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“The Effect of Camphor Oil on Level of Knee Joint Pain among Elderly.”

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ABSTRACT:

Background: Knee Joint pain is a relatively frequent issue with a wide range of potential causes, although it typically results from an accident or arthritis. Level of knee joint pain is a common in elderly. In India, the prevalence of the knee joint pain is 31.8%. **Objectives:** 1. To assess the level of Knee joint pain before application of camphor oil in experimental & control group among elderly. 2. To assess the level of knee joint pain after application of camphor oil in experimental and control group among elderly. 3. To compare the pretest and post-test level of knee joint pain among elderly. 4. To compare the experimental and control group post-test level of knee joint pain among elderly. **Methods:** Quantitative research approach and a quasi-experimental control group pre and posttest research design were adopted for this study. The study was conducted in selected old age home of Sangli- Miraj- Kupwad Corporation area. The sample size for the study was 40 elderly (20 in experimental group and 20 in control group). The sample size was obtained by G. Power software. Samples were selected using non- probability purposive sampling technique. Data collection was done by using demographic variables, pain scale for level of knee joint pain. **Results:** In the present study it was found that after intervention of camphor oil there was significant difference in experimental group i.e., p value was 0.001. The result shows that there was significant difference between pretest and post-test pain score on level of knee joint pain in experimental and control group. The obtained *t* value of level of knee joint pain was 4.6 respectively with 48 degrees of freedom which was greater than the table value and it is evident that the camphor oil is significantly effective in reducing the knee joint pain among elderly. **Conclusion:** Level of knee joint pain was shown to be more common in those over the age of 60years. the outcomes of the data analysis in the both groups revealed a difference in level of knee joint pain. As a result of the statical testing, it was determined that application of camphor oil on the level of knee joint pain was effective in reducing knee joint pain.

Keywords: camphor oil, knee joint pain, elderly, old age.

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1. Introduction:

The most common symptom of osteoarthritis is pain in the knee joints, which may develop after prolonged weight-bearing and mobility activity. If the joints are inactive, an individual may also experience joint stiffness. Osteoarthritis is a degenerative chronic disorder with numerous causes to occur. The condition most frequently affects the joints of the upper and lower limbs, the spinal cord, and the joints of the hips and knees on which pressure is imposed when a particularly heavy object is lifted. According to the research, these conditions include obesity, which puts more pressure on the joint, recurrent joint injuries, or weak lower limb muscles, which make it difficult to bear weight. Other factors include female gender, hereditary susceptibility, and poorer educational standards.¹

Joint pain is a relatively frequent issue with a wide range of potential causes, although it typically results from an accident or arthritis. According to a renowned diagnostic chain, it is believed that 180 million individuals in India have this condition, making it much more common than many other well-known ailments like diabetes, AIDS, and cancer (India Today, 12th Oct 2017).²

In line with WHO In India, 15% to 17% of the population, or one in six individuals and one in three households, experience joint discomfort as of October 15, 2015. According to India today, persons 65 and older (24.3%) and those aged 45 to 64 (30.7%) have the greatest rates of joint discomfort.³

Ageing and other variables, such as sprains and strains, vigorous exercise, overuse of the muscles, soft tissue injuries, and arthritis, are some of the reasons of joint pain. The majority of people feel pain, swelling of the joint, redness, stiffness, soreness, and warmth surrounding the joint, among other symptoms. Although joint pain is not life-threatening, it can be uncomfortable and interfere with a person's ability to engage in certain physical activities. Both pharmaceutical and non-pharmacological methods, such as using camphor oil, can be used to treat it.⁵

One of the main causes of impairment in persons over 50 is knee pain (KP), a musculoskeletal condition that is extremely common and lowers quality of life (QOL) [1,2]. Indians experience knee pain 31.8% more frequently than members of other ethnic groups.³ In the UK, approximately one in four people this age has KP, primarily as a result of underlying knee osteoarthritis (OA) [2,4]. The International Association for the Study of Pain (IASP) estimates that 20% of adults experience chronic pain. They hold that pain cannot be verbally expressed and that suffering is a personal and subjective experience. Pain behaviours like guarding, agitation, changing facial expression, or altered movement may be used to communicate pain when it cannot be stated verbally.⁶ Osteoarthritis is a cartilage condition that results in joint degeneration and synovial membrane inflammation. It serves as a cushion-like structure between the bones and joints that stops them from rubbing against one another. The synovial membrane secretes synovial fluid, which lubricates the joints.

Stiffness, crepitus, swelling, bone soreness, and limp are some of the symptoms of OA. A person with an advanced disease may develop joint instability. Every element of a person's daily activities and quality of life is impacted by osteoarthritis. The main reason people seek treatment is because of knee pain.⁷ The ageing process is the most frequent cause of the main kind of OA. OA, which also happens to be the most common joint illness in India with a prevalence incidence of 22-39%, is the second most common rheumatologic condition. As people age, the prevalence rate rises. Nearly 45 and 70% of women exhibit pathological symptoms and radiological evidence.

It is one of the main reasons of female mobility disability.⁷ Comprehensive and unique management of osteoarthritis is required. A management strategy without any pharmaceutical or pharmacological interventions should be reviewed on a regular basis. People who live in rural areas favour natural treatment methods like exercise, hot and cold compresses, oil massages, yoga, electrical heat application, and naturopathy. The management of joint pain may benefit greatly from several complementary therapies.⁸

2. Materials and Methods

A quantitative research approach was adopted for the present study with experimental pre-test and post-test control group. The independent variable was camphor oil and dependent variable level of knee joint pain. The setting was the old age home in Sangli-Miraj-Kupwad corporation area. Population consists of elderly (above 60years) residing in selected old age homes.

Inclusion criteria was Elderly who are willing to participate, Elderly who are having knee joint pain whereas the exclusion criteria were Elderly who are with Broken skin integrity on knees, Elderly who is allergic to camphor oil, Elderly who are recently operated on knee. Sample size is 40 in which 20 experimental and 20 control. The sampling method used was non-probability purposive sampling method. Informed written consent was obtained from the elderly prior to conducting the study. Official permission was taken from concerned authorities. The investigators discussed the study with selected old age home.

In experimental group applied 2ml of camphor oil over each knee joint by finger pads for a period of 5 minutes once a day following (morning) to reduction in level of knee joint pain.

The data collection tool included demographic tool, description of tool and scoring system. After an extensive review and study of literature, books and journals were done before developing the tool as well as discussion with guide is done and experts opinion also taken and the tool was developed under the guidance of the guide to collect the data.

The tool contains two section, section -1 demographic data and section-2 numerical pain scale.

To ensure the content validity, the tool was submitted to experts along with demographic data, numerical pain scale and suggested corrections and changes were done and final tool was prepared.

Institutional ethical committee, meeting was held in Bharati Vidyapeeth Deemed to be University College of Nursing, Sangli and the research proposal was approved. permission was obtained from old age home. Based on the objectives of the study, frequency, percentage, mean, SD, were calculated.

3. Results and Discussion

Table 1: Frequency & percentage distribution of demographic variablesn=40

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Age				
60-70 years	8	40%	10	50%
71-80 years	8	40%	6	30%
81-90 years	4	20%	4	20%
Gender				
Female	8	40%	12	60%
Male	12	60%	8	40%
Education				
No formal education	6	30%	6	30%
Primary	6	30%	6	30%
Higher secondary school	4	20%	3	15%
Graduate	4	20%	5	25%

In experimental group, 40% of the elderly in old age homes had age 60-70 years, 40% of them had age 71-80 years and 20% of them had age 81-90 years. In control group, 50% of the elderly in old age homes had age 60-70 years, 30% of them had age 71-80 years and 20% of them had age 81-90 years. In experimental group, 40% of them were females and 60% of them were males. In control group, 60% of them were females and 40% of them were males. In experimental group, 20% of them did not have formal education, 30% of them had primary education, 20% of them had higher education and 20% of them had graduation. In control group, 30% of them did not have formal education, 30% of them had primary education, 15% of them had higher education and 25% of them had graduation.

Table 2: Comparison of pretest and post-test level of knee joint pain among elderly in Experimental group control group. n=40

Group		Mean	SD	T	df	p-value
Experimental	Pretest	5.6	1.4	4.6	19	0.000
	Post-test	4.4	1.3			
Control	Pretest	6.1	1.3	0.8	19	0.226
	Post-test	5.9	1.1			

Here, applied paired t-test for the comparison of pretest and post-test level of knee joint pain among elderly in Experimental group control group. In experimental group, average knee joint pain score in pretest was 5.6 which reduced to 4.4 in post-test. In control group, average knee joint pain score in pretest was 6.1 which reduced to 5.9 in post-test. T- value for this test was 4.6 in experimental group and 0.8 in control group. corresponding p- value was small (less than 0.05) in experimental group and large (greater than 0.05) in control group. Null hypothesis is

rejected for experimental group. Average pain score in post-test significantly reduced from the pain score in pretest due to the application of camphor oil in experimental group. In control group, in the absence of camphor oil, though the knee joint pain reduced but the reduction is not significant. It is evident that the camphor oil significantly reduced knee joint pain among elderly in old age homes.

Table 3: Two sample t-test for the comparison of change in average knee joint pain score among elderly in experimental and control group. n=40

Group	Mean	SD	T	df	p-value
Experimental	1.20	1.16	3.2	38	0.001
Control	0.15	0.88			

Table no.3 shows that, two sample t-test for the comparison of change in average knee joint pain score among elderly in experimental and control group. Average change in knee joint pain score among elderly in experimental group was 1.2 which was 0.15 among elderly in control group. T-value for this test was 3.2 with 38 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. Average change in knee joint pain score among elderly in experimental group was significantly more than that in control group. It is evident that the knee joint pain among elderly reduced significantly after camphor oil application. Camphor oil is significantly effective in reducing the knee joint pain among elderly.

4. Discussion

In one of the study conducted by Beautily V, Bhuvaneshwaran D, Esaivani VD and Lydia Sherin on cut points for mild, moderate and severe pain in clients having joint related to hip and knee joints pains the brief pain inventory and classified as mild moderate or severe indicating mild to moderate pain for patients joints pain. 28 50 samples were used for the pre-test, and 1 (2% of the geriatrics) had mild pain, 21 (42%) had moderate pain, and 28 (56%) had severe pain. In the post-test, there was mild pain in 22 (44%) geriatrics, moderate pain in 24 (48%) geriatrics, and severe pain in 4 (8%). The mean pre-test score for joint pain severity was 6.74, while the mean post-test score was 3.86. At a significance level of 0.05, the computed "t" value of 21.59 with 49 degrees of freedom was significant. It demonstrated that applying camphor oil to joints can help elderly people with joint pain. The study's findings demonstrate that older people experience mild pain. The results indicate that the mean pre-test score for joint pain severity was 6.74, whereas the post-test level was 3.86. The estimated "t" value, 21.59, was significant at the 0.05 level with 49 degrees of freedom. It demonstrated that applying camphor oil to joints can help older people with joint pain.

5. Conclusion

Level of knee joint pain was shown to be more common in those over the age of 60years. the outcomes of the data analysis in the both groups revealed a difference in level of knee joint pain. As a result of the statical testing, it was determined that application of camphor oil on the level of knee joint pain was effective in reducing knee joint pain.

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Conflicts of interes

There are no conflicts of interest

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