<b>Score</b>	<b>Percentage</b>
Mild	1-11	< 25
Moderate	12-22	26 - 51
Severe	23-33	52 - 75
Very Severe	34-44	76-100

### **Description of the Intervention**

Soya bean 100 gm was cleaned and soaked overnight in water. On the next day morning it was boiled with salt and after that fried onion and chilly were added and served for each sample in the experimental group.

### **3.5.1 Validity and reliability**

#### **Content Validity**

Content validity is the degree to which an instrument measures what it is supposed to measure. Content validity is the sampling adequacy of the content being measured. Content validity of the tool was obtained by getting opinion from experts from the field of Obstetrics and Gynaecology. Based on their suggestions, the investigator modified the items and finalized the tool for the study.

#### **Reliability**

Reliability refers to the accuracy and consistency of the measuring tool. The reliability of the tool was elicited using Karl Pearson's correlation coefficient 'r'. The score 'r' was found to be 0.89 which showed highly positive correlation. Hence the tool was considered reliable for proceeding with the main study

### **3.5.2 Technique of data collection**

Data collection is the gathering of information needed to address a research problem. The data collection was done for One Month. The ethical clearance was obtained from the

research committee of the PPG College of Nursing, Coimbatore and the formal permission to conduct the study was obtained from Medical Officer, GanapathyMaanagar, Primary Health Centre. The study participants were selected by convenient sampling technique. Consent was obtained from the study participants after explaining the objectives of the study. Sixty post-menopausal women with menopausal symptoms, who satisfied the inclusion criteria were recruited and assigned 30 in experimental group 30 in control group. Pretest data was collected by researcher using Heinemann menopausal rating scale for both the groups. Experimental group received intervention of 100 gm cooked soya bean daily for 21 days. No intervention was given to control group. Post test was conducted by researcher for both groups using the same menopausal rating scale. At the end of the fourth weeks, the level of menopausal symptoms was assessed using Heinemann menopausal rating scale.

### **3.6. REPORT OF PILOT STUDY**

A pilot study is a small- scale version or trail run, done in preparation for a major study. The pilot study data collection was done. The ethical clearance was obtained from the research committee of the college of nursing and the formal permission to conduct the study was obtained from the Medical Officer, GanapathyMaanagar, Coimbatore. The investigator used convenient sampling technique to select the samples. Samples were selected based on the inclusion criteria. Pretest data was collected by researcher using Heinemann menopausal rating scale for both the groups. Experimental group received intervention of consuming 100 gm cooked soya bean. Post test was conducted by researcher using the same menopausal rating scale and data were analysed. The tool was feasible to conduct the main study.

### **3.7 DATA ANALYSIS PLAN**

The data obtained was analysed in terms of achieving the objectives of the study using descriptive and inferential statistics.

#### **Descriptive Statistics**

- Frequency and percentage distribution was used to analyse the demographic data among post menopausal women in Control and Experimental group.
- Frequency and percentage distribution was used to analyse severity of menopausal symptoms among post menopausal women before and after soya bean consumption.
- Mean and standard deviation was used to assess the menopausal symptoms among post

menopausal women in Control and Experimental group before and after soya bean consumption.

### **Inferential Statistics**

- Paired 't' test was used to assess the effectiveness of soya bean consumption on Menopausal symptoms in control and experimental group.
- Independent sample 't' test was used to assess the effectiveness of soya bean Consumption on posttest menopausal symptoms among Control and Experimental group.
- Chi square test was done to study the association between selected demographic Variables and post test menopausal symptoms in Control and Experimental group.





## CHAPTER IV

### DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from the post menopausal mothers. This is a study to assess the effectiveness of soya bean on the menopausal symptoms among post menopausal women at GanapathyMaanagar in Coimbatore district.

**Data Analysis** is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Shamoo and Resnik (2018) various analytic procedures “provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data”.

Analysis technique used in quantitative research includes descriptive and inferential analysis.

#### **Section-A**

This section deals with distribution of demographic variables of both experimental group and control group.

#### **Section-B**

Distribution of pretest level of menopausal symptoms among post menopausal women in experimental and control group.

#### **Section-C**

Distribution of post test level of menopausal symptoms among post menopausal women in the experimental and control group.

#### **Section-D**

Comparison of pretest and post test menopausal symptoms among post menopausal women in the experimental and control group.

**Section-E**

Comparison of pretest and post test menopausal symptoms score among post menopausal women between the experimental and control group.

**Section-F**

Association of post test level of menopausal symptoms among post menopausal women with selected demographic variables in the experimental group

**SECTION A:**

**DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF BOTH EXPERIMENTAL GROUP AND CONTROL GROUP.**

**Table 4.1: Frequency and percentage distribution of demographic of post menopausal women in the experimental and control group.**

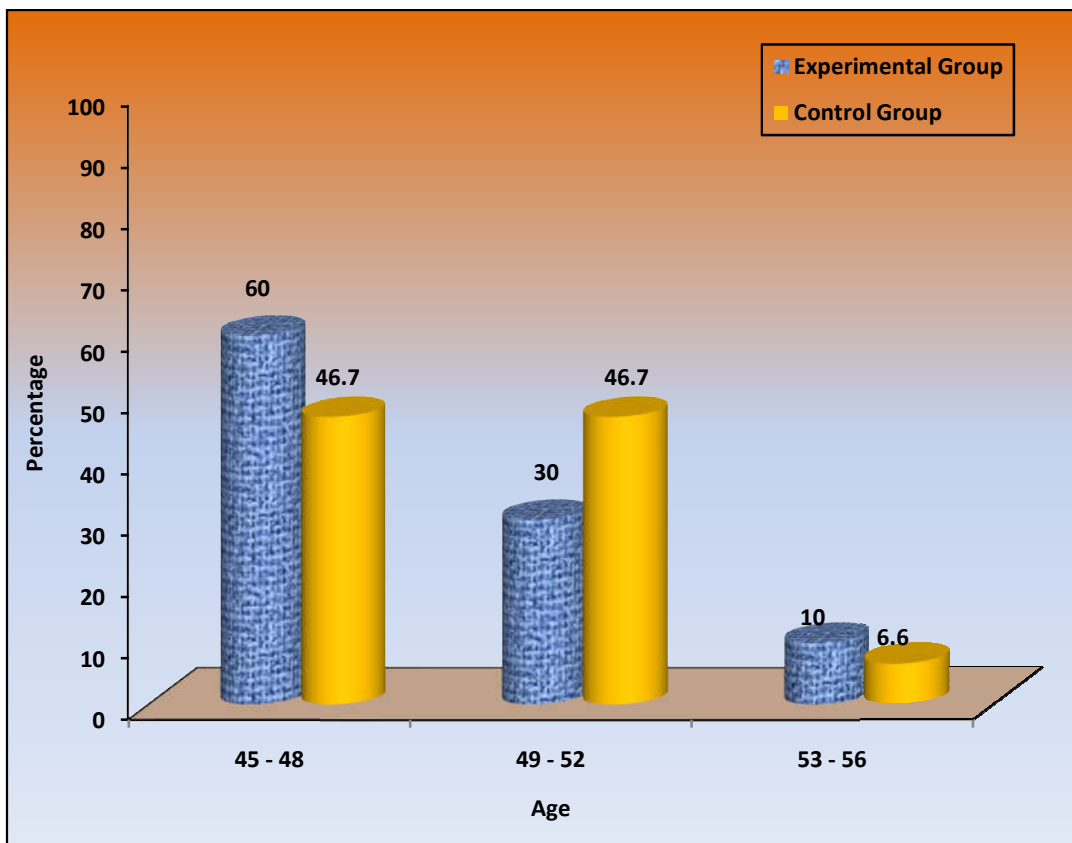
**n = 60(30+30)**

S.No.	Demographic Variables	Experimental Group		Control Group	
		F	%	F	%
<b>1.</b>	<b>Age in years</b>				
	a) 45 – 58	18	60.0	14	46.7
	b) 49 – 52	9	30.0	14	46.7
	c) 53 – 56	3	10.0	2	6.6
<b>2.</b>	<b>Religion</b>				
	a) Hindu	30	100.0	30	100.0
	b) Christian	-	-	-	-
	c) Muslim	-	-	-	-
<b>3.</b>	<b>Education</b>				
	a) Illiterate	11	36.7	20	66.6
	b) Primary education	13	43.3	8	26.7
	c) Secondary education	6	20.0	2	6.7
	d) Higher secondary education	-	-	-	-
	e) Graduate	-	-	-	-
	f) Post graduate	-	-	-	-
<b>4.</b>	<b>Occupation</b>				
	a) Homemaker	11	36.7	7	23.3
	b) Working women	19	63.3	23	76.7
<b>5.</b>	<b>Family monthly income in rupees</b>				
	a) ≤ 5000	28	93.3	24	80.0
	b) 5001 – 10000	2	6.7	6	20.0

	c) 10001 – 15000	-	-	-	-
	d) ≥15001	-	-	-	-
<b>6.</b>	<b>Type of family</b>				
	a) Joint	11	36.7	19	63.4
	b) Nuclear	17	56.6	10	33.3
	c) Extended	2	6.7	1	3.3
<b>7.</b>	<b>Dietary pattern</b>				
	a) Vegetarian	4	13.3	2	6.7
	b) Mixed	26	86.7	28	93.3
<b>8.</b>	<b>Age at menarche</b>				
	a) ≤10 years	-	-	-	-
	b) 11 – 15 years	22	73.3	17	56.7
	c) 16 years and above	8	26.7	13	43.3
<b>9.</b>	<b>Marital status</b>				
	a) Married	26	86.7	27	90.0
	b) Unmarried	0	0	1	3.3
	c) Widower	4	13.3	2	6.7
<b>10.</b>	<b>Parity</b>				
	a) Nullipara	3	10.0	2	6.7
	b) Multipara	27	90.0	26	86.6
	c) Grand multipara	0	0	2	6.7
<b>11.</b>	<b>Habits</b>				
	a) Tobacco / Betel Chewing	14	46.7	20	66.6
	b) Increased intake of coffee/tea	4	13.3	5	16.7
	c) Intake of alcohol	12	40.0	5	16.7

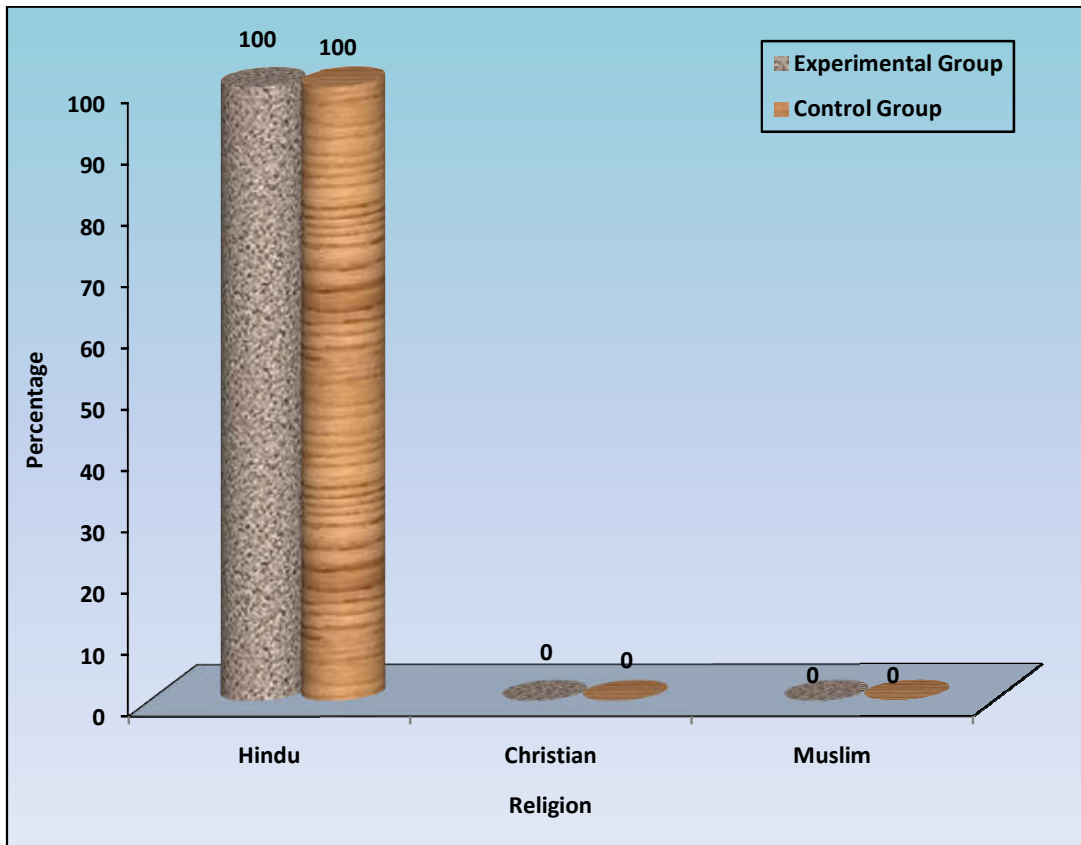
The table 4.1 shows that in the experimental group, most of them 18(60%) were aged between 45 – 58 years, 30(100%) were Hindus, 13(43.3%) had primary education, 19(63.3%) were working women, 28(93.3%) had family monthly income of ≤5000, 17(56.6%) belongs to nuclear family, 26(86.7%) had mixed dietary pattern, 22(73.3%) were aged 11 – 15 years at the time of menarche, 26(86.7%) were married, 27(90%) were

multipara and 14(46.7%) had the habit of tobacco / betel chewing, whereas the control group, most of them 14(46.7%) were aged between 45 – 58 years and 49 – 52 years, 30(100%) were Hindus, 20(66.6%) were illiterates, 23(76.7%) were working women, 24(80%) had family monthly income of  $\leq 5000$ , 19(63.3%) belonged to joint family, 28(93.3%) had mixed dietary pattern, 17(56.7%) were aged 11 – 15 years at the time of menarche, 27(90%) were married, 26(86.6%) were multipara and 20(66.6%) had the habit of tobacco / betel chewing.



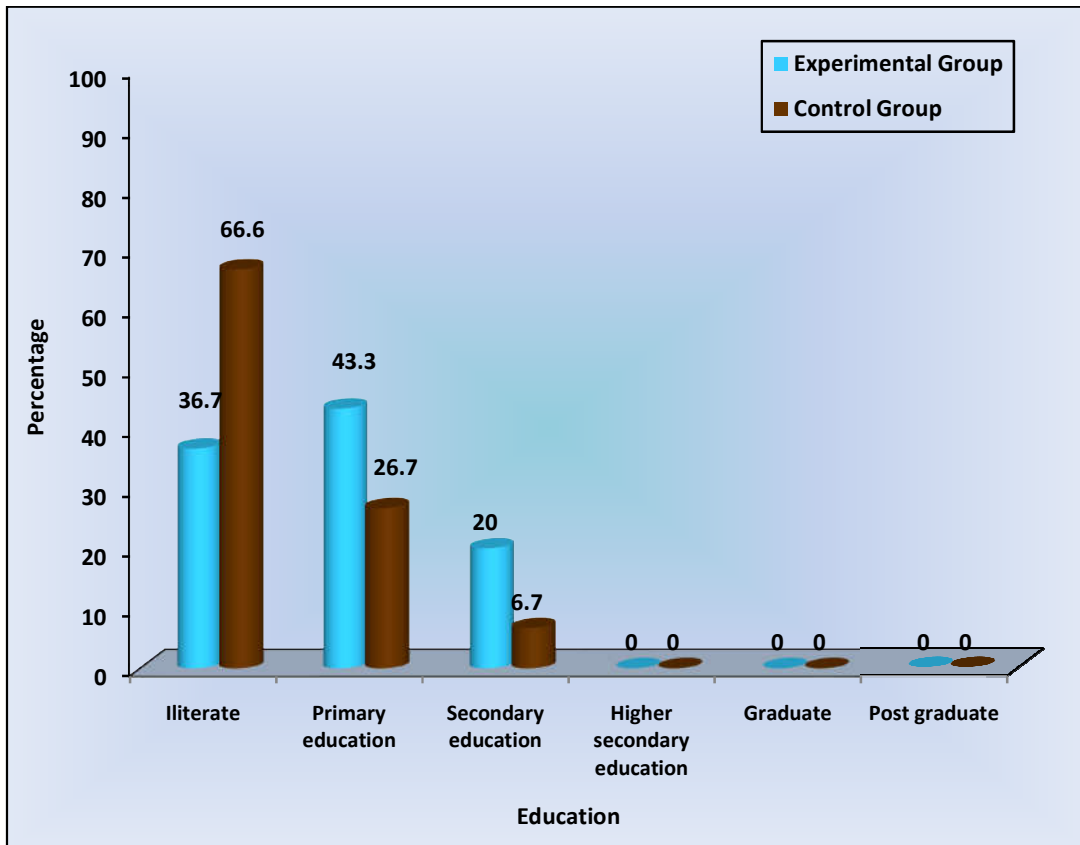
**Figure 4.1 Percentage distribution of age of the post menopausal women in the experimental and control group**

The above figure 4.1 shows that 60% of post menopausal women were aged between 45 – 48 years, 30% were aged between 49 – 52 years and 10% were aged between 53 – 56 years in the experimental group and whereas in the control group, 46.7% were aged between 45 – 48 years, 46.7% were aged between 49 – 52 years and 6.6% were aged between 53 – 56 years.



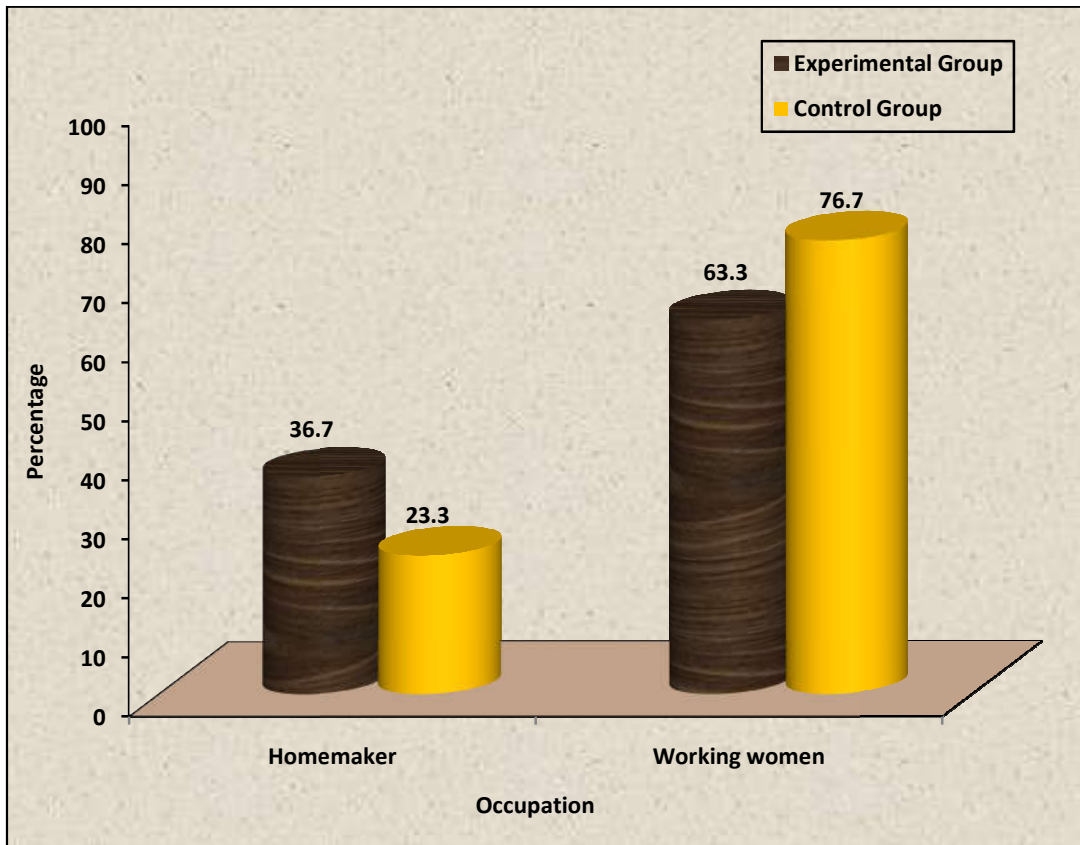
**Figure 4.2 Percentage distribution of religion of the post menopausal women in the experimental and control group**

The above figure 4.2 depicts that 100% of post menopausal women were Hindus in both the experimental and control group.



**Figure 4.3 Percentage distribution of education of the post menopausal women in the experimental and control group**

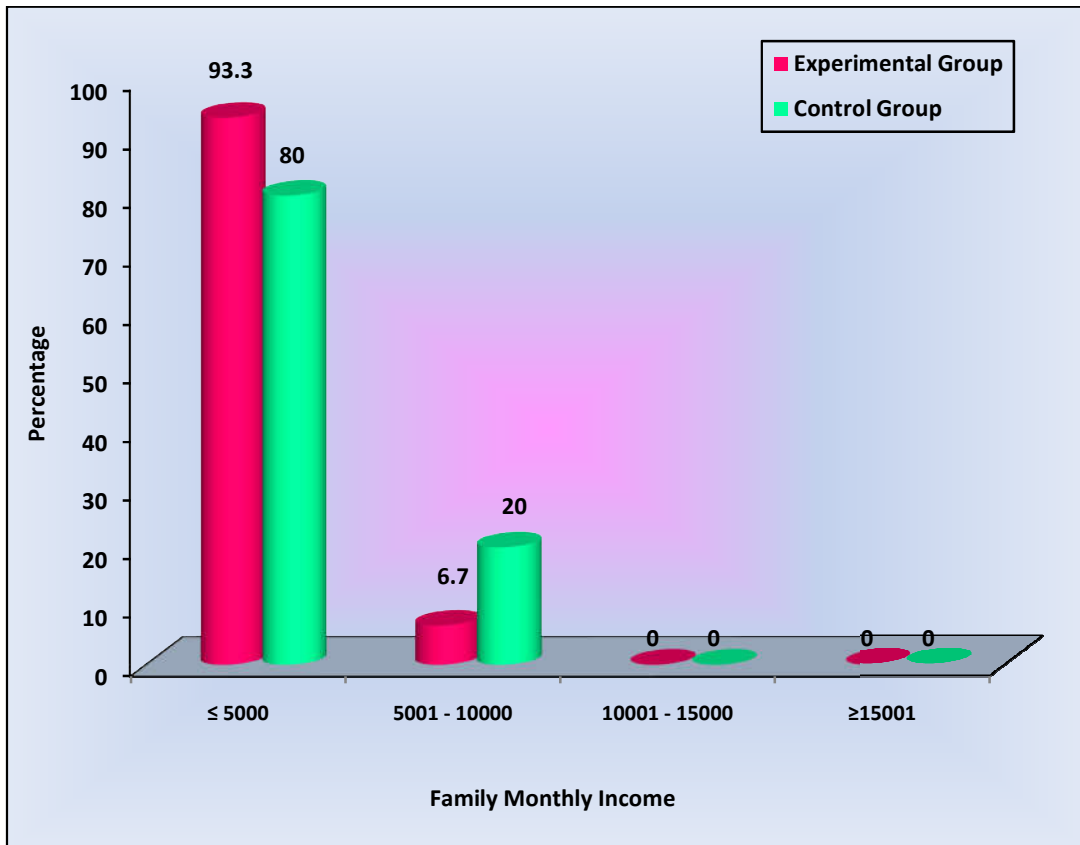
The above figure 4.3 shows that 36.7% were illiterates, 43.3% had primary education, 20% had secondary education in the experimental group and whereas in the control group 66.6% were illiterates, 26.7% had primary education, 6.7% had secondary education.



**Figure 4.4 - Percentage distribution of occupation of the post menopausal women in the experimental and control group**

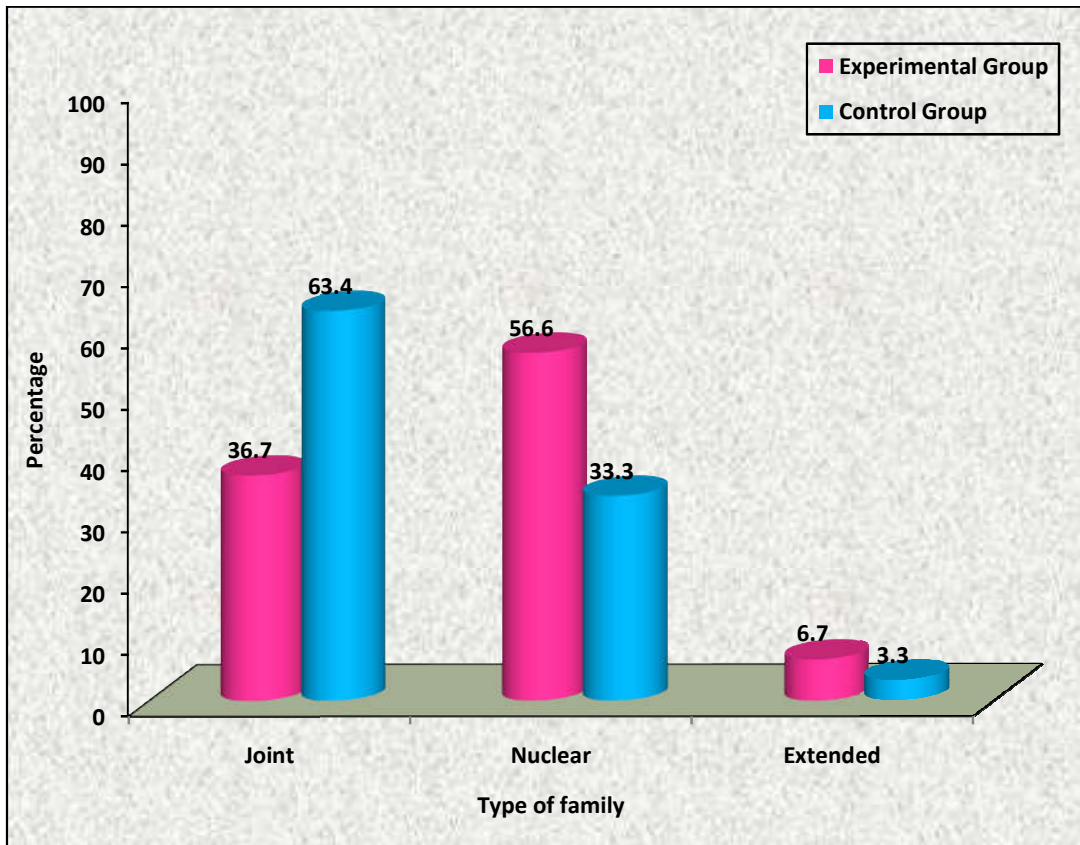
The above figure 4.4 shows that 11 (36.7%) of post menopausal women were homemakers and 19 (63.3%) were working women in the experimental group and 7 (23.3%) of post menopausal women were homemakers and 23 (76.7%) were working women the control group.





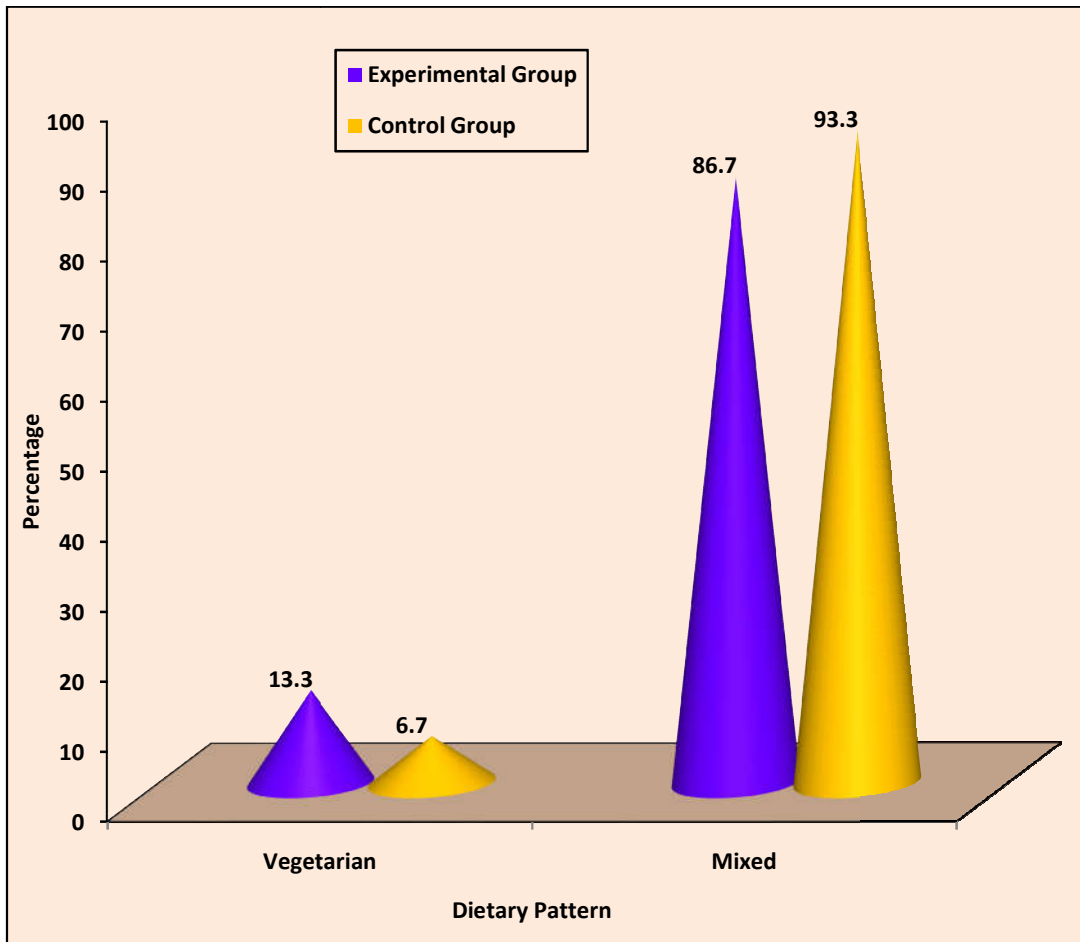
**Figure 4.5 Percentage distribution of family monthly income of the post menopausal women in the experimental and control group**

The above figure 4.5 depicts that 93.3% had a family monthly income of  $\le 5000$  and 6.7% had a monthly income of 5001 – 10000 in the experimental group and whereas in the control group 80% had a family monthly income of  $\le 5000$  and 20% had a monthly income of 5001 – 10000.



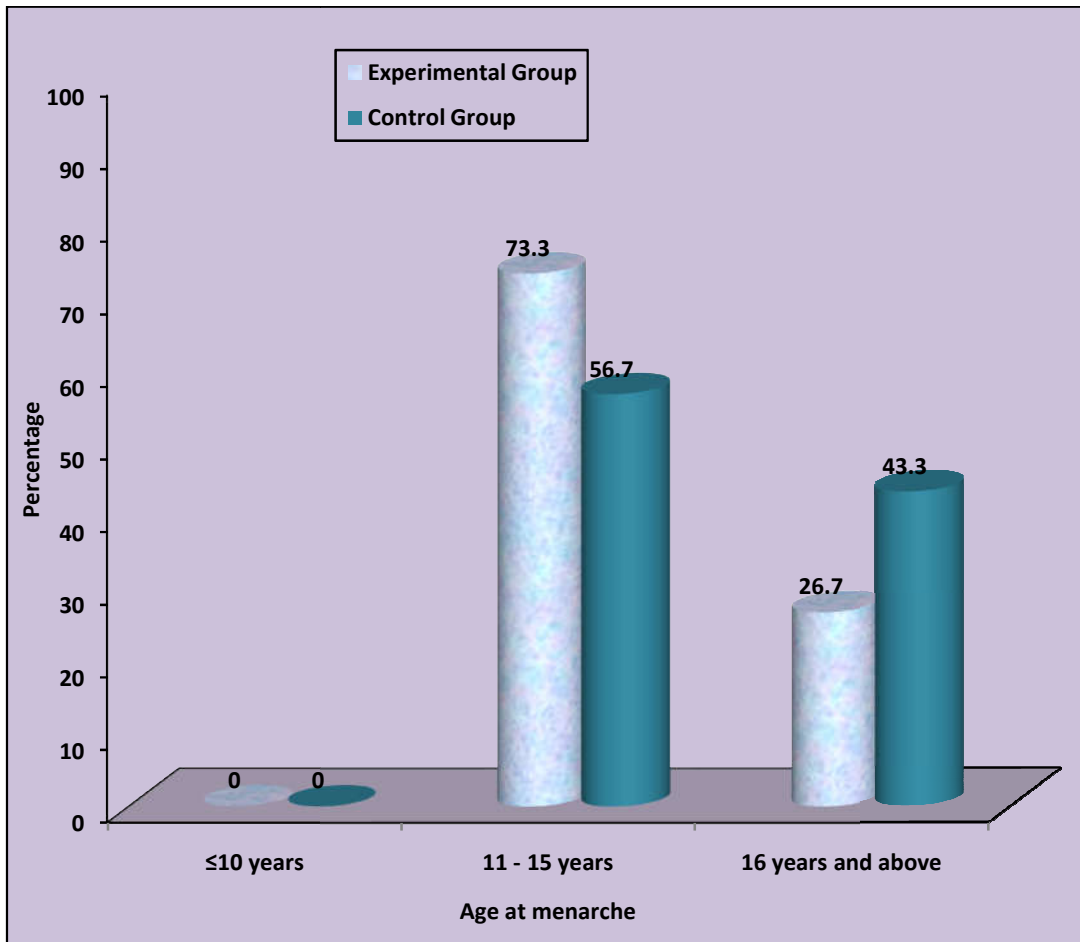
**Figure 4.6 - Percentage distribution of type of family of the post menopausal women in the experimental and control group**

The figure 4.6 shows that 11 (36.7%) of post menopausal women belonged to joint family, 17 (56.6%) belonged to nuclear family and 2 (6.7%) belonged to extended family in the experimental group, whereas 19 (63.4%) of post menopausal women were from joint family, 33.3% were from nuclear family and 1 (3.3%) were from extended family in the control group.



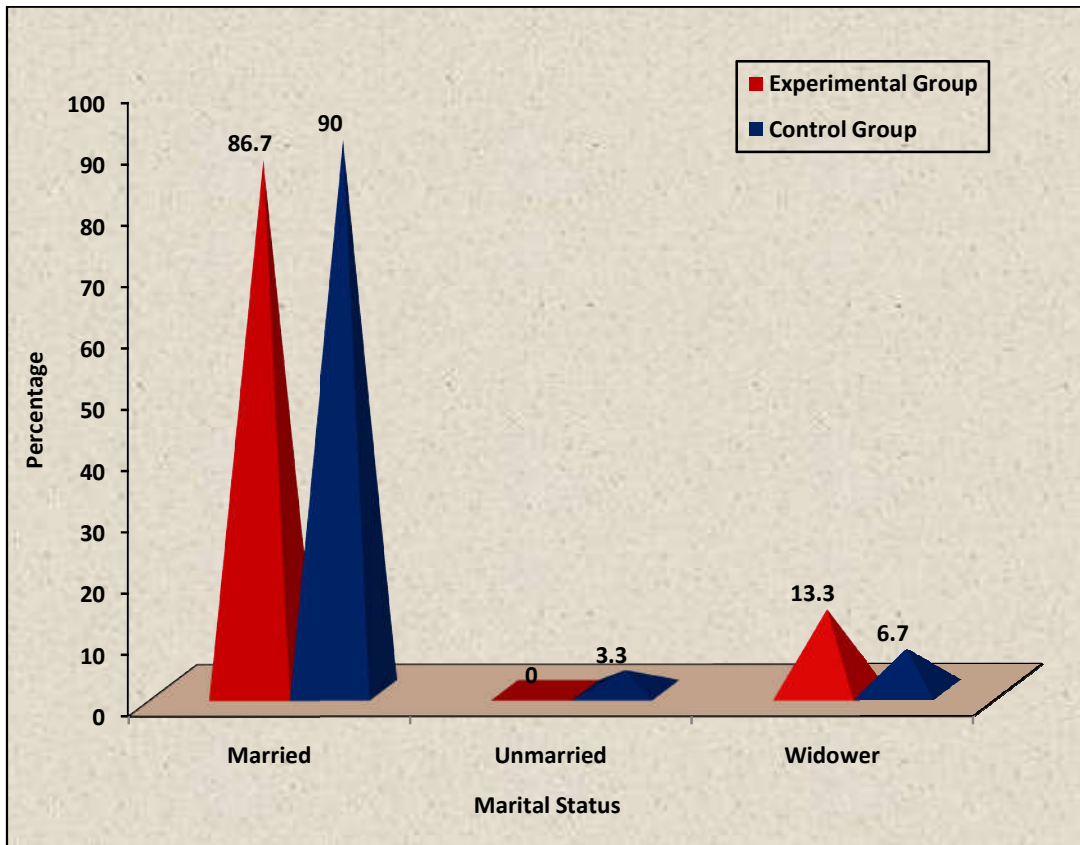
**Figure 4.7 - Percentage distribution of dietary pattern of the post menopausal women in the experimental and control group**

The above figure 4.7 depicts that 4 (13.3%) of post menopausal women were vegetarian and 26 (86.7%) were mixed diet in the experimental group whereas 2 (6.7%) of post menopausal women were vegetarian and 28 (93.3%) were mixed diet in the control group.



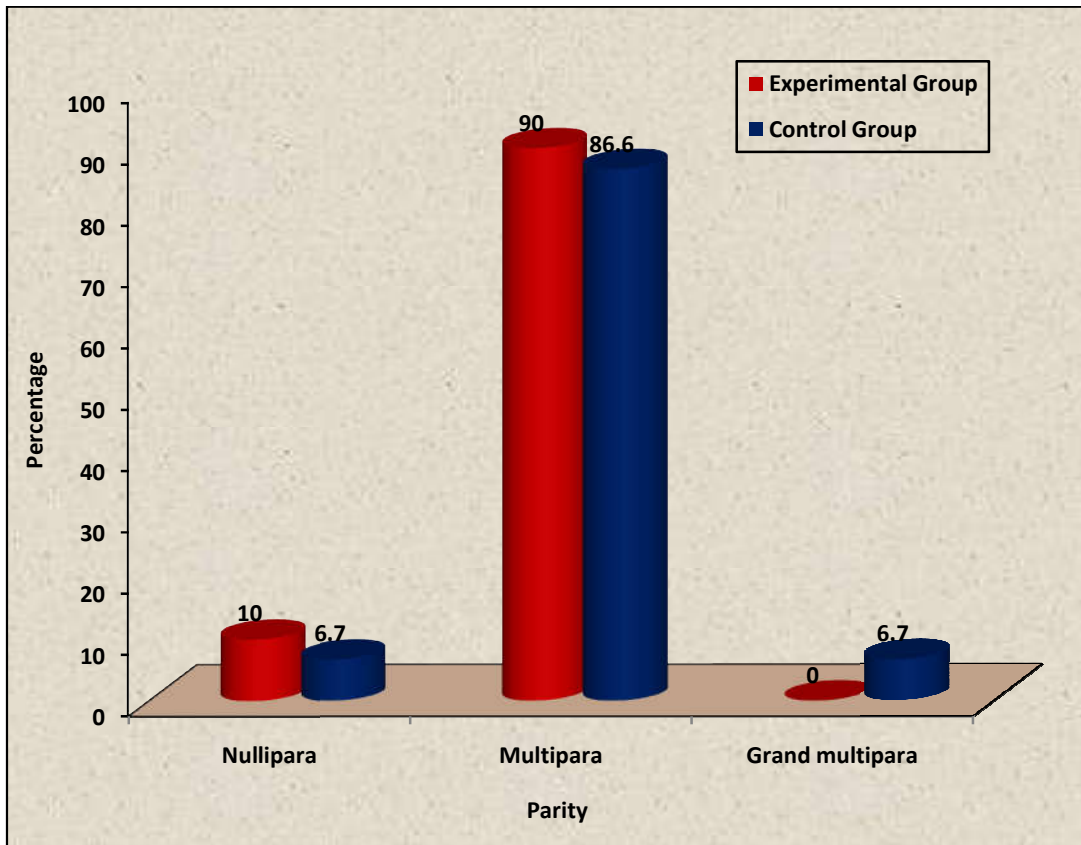
**Figure 4.8 Percentage distribution of age at menarche of the post menopausal women in the experimental and control group**

The above figures 4.8 shows that 73.3% were aged between 11 – 15 years at the time of menarche and 26.7% were aged 16 years and above in the experimental group whereas 56.7% of post menopausal women were aged between 11 – 15 years at the time of menarche and 43.3% were aged 16 years and above in the control group.



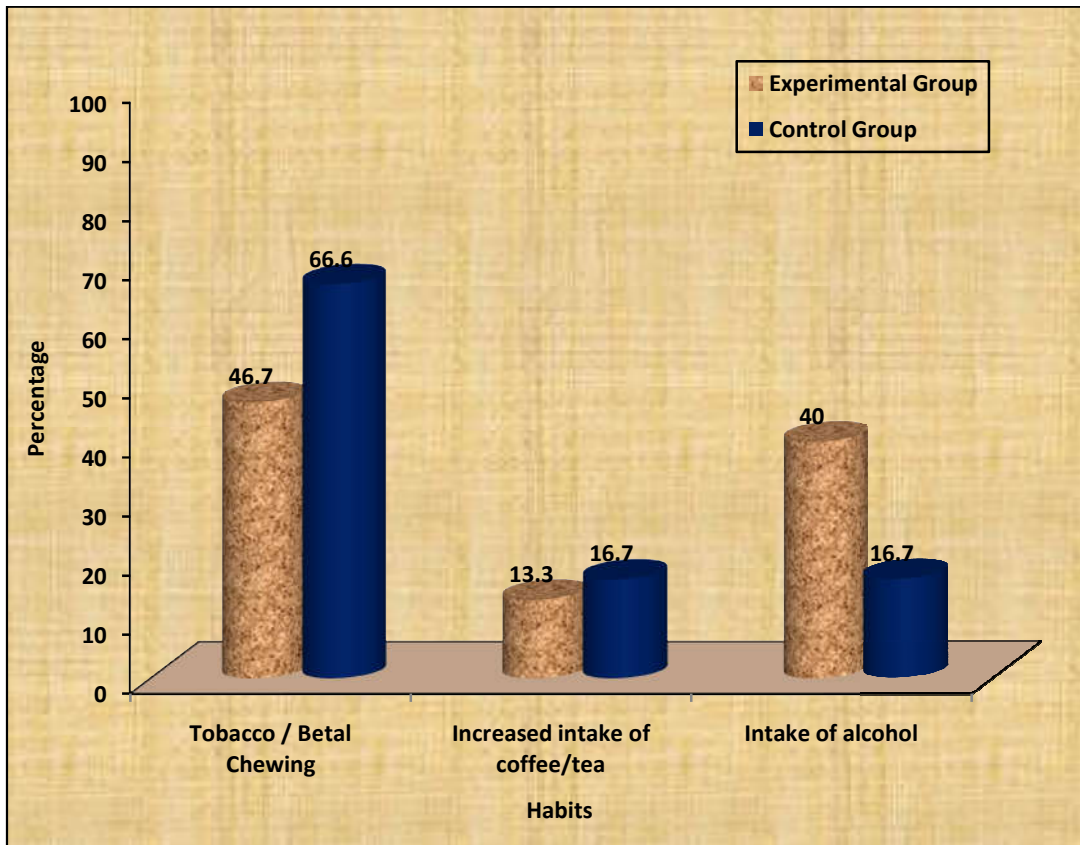
**Figure 4.9 - Percentage distribution of marital status of the post menopausal women in the experimental and control group**

The above figure 4.9 depicts that 26 (86.7%) of post menopausal women were married and 4 (13.3%) were widower in the experimental group whereas 27 (90%) of post menopausal women were married, 1 (3.3%) were unmarried and 2 (6.7%) were widower in the control group.



**Figure 4.10 Percentage distribution of parity of the post menopausal women in the experimental and control group**

The above figures 4.10 shows that 90% were multipara and 10% were nullipara in the experimental group whereas 86.6% of post menopausal women were multipara and 6.7% were nullipara in the control group.



**Figure 4.11 Percentage distribution of habits of the post menopausal women in the experimental and control group**

The above figures 4.11 shows that 46.7% had the habit of tobacco/betel chewing, 13.3% had the habit of increased intake of coffee/tea and 40% had the habit of intake of alcohol in the experimental group whereas 66.6% of post menopausal women had the habit of tobacco / betel chewing, 16.7% had the habit of increased intake of coffee / tea and 16.7% had the habit of intake of alcohol in the control group.

## SECTION B:

### DISTRIBUTION OF PRETEST LEVEL OF MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN IN THE EXPERIMENTAL AND CONTROL GROUP

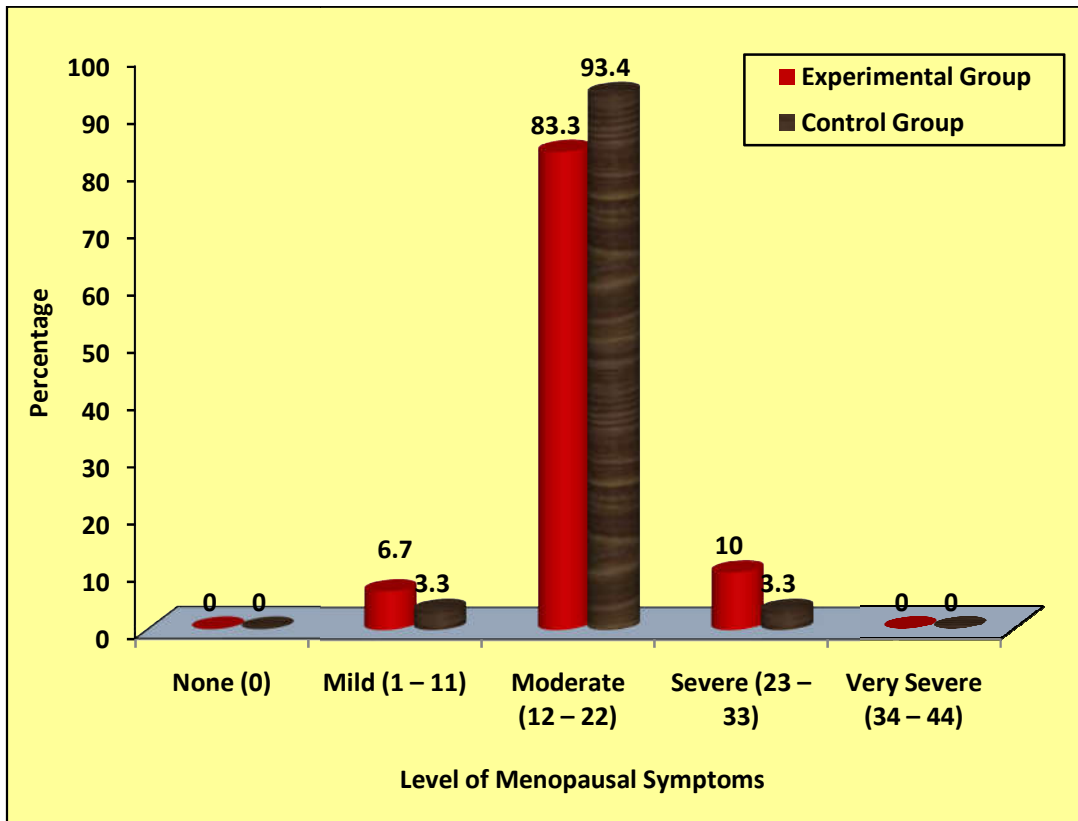
**Table 4.2: Frequency and percentage distribution of pretest level of menopausal symptoms among post menopausal women in the experimental and control group.**

**n = 60(30+30)**

Menopausal Symptoms	Experimental Group		Control Group	
	F	%	F	%
None (0)	-	-	-	-
Mild (1 – 11)	2	6.7	1	3.3
Moderate (12 – 22)	25	83.3	28	93.4
Severe (23 – 33)	3	10.0	1	3.3
Very Severe (34 – 44)	-	-	-	-

The table 4.2 shows that in the experimental group, 25(83.3%) had moderate level of menopausal symptoms, 3(10%) had severe menopausal symptoms and 2(6.7%) had mild menopausal symptoms among post menopausal women, whereas in the control group, 28(93.4%) had moderate menopausal symptoms and 1(3.3%) had mild and severe menopausal symptoms among post menopausal women.





**Figure 4.12 - Percentage distribution of pretest level of menopausal symptoms among post menopausal women in the experimental and control group**

This figure 4.12 shows that in the experimental group, 25(83.3%) had moderate level of menopausal symptoms, 3(10%) had severe menopausal symptoms and 2 (6.7%) had mild menopausal symptoms among post menopausal women, whereas in the control group, 28 (93.4%) had moderate menopausal symptoms and 1 (3.3%) had mild and 1 (3.3%) severe menopausal symptoms among post menopausal women.

### SECTION C:

#### DISTRIBUTION OF POST TEST LEVEL OF MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN IN EXPERIMENTAL AND CONTROL GROUP

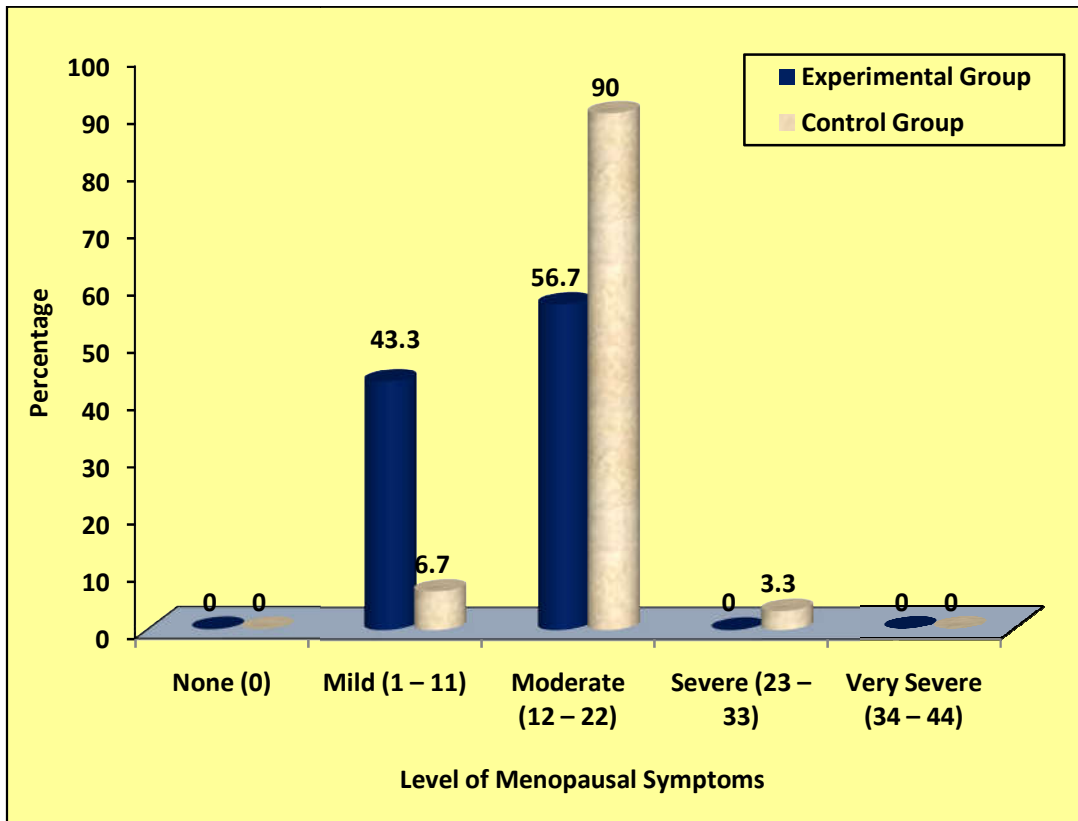
**Table 4.3: Frequency and percentage distribution of post test level of menopausal symptoms among post menopausal women in the experimental and control group.**

**n = 60(30+30)**

Menopausal Symptoms	Experimental Group		Control Group	
	F	%	F	%
None (0)	-	-	-	-
Mild (1 – 11)	13	43.3	2	6.7
Moderate (12 – 22)	17	56.7	27	90.0
Severe (23 – 33)	-	-	1	3.3
Very Severe (34 – 44)	-	-	-	-

The table 4.3 shows that in the experimental group, 17(56.7%) had moderate level of menopausal symptoms and 13(43.3%) had mild menopausal symptoms among post menopausal women.

Whereas in the control group, 27(90%) had moderate menopausal symptoms, 2(6.7%) had mild menopausal symptoms and 1(3.3%) had and severe menopausal symptoms among post menopausal women.



**Figure 4.13 - Percentage distribution of post test level of menopausal symptoms among post menopausal women in the experimental and control group**

This figure 4.13 shows that in the experimental group, 17(56.7%) had moderate level of menopausal symptoms and 13(43.3%) had mild menopausal symptoms among post menopausal women. Whereas in the control group, 27(90%) had moderate menopausal symptoms, 2(6.7%) had mild menopausal symptoms and 1(3.3%) had and severe menopausal symptoms among post menopausal women.

## SECTION D:

### COMPARISON OF PRETEST AND POST TEST MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN IN THE EXPERIMENTAL AND CONTROL GROUP

**Table 4.4: Comparison of pretest and post test menopausal symptoms among post menopausal women in the experimental and control group.**

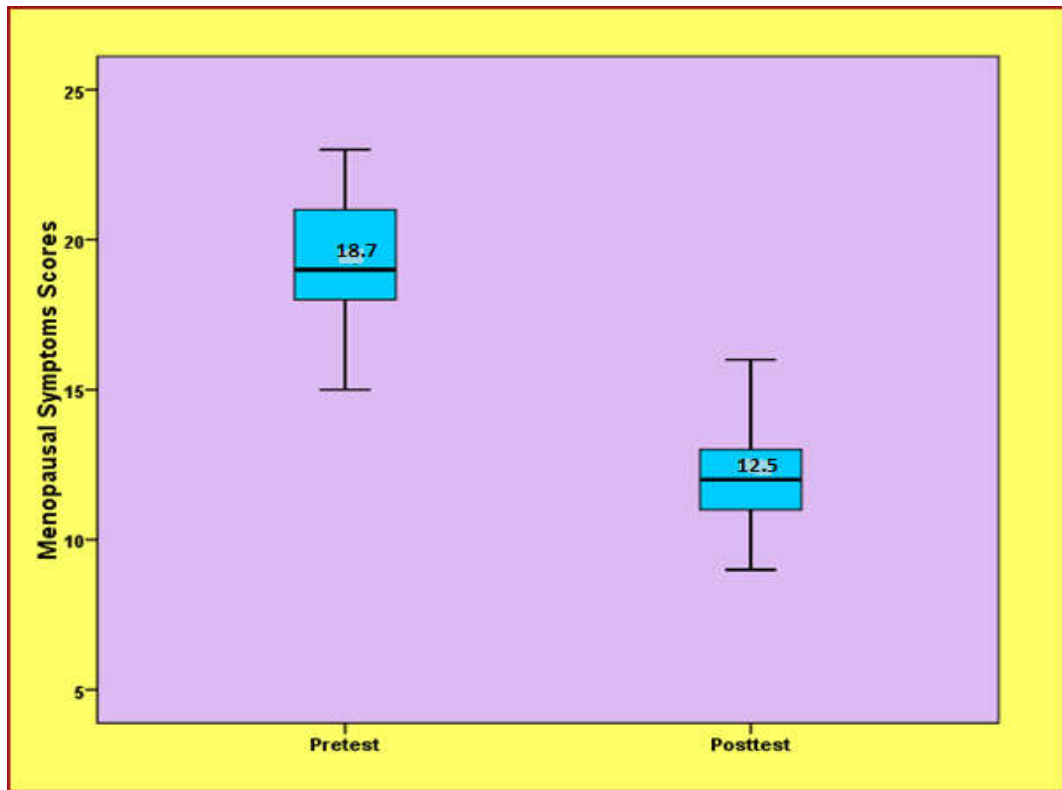
**n = 60(30+30)**

Group	Pre test			Post test			Mean Difference & %	Paired 't' Test Value
	Mean	S.D	Mean %	Mean	S.D	Mean %		
Experimental Group	18.73	3.11	42.57	12.50	2.50	28.41	<b>6.23 (14.16%)</b>	<b>t=15.145  p&lt;0.0001, S***</b>
Control Group	18.50	3.15	42.05	18.30	3.08	41.59	0.2 (0.45%)	t=1.989  p=0.056, N.S

\*\*\*p<0.0001, S – Significant, N.S – Not Significant

The table 4.4 shows that in the experimental group, the pretest score of menopausal symptoms among post menopausal women was 18.73±3.11 and the post test mean score was 12.50±2.50. The mean difference score was 6.23 (14.16%). The calculated paired 't' test value of t = 15.145 was found to be statistically significant at p<0.0001 level. The findings indicate that there was significant reduction in the level of menopausal symptoms in the post test. This clearly infers that administration of soya bean among post menopausal women in the experimental group was found to be effective in reduction of menopausal symptoms in the post test.

Whereas in the control group, the pretest score of menopausal symptoms among post menopausal women was  $18.50 \pm 3.15$  and the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was  $0.2(0.45\%)$ . The calculated paired 't' test value of  $t = 1.989$  was not found to be statistically significant. This clearly infers that there was no significant reduction in the level of menopausal symptoms among post menopausal women in the control group.



**Figure 4.14** Boxplot showing the comparison of pretest and posttest mean score of menopausal symptoms among post menopausal women in the experimental group

**(Mean: Pretest – 18.73, Post Test – 12.50)**

The figure 4.14 shows that in the experimental group, the pretest score of menopausal symptoms among post menopausal women was  $18.73 \pm 3.11$  and the post test mean score was  $12.50 \pm 2.50$ . The mean difference score was  $6.23 (14.16\%)$ . The calculated paired 't' test value of  $t = 15.145$  was found to be statistically significant at  $p < 0.0001$  level. This clearly infers that administration of soya bean among post menopausal women in the experimental group was found to be effective in reduction of menopausal symptoms in the post test.

Whereas in the control group, the pretest score of menopausal symptoms among post menopausal women was  $18.50 \pm 3.15$  and the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was  $0.2(0.45\%)$ . The calculated paired 't' test value of  $t = 1.989$  was not found to be statistically significant. This clearly infers that there was no significant reduction in the level of menopausal symptoms among post menopausal women in the control group.

## SECTION E:

### COMPARISON OF PRETEST AND POST TEST MENOPAUSAL SYMPTOMS SCORE AMONG POST MENOPAUSAL WOMEN BETWEEN THE EXPERIMENTAL AND CONTROL GROUP.

**Table 4.5: Comparison of pretest and post test menopausal symptoms score among post menopausal women between the experimental and control group.**

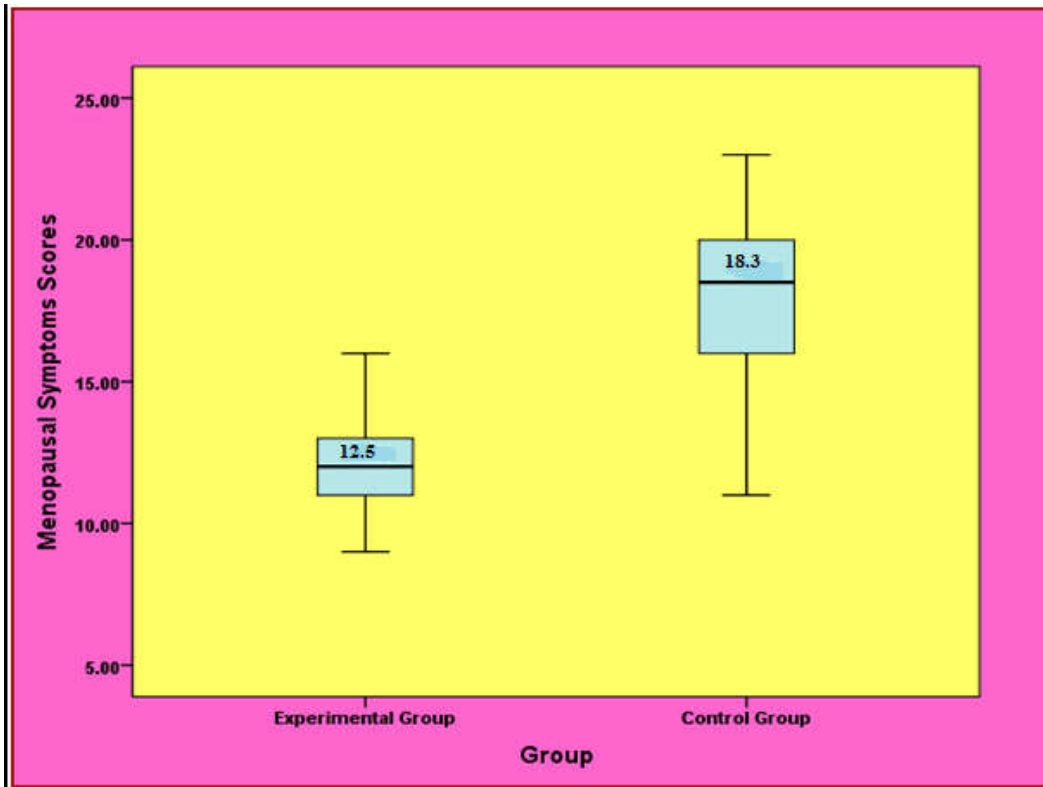
**n = 60(30+30)**

Test	Experimental Group			Control Group			Mean Difference & %	Student Independent 't' Test Value
	Mean	S.D	Mean %	Mean	S.D	Mean %		
Pretest	18.73	3.1	42.57	18.5	3.2	42.05	0.23 -0.52%	t=0.289 p=0.774, N.S
Posttest	12.5	2.5	28.41	18.3	3.1	41.59	5.8 -13.18%	t=8.013*** p<0.0001

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

The table 4.5 shows that in the pretest, mean score of menopausal symptoms was  $18.73 \pm 3.11$  in the experimental group and in the control group the pretest mean score was  $18.50 \pm 3.15$ . The mean difference score was 0.23(0.52%). The calculated student independent 't' test value of  $t = 0.289$  was not found to be statistically significant. This clearly infers that there was no significant difference in the level of menopausal symptoms score among post menopausal women between the two groups.

The table 4.5 also depicts that in the experimental group, the post test mean score of menopausal symptoms was  $12.50 \pm 2.50$  and in the control group the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was 5.8(13.18%). The calculated student independent 't' test value of  $t = 8.013$  was found to be statistically significant at  $p < 0.001$  level. This clearly infers that there was significant difference in the level of menopausal symptoms score among post menopausal women between the two groups in which the experimental group had significant reduction in the level of menopausal symptoms score than the control group.



**Figure 4.15** Boxplot showing the comparison of mean score of post test menopausal symptoms among post menopausal women between the experimental and control group  
(Mean: Experimental – 12.50, Control – 18.30)

The figure 4.15 shows that in the experimental group, the pretest mean score of menopausal symptoms was  $18.73 \pm 3.11$  and in the control group the pretest mean score was  $18.50 \pm 3.15$ . The mean difference score was  $0.23(0.52\%)$ . The calculated student independent 't' test value of  $t = 0.289$  was not found to be statistically significant. This clearly infers that there was no significant difference in the level of menopausal symptoms score among post menopausal women between the two groups. Whereas in the experimental group, the post test mean score of menopausal symptoms was  $12.50 \pm 2.50$  and in the control group the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was  $5.8(13.18\%)$ . This clearly infers that there was significant difference in the level of menopausal symptoms score among post menopausal women between the two groups in which the experimental group had significant reduction in the level of menopausal symptoms score than the control group.



**Table 4.6: Comparison of mean and standard deviation of item wise pretest and post test menopausal symptoms in the experimental group.**

**n = 30**

S. No.	Menopausal Symptoms	Pretest		Post Test		T- Value
		Mean	S.D	Mean	S.D	
1.	Hot flushes, sweating (episodes of sweating).	2.37	0.49	1.27	0.45	<b>14.966**</b> *
2.	Heart discomfort (unusual Awareness of heart beat, heart skipping, heart racing, tightness)	1.20	0.66	0.90	0.40	<b>3.525***</b>
3.	Sleep problems (difficulty in falling asleep, difficulty in sleeping through, waking up early)	2.40	0.62	1.23	0.63	<b>10.792**</b> *
4.	Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)	1.23	0.43	1.10	0.31	<b>2.112*</b>
5.	Irritability (feeling nervous, inner tension, feeling aggressive)	1.57	0.63	1.07	0.45	<b>5.385***</b>
6.	Anxiety (inner restlessness, feeling panicky)	1.27	0.45	1.10	0.31	<b>2.408*</b>
7.	Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)	1.23	0.43	1.10	0.31	<b>2.112*</b>
8.	Sexual problems (change in sexual desire, in sexual activity and satisfaction)	1.67	0.48	1.23	0.43	<b>4.709***</b>
9.	Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)	1.70	0.53	1.20	0.48	<b>5.385***</b>
10.	Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)	1.77	0.43	1.03	0.18	<b>8.930***</b>
11.	Joint and muscular discomfort (pain in the joints, rheumatoid complaints)	2.33	0.61	1.27	0.52	<b>11.217**</b> *

**\*\*\*p≤0.001, \*p<0.05**

The above Table shows that there is a significant reduction in menopausal symptoms after administration of soya bean.

## SECTION F:

### ASSOCIATION OF POST TEST LEVEL OF MENOPAUSAL SYMPTOMS WITH SELECTED DEMOGRAPHIC VARIABLES AMONG POST MENOPAUSAL WOMEN IN EXPERIMENTAL GROUP

**Table 4.8: Association of post test level of menopausal symptoms among post menopausal women with selected demographic variables in the experimental group**

**n = 30**

S.No.	Demographic Variables	Mild (1 – 11)		Moderate (12 – 22)		Chi-Square & p-value
		F	%	F	%	
<b>1.</b>	<b>Age in years</b>					$\chi^2=1.946$ d.f=2 P=0.378 N.S
	a) 45 – 58	6	20.0	12	40.0	
	b) 49 – 52	5	16.7	4	13.3	
	c) 53 – 56	2	6.7	1	3.3	
<b>2.</b>	<b>Religion</b>					-
	a) Hindu	13	43.3	17	56.7	
	b) Christian	-	-	-	-	
	c) Muslim	-	-	-	-	
<b>3.</b>	<b>Education</b>					$\chi^2=0.368$ d.f=2 P=0.832 N.S
	a) Illiterate	4	13.4	7	23.3	
	b) Primary education	6	20.0	7	23.3	
	c) Secondary education	3	10.0	3	10.0	
	d) Higher secondary education	-	-	-	-	

	e) Graduate	-	-	-	-	
	f) Post graduate	-	-	-	-	
<b>4.</b>	<b>Occupation</b>					$\chi^2=0.032$
	a) Homemaker	5	16.7	6	20.0	d.f=1
	b) Working women	8	26.7	11	36.6	P=0.858 N.S
<b>5.</b>	<b>Family monthly income in rupees</b>					$\chi^2=1.639$
	a) $\leq 5000$	13	43.3	15	50.0	d.f=1
	b) 5001 – 10000	0	0	2	6.7	P=0.201
	c) 10001 – 15000	-	-	-	-	N.S
	d) $\geq 15001$	-	-	-	-	
<b>6.</b>	<b>Type of family</b>					$\chi^2=2.865$
	a) Joint	4	13.4	7	23.3	d.f=2
	b) Nuclear	7	23.3	10	33.3	P=0.239
	c) Extended	2	6.7	0	0	N.S
<b>7.</b>	<b>Dietary pattern</b>					$\chi^2=6.036$
	a) Vegetarian	4	13.3	0	0	<b>d.f=1</b>
	b) Mixed	9	30.0	17	56.7	<b>P=0.014</b> <b>S*</b>
<b>8.</b>	<b>Age at menarche</b>					$\chi^2=1.493$
	a) $\leq 10$ years	-	-	-	-	d.f=1
	b) 11 – 15 years	11	36.7	11	36.7	P=0.222

	c) 16 years and above	2	6.7	6	20.0	N.S
<b>9.</b>	<b>Marital status</b>					$\chi^2=1.885$
	a) Married	10	33.3	16	53.4	d.f=1
	b) Unmarried	-	-	-	-	P=0.170
	c) Widower	3	10.0	1	3.3	N.S
<b>10.</b>	<b>Parity</b>					$\chi^2=0.739$
	a) Nullipara	2	6.7	1	3.3	d.f=1
	b) Multipara	11	36.7	16	53.3	P=0.390
	c) Grand multipara	-	-	-	-	N.S
<b>11.</b>	<b>Habits</b>					$\chi^2=0.621$
	a) Tobacco / Betel Chewing	5	16.6	9	30.0	d.f=2
	b) Increased intake of coffee/tea	2	6.7	2	6.7	P=0.733
	c) Intake of alcohol	6	20.0	6	20.0	N.S

\* $p < 0.05$ , S – Significant, N.S – Not Significant

The table 4.8 shows that the demographic variable dietary pattern ( $\chi^2=6.036$ ,  $p=0.014$ ) had shown statistically significant association with post test level of menopausal symptoms among post menopausal women at  $p < 0.05$  level and the other demographic variables had not shown statistically significant association with post test level of menopausal symptoms among post menopausal women at  $p < 0.05$  in the experimental group.

## CHAPTER-V

### RESULTS AND DISCUSSION

The study is to assess the effectiveness of soya bean consumption on menopausal symptoms among post-menopausal women. The result of the study is based on the statistical analysis.

The study was conducted using quasi experimental research design. It was intended to assess the effectiveness of soya bean consumption in reducing the menopausal symptoms among post menopausal women. Heinemann menopausal rating scale was used to assess the level of menopausal symptoms. The responses were analysed by using descriptive statistics (Mean, standard deviation, frequency, percentage) and inferential statistics and student independent "t" test. Discussion on the findings was arranged based on objectives of the study

- To assess the level of menopausal symptoms before administering soya bean among post menopausal woman in experimental and control group.
- To determine the effectiveness of soya bean in reduction of menopausal symptoms among post menopausal women.
- To assess the level of menopausal symptoms after administering soya bean among post menopausal woman in experimental and control group.
- To find the association between level of menopausal symptoms with selected demographic variables.

#### **5.1: The first objective for this study was to assess the level of menopausal symptoms before administering soya bean among post menopausal woman in experimental and control group.**

In the experimental group, majority of post menopausal had 25(83.3%) had moderate level of menopausal symptoms, 3(10%) had severe menopausal symptoms and 2(6.7%) had mild menopausal symptoms among post menopausal women, whereas in the control group, 28(93.4%) had moderate menopausal symptoms and 1(3.3%) had mild and severe menopausal symptoms among post menopausal women.

The findings are supported by **Gharaibeh(2019)** conducted a descriptive study to assess the severity of menopausal symptoms of among post menopausal women. Cross-sectional design was used and data were collected from 350 post menopausal women using a self-administered questionnaire consisting of socio demographic, medical and obstetrical history form and the Greene climacteric scale. The result of the study on the severity of menopausal symptoms showed that 15.7% were experiencing severe symptoms, 66.9% were experiencing moderate symptoms and 17.4% were experiencing mild menopausal symptoms.

## **5.2: The second objective for this study to determine the effectiveness of soya bean in reduction of menopausal symptoms among post menopausal women.**

In the experimental group, the pretest score of menopausal symptoms among post menopausal women was  $18.73 \pm 3.11$  and the post test mean score was  $12.50 \pm 2.50$ . The mean difference score was 6.23 (14.16%). The calculated paired 't' test value of  $t = 15.145$  was found to be statistically significant at  $p < 0.0001$  level. The findings indicate that there was significant reduction in the level of menopausal symptoms in the post test. This clearly infers that administration of soya bean among post menopausal women in the experimental group was found to be effective in reduction of menopausal symptoms in the post test.

In the control group, the pretest score of menopausal symptoms among post menopausal women was  $18.50 \pm 3.15$  and the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was 0.2(0.45%). The calculated paired 't' test value of  $t = 1.989$  was not found to be statistically significant. This clearly infers that there was no significant reduction in the level of menopausal symptoms among post menopausal women in the control group.

In the experimental group, the pretest mean score of menopausal symptoms was  $18.73 \pm 3.11$ . that in the experimental group, the post test mean score of menopausal symptoms was  $12.50 \pm 2.50$ . The mean difference score was 0.23(0.52%). The calculated student independent 't' test value of  $t = 0.289$  was not found to be statistically significant. This clearly infers that there was significant difference in the level of menopausal symptoms score among post menopausal women between the two groups in which the experimental group had significant reduction in the level of menopausal symptoms score than the control group.

In the control group the pretest mean score was  $18.50 \pm 3.15$ . In the control group the post test mean score was  $18.30 \pm 3.08$ . The mean difference score was 5.8(13.18%). The calculated student independent 't' test value of  $t = 8.013$  was found to be statistically significant at  $p < 0.001$  level. This clearly infers that there was no significant difference in the level of menopausal symptoms score among post menopausal women between the two groups.

The above findings are consistent with G. Radha Krishnan (2018) conducted a randomized double blind study in 2010 in the United States, to assess the efficiency and safety of a standardized compound based on extract of soya phytoestrogen in the management of menopausal symptoms. Sample was 60 post menopausal women who had symptoms. The result found that the post menopausal women taking a soya supplement reported a 45% ( $p < 0.001$ ) reduction in the severity of their menopausal symptoms like hot flush, joint pain. However the control group reported no reduction in the severity of the symptoms. The study was concluded that soy isoflavone treatment was safe and effective alternative therapy for menopausal symptoms among post menopausal women.

### **5.3: To assess the level of menopausal symptoms after administering soya bean among post menopausal woman in experimental and control group.**

In the experimental group, 17(56.7%) had moderate level of menopausal symptoms and 13(43.3%) had mild menopausal symptoms among post menopausal women. In the control group, 27(90%) had moderate menopausal symptoms, 2(6/7%) had mild menopausal symptoms and 1(3.3%) had and severe menopausal symptoms among post menopausal women. (objective 3)

The above findings are consistent with **LissaJ (2019)** conducted an experimental study to evaluate the effectiveness of soya bean on menopausal symptoms among post menopausal in India. The study results revealed that in experimental group the mean post-assessment status of the selected menopausal problems 13.5 is lower than the mean pre-assessment status 18.3, the mean difference is 4.53 and the obtained "t" value 12.58 is significant at 0.05 level. The study concluded that there is a typical reduction in the level of menopausal symptoms after administration of soya bean.

#### **5.4: The fourth objective for this study was to find the association between menopausal symptoms with selected demographic variables**

On finding the association between level of menopausal symptoms with selected demographic variables in the experimental group. The demographic variable dietary pattern ( $\chi^2=6.036$ ,  $p=0.014$ ) had shown statistically significant association with post test level of menopausal symptoms among post menopausal women at  $p<0.05$  level and the other demographic variables had not shown statistically significant association.

The Study findings were supported by **KakkarVet.al(2017)** conducted a quasi-experimental study to find out the association with dietary pattern and menopausal symptoms in India. The Menopausal Rating Scale, a self-administered standardized questionnaire was applied with additional patient's related information for analysis. Data analysis revealed that statistically there was a significant association with dietary pattern and menopausal symptoms.



## **CHAPTER-VI**

### **SUMMARY, CONCLUSION, NURSING IMPLICATIONS AND RECOMMENDATION**

This chapter shows a brief account of the present study. Conclusions are drawn from the findings and the implications of the results that are stated. It also includes recommendations, implications for the nursing practice, nursing education, nursing administration and also nursing research.

#### **SUMMARY**

The study was conducted to assess the effectiveness of soya bean in reducing the menopausal symptoms among post-menopausal women in GanapathyMaanagar, Coimbatore. The Purpose of the study was to reduce the menopausal symptoms among the post menopausal women and to improve the quality of life by reducing the symptoms that they experienced during the post menopausal period. There was a significant reduction in the menopausal symptoms in the experimental group in the pre and post test. The mean of post menopausal symptoms in the experimental group is 14.16% reduction.

#### **OBJECTIVES OF THE STUDY**

- ❖ To assess the level of menopausal symptoms before administering soya bean among post menopausal woman in experimental and control group.
- ❖ To determine the effectiveness of soya bean in reduction of menopausal symptoms among post menopausal women.
- ❖ To assess the level of menopausal symptoms after administering soya bean among post menopausal woman in experimental and control group.
- ❖ To find the association between menopausal symptoms with selected demographic variables.
- ❖ A quasi experimental design used for the study. The study was conducted in GanapathyMaanagar, Coimbatore, after obtaining formal permission from the Medical Officer, Primary Health Centre.

## **PILOT STUDY**

The pilot was conducted to make sure that the tool was capable of eliciting response from the responders. A pilot study was carried out. It was conducted among 60 samples for a period of 6 weeks. 30 samples were in the experimental group and 30 were control group. 100 mg of cooked soya bean were given to the experimental group and post test was done. Pilot study showed that there was a significant decrease in the menopausal symptoms among post menopausal women in the post test. The practicability of the tool tested to the pilot study. The study shows the feasibility to conduct the proposed study as planned.

Data collection was carried out. Total 60 samples were selected, 30 sample are in experimental group and 30 sample are in control group. Samples were selected on the basis of inclusive and exclusive criteria by non-probability convenient sampling techniques. Analysis was done by using descriptive and inferential statistics.

## **MAJOR FINDING OF THE STUDY**

1. The pretest level of menopausal symptoms in the experimental group 6.7% had mild symptom, 83.3% had moderate symptoms and 10.0% had severe level of symptoms.
2. The pretest level of menopausal symptoms in the control group, 3.3% had mild level of symptoms, 93.4% had moderate level of symptoms, and 3.3% had severe level of symptoms.
3. The post test level of menopausal symptoms in the experimental group, 43.3% had mild level of symptoms, and 56.7% had moderate level of symptoms.
4. The posttest level of menopausal symptoms in the control group, 6.7% had mild level of symptoms, 90% had moderate level of symptoms, and 3.3% had severe level of symptoms.
5. The mean score of pre test level of menopausal symptoms in experimental group 18.7 and control group 18.5.
6. The mean score of post test level of menopausal symptoms experimental group 12.5 and 18.3 in control group.
7. The obtained 't' value for comparison of pretest menopausal symptoms for experimental and control group ( $t=0.289$ ).
8. The obtained 't' value for comparison of posttest menopausal symptoms for experimental and control group  $t=8.013$ .

9. The mean of post menopausal symptoms in the experimental group showed 14.16% reduction.

## **CONCLUSION**

- The study shows significant effectiveness of soya bean in reducing the level of menopausal symptoms among post menopausal mothers.
- Soya bean can be used as a cost effective method to decrease the menopausal symptoms in the poor socio-economic background community.
- Soya bean contains of chemical compounds called phytoestrogens. Phytoestrogens have chemical structures similar to the estrogens produced in the body and it is believed that eating foods rich in phytoestrogens can help alleviate low estrogen production in the body.

## **NURSING IMPLICATION**

This research report has certain important implication that focuses in various areas of nursing practices, nursing education, nursing administration and nursing research.

## **NURSING PRACTICES**

- Nurses can use this method as a nursing intervention to reduce the menopausal symptoms among post menopausal women.
- Alternative approaches for menopause should be encouraged to reduce the side effect of hormonal replacement therapy.
- The nurse can plan for health programme on alternative and complementary treatment for menopausal symptoms.
- To create a awareness among the nurses in the practical settings about menopausal symptoms.
- The present study can be used as a motivation for nurse to conduct research.

## **NURSING EDUCATION**

- Periodic conferences, seminars, symposium can be arranged regarding alternative and complementary therapies .
- To make the nursing professionals competent enough to meet ever changing needs of the society.

- In Nursing education, we can encourage innovative ideas in preparation of appropriate teaching materials and usage of manpower for organizing the educational programme on menopausal symptoms.
- In the field of nursing education, one can incorporate various alternative methods for relieving menopausal symptoms in their curriculum.

### **NURSING ADMINISTRATION**

- This study helps the nursing administrator to assess the knowledge regarding non pharmacological measures to decrease the menopausal symptoms among post menopausal women..
- The nurse administrator can encourage staff nurses and student nurses and multiple health workers to involve in research activities of menopausal related problems.
- The administrators have a responsibility to provide nurses with substantive continuing education opportunities. This will enable the nurses to update their knowledge, acquire special skills and demonstrate high quality care.

### **NURSING RESEARCH**

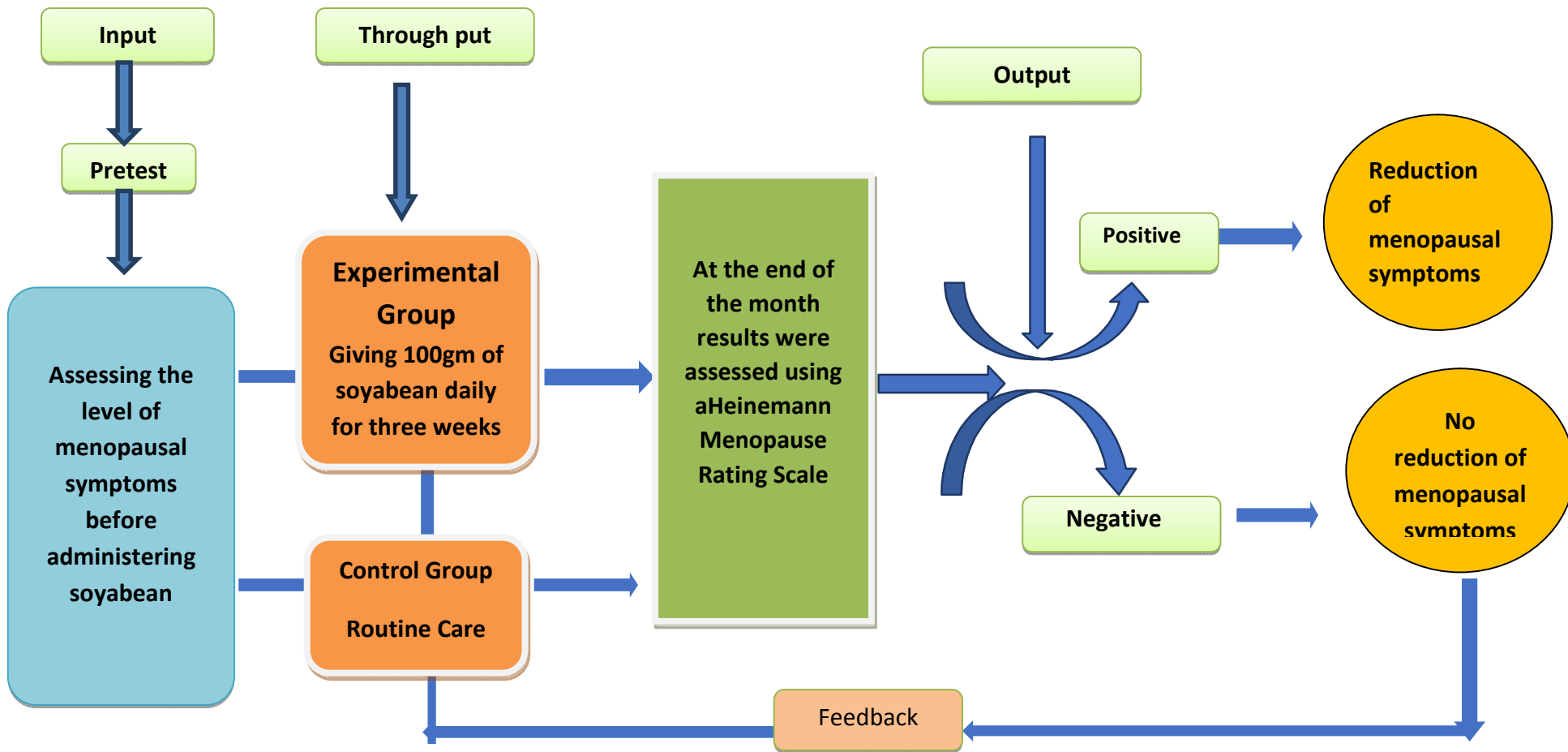
- In the future, this study can be used to compare hormonal therapies to reduce menopausal symptoms among both peri and post menopausal women.
- It can be used in large sample to generalize.
- The findings can be disseminated through conferences, seminars and publishing in journal and promote effective utilizations of research findings on treatment of menopausal symptoms.
- The study can be used for extensive and intensive research in menopausal symptoms in pre, peri and postmenopausal women on which new strategies can be developed.
- It can be used as a solid research base to document the effectiveness of treatment in a scientific way to promote the health and well being.

### **6.4 LIMITATIONS**

- ❖ Due to time constraints, the investigator was unable to take a large sample for the study.
- ❖ The study was limited to the period of one month.

## **6.5 RECOMMENDATIONS**

- ❖ Similar studies can be conducted for a large sample on a long term basis.
- ❖ Comparative study can be conducted by using various other complementary and alternative therapies to find out the effectiveness of soya bean in other physiological symptoms.
- ❖ Comparative study can be conducted between soya bean and pharmacological treatment.
- ❖ A study can be conducted to compare effectiveness of soy versus hormonal replacement therapy among menopausal women.



**Figure 1.1 - Conceptualframework Based On J. W. Kenny’s Open System Model Foreffectofsoya Bean Onmenopausal Symptoms Among Postmenopausal Woman**

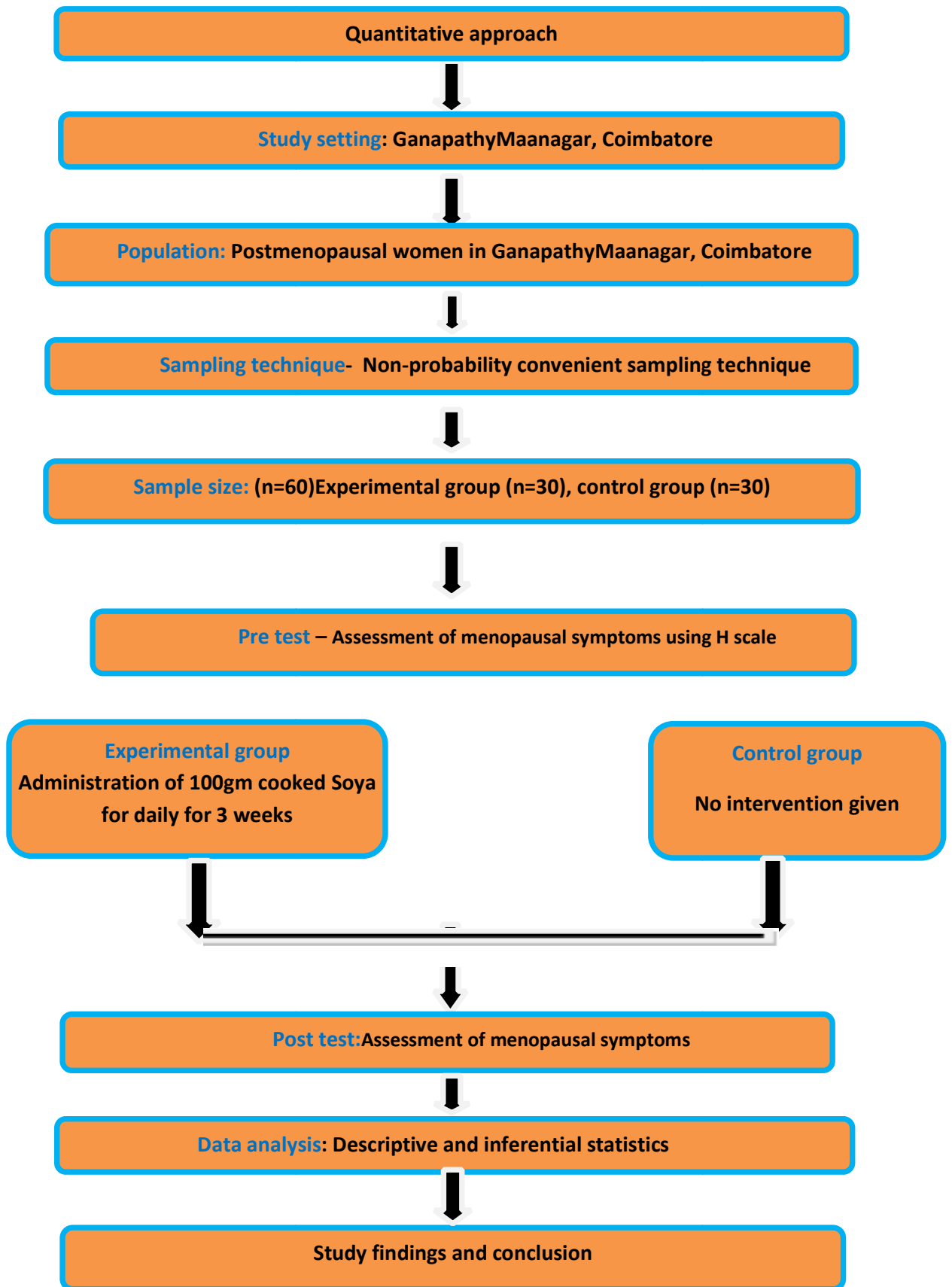


Figure 3.1: Schematic Representation of the Research Methodology

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☎ : 0422 - 2669000 Fax : 0422 - 2669333 E-mail : ppqcollege@gmail.com Website : www.ppq.edu.in



## Permission Letter for Research Study

**To**

Betrani.S

M.Sc., Nursing II<sup>nd</sup> Year,

PPG College of Nursing,

Coimbatore -35

**Through:**

The Principal ,

PPG College of Nursing,

Coimbatore -35

Respected Sir / Madam.

**Sub: Seeking Permission For Conducting Research Study.**

I am student of II-year M.Sc Nursing, PPG College of Nursing, affiliated to the Tamilnadu Dr.M.G.R Medical university, Chennai. I have taken the specialization in Obstetrics and Gynaecology Nursing. Iam going to conduct the study on **“A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN AT GANAPATHY MAANAGAR IN COIMBATORE DISTRICT.”**

I request you to kindly permit me to conduct my study in hospital. Hope you will consider my requisition and do the needful.

Thanking you

Yours faithfully,



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## Requisition Letter for Content Validity

### From

II-year M.sc nursing,  
PPG college of nursing,  
Coimbatore-35

### To

Through The Principal ,PPG college of nursing,  
Coimbatore - 35

Respected Sir / Madam.

### Sub: Requisition for expert opinion and suggestion for content validity of the tool.

I am student of II-year M.Sc Nursing, PPG college of Nursing, affiliated to the Tamilnadu Dr.M.G.R Medical University ,Chennai . As a partial fulfilment of M.Sc Nursing programme.I am conducting

**TOPIC : “A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN AT GANAPATHY MAANAGAR IN COIMBATORE DISTRICT.”**

Herewith I have enclosed the developed tool for content validity for your expert opinion and possible suggestion. I will be very kind of you to return the same to the undersigned at the earliest possible.

Thanking you

Yours Truly,

Date:

Place

## **CERTIFICATE FOR ENGLISH EDITING**

This is to certify that the study conducted by **Mrs.S. BETRANI**, M.Sc Nursing II year Student, PPG college of nursing, Coimbatore -35 on the topic of **“A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN AT GANAPATHY MAANAGAR IN COIMBATORE DISTRICT.”** Has been edited by me for English language appropriateness.

**SIGNATURE**

**NAME** :

**INSTITUTION** :

**PLACE** :



## **CERTIFICATE FOR TAMIL EDITING**

This is to certify that the study conducted by **Mrs.S. BETRANI**, M.Sc Nursing II year Student, PPG college of nursing, Coimbatore -35 on the topic **“A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL WOMEN AT GANAPATHY MAANAGAR IN COIMBATORE DISTRICT.”**Has been edited by me for Tamil language appropriateness.

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## Format For the Content Validity

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Total Content for the tool :

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S.No	No.of Tool/Section	Strongly Agree	Agree	O.K	Not applicable	Need modification	Remarks

Remarks

Signature of the Expert with Date

## **LIST OF EXPERTS**

**1. Dr. Krishnaveni., MBBS, DGO**

Consultant OBG

PHC, Gandhipuram,

Coimbatore.

**2. Prof. M. Jancirani, M.Sc.,(N)**

Professor,

Shanmuga College of Nursing,

Salem.

**3. Mrs. Cynthia, M.Sc ., (N)**

Assistant Professor,

Gem College of Nursing,

Coimbatore

**4. Mrs. Agnes, M.sc.,(N)**

Assistant Professor,

St. Ann's College of Nursing,

Thoothukudi

**TOOLS USED FOR DATA COLLECTION**  
**TOOL DEMOGRAPHIC VARIABLES PERFORMA**

**Instructions:**

The investigator will collect the information through interviewing the Menopausal women. Please be frank and free in answering the questions. The collected information will be kept confidential and anonymity will be maintained.

**Sample No**-----

**Setting / Area** .....

**1) Age in years**

- a) 45-48
- b) 49-52
- c) 53-56

**2) Religion**

- a) Hindu
- b) Muslim
- c) Christian

**3) Educational status**

- a) Illiterate
- b) Primary & Secondary education
- c) Graduate

**4) Occupation**

- a) home maker
- b) Working women

**5) Family monthly income in rupees**

- a)  $\leq 5000$
- b) 5001-10000

- c) 10001-15000
- d)  $\geq 15001$

**6) Type of family**

- a) Joint
- b) Nuclear
- c) Extended

**7) Dietary pattern**

- a) Vegetarian
- b) mixed

**8) Age of Menarche**

- a)  $\leq 10$  years
- b) 11-15 years
- c) 16 years and above

**9) Marital status**

- a) Married
- b) Unmarried
- c) Widower

**10) Parity**

- a) Nullipara
- b) Multi para
- c) Grand multipara

**11) Habits**

- a) Tobacco/betel chewing
- b) Increased intake of coffee/tea
- c) Intake of alcohol

## PART-II

### HEINMANN MENOPAUSE RATING SCALE (MRS)

#### Instructions:

The Heinemann Menopausal Rating Scale consists of 11 items enlisting the problems of menopause. Each item responses are extended from None to Very severe. Please listen to the items carefully when I read and be frank and free in your responses. The information collected will be kept confidential and anonymity will be maintained.

Symptoms	None	Mild	Moderate	Severe	Very severe
	0	1	2	3	4
1. Hot flushes, sweating (episodes of sweating).					
2. Heart discomfort (unusual Awareness of heart beat, heart skipping, heart racing, tightness)					
3. Sleep problems (difficulty in falling asleep, difficulty in sleeping through, waking up early)					
4. Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)					
5. Irritability (feeling nervous, inner tension, feeling aggressive)					
6. Anxiety (inner restlessness, feeling panicky)					
7. Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)					

8. Sexual problems (change in sexual desire, in sexual activity and satisfaction)					
9. Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)					
10. Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)					
11. Joint and muscular discomfort (pain in the joints, rheumatoid complaints)					

அன்புள்ள பங்கேற்பாளர்கள்,

இந்த பிரிவு தனிப்பட்ட தகவல்களைக் கொண்டுள்ளது. மேலும் கேள்விக்கு சரியாக பதிலளிக்குமாறு கோரப்படுகிறீர்கள். உங்களிடமிருந்து சேகரிக்கப்பட்ட தகவல்கள் ரகசியமாக வைக்கப்படும்

#### 1.வயது ஆண்டுகளில்

- அ) 45 – 48
- ஆ) 49 – 52
- இ) 53 – 56

#### 2.மதம்

- அ) இந்து
- ஆ) முஸ்லீம்
- இ) கிருஷ்டியன்

#### 3. கல்வி

- அ) படிப்பறிவற்றவர்
- ஆ) ஆரம்ப கல்வி
- இ) இரண்டாம் நிலை கல்வி
- ஈ) மேல்நிலை கல்வி
- உ) பட்டதாரி

#### 4. தொழில்

- அ) வீட்டு மனைவி
- ஆ) ஊழியர்



5. மாதாந்திர குடும்ப வருமானம் ரூபாய்

- அ)  $\leq 5000$
- ஆ) 5001-10000
- இ) 10001-15000
- ஈ)  $4 \geq 15001$

6. குடும்ப வகை

- அ) தனிக்குடும்பம்
- ஆ) கூட்டுக்குடும்பம்
- இ) நீட்டிக்கப்பட்ட குடும்பம்

7. உணவு முறை

- அ) சைவம்
- ஆ) அசைவம்

8. உங்களுக்கு எப்போது மாதவிடாய் ஏற்பட்டது

- அ) 1 வருடத்திற்கு முன்
- ஆ) 2 வருடத்திற்கு முன்
- இ) 3 வருடத்திற்கு முன்
- ஈ) 3 ஆண்டுகளுக்கு மேல்

9. தற்காப்பு நிலை

- அ) திருமணமானவர்
- அ) திருமணமாகாதவர்

10.தாய்மைநிலை

அ) குழந்தைகள் இல்லை

ஆ) இரண்டு குழந்தைகள்

இ) அதிக குழந்தைகள்

11. பழக்கங்கள்

அ) புகையிலை/வெற்றிலை மெல்லுதல்

ஆ) காபி/தேநீர் அதிகம் உட்கொள்ளுதல்மது உட்கொள்ளல்

**வழிமுறைகள்:**

ஹெய்ன்மேன் மாதவிடாய் நின்ற மதிப்பீட்டு அளவானது மாதவிடாய் நிறுத்தத்தின் சிக்கல்களை பட்டியலிடும் 11 ஐட்டம்களைக் கொண்டுள்ளது. ஒவ்வொரு உருப்படி பதில்களும் ஒன்றிலிருந்து மிகக் கடுமையானவை. தயவுசெய்து நான் படிக்கும்போது உருப்படிகளை கவனமாகக் கேளுங்கள், உங்கள் பதில்களில் வெளிப்படையாகவும் சுதந்திரமாகவும் இருங்கள். சேகரிக்கப்பட்ட தகவல்கள் ரகசியமாக வைக்கப்படும் மற்றும் அநாமதேயம் பராமரிக்கப்படும்.

Symptoms	None 0	Mild 1	Moderate 2	Severe 3	Very Severe 4
ஹாட் ஃப்ளஷ்கள், வியர்வை (அத்தியாயங்கள் வியர்வை)					
2. இதய அசம கரியம் (அசாதாரணமான இதயத் துடிப்பு, இதயத் தவிர்ப்பு, இதய ஓட்டப்பந்தயம், இறுக்கம் பற்றிய விழிப்புணர்வு					
தூக்க பிரச்சினைகள் (சிரமம் தூங்குவது, தூங்குவதில் சிரமம், சீக்கிரம் எழுந்திருத்தல்)					
எரிச்சல் (பதட்டம், உள் பதற்றம், ஆக்கிரமிப்பு உணர்கிறேன்)					
கவலை (உள் அமைதியின்மை, பீதியை உணர்கிறேன்)					

<p>உடல் மற்றும் மன சோர்வு (செயல்திறனில் பொதுவான குறைவு, நினைவாற்றல் பலவீனமடைதல், குறைதல் செறிவு, மறதி)</p>					
<p>பாலியல் பிரச்சினைகள் (பாலியல் ஆசையில் மாற்றம், பாலியல் செயல்பாடு மற்றும் திருப்தியில்)</p>					
<p>சிறுநீர்ப்பை பிரச்சினைகள் (சிறுநீர் கழிப்பதில் சிரமம், சிறுநீர் கழிக்க வேண்டிய தேவை அதிகரித்தது, சிறுநீர்ப்பை அடங்காமை)</p>					
<p>யோனியின் வறட்சி (வறட்சியின் உணர்வு அல்லது யோனியில் எரியும், உடலுறவில் சிரமம் உடலுறவு)</p>					
<p>கூட்டு மற்றும் தசை அச om கரியம் (மூட்டுகளில் வலி, முடக்கு புகார்கள்)</p>					

## CODE SHEET

### Control Group - Demographic Variables

Sl.no	age	religion	education	occupation	Income	Type of family	diet	Age Of menarche	Marital status	parity	habits
1	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
2	1.2	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.1
3	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.1
4	1.2	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
5	1.2	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.1
6	1.1	2.1	3.1	4.2	5.1	6.2	7.2	8.3	9.1	10.2	11.1
7	1.1	2.1	3.1	4.2	5.2	6.1	7.2	8.2	9.1	10.2	11.2
8	1.2	2.1	3.2	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
9	1.3	2.1	3.2	4.2	5.2	6.1	7.2	8.2	9.1	10.3	11.1
10	1.2	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.1	11.1
11	1.2	2.1	3.2	4.2	5.2	6.1	7.2	8.2	9.3	10.2	11.1
12	1.2	2.1	3.3	4.2	5.1	6.1	7.2	8.2	9.3	10.2	11.1
13	1.2	2.1	3.2	4.1	5.1	6.1	7.2	8.2	9.1	10.2	11.2
14	1.1	2.1	3.1	4.1	5.1	6.1	7.2	8.3	9.1	10.2	11.1
15	1.1	2.1	3.1	4.1	5.1	6.3	7.2	8.2	9.1	10.2	11.1
16	1.1	2.1	3.2	4.1	5.2	6.1	7.2	8.3	9.1	10.2	11.1
17	1.1	2.1	3.2	4.1	5.1	6.1	7.2	8.3	9.2	10.2	11.1
18	1.1	2.1	3.1	4.1	5.1	6.1	7.2	8.3	9.1	10.2	11.1

19	1.2	2.1	3.3	4.1	5.1	6.1	7.2	8.3	9.1	10.2	11.1
20	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
21	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
22	1.2	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.1
23	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.1
24	1.2	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
25	1.2	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.1
26	1.1	2.1	3.1	4.2	5.1	6.2	7.2	8.3	9.1	10.2	11.1
27	1.1	2.1	3.1	4.2	5.2	6.1	7.2	8.2	9.1	10.2	11.2
28	1.2	2.1	3.2	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
29	1.3	2.1	3.2	4.2	5.2	6.1	7.2	8.2	9.1	10.3	11.1
30	1.2	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.1	11.1

### Experimental Group- Demographic Variables

Sl.no	age	religion	education	occupation	Income	Type of family	diet	Age Of men arche	Marital status	parity	habits
1	1.1	2.1	3.2	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
2	1.1	2.1	3.3	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.3
3	1.1	2.1	3.2	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
4	1.1	2.1	3.3	4.1	5.1	6.2	7.1	8.3	9.3	10.2	11.3
5	1.2	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.3
6	1.1	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
7	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
8	1.2	2.1	3.2	4.2	5.1	6.3	7.1	8.2	9.1	10.2	11.3
9	1.3	2.1	3.2	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.2
10	1.2	2.1	3.1	4.1	5.1	6.2	7.2	8.2	9.1	10.1	11.3
11	1.2	2.1	3.2	4.2	5.2	6.2	7.2	8.2	9.1	10.2	11.1
12	1.2	2.1	3.3	4.1	5.1	6.2	7.2	8.2	9.3	10.2	11.1
13	1.2	2.1	3.2	4.1	5.1	6.2	7.2	8.2	9.1	10.2	11.2
14	1.1	2.1	3.3	4.1	5.1	6.2	7.2	8.2	9.1	10.2	11.3
15	1.3	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.2
16	1.1	2.1	3.2	4.1	5.2	6.2	7.2	8.2	9.1	10.1	11.3
17	1.1	2.1	3.2	4.1	5.1	6.2	7.2	8.3	9.1	10.2	11.1
18	1.1	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.3	10.2	11.1
19	1.1	2.1	3.2	4.1	5.1	6.1	7.2	8.3	9.1	10.2	11.1

<b>20</b>	1.1	2.1	3.1	4.1	5.1	6.2	7.2	8.2	9.1	10.2	11.1
<b>21</b>	1.1	2.1	3.2	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
<b>22</b>	1.1	2.1	3.3	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.3
<b>23</b>	1.1	2.1	3.2	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
<b>24</b>	1.1	2.1	3.3	4.1	5.1	6.2	7.1	8.3	9.3	10.2	11.3
<b>25</b>	1.2	2.1	3.1	4.2	5.1	6.1	7.2	8.3	9.1	10.2	11.3
<b>26</b>	1.1	2.1	3.1	4.2	5.1	6.2	7.2	8.2	9.1	10.2	11.1
<b>27</b>	1.1	2.1	3.1	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.1
<b>28</b>	1.2	2.1	3.2	4.2	5.1	6.3	7.1	8.2	9.1	10.2	11.3
<b>29</b>	1.3	2.1	3.2	4.2	5.1	6.1	7.2	8.2	9.1	10.2	11.2
<b>30</b>	1.2	2.1	3.1	4.1	5.1	6.2	7.2	8.2	9.1	10.1	11.3



### Menopausal Symptoms of Control Group

Sl.no	group		Menopausal Symptoms											total	inference
			1	2	3	4	5	6	7	8	9	10	11		
1	control	Pretest	2	1	2	1	2	2	2	2	2	2	2	20	moderate
		Posttest	2	1	2	1	2	2	2	2	2	2	2	20	moderate
2	control	pretest	2	2	2	1	1	1	2	1	2	2	2	18	moderate
		posttest	3	1	2	1	1	1	2	1	2	2	2	18	moderate
3	control	pretest	2	0	2	1	2	2	2	2	2	2	2	19	moderate
		posttest	2	0	2	1	2	2	2	2	2	2	2	19	moderate
4	control	pretest	2	1	2	1	1	2	1	2	2	1	3	18	moderate
		posttest	1	1	2	1	1	1	1	2	2	1	3	16	moderate
5	control	pretest	2	1	2	2	2	2	2	2	2	2	3	22	moderate
		posttest	2	1	2	2	2	2	2	1	2	2	2	20	moderate
6	control	pretest	2	0	3	2	2	2	2	2	2	2	3	23	severe
		posttest	2	0	3	2	3	2	2	1	2	2	3	22	moderate
7	control	pretest	2	1	2	1	1	1	1	2	1	2	2	14	moderate
		posttest	2	1	2	1	1	1	1	2	1	1	2	15	moderate
8	control	pretest	2	0	3	1	1	1	1	2	2	2	3	18	moderate
		posttest	2	0	3	1	1	1	1	2	2	2	3	18	moderate
9	control	Pretest score	2	1	2	2	2	2	2	2	2	2	3	22	moderate
		Posttest score	2	1	2	2	2	2	2	2	2	2	3	22	moderate
10	control	pretest	3	0	2	1	2	2	2	2	2	2	20	moderate	

		posttest	2	2	2	2	1	1	1	1	2	2	2	18	moderate
11	control	pretest	2	1	3	2	2	2	2	2	2	2	3	23	severe
		posttest	2	1	3	2	2	2	2	2	2	2	2	23	severe
12	control	pretest	2	2	3	2	2	1	1	2	2	2	3	21	Severe
		posttest	3	1	3	2	2	1	1	2	2	2	3	21	moderate
13	control	pretest	2	1	2	1	1	1	1	1	2	2	2	16	moderate
		posttest	2	1	2	1	1	1	1	1	2	1	2	15	moderate
14	control	pretest	2	1	2	1	1	1	1	1	1	1	2	14	moderate
		posttest	3	1	2	1	1	1	1	1	1	1	2	15	moderate
15	control	pretest	1	1	1	1	1	1	1	1	1	1	1	11	mild
		posttest	1	1	1	1	1	1	1	1	1	1	1	11	mild
16	control	pretest	2	0	2	2	1	1	1	2	2	2	2	17	moderate
		posttest	2	0	2	1	1	1	1	2	2	2	2	16	moderate
17	Control	pretest	2	0	1	1	1	1	1	1	1	2	2	13	Moderate
		posttest	2	0	1	1	1	1	1	1	1	1	2	12	moderate
18	Control	Pretest	2	1	1	1	1	1	1	1	1	1	1	12	Moderate
		Posttest	1	1	1	1	1	1	1	1	1	1	1	11	Mild
19	Control	Pretest	3	1	3	1	2	1	2	1	0	1	3	18	Moderate
		Posttest	2	1	2	1	2	1	2	1	0	1	3	16	moderate
20	Control	Pretest	2	1	2	1	2	1	1	2	2	2	3	19	Moderate
		Posttest	2	1	2	1	1	1	1	2	1	2	3	16	Moderate
21	control	Pretest	2	1	2	1	2	2	2	2	2	2	2	20	moderate
		Posttest	2	1	2	1	2	2	2	2	2	2	2	20	moderate
22	control	pretest	2	2	2	1	1	1	2	1	2	2	2	18	moderate

		posttest	3	1	2	1	1	1	2	1	2	2	2	18	moderate
23	control	pretest	2	0	2	1	2	2	2	2	2	2	2	19	moderate
		posttest	2	0	2	1	2	2	2	2	2	2	2	19	moderate
24	control	pretest	2	1	2	1	1	2	1	2	2	1	3	18	moderate
		posttest	1	1	2	1	1	1	1	2	2	1	3	16	moderate
25	control	pretest	2	1	2	2	2	2	2	2	2	2	3	22	moderate
		posttest	2	1	2	2	2	2	2	1	2	2	2	20	moderate
26	control	pretest	2	0	3	2	2	2	2	2	2	2	3	23	severe
		posttest	2	0	3	2	3	2	2	1	2	2	3	22	moderate
27	control	pretest	2	1	2	1	1	1	1	2	1	2	2	14	moderate
		posttest	2	1	2	1	1	1	1	2	1	1	2	15	moderate
28	control	pretest	2	0	3	1	1	1	1	2	2	2	3	18	moderate
		posttest	2	0	3	1	1	1	1	2	2	2	3	18	Moderate
29	control	Pretest score	2	1	2	2	2	2	2	2	2	2	3	22	Moderate
		Posttest score	2	1	2	2	2	2	2	2	2	2	3	22	moderate
30	control	pretest	3	0	2	1	2	2	2	2	2	2	2	20	moderate
		posttest	2	2	2	2	1	1	1	1	2	2	2	18	moderate

### Menopausal symptoms of Experimental group

Sl.no	group		Menopausal symptoms											total	inference
			1	2	3	4	5	6	7	8	9	10	11		
1	experi	Pretest score	2	2	2	1	2	1	1	2	2	2	2	19	moderate
		Posttest score	1	1	1	1	1	1	1	1	1	1	1	11	mild
2	experi	pretest	2	2	3	1	1	1	1	2	2	2	2	19	moderate
		posttest	1	1	2	1	1	1	1	1	1	1	1	12	moderate
3	control	pretest	3	1	2	1	1	2	1	2	2	2	3	20	moderate
		posttest	1	1	1	1	1	1	1	1	2	1	2	13	Moderate
4	experi	pretest	2	0	2	1	2	1	1	1	1	2	2	15	moderate
		posttest	1	0	1	1	1	1	1	1	1	1	1	10	Mild
5	experi	pretest	3	1	3	2	2	2	1	2	2	2	3	23	Severe
		posttest	2	1	2	2	2	2	1	2	1	1	1	17	moderate
6	experi	pretest	2	0	1	1	0	1	1	1	1	2	1	11	mild
		posttest	1	0	1	1	0	1	1	1	1	1	1	09	mild
7	experi	pretest	3	2	2	1	2	1	2	2	2	2	2	21	moderate
		posttest	2	1	1	1	1	1	1	2	1	1	1	13	mild
8	experi	pretest	2	1	2	1	2	1	1	1	1	1	2	15	moderate
		posttest	1	1	1	1	1	1	1	1	1	1	1	11	mild
9	experi	Pretest score	3	1	2	1	1	1	1	2	2	2	2	18	moderate
		Posttest score	1	1	0	1	1	1	1	1	2	1	1	11	Mild
10	experi	pretest	2	1	3	1	2	2	1	2	2	1	3	20	moderate



<b>23</b>	<b>control</b>	pretest	3	1	2	1	1	2	1	2	2	2	3	20	moderate
		posttest	1	1	1	1	1	1	1	1	2	1	2	13	Moderate
<b>24</b>	<b>experi</b>	pretest	2	0	2	1	2	1	1	1	1	2	2	15	moderate
		posttest	1	0	1	1	1	1	1	1	1	1	1	10	Mild
<b>25</b>	<b>experi</b>	pretest	3	1	3	2	2	2	1	2	2	2	3	23	Severe
		posttest	2	1	2	2	2	2	1	2	1	1	1	17	moderate
<b>26</b>	<b>experi</b>	pretest	2	0	1	1	0	1	1	1	1	2	1	11	mild
		posttest	1	0	1	1	0	1	1	1	1	1	1	09	mild
<b>27</b>	<b>experi</b>	pretest	3	2	2	1	2	1	2	2	2	2	2	21	moderate
		posttest	2	1	1	1	1	1	1	2	1	1	1	13	mild
<b>28</b>	<b>experi</b>	pretest	2	1	2	1	2	1	1	1	1	1	2	15	moderate
		posttest	1	1	1	1	1	1	1	1	1	1	1	11	mild
<b>29</b>	<b>experi</b>	Pretest score	3	1	2	1	1	1	1	2	2	2	2	18	moderate
		Posttest score	1	1	0	1	1	1	1	1	2	1	1	11	Mild
<b>30</b>	<b>experi</b>	pretest	2	1	3	1	2	2	1	2	2	1	3	20	moderate
		posttest	1	1	1	1	1	1	1	1	1	1	1	11	mild



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CHAPTER-I INTRODUCTION "Awareness is **the first step in** Healing.". 1.1 BACKGROUND OF THE STUDY Human life constitutes various specific stages, which each of has to pass through. The stage of the human life is very important and unique in nature as certain physical development takes place in its own way. There is no doubt that one stage of life is interconnected with the other. Midlife is a period of transition for both men and women. In literature women is quoted as "Kshamaya Dharithri", who plays versatile role in the entire life span. WHO defined menopause as the **permanent cessation of menstruation** due to loss of ovarian follicular activity.

The **average age of menopause in western world is 51 years** where **as in India it** is 44.3years with a life expectancy of 71 years. Menopause brings about many physical, physiological, psychological and social changes in a women's life and this worsens health related quality of life. Postmenopausal women can be considered a risk population even though menopause itself is not considered as a disease. Other changes are skin changes, locomotor system changes like menopausal arthropathy, osteoarthritis, fibrosis, backache may be age related.

(Mary Elizabeth 2017). Menopausal problems are treated by hormonal and non-hormonal therapies. **The most commonly used** hormone therapies are estrogen, progesterones, or combined progesterone therapy. The non-hormonal treatments include nutritional, diet like soyabean, green leafs and supplementary calcium and vitamins. The conventional **treatment for menopausal symptoms** was hormone replacement therapy. **Hormone replacement therapy may be good at relieving some of those torturous menopausal symptoms by replacing the lost hormones in the female body.**



**A STUDY TO ASSESS THE EFFECTIVENESS OF SOYA BEAN ON  
MENOPAUSAL SYMPTOMS AMONG POST MENOPAUSAL  
WOMEN AT GANAPATHY MAANAGAR IN  
COIMBATORE DISTRICT.**

