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Effectiveness of Camphor Oil Application on Reduction of Joint Pain among Post Menopausal Women at Selected Rural Areas

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Abstract

Menopause is an inevitable milestone in the reproductive life of every woman. When women's hormones become imbalanced during menopause experience joint pain. Hence the study aimed to determine the effectiveness of Camphor Oil Application on Reduction of Joint Pain Among Post-Menopausal Women. The quasi-experimental research design was chosen to conduct the study with 60 samples matched with inclusion criteria. Samples were allocated into the experimental group (n=30) and control group (n=30) by convenience sampling technique. A pretest was done by using a numerical pain scale for both the experimental and control groups. The experimental group received Camphor Oil Application twice a day for 3 days. For the control group, the usual routine was followed. On 3rd day, the study participants were reassessed for the level of joint pain by using the same tool. The study results concluded that the mean difference score in the experimental group was 5.40 and the calculated, t-test + = 40.854 was found to be statistically significant at p<0.001 level which depicted clearly that, there was a significant decrease in the level of joint pain after application camphor oil in the experimental group of post-menopausal women's. Camphor oil can be a reduction of joint pain among post-menopausal women. It is also a simple, cost-effective, and non-pharmacological method that can be used to complement pharmacological management.

Keywords: *Application, Camphor Oil, Effectiveness Post Menopausal Women's Joint Pain.*

Introduction

Menopause is a normal part of the ageing process. It occurs naturally after women's ovaries stop producing eggs and the production of hormones. As menopause involves biological and psycho-social changes that may significantly impair the quality of life [1]. Pain has been defined as "an unpleasant sensory or emotional experience associated with actual or potential tissue damage or described in terms of such damage. It is a reality each women experience Menopause differently [2]. It is not always possible to tell if these changes are related to ageing Menopause or both [3] explained that joint pain is discomfort that arises from any joint at the point where two or more bones meet. Joint pain is sometimes called Arthritis or Arthralgia. Joint pain can be mild, causing some soreness each time you move your joint or joint pain can be severe, making it impossible to use the joint [4]. Women are the persons who are more affected by joint pain than men due to menopause, so their daily living activities are altered. Most of the joint pain can be successfully managed at home through various ways [5]. India stands second in the world in terms of citizens suffering from joint pain among the 61 million people living in Karnataka 28.4% over the age of 50 suffer from severe joint pain. Among

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these 15% of the population have some degree of limitation of movement and 6% cannot perform daily activities [6]. It conducted a study on the assessment of knowledge on perimenopause, symptoms experienced and practice of perimenopausal women in Northern India [7]. The symptoms that always present were frequent urination (65.40%), back pain (54.80%), weight gain (49%), night sweats (49.2%), irritability (40.40%), difficulty in concentration (39.40), the sudden sensation of heat with flushing (45.12%) [8]. Joint pain is associated with the weakening of the bones caused by the loss of bone density. In women, it is mostly caused by a drop in bone-strengthening oestrogen after Menopause [9]. Around the Age of 35, both males and materials start losing calcium, but women lose more during the menopausal years and are Therefore more affected than men. In general, several pains are involved in human life that affect the daily [10]. In people over the age of 50 years joint pain is the most common cause of pain in the knees [11]. Women are more likely than men to have conditions that cause joint pain, experience hormone fluctuation that affects vulnerability and may not be physiologically equipped to deal with pain [12]. Women who reach the age of around 45- 50 invariably undergo some hormonal changes due to the onset of menopause. During this period, many women may often experience joint pain due to some hormonal imbalances [13]. Camphor oil is normally extracted from wood chips. There is a whole plethora of uses for camphor from cooking to medicines to perfumes to insect repellents. It is used to relieve joint pain in arthritis and osteoarthritis sufferers [14]. Camphor oil is readily absorbed through the skin and produces a feeling of cooling similar to that of menthol. Major pains such as joint pain, Backaches, Neuralgia and Rheumatic pain can be treated with Camphor externally [15]. It is an herbal counterirritant and is most often used as an analgesic in topical treatment [16]. Camphor oil is aromatic and absorbed through the skin. It can provide various health benefits, including pain relief and the easing of skin irritation. The camphor is an herb that can be extracted from the wood and roof of the camphor tree. Although camphor oil can have potentially harmful effects if ingested, benefits can be observed when the oil is used topically. Camphor oil may also be used as a liniment to relieve pain in muscles or joints. Be aware that some individuals may be sensitive to camphor and experience skin irritation [17]. The researcher wishes to search for an alternative route of treatment (topical) that can be non-invasive, safe and effective. Through this study, the researcher aims to assess the effectiveness of camphor oil application on joint pain among menopausal women.

Methods and Materials

The research approach adopted in the study was a quantitative approach by using a quasi-experimental research design. It was conducted among patients who are Post-Menopausal Women with joint pain in a rural area, mapped Tiruvallur, after obtaining formal permission from the village authority. Samples who matched the inclusion criteria were selected by using a non-probability convenience sampling technique. Patients in the age group of 46-60 years, who were willing to participate in this study and able to speak and understand Tamil, who were able to follow instructions and willing to give consent to participate in the study were included in the study were patient menopausal women who were taking regular analgesics. who were allergic to camphor oil and who were not available at the time of data collection. Shown the Figure 1. The total number of samples was 60 and allocated into experimental (n=30) and control group (n=30). The participants who consented for willing to participate were informed about the purpose of the study. Demographic variables were collected using multiple-choice questionnaires. The Pretest level of pain was assessed by using a numerical pain scale for both the experimental

and control groups. The experimental group received an application of camphor oil and applied 3 ml of camphor oil on the joint for 10-15 minutes, preferably morning and evening and checked for any allergic reaction. If the allergic reaction is found, then the joint is washed with soap and water, otherwise, it is continued for 3 consecutive days among the post-menopausal women. The control group received routine care. Post-test was done at the end of the third day of intervention for both experimental and control groups using the same tool. The data were tabulated and analysed by descriptive and inferential statistics using the SPSS statistical package. A probability of 0.05 or less was taken as statistically significant.

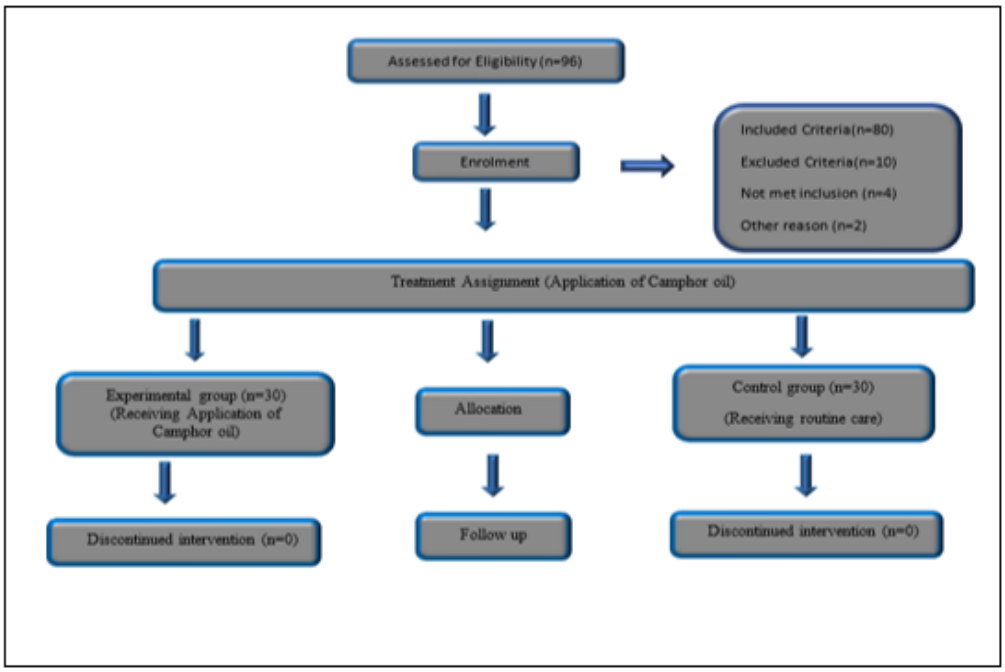

Figure 1. Consort Flow Chart Depicting the Steps Involved in the Sample Recruitment Process

Results and Discussion

Regarding demographic variables, Table 1 shows that in the experimental group most of them were menopausal women, 14(46.7%) were in age between 45 – 50 years, 18(60%) were Hindus, 18(60%) had primary education, 20(66.7%) were sedentary workers, 27(90%) were non-vegetarian, 21(70%) had a family monthly income of above Rs.10,000.15(50%) had BP as the previous history of lifestyle disease, 22(73.3%) had moderate body, 25(83.3%) had no lifestyle practice, 19(63.3%) in the were aged 50 years at the time of menopause, 19(63.3%) had joint pain for 1 – 3 years and 13(43.3%) in both the group had taken external application as type of treatment. Whereas in the control group most of them, 16(53.3%) were aged between 45 – 50 years, 17(56.7%) were Hindus, 20(66.7%)had primary education, 22(73.3%) were sedentary workers, 25(83.3%) in the were non-vegetarian, 19(63.3%) had family monthly income of above Rs.10,000, 14(46.7%) had BP as previous history of lifestyle disease, 24(80%)had moderate body, 24(80%) had no lifestyle practice, 17(56.7%) in the were aged 50 years at the time of menopause, 18(60%) in the control group had joint pain for 1 – 3 years and 13(43.3%) in both the group had taken external application as type of treatment.

Frequency and Percentage Distribution of Pre-Test and Post-Test Levels of Joint Pain in the Experimental and Control Group

Table 1 depicts that in the pretest of the experimental group, 27(90%) had severe joint pain and 3(10%) had moderate joint pain and in the post-test, 17(56.67%) had mild pain,

10(33.33%) had moderate joint pain and 3(10%) had no pain. Whereas in the pretest of the control group, 26(86.67%) had severe pain and 4(13.33%) had moderate pain and in the post-test, 25(83.33%) had severe joint pain and 5(16.67%) had moderate joint pain.

Table 1. Frequency and Percentage Distribution of Pre-Test and Post-Test Levels of Joint Pain in the Experimental and Control Group N=60

Level of joint pain	Experimental group				Control group			
	Pre-test		Post-test		Pre-test		Post-test	
	F	%	F	%	F	%	F	%
No Pain (0)	-	-	3	10.0	-	-	-	-
Mild Pain (1-3)	-	-	17	56.67	-	-	-	-
Moderate pain (4-6)	3	10.0	10	33.33	4	13.33	5	16.67
Severe pain (7-10)	27	90.0	-	-	26	86.67	25	83.33

Effectiveness of Camphor Oil in Reduction of Joint Pain Among Post Menopausal Women in the Experimental Group and Comparison in the Control Group

Table 2 shows that the pretest mean score of joint pain in the experimental group was 8.56±1.07 and the post-test mean score was 3.17±1.51. The mean difference score was 5.40. The calculated paired 't' test value of t = 40.854 was statistically significant at p<0.001 level. This clearly shows that after the administration of camphor oil, there was a significant reduction in the level of joint pain among postmenopausal women in the experimental group.

Table 2. Effectiveness of Camphor Oil in Reduction of Joint Pain among Post Menopausal Women in the Experimental Group and Comparison in the Control Group

Group	Pre-test		Post-test		Mean difference score	Paired 't' test & p-value
	Mean	S.D	Mean	S.D		
Experimental group	8.56	1.07	3.17	1.51	**5.40**	**T= 40.854, P=0.0001, s*** **
Control group	8.63	1.15	8.40	1.19	0.23	T=2.041, P=0.050, N. S
Mean difference score	0.07		**5.23**		***p<0.001, S- Significant, N. S – Not Significant	
Student independent 't' test value	T=0.231, P=0.818, N. S		**T= 14.897, P=0.0001, S*** **			

Comparison of Pretest and Post-Test Pain Scores between the Post-Menopausal Women in the Experimental and Control Group

Figure 2 shows that the calculated student independent 't' test value of t = 0.231 in the pretest shows that there was no statistically

significant difference between the pretest level of joint pain between the two groups.

The calculated student independent 't' test value of t = 14.897 in the post-test shows that there was a statistically significant difference between the post-test level of joint pain between the two groups which indicates that after the administration of camphor oil in the reduction of pain among post-menopausal women in the experimental group was found to be effective in the reduction of pain than the post-menopausal women in the control group who had undergone normal routine measures.

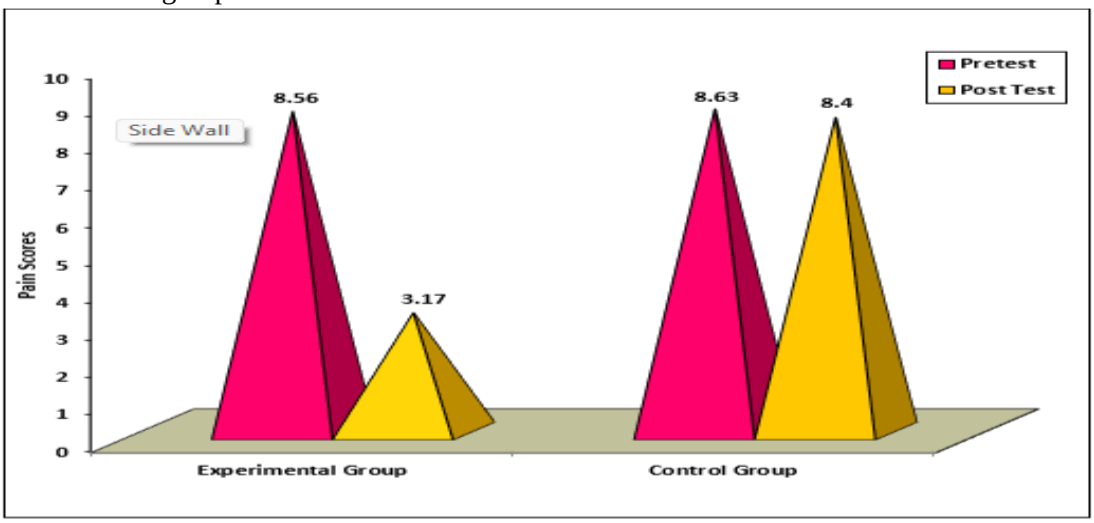

Figure 2. Comparison of Pretest and Post-Test Pain Scores between the Post-Menopausal Women in the Experimental and Control Group

Comparison of Pretest and Post-Test Pain Scores between the Post-Menopausal Women in the Experimental and Control Group

The findings of the study were found to be consistent with the study findings conducted by Palacios (2013) conducted a study to assess the ability of a topical cream containing camphor to reduce pain related to joint pain [18]. The sample size was 40 and the samples were collected by random sampling technique. The level of pain was assessed by a visual analogue scale. The study revealed that statistically significant reduction in the level of pain following the topical application of cream containing camphor. Similarly, in the study conducted by Remya Mohan, and Renuka (2014) Prevalence of knee joint pain is more common in rural areas [20]. The main aim of the present study was to compare the effectiveness of warm mustard oil and warm mustard oil with camphor on the reduction of knee joint pain among rural women in selected areas of Puducherry. The samples were divided into two groups, group I received warm mustard massage and group II received warm mustard oil with camphor massage. The mean pretest pain score of group I was 33.87 and the mean post-test pain score was 29.03. The mean pretest pain score of group II was 37.77 and the mean post-test pain score was 31.17. The coefficient of variance of 69.60 in group I and 51.05 in group II revealed that there was a significant reduction in pain levels. It infers that warm mustard oil with camphor massage is more effective in reducing knee joint pain in rural women than warm mustard oil massage.

Association between the Post Test Level of Joint Pain among Post Menopausal Women with Selected Demographic Variables in the Experimental Group

The demographic variables duration of joint pain **(χ^2=13.491, p=0.009)** had shown a statistically significant association with the post-test level of joint pain among postmenopausal women in the experimental

group at $p<0.01$ level. The demographic variables age **(χ^2=9.774, p=0.044)** and lifestyle practice **(χ^2=6.904, p=0.032)** had shown statistically significant association with the post-test level of joint pain among post-menopausal women at $p<0.05$ level and the other demographic variables had not shown statistically significant association with the post-test level of joint pain among postmenopausal women in the experimental group**.** Hence the research hypothesis H2 stated earlier "There will be a significant association of post-test level of joint pain among menopausal women with their selected demographic variables" was accepted for the demographic variables age, duration of joint pain and lifestyle practice and not accepted for all other demographic variables in the experimental group.

Limitations

The researcher felt difficulty in collecting the data from the sample in the rural area during their treatment period.

Conclusion

Based on the findings of the current study, it was evident that there was a significant effect of the application of camphor oil that enhanced, joint pain reduction among post-menopausal women. Therefore, the application of camphor oil can be used as an alternative treatment by all midwife nurses and other health care professionals to reduce joint pain during the postmenopausal period as a part of nursing care for all postmenopausal women.

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Conflict of Interest

The authors declare no conflict of Interest.

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