# A Study to Evaluate the Effectiveness of Soyabean Powder on Reduction of Perimenopausal Symptoms Among Women

## Nivedhapriya G[1], Jamilla Kingsley[2], Nirmala T[3]

[1]Lecturer, College of Nursing, SRIPMS, Coimbatore 641044
[2]Professor, College of Nursing, SRIPMS, Coimbatore 641044
[3]Principal, College of Nursing, SRIPMS, Coimbatore 641044

**ABSTRACT**

Perimenopause is a universal occurrence in all woman's life as they enter in their end of Reproductive years. Perimenopausal period last for numerous years. The changes that happen during this stage of women's life affect them to a variable extent. The aim of the study was to evaluate the effectiveness of soya bean powder on reduction of perimenopausal symptoms among women. Quasi experimental pre-test - post-test control group design was adopted in the study. Using non-probability purposive sampling technique 60 study participants were selected, and 30 each were assigned to the experimental group and the control group. The demographic variables, clinical variables and perimenopausal symptoms among experimental group and control group were assessed by using Modified Green Climacteric scale. Two tea spoons of manually prepared soyabean powder mixed with 50 ml of water was administered once daily for 21 days for experimental group. On 22$^{nd}$ day Post-test was done by using same tool. It was identified that the mean level of perimenopausal symptoms among women during pre-test and post-test were 20.0 and 14.7 respectively, with a mean difference of 5.7. The corresponding standard deviation of pre -test and post-test were 6.10 and 4.62 respectively. The calculated 't' value 5.56 was greater than the table value of 3.66 at 0.001 level of significance. Hence, it was concluded that the soya bean powder was effective on reducing perimenopausal symptoms among women.

**INTRODUCTION:**

Women play a vital role in contributing and preparing responsible citizens for the nation. The health of the women is an important component throughout the course of her life. Women's health focuses on the physical, psychological and social needs. They are having an important role in replenishing the earth but the reproductive capacity of women is not permanent, it ceases one day. The cessation of reproductive capacity is coined as "menopause". The menopause is a Greek word typically means "Meno" – month, "pause"- stop, that means the cessation of mensuration. (Dutta D C, 2016) The perimenopause is an ill-defined period of time that surrounds the final years of a woman's reproductive life. It begins with the first onset of menstrual irregularity and ends after one year of amenorrhea. Falling levels of hormone estrogen, which can give rise to vasomotor symptoms include hot flushes, night sweating and sleep disturbances, these are severe and disruptive. (WHO, 1996) 96% of women have menopausal complaints and their quality of life is affected not only physically but also psychologically and socially (Janabi, 2020)

## NEED FOR THE STUDY:

There are over 200 million postmenopausal women worldwide and 40 million in India. According to the WHO, by the year 2025 there will be 1.1 billion women above the age of 50 experiencing menopause and the average age of experiencing the symptoms of menopause is

47.5years. There are about 65 million Indian women over the age of 45 (Narayanabairy L, 2009) In tamilnadu the mean age of attaining menopause was 45.75 ± 3.83 years; 87% women were symptomatic with at least one symptom. Majority of women (78.2%) had psychosomatic symptoms followed by vasomotor symptoms (55.8%) (Ganitha G, 2017) Soya isoflavones may reduce the frequency and intensity of menopause related symptoms. The improvements are attributed to Phyto estrogenic factors in soya beans. (Manimegalai ,2012).

## STATEMENT OF THE PROBLEM

A Study to Evaluate the Effectiveness of Soyabean Powder on Reduction of Perimenopausal Symptoms among Women.

## OBJECTIVES:

- To assess the level of perimenopausal symptoms among women.
- To evaluate the effectiveness of soyabean powder on perimenopausal symptoms among women.
- To find out the association between perimenopausal symptoms and selected demographic and clinical variables.

## OPERATIONAL DEFINITION:

**Effectiveness**

It refers to the change in the intensity of perimenopausal symptoms among women before and after administration of soya bean powder as measured by the Modified Greene Climacteric Scale.

**Soya bean powder**

It refers to a supplementation of 2 tea spoons of manually prepared soybean powder administering once daily for 21 days.

**Perimenopausal symptoms**

It refers to the symptoms that occur before menopause such as hot flushes, night sweats, insomnia, mood swings. which will be assessed using Modified Greene Climacteric Scale.

**Women**

It refers to the women in the age group of 40-50 years.

## HYPOTHESIS:

**H1** - There is a significant difference in the level of perimenopausal symptoms before and after Administration of soyabean powder in experimental group.

**H2** - There is a significant difference in the level of perimenopausal symptoms after administration of soyabean powder between experimental group and control group.

**H3** - There is a significant association between level of perimenopausal symptoms with selected demographical and clinical variables.

**METHEDOLOGY**:

**RESEARCH APPROACH**

Quantitative approach.

**RESEARCH DESIGN**

Pre-test post-tests control design.

**RESEARCH SETTING**

Sri Ramakrishna hospital

**TARGET POPULATION**

Women who are working at Sri Ramakrishna hospital, Coimbatore

**ACCESSBILE POPULATION**

Women between 40-50 years of age group who were working at Sri Ramakrishna Hospital.

**SAMPLING TECNIQUE**

Non probability purposive sampling.

**SAMPLING SIZE**

60 women who were worked at Sri Ramakrishna hospital.

**CRITERIA FOR SAMPLE COLLECTION**

**Inclusion Criteria**

- Women between 40 -50 years of age group.
- Women who are all willing to participate in the study.

**Exclusion Criteria**

- Women who are already consuming soya products regularly.
- Women who are on hormonal replacement therapy.
- Women who are having allergic reaction to soya products.
- Women with natural or surgical menopause

**VALIDITY**

The tools were validated by five subject experts in the field of Obstetrics and gynecological nursing.

**RELIABILITY**

- The reliability of the original Green Climacteric scale was R=0.70.
- The reliability of the Modified Green Climacteric scale was calculated by Test-Retest method and using Spearman-Brown prophecy formula (R= 0.92). It was considered to be highly reliable.

**ETHICAL CONSIDERATION**

- The proposed study was approved by IEC of Sri Ramakrishna Hospital, Coimbatore. A written permission was issued to proceed with the study.

- Informed consent was obtained from each study participants

## DATA COLLECTION INSTRUMENT

The main study was carried out on women employed at Sri Ramakrishna hospital, Coimbatore. A total of 60 samples from the age group of 40-50 years were selected through nonprobability purposive sampling, 30 each were assigned to the experimental group and control group. The researcher developed a rapport with the study participants. Informed consent was obtained from all the participants. The demographic data and clinical data were collected by researcher-made questionnaire, and Pre-test data were collected using Modified Green Climacteric scale through a structured interview method. The researcher administered 2 tea spoons of soya bean powder mixed with 50 ml of warm water once daily, after breakfast (mid-morning) for 21 consecutive days. Post-test was conducted on 22nd day using the same questionnaire (Modified green climacteric scale)

## DATA ANALYSIS AND INTERPRETATION

**Demographic variables of women**

**Table 1**

**(n=60)**

| S. NO | Demographic variables | Experimental group(n=30) | | Control group (n=30) | |
|---|---|---|---|---|---|
| | | Frequency | Percentage (%) | Frequency | Percentage (%) |
| 1 | **Age**<br>40-45<br>46-50 | 13<br>17 | 43.3<br>56.7 | 15<br>15 | 50<br>50 |
| 2 | **Educational status**<br>Uneducated<br>Schooling<br>Graduate<br>Post graduate | 4<br>21<br>5<br>0 | 13.5<br>70<br>16.7<br>0 | 1<br>15<br>13<br>1 | 3.3<br>50<br>43.3<br>3 |
| 3 | **Religious status**<br>Christian Hindu | 7<br>23 | 23.3<br>26.7 | 12<br>18 | 40<br>60 |
| 4 | **Monthly Income**<br>≤10000<br>>10000 | 9<br>21 | 30<br>70 | 3<br>27 | 90<br>10 |
| 5 | **Marital status**<br>Married<br>Unmarried<br>Widow<br>Divorced | 23<br>0<br>2<br>0 | 93.3<br>0<br>6.7<br>0 | 28<br>0<br>2<br>0 | 93.3<br>0<br>6.7<br>0 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | **Type of the family** Nuclear family Joint family | 22<br>8 | 73.3<br>26.7 | 21<br>9 | 70<br>30 |
| 7 | **Type of food** Vegetarian Non-vegetarian | 3<br>27 | 10<br>90 | 2<br>28 | 6.66<br>93.33 |
| 8 | **Residential area** City Village | 24<br>6 | 80<br>20 | 19<br>11 | 63.3<br>36.7 |

**Clinical variables of women:**

**Table 2**

**(n=60)**

| S. NO | Clinical Variables | Experimental group(n=30) | | Control group (n=30) | |
|---|---|---|---|---|---|
| | | Frequency | Percentage (%) | Frequency | Percentage (%) |
| 1 | **Age at menarche** Before 13 years After 13 years | 13<br>17 | 43.3<br>56.7 | 7<br>23 | 23.3<br>76.7 |
| 2 | **Mensural pattern** Regular Irregular | 21<br>9 | 70<br>30 | 18<br>12 | 60<br>40 |
| 3 | **Bleeding patten** Mild Moderate Heavy | 8<br>15<br>7 | 26.7<br>50<br>23.33 | 6<br>15<br>9 | 20<br>50<br>30 |
| 4 | **Number of children** One | 11 | 36.7 | 10 | 33.33 |
| | Two >Two No child | 18<br>0<br>1 | 60<br>0<br>3.3 | 16<br>1<br>3 | 53.33<br>3.33<br>10 |
| 5 | **Duration of symptoms <1 year 2 years >3 years** | 18<br>10<br>2 | 60<br>33.3<br>7 | 17<br>10<br>3 | 56.7<br>33.3<br>10 |

| 6 | Comorbid illness  DM Hypertension Nil | 3 4 23 | 10 13.3 76.7 | 8 1 21 | 26.7 3.3 70 |
|---|---|---|---|---|---|

**Pre -test, post-test Level of Perimenopausal Symptoms among Experimental Group and Control Group:**

**Table 3**
**(n=60)**

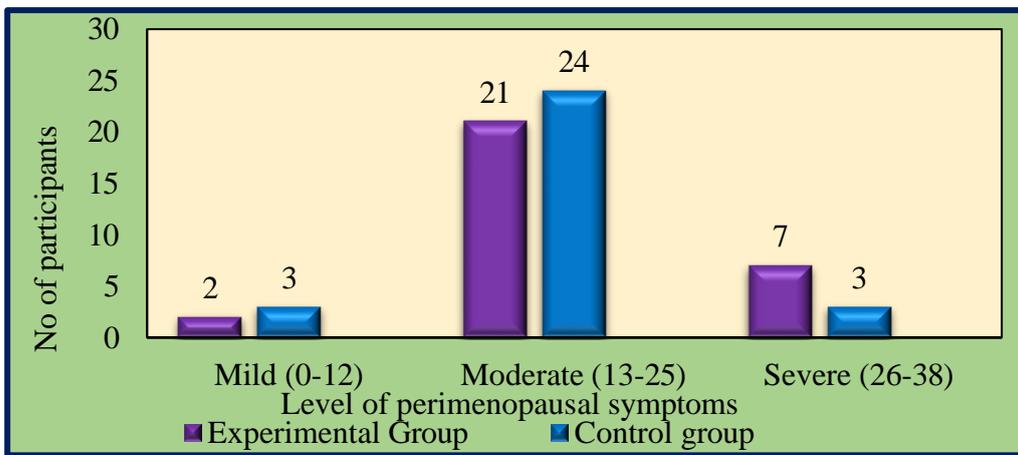| S. No | Level of perimenopausal symptoms | Experimental group (n=30) | | Control group (n=30) | |
|---|---|---|---|---|---|
| | | Pre test | Post-test | Pre test | Post-test |
| 1 | Mild (0-12) | 2 | 11 | 3 | 3 |
| 2 | Moderate (13-25) | 21 | 18 | 24 | 21 |
| 3 | Severe (26-38) | 7 | 1 | 3 | 6 |



**Figure 1: Pre -test level of perimenopausal symptoms among experimental group and control group**
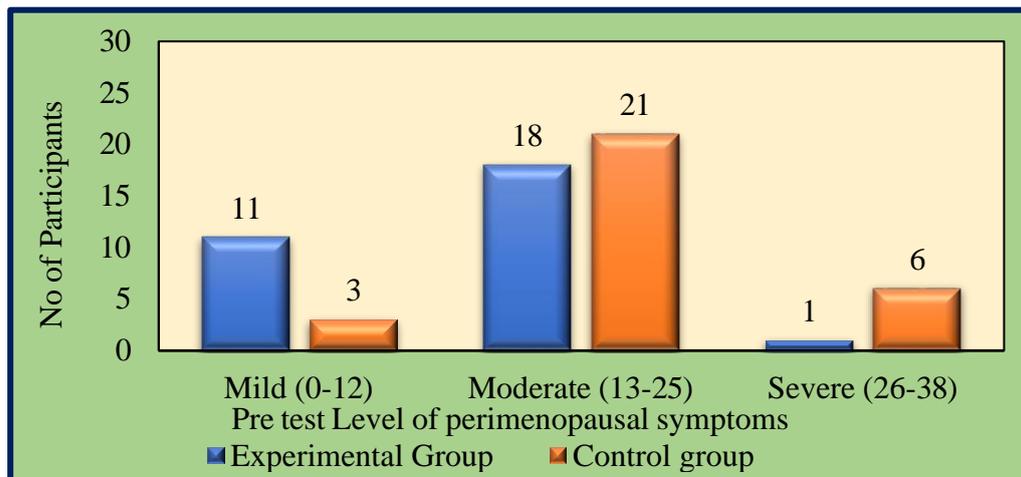
**Figure 2: Post -test Level of perimenopausal symptoms among Experimental group and control group**

The above table 3 depicts, that the pre-test and post-test level of perimenopausal symptoms in the experimental group and control group. In experimental group pre-test 21 women were had moderate perimenopausal symptoms, 7 (23.3%) of them had severe perimenopausal symptoms and 2 (6.66%) of them had mild perimenopausal symptoms. In post- test 18 (60%) had moderate perimenopausal symptoms, 11 (36.7%) of them had mild perimenopausal symptoms and 1(3.3%) of them had severe perimenopausal symptoms. In control group pre-test 24 (80%) women were had moderate perimenopausal symptoms, 3 (10%) of them had mild and severe perimenopausal symptoms respectively. In post test 21 (70%) had moderate perimenopausal symptoms. 6 (20%) of them had severe perimenopausal symptoms and 3 (10%) of them had mild perimenopausal symptoms.

**Analysis on the Effectiveness of soyabean powder on reduction of perimenopausal symptoms before and after intervention in experimental group**

**Table 4**

**(n=30)**

| Experimental group | Mean | Standard deviation | Mean difference | 't' Value | Table value |
|---|---|---|---|---|---|
| Pre test | 20.3 | 6.10 | 5.7 | 5.56*** | 3.66 |
| Post test | 14.7 | 4.62 | | | |

*** Significance at 0.001 level

Paired 't' test was used to evaluate the level of perimenopausal symptoms among women in experimental group before and after the intervention. It was identified that the mean level of perimenopausal symptoms among women during pre-test and post-test were 20.0 and 14.7 respectively, with a mean difference of 5.7. The corresponding standard deviation of pre -test and post-test were 6.10 and 4.62 respectively. The calculated 't' value 5.56 was greater than the table value of 3.66 at 0.001 level of significance. Hence, the hypothesis H1: "There is a significant difference in the level of perimenopausal symptoms before and after the administration of soyabean powder in experimental

group" was accepted. It was inferred that there was a reduction in the level of perimenopausal symptoms among women in experimental group. Which was significant to the administration of soya bean powder.

**Comparison of perimenopausal symptoms among women between experimental group and control Group**

**Table 5**

**(n=60)**

| Group | Mean | Standard deviation | Mean difference | 't' Value | Table value |
|---|---|---|---|---|---|
| Experimental group | 14.7 | 4.63 | 2.84 | 3.64*** | 3.29 |
| Control group | 21.03 | 7.47 | | | |

\*\*\* Significant at 0.001 level

Student 't' test was used to evaluate the level of perimenopausal symptoms in the experimental group and control group. It was identified that the mean level of perimenopausal symptoms among women during post-test in the experimental group and control group were

14.7 and 21.03 respectively, with a mean difference of 2.84. The corresponding standard deviation of experimental group and control group were 4.63 and 7.47 respectively. The calculated 't' value 3.64 was greater than the table value of 3.29 at 0.001 level of significance. Hence, the hypothesis H2: "There is a significant difference in the level of perimenopausal symptoms after the administration of soyabean powder between experimental and control group" was accepted. It was inferred that there was a reduction in the level of perimenopausal symptoms among women in experimental group and control group. Which was significant to the administration of soya bean powder.

## LIMITATION

- Sample size of the study was small which limits the generalization of the study findings.
- The study was limited to the women who working at Sri Ramakrishna hospital, Coimbatore

## RECOMMENDATIONS

- The study can be replicated in different settings like gynaecological out-patient department and community areas.
- The study can be replicated with large number of samples which would facilitate the generalization of findings.
- A similar study can be conducted for longer period of time

## NURSING IMPLICATION

### Nursing Education

Menopause and its related issues should be a part of curriculum in subjects such as obstetric and gynaecological nursing. Nursing students should be educated about natural remedies, for menopause as they take care of the women who undergo this transition. Nursing Students can be motivated to conduct mass awareness programs on menopausal symptoms and management in rural areas.

### Nursing Administration

Nursing administrators should take interest in formulating principles and adapting the various modalities of treatment for menopausal symptoms. The administrators have responsibility to provide nurses with substantive continuing education programmes on management of perimenopausal symptoms with supportive treatments like soya bean powder supplementation. The nurse administrator should provide opportunities to the staff to attend training program on complementary and alternative therapy for reducing perimenopausal symptoms. She should make arrangement of food exhibitions in the outpatient department.

**Nursing Practice**

The clinical nurse should know the benefit of soya bean powder on perimenopausal symptoms. She has to motivate the women to take soya bean products on their diet. Nurse can use evidenced based practice in improving and standard of care. The nurses should be aware of the range of options available and be able to discuss their advantages and disadvantages. As a nurse counsellor she can conduct individual and group menopausal counselling to the women with menopausal symptoms regarding the modalities to improve their quality of life.

**Nursing research**

The study was evaluated the effectiveness of soya bean powder on reduction of perimenopausal symptoms. It can be used as the evidence-based practice for managing the perimenopausal symptoms. Similar studies can be undertaken for reducing the perimenopausal symptoms among women in different settings.

**CONCLUSION:**

There are more than 200 million women were experiencing difficulties during the menopausal transition with the symptoms such as hotflushes and night sweats, etc. According to the results of the present study, the women in the perimenopausal period who are consuming soya bean had significant reduction in level of perimenopausal symptoms. Hence, the researcher suggests that the nurse has to create awareness and provide education regarding the benefit of soya bean in alleviating the perimenopausal symptoms among the women. This will improve the quality of life of perimenopausal women.

**REFERENCES:**

1. Dutta, D.C. Hiralar Konar (2016) Text Book of Obstetrics, Jaypee Publications 9th edition.
2. Suresh K Sharma (2020), Text book of nursing research and statistics, 3rd Edition, Elsevier publications.
3. World health organization on menopause (2022) https://www.who.int/news-room/fact-sheets/detail/menopause
4. Sajitha S (2017). Menopause related symptoms and their correlates: a community based cross sectional study in Kollam district, Kerala.
5. Rathnayake N (2019) Prevalence and Severity of Menopausal Symptoms and the Quality of Life in Middle-aged Women Nursing Research and Practice Article ID 2081507, 9 pages.
6. https://doi.org/10.1155/2019/2081507
7. Narayanbairy L, Shalini, Parvathibhat, Rajeshwari Bhat (2009) Prevalence of menopausal symptoms and quality of life after menopause in women from South India.
8. https://doi.org/10.1111/j.1479-828X.2009.00955.x

9. Ganitha G, Premalatha PB Iyanar, Kannan, (2017) A Study of the Age of Menopause and Menopausal Symptoms among Women in a Rural Area of Tamil Nadu, India, Journal of SAFOMS, volume 5, pages :87-91,10.5005/jp-journals-10032-1113