Research Article

An Experimental Study to Evaluate the Efficacy of Soyabeans on Menopausal Symptoms among Post-Menopausal Women at Selected Area of Hubballi

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Abstract
Background: Transition of menopause is related to different physical and mental changes that may affect women's health. A growing range of complementary and alternative medicines have flooded the market and are commonly used to treat problems with menopause. Hence it has been contributed to the widespread use of non-hormonal soy therapies to treat menopausal symptoms with clinical proof of their effectiveness.
Objective: The objective of the study was to evaluate the effectiveness of Soyabeans on menopausal symptoms in post-menopausal women in terms of alleviation menopausal symptoms.
Methodology: An evaluative study was conducted among 20 post-menopausal women of selected areas of Hubballi. The research design used for the study was pre-experimental; one group pre-test, post-test design. Samples were selected by using non-probability: convenient sampling. Structured interview schedule was used for obtaining the post-menopausal symptoms.
Results: The study results revealed that most of the subjects in pre-test, 16(80%) had severe symptoms and 04(20%) had moderate symptoms where after administration of soyabean juice in post-test, majority of the subjects 10(50%) had moderate symptoms, 08(40%) had mild symptoms and 02(10%) had severe symptoms. In regards with level of menopausal symptoms among postmenopausal women, in pre-test the mean score (34.3±1.73) which was 62.36% for the area of physiological symptoms and mean score (23.5±1.36) was for the area of psychological symptoms which was 59%. Whereas during post-test, the mean score (24.8±1.98) for physiological symptoms which was 45.09% and mean score (14.7±1.55) for psychological symptoms which was 37%. With regards to Comparison of mean and standard deviation of post-menopausal symptoms using paired 't' test, the calculated' value t=19* was greater than the tabulated value (tab= 1.729) at the level of p<0.05. This showed there was a significance differences between pre-test and post-test mean scores of post-menopausal symptoms. Hence it was concluded that the soyabean has significantly reduced post-menopausal symptoms. Therefore, H_1 was accepted. With regard to statistical association, there was no statistical association between pre-test scores regarding the level of symptoms among post-menopausal women with their selected socio-demographical variables. Hence H_2 was rejected.
Conclusion: The study concludes that intervention using soyabean juice was an effective in elevating post-menopausal symptoms and thus improving the quality of women's life.
Keywords: Menopausal women, soyabean juice, post-menopausal symptoms.

Introduction

Women are the creative force of the universe in almost all its expressions[1]. Biologically, life stages of a typical woman are divided into infancy, puberty (adolescence), sexual maturation (reproductive age), climacteric period, and post-climacteric (elderly) years. Life begins in her womb and it is in her guiding hands and tender care that it finds expression[2]. Woman has many hurdles in her life and may experience various turning points in their life cycle, which may be either developmental or transitional. Midlife is one such transitional period which brings about important changes in women during the reproductive age and it continue up to the transition of menopausal age[3]. Menopause is a normal part of life it is a milestone, just like

puberty it is not a disease or a condition. It is a transition between two phases of a woman's life. Even though it is the time of the woman's last period, symptoms may begin many years earlier[2]. Menopausal problems are inevitable and can lead to many physical, psychological and emotional problems. Soyabean consumption can reduce some of these menopausal problems. The average age of the final menstrual period (menopause) is age 51[4].

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 peri- menopausal and early postmenopausal periods[5]. The expert committee strongly recommends and stresses improvements in lifestyle as a key mode of care for menopause treatment recommendations diet-rich phytoestrogens, calcium, fiber, and low fat, especially saturated fats. Each of these should be initiated throughout childhood and adolescence and continue throughout life. Their benefits are minimal to no cost. These have also contributed to bone strength; cardiovascular disease, diabetes, and mood[6].

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 relay on soy isoflavones which are phytoestrogens having more closeness to oestrogen β receptors. They bind overtly to β receptors of estrogen and slightly to α receptors of estrogen, thus showing organ-specific estrogenic or antiestrogenic action by blocking the receptor of estrogen and obtaining weak estrogenic activity. Their high intake in the Japanese population has been accepted for lower rates of cardiovascular problems, death rates of breast and endometrial cancer, and lower VMS. Hence it has been contributed to the widespread use of non-hormonal soy isoflavone therapies to treat menopausal symptoms with clinical proof of their effectiveness[7]. Soybean or soya bean (glycine max) is a legume species that is commonly cultivated with more uses for its edible bean. Soya consists of the highest isoflavone concentration, i.e., up to 300 mg per 100 g. Witnessing the utility of isoflavones in the clinical treatment of menopausal problems such as hot flushes and vaginal dryness, the balance for soy consumption and its products has changed[8]. Based on various findings and research studies it was found that women do not have adequate knowledge regarding management to ease symptoms of menopause. In certain areas too, very few studies were conducted to understand the micro-level menopause symptoms and its difficulties hence all these instances made the investigator feel that it was necessary to conduct study and create awareness to the women about management of menopause symptoms and create awareness during menopausal transition for a better and happy life.

Problem Statement
An Experimental study to evaluate the efficacy of soyabeans on menopausal symptoms among post-menopausal women at selected area of Hubli.

Objectives of the study
1) To assess the menopausal symptoms in postmenopausal women.
2) To evaluate the efficacy of Soyabeans on menopausal symptoms in post-menopausal women in terms of alleviation menopausal symptoms.
3) To find out an associate between pre-test scores of menopausal symptoms in post-menopausal women with their selected demographic variables.

Material and Methods
Research approach: Evaluative Research Approach.
Research design: Pre-experimental; one group pre-test, post-test.
Research setting: selected areas of Hubballi.

Population
Target Population: Post-menopausal women.
Accessible Population: Post-menopausal women of selected area of Hubballi.

Sample and sampling technique
Sample: Post-menopausal women of selected area of Hubballi.
Sampling technique: Non probability: convenient sampling technique.

Sample size: 20

Criteria for selection of the sample
Inclusion criteria
Post-menopausal women who;
- ✓ are willing to participate.
- ✓ have age between 45-65 years.
- ✓ have attained natural menopause.

Exclusion criteria
Post-menopausal women who;
- ✓ have any medical illness.
- ✓ are not available during data collection period.
- ✓ are on hormone replacement therapy or any other treatment.

Description of the data collection tool
In this study the data collection tools were consisted of 2 parts covering the following areas.

Section I: Socio demographic variables of the samples
This part consists of 10 items for obtaining information about Socio-demographic variables such as age, religion, Educational status of mother, Monthly income of family (in Rupees), type of family, dietary pattern, Habitat, History of any medical Illness,History of Previous menstrual cycles and Sources of information.

Section-II: Modified Climacteric Scale Questionnaire
It includes assessing the post-menopausal symptoms through this scale.

Table 1. Score system of Modified Climacteric Scale Questionnaire by using 5-point scale.

Score system	
1	Not at all
2	Rarely
3	Sometimes
4	Frequently
5	Always

Results
The data was presented under the following sections:
Section I: Distribution of sample characteristics according to socio-demographic variables among the postnatal menopausal women.
Section II: Analysis and interpretation of level of post-menopausal symptoms of subjects who have participated in the study.
Section III: Testing Hypotheses.

Section I: Findings related to socio-demographic variables of subjects
In relation with age of women, most of the women 10(50%) were in the age group of 49-52 years, 6(30%) were in the age group of 53-56 years and 04(20%) were in age group of 45-48 years. In terms of religion, most of the subjects 11(55%) belonged to Hindu, 5(25%) belonged to Muslim, 4(20%) were belonged to Christian and no one belonged to other religion. With regards to educational status of the women, most of the subjects 11(55%) completed primary education, 05(25%) had secondary education, 2(10%) had pre-university and no formal education and no one have completed graduation. With regards to monthly family income (in Rs.), majority of the subjects 11(55%) belonged to family income of 10,000-20,000 rupees, 4(20%) belonged to family income of less than 10,000 and 20,000-30,000 rupees and 1(5%) had 30, 000 and above. In respect with type of family, 10(50%) belonged to nuclear family, and 10(50%) were from joint family. Regarding the dietary pattern, most of the subjects 13(65%) were vegetarian type and 7(35%) were Mixed. With regards to area of residency, majority of the subjects 11(55%) belonged to Rural area and 09(45%) were from Urban area. With regards to history of medical illness, most of the subjects 13(65%) had medical illness and 07(55%) had no history of medical illness. With regards to number of parity, majority of the subjects 08(40%) had three children, 05(25%) had one child, 04(20%) had two children and 03(15%) had more than three children.

Section II: Analysis and interpretation of level of post-menopausal symptoms of subjects who have participated in the study

Table 2. Frequency and percentage distribution of level of menopausal symptoms (n=20).

Level of symptoms	Pre-test		Post-test	
	f	%	f	%
Mild	-	-	8	40%
Moderate	4	20%	10	50%
Severe	16	80%	2	10%

Table 2 shows that, majority of the subjects 16(80%) had severe symptoms and only 04 (20%) had moderate symptoms in pretest where in post-test majority of the subjects 10(50%) had moderate symptoms, 08(40%) had mild symptoms and 02(10%) had severe symptoms.

Table 3. Area wise Mean, SD and Mean percentage on Level of menopausal symptoms among postmenopausal women (n=20).

Area	Maximum Score	Pre-test			Post-test			Difference in Mean Score
		Mean	SD	Mean %	Mean	SD	Mean %	
Physiological symptoms	55	34.3	1.73	62.36	24.8	1.98	45.09	9.5
Psychological symptoms	40	23.5	1.36	59	14.7	1.55	37	8.8
Overall	95	57.8	2.19	61	39.5	2.51	41	18.3

Table 3 shows that in pre-test the higher mean score (34.3±1.73) which was 62.36% for the area of physiological symptoms and lower mean score (23.5±1.36) was for the area of psychological symptoms which was 59%. Whereas during post-test, the mean score (24.8±1.98) for physiological symptoms which was 45.09% and lower mean score (14.7±1.55) for psychological symptoms which was 37%.

Section III: Testing Hypotheses
H_1: There will be a statistical difference in post-test and pre-test scores regarding level of post-menopausal symptoms in experimental group at 0.05 level of significance.

Table 4. Comparison of mean and standard deviation of post-menopausal symptoms using paired 't' test (n=20).

Area	Pre-test		Post-test		Calculated 't' value	Table value
	Mean	SD	Mean	SD		
Physiological symptoms	34.3	1.73	24.8	1.98	19*	1.729
Psychological symptoms	23.5	1.36	14.7	1.55		

Table 4 reveals that, the calculated' value (t= 19*) was greater than the tabulated value (tab= 1.729) at the level of p<0.05. This showed there was a significance differences between pre-test and post-test mean scores of post-menopausal symptoms. Hence it is concluded that the soyabean has significantly reduce post-menopausal symptoms. Therefore, H_1 was accepted.

H_2: There will be a statistical association between pre-test scores regarding the level of postmenopausal symptoms after taking soyabeans with their selected socio- demographical variables at 0.05 level of significance.

There was no statistical association between pre-test scores regarding the level of symptoms among post-menopausal women with their selected socio-demographical variables. Hence H_2 was rejected.

Discussion
In relation with age of women, most of the women 10(50%) were in the age group of 49-52 years, 6(30%) were in the age group of 53-56 years and 04(20%) were in age group of 45-48 years. These findings were

supported by Kapur et al. who observed that majority of women 20(50%) were in the age group of 51-53 years,4(20%) were in the age group of 54-56 years and 06(30%)were in age group of 48-50 years[9]. In terms of religion, most of the subjects 11(55%) belonged to Hindu, 5(25%) belonged to Muslim, 4(20%) were belonged to Christian and no one belonged to other religion. These findings were supported by Singh and Pradhan who observed that majority subjects 21(55%) belonged to Hindu, 15(25%) belonged to Muslim, 14(20%) were belonged to Christian and no one belonged to other religion[10]. With regards to source of information maximum subjects 13(75%) received information from peer group, 03(15%) received information from Electronic media and 02(10%) had received information from new age media. These findings were contradicted by a study conducted by Dasgupta et al. who found that maximum subjects 23(75%) received information from new age media and electrical media, 06(15%) received information from peer group and 01(10%) received information from Print media.[11]

Majority of the subjects 16(80%) had severe symptoms and only 04 (20%) had moderate symptoms in pre-test where in post-test majority of the subjects 10(50%) had moderate symptoms, 08(40%) had mild symptoms and 02(10%) had severe symptoms. These findings were supported by Manimegalai who found that in pre-test 35(58%) postmenopausal women had moderate symptoms and 25(42%) had severe symptoms, whereas in post-test majority 58(97%) had moderate symptoms and only 2(3%) had mild symptoms and none of them had severe menopausal symptoms.[12] In pre-test the higher mean score (34.3±1.73) which was 62.36% for the area of physiological symptoms and lower mean score (23.5±1.36) was for the area of psychological symptoms which was 59%. Whereas during post-test, the mean score (24.8±1.98) for physiological symptoms which was 45.09% and lower mean score (14.7±1.55) for psychological symptoms which was 37%.

The calculated' value (t=19*) was greater than the tabulated value (tab= 1.729) at the level of $p<0.05$. This showed there was a significance differences between pre-test and post-test mean scores of post-menopausal symptoms. Hence it was concluded that the soyabean has significantly reduce post-menopausal symptoms. Therefore, H_1 was accepted. These findings were supported by Manimegalai who found that 't' value of 29.22 at $P<0.05$ level suggests that soybeans had significant effect on menopausal symptoms among postmenopausal women.[12]

Conclusion
On the basis of the findings, the following conclusions were drawn. The overall pre-test menopausal symptom score was moderate to severe. The post-test menopausal symptom score of postmenopausal women who were taken soyabean extract showed significant reduction in menopausal symptom.

Implications of the Study
The findings of the study have implications for Nursing Education, Practice, Research and administration. Based on the study results, the nurses can organize awareness campaign through different media to increase the awareness regarding Soyabean extract. And can be used by the nurse educators as a herbal remedy to teach women for better & easy management of postmenopausal symptoms.

Declarations
Conflict of Interest: There are no conflicts of interest.
Ethical Approval: The proposal for the study was approved by the Institutional Review Board of the KLE'S Institute of Nursing Sciences, Hubballi.
Informed Consent: The researcher approached all the post-menopausal women of selected area of Hubballi and explained the nature of the study to them. They were informed that participation in the study was voluntary and they could withdraw from it at any time. Anonymity and confidentiality of the collected data were also assured. Opportunities for asking questions about the study were provided. Post-menopausal women were asked to sign the consent form. All data collected were kept strictly confidential.
Author Contributions: The authors confirm sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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