



Original Research Article

Effectiveness of Soyabean Consumption in Reducing Menopausal Symptoms among Women of Selected Areas in Mangalore

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Received: 13/01/2015

Revised: 14/04/2015

Accepted: 17/04/2015

ABSTRACT

Background of the Study: Menopause is a unique stage of female reproductive life cycle, a transition from reproductive to non reproductive stage. Menopause may be smooth experience for some women with only symptom of cessation of menstrual flow while others face one or more of post menopausal symptom. These symptoms can lead to lot of physiological, psychological and emotional stress to women in this period. It is therefore essential to reduce these menopausal symptoms to make the women live better life in this age.

Objectives of the study

1. To determine the level of menopausal symptoms among experimental and control group women before soyabean consumption.
2. To evaluate the effectiveness of soyabean consumption in reducing menopausal symptoms among women in experimental group.
3. To find the association of menopausal scores prior to the soyabean consumption among women with selected variables.

Methodology: A quasi experimental, non-equivalent control group design was performed in 60 menopausal women selected using convenient sampling technique in selected villages in Mangalore. Data was collected using baseline proforma and menopausal rating scale. The pre-test menopausal symptoms were assessed in both groups. Soyabean consumption was given for 21 days for experimental group and post-test was done after 21 days in both the groups.

Results: In pre-test 83.3% of had mild symptoms and remaining had moderate menopausal symptoms in both the groups. In the post-test 90% of women had mild symptoms and 10% had no menopausal symptoms in experimental group. Whereas in control group 86.7% had mild symptoms and 13.3% had moderate symptoms. There was the significant difference between the pre-test and post-test score of menopausal symptoms in experimental and control group ($P < 0.05$).

Conclusion: Hence the researcher concluded that there is significant reduction in menopausal symptoms after consumption of soyabean.

Keywords: Menopause, Menopausal rating scale, Menopausal symptoms, Soyabean consumption, Women

INTRODUCTION

Women experience various turning points in their life cycle, which may be

developmental or transitional. Midlife is one such transitional period which brings about important changes in women. In this

transitional stage one of the important changes that occur in women's life is menopause. Menopause is an unavoidable change of female reproductive life cycle, that every woman experiences, in her middle age and beyond. [1] It is the permanent cessation of the primary functions of the human ovaries. The ripening and release of ova and the release of hormones cause both the creation of the uterine lining and the subsequent shedding of the uterine lining. It typically occurs in women in midlife, during their late forty's or early fifty's, and indicates the end of the fertile phase of a woman's life. [2]

It is estimated that there are over 200 million post-menopausal women worldwide and 40 million in India. According to Indian menopause society there are about 65 million Indian women over the age of 45 and it is estimated that, in the year 2026, menopausal population will be 103 million. The average age of Indian menopausal women is 47.5 years. [3]

Menopause affects every woman differently. Some women have no symptoms, but some have changes in several areas of their life. The emotional and psychological changes often start years before the 'official' start of menopause. During menopausal transition there are a lot of fluctuations in the hormone levels and thus the women may experience many symptoms like hot flushes, night sweating, problems in vagina and bladder, changes in sexual desire, sleep problems, mood swings, changes in body etc. [4] Menopausal symptoms affect about seventy percent of women approaching menopause. [3]

There are several home remedy methods and alternative therapies to reduce menopausal symptoms and soyabean consumption is said to be one of them. Soyabean is commonly called wonder bean since it is of excellent source of nutrients such as Proteins, Fats, Carbohydrates, Vitamins and Minerals. Soya has received

attention as an alternative to conventional hormone replacement therapy largely because it is a unique dietary source of Isoflavones. Soyabean is a natural compound from a plant that acts like oestrogen in the body and is called phytoestrogen. [5]

The above factors show that menopause is an unavoidable change in every woman's life. During the middle age it is essential to lead a meaningful and healthy life. But majority of the woman suffer in this age due to menopausal symptoms. Soyabean plays a major role in maintaining health especially during menopause. Many of the women are unaware about the role of soyabean in the maintenance of health. Hence, this study aims to assess the effectiveness of soyabean in reducing the menopausal symptoms among menopausal women.

Objectives of the study

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MATERIALS AND METHODS

Methods

The evaluative approach was adopted in this study. A quasi experimental, non-equivalent control group design was performed in 60 menopausal women (30 in experimental and 30 in control group) selected using convenient sampling technique in Kasaba Bengre and Thota Bengre community area, Mangalore. The pre-test menopausal symptoms levels were

assessed in both groups. Soyabean consumption was given for 21 days for experimental group only. After 21 days post-test level of symptoms were assessed in both the groups.

Materials

A structured interview schedule was used as a tool for data collection. The structured interview schedule comprised of Part I and Part II. Part- I consisted of demographic proforma and Part- II consisted of menopausal rating scale developed by Heinemann (2003).^[6]

Validity, Reliability of the Tool and Pilot Study

Content validity of the tool was established with the help of experts form related field. Pretesting of the tool revealed that there was no any difficulty in the tool. The reliability of the menopausal rating scale with Cronbach alpha was 0.82 which indicated that the tool was highly reliable. Pilot study was conducted on 10 samples having the same sample characteristic. The data obtained were analyzed in terms of the objectives by using descriptive and inferential statistics. After conducting the pilot study, it was found that the study was feasible and researchable.

Inclusion criteria:

- Women between forty-five to fifty years of age having mild and moderate menopausal symptoms will be included in the study.
- Ability to speak and understand the local language Kannada.

Exclusion criteria:

- Women under hormonal therapy.
- Women having any other treatment for menopausal symptoms.
- Women who are allergic to soyabean.

Data Collection

Data was collected from 16th June to 6th July 2014. Prior to the data collection, permission was obtained from the concerned institution and District Health Officer,

Mangalore. Informed consent was obtained from the participants. They were also assured for the confidentiality of the information. The total time duration taken for each interview was 30 minutes. Pretest level of menopausal symptoms were assessed from both the groups. In the experimental group, 50 gm of cooked soyabean was given for 21 days. After 21 days post-test was done in both the group.

Data Analysis

Data was analyzed using descriptive and inferential statistics. Frequency and percentage distribution was used to summarize the baseline data. Mean, standard deviation, mean percentage and “t” test was used to evaluate the effectiveness of soyabean consumption. Association between menopausal score and selected variables was calculated using Chi-square test and Fishers exact test.

RESULTS

Part I: Description of Demographic Proforma of Women

In experimental group more than half (56.7%) of samples were in the age group of 45-50 years, most of them (76.7%) were hindu, 46.7% had primary education and 56.7% had monthly income less than Rs. 5000. In control group more than half (60%) of samples were in the age group of 45 to 55 years, all of them were muslim, most of them (56.7%) had primary education and 70% had monthly income less than Rs. 5000. More than half of the participants were unemployed, had menarche at 13 years and maximum (93.3%) women in both the group had regular menstrual pattern. Equal number of women in both the groups had four to six number of pregnancies and about half of the women 46.7 percent of women had 1-3 years of post-menopausal duration in both the groups. Ninety percent of the women did not undergo any uterus/ovary related surgeries. None of the women is having smoking habit,

alcoholism, regular exercise and information regarding soyabean consumption in both the

experimental and control group. The detail information is displayed in table 1.

TABLE 1: Frequency and Percentage distribution of demographic characteristic of the samples n=60

Sl.No	Variable	Experimental Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
1	Age Group				
	45-50	17	56.7	18	60.0
	51-55	13	43.3	12	40.0
2	Relegion				
	Hindu	23	76.7	0	0.0
	Muslim	0	0.0	30	100.0
	Christian	7	23.3	0	0.0
3	Educational Status				
	Non formal education	9	30.0	17	56.7
	Primary education	14	46.7	12	40.0
	High school	7	23.3	1	3.3
	Higher secondary	0	0.0	0	0.0
	Degree and above	0	0.0	0	0.0
4	Occupation				
	Unemployed	17	56.7	25	83.7
	Employed	13	43.3	5	16.3
5	Family income per month				
	<5000	17	56.7	21	70.0
	5001-8000	9	30.0	3	10.0
	8001-10000	4	13.3	2	6.7
	>10001	0	0.0	4	13.3
6	Type of family				
	Nuclear	25	83.3	13	43.3
	Joint	5	16.7	17	56.7
	Extended	0	0.0	0	0.0
7	Food Habit				
	Vegetarian	0	0.0	0	0.0
	Non Vegetarian	30	100.0	30	100.0
8	Age at menarche(in years)				
	13	17	56.7	12	40.0
	14	7	23.3	7	23.3
	15	4	13.3	4	13.3
	16	2	6.7	7	2.3
9	Menstrual Pattern				
	Regular	28	93.3	28	93.3
	Irregular	2	6.7	2	6.7
10	No. of Pregnancies				
	1-3	9	30	3	10
	4-6	17	56.7	15	50
	7-9	4	13.3	9	30
	10-12	0	0	3	10
11	Smoking				
	Yes	0	0.0	0	0.0
	No	30	100.0	30	100.0
12	Alcohol				
	Yes	0	0.0	0	0.0
	No	30	100.0	30	100.0
13	Post menopausal Duration				
	1-3	14	46.7	14	46.7
	4-6	13	43.3	7	23.3
	7-9	3	10.0	6	20.0
	10-12	0	0.0	3	10.0
14	Regular Exercise				
	Yes	0	0.0	0	0.0
	No	30	100.0	30	100.0
15	Surgeries related to ovary/uterus				
	Yes	3	10.0	6	20.0
	No	27	90.0	24	80.0
16	Information related soyabean consumption				
	Yes	0	0.0	0	0.0
	No	30	100.0	30	100.0

Part II: Level of Menopausal Symptoms among Women in Control and Experimental Group

Findings exposed that 83.3% of the participants had mild menopausal symptoms and 16.7% had moderate menopausal symptoms in both the groups in the pretest assessment. In the post-test assessment, 90% had mild symptoms and 10% had no symptoms in experimental group whereas,

86.7% had mild symptoms and 13.3% had moderated symptoms in control group.

Findings of this study discovered that the mean of pre-test level of menopausal symptoms was found to be 8.9 ± 4.14 and 9.06 ± 4.38 respectively in experimental and control groups. The post test assessment divulged that mean score of menopausal symptoms is 3.36 ± 3.01 and 9.2 ± 4.09 . The detail information is shown in table 2.

Table 2: Effectiveness of soyabean consumption within and between the groups. n=60

Group	Pretest			Post test			Paired "t" test	Unpaired "t" test
	Mean	Median	SD	Mean	Median	SD		
Experimental	8.9	8	4.14	3.36	3	3.01	10.292 (p < 0.001)	9.833 (p < 0.001)
Control	9.06	8	4.38	9.20	7.5	4.09	0.643 (p = 0.526)	

Table 3: Association of pre-test level of menopausal symptoms with selected variables. n=60

Sl. No.	Variables	<Median	>median	χ^2 value	P value
Age (in years)					
45-50		11	6	1.033	0.310 (NS)
b) 51-55		6	7		
Age at menarche					
12		9	8	0.222	6.638 (NS)
13		8	5		
14					
15					
Menstruation pattern					
Regular		15	13	0.313	0.05 (NS)
Irregular		2	0		
Number of pregnancies					
1-3		5	4	0.00	1.00 (NS)
4-6		12	9		
7-9					
10-12					
Postmenopausal duration					
1-3		9	5	.621	.431 (NS)
4-6		8	8		
7-9					
d) 10-12					
Surgeries related to uterus/ovary					
Yes		2	1	0.000	1.00 (NS)
No		15	12		

df=1, NS=Not Significant

Part III: Effectiveness of soyabean consumption in reducing menopausal symptoms

The computed value of paired "t" test for the level of menopausal symptoms in experimental group was 10.292 (p = 0.001)

which is highly significant. This reveals that soyabean consumption is effective in reducing the menopausal symptoms. Contradictory to this, the computed value of paired "t" test for the level of menopausal symptoms in control group was 0.643 (p = 0.526) which is statistically not significant at 0.05 level.

The Unpaired "t" test value of the difference of pre-test and post-test score of experimental and control group was found to be 9.833 (p = 0.001) which shows the high significance. Hence it is concluded that there was significant reduction in the level of menopausal symptoms among women in experimental group and the consumption of soybeans is effective.

Part IV: Association between the level of menopausal symptoms and selected variables

The present study divulged that there is no association of the pre-test level of menopausal symptoms with the selected variables like age at menarche, menstrual pattern, number of pregnancies, surgery related to ovary or uterus, and post-menopausal duration since the 'p' value is

greater than that of 0.05 level of significance. Detail information is displayed in table 3.

DISCUSSION

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. Menopausal problems are inevitable and can lead to many physical, psychological and emotional problems. Soyabean consumption can reduce some of these menopausal problems.

Section I: Demographic Proforma of Women

In experimental group more than half (56.7%) of samples were in the age group of 45-50 years, most of them (76.7%) were hindu, 46.7% had primary education and 56.7% had monthly income less than Rs. 5000. In control group more than half (60%) of samples were in the age group of 45 to 55 years, all of them were muslim, most of them (56.7%) had primary education and 70% had monthly income less than Rs. 5000. More than half of the participants were unemployed, had menarche at 13 years and maximum (93.3%) women in both the group had regular menstrual pattern. Equal number of women in both the groups had four to six number of pregnancies and about half of the women 46.7 percent of women had 1-3 years of post-menopausal duration in both the groups. Ninety percent of the women did not undergo any uterus/ovary related surgeries. None of the women is having smoking habit, alcoholism, regular exercise and information regarding soyabean consumption in both the experimental and control group.

A similar study was conducted at Mangalore revealed that, majority of women both in rural area (60%) and urban area (58%) belonged to the age group of 40-45

years. Maximum number of Women from both rural area (58%) and urban area (62%) belonged to Hindu religion. Greater percentage of women in rural area (40%) was illiterates, primary and graduates, 14% had higher secondary and only 2% had professional education. [7]

Section II: Level of Menopausal Symptoms among Women In Control and Experimental Group

Result exposed that majority of the participants (83.3%) had mild menopausal symptoms in both the groups in the pretest assessment. In the post-test assessment, 90% had mild symptoms in experimental group whereas, 86.7% had mild symptoms in control group. This findings is similar to a study conducted at Mangalore which also depicted that 55.6%, 24.8% and 19.7% experienced mild, moderate and severe symptoms respectively. Those who are having Moderate and severe symptoms are taken consideration in the study. [7]

Findings of this study also disclosed that the mean of pre-test level of menopausal symptoms was found to be 8.9 ± 4.14 and 9.06 ± 4.38 respectively in experimental and control groups. The post test assessment divulged that mean score of menopausal symptoms is 3.36 ± 3.01 and 9.2 ± 4.09 . This revealed that the menopausal symptoms were reduced after the soyabean consumption in the experimental group. Correspondingly, a study conducted at Mangalore portrayed that the mean post-test scores of the subjects in the quality of life was 59.43 that was significantly greater than the mean pre-test score of 53.89 and the mean post-test scores in the menopausal symptoms was 16.82 which was significantly lower than the mean pre-test score of 21.82. [7]

Section III: Effectiveness of soyabean consumption in reducing menopausal symptoms

There was a significant difference between the level of menopausal symptoms

in experimental ($t = 10.292$, $p=0.001$). This revealed that soyabean consumption was effective in reducing the menopausal symptoms. Incongruous to this, the computed 't' value for the level of menopausal symptoms in control group was 0.643, ($p =0.526$) is statistically not significant at 0.05 level. There was difference of pre-test and post-test score of experimental and control group ($t = 9.833$, $p = 0.001$). Hence it is concluded that there was significant reduction in the level of menopausal symptoms among women in experimental group. A similar study was conducted at Manipal to evaluate the effectiveness of soya isoflavin therapy on menopausal symptoms and the result revealed a statistically significant reduction in menopausal symptoms.^[8]

Section IV: Association between the level of menopausal symptoms and selected variables

The present study divulged that there is no association of the pre-test level of menopausal symptoms with the selected variables like age at menarche, menstrual pattern, number of pregnancies, surgery related to ovary or uterus, and post-menopausal duration since the 'p' value is greater than that of 0.05 level of significance. A similar study conducted in Bangalore reveals that there is no significant association between pre test score of menopausal symptoms and baseline performa.^[9]

CONCLUSION

Findings of the study illustrated that was significant difference in the menopausal symptoms in the pre-test and post-test scores in the experimental group which was not seen in the control group. The findings also depicted that there was no significant association between pre-test level of menopausal symptoms and selected baseline variables ($p < 0.05$). Hence, it is concluded

that soyabean consumption is effective in reducing menopausal symptoms.

This study result can be used as informative illustration for the nursing students who can effectively advise the use of soyabean to reduce the prevalence of menopausal symptoms. The nursing curriculum should include newer and beneficial alternative therapies which help to reduce menopausal symptoms. Nursing education should prepare the nurses to impart the information regarding soyabean consumption in order to reduce the prevalence of menopausal symptoms. The nurse administrator can disseminate the research knowledge into practice so that it becomes beneficial to the patients. Nurse administrators can promote improved education in the future by facilitating an evidenced based nursing approach within the nursing education. Many more effects of soyabean and its benefits can be identified through the research. This method can be even selected for various populations and settings; and further studies can be conducted.

ACKNOWLEDGEMENT

We owe a great deal of gratitude to Dr. Asha P Shetty, Principal, Dean Prof. Shanthakumari, HOD, dept of OBG Nursing, Yenepoya Nursing College for providing permission, valuable suggestions and motivation for this study and publication. We extend our grateful acknowledgment to the DHO, Mangalore for giving us permission to conduct the study. We extend our gratitude to all the participants of the study for their enthusiasm and cooperation. We are grateful to those who have supported and motivated for the study and publication.

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How to cite this article: Frank RW, Tamrakar A, Shanthakumari K. Effectiveness of soyabean consumption in reducing menopausal symptoms among women of selected areas in Mangalore. Int J Health Sci Res. 2015; 5(5):244-251.
