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A STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD OIL APPLICATION IN REDUCING KNEE PAIN AMONG GERIATRIC PEOPLE AT VILLAGES OF KANPUR, U.P

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ARTICLE HISTORY	ABSTRACT
Received on: 14-08-2026 Revised on: 26-09-2026 Accepted on: 12-10-2026	The present study was undertaken to assess the effectiveness of mustard oil application in reducing knee pain among geriatric people in selected villages of Kanpur, Uttar Pradesh. A quantitative evaluative research approach with a pre-experimental one-group pre-test and post-test design was used for the study. A total of 60 geriatric people were selected from Kukradev, Kanpur, by using a non-probability purposive sampling technique. Data were collected using a sociodemographic questionnaire and the Numerical Pain Rating Scale to assess the level of knee pain before and after the intervention. The findings showed that the pre-test mean pain score was 103.55 with a standard deviation of 12.96. After the application of mustard oil, the post-test mean pain score decreased to 68.62, showing a noticeable reduction in knee pain. The calculated standard error was 2.85, and the obtained t-value was 12.26, indicating a statistically significant difference between the pre-test and post-test scores. Therefore, the study findings showed that mustard oil application was effective in reducing knee pain among geriatric people. Hence, the research hypothesis (H_1) was accepted, and the null hypothesis (H_0) was rejected. The study suggests that mustard oil application may be used as a simple and complementary method to provide relief from knee pain among older adults.
Keywords: Mustard Oil Application, Knee Pain, Geriatric People, Effectiveness, Numerical Pain Rating Scale.	
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INTRODUCTION

Kneepain in the geriatric population is multifactorial in origin and may result from osteoarthritis, rheumatoid arthritis, obesity, trauma, or age-related degeneration of joint structures. The condition often presents symptoms such as swelling, stiffness, tenderness, reduced range of motion, and difficulty performing daily activities. These symptoms significantly impair independence and contribute to decreased quality of life among elderly individuals. Conventional treatment modalities include pharmacological therapy such as non-steroidal anti-inflammatory drugs, intra-articular injections, and surgical interventions; however, these approaches are often associated with side effects and limitations, particularly in older adults [1].

Aging is a natural biological process associated with progressive decline in physiological functions, making older adults more susceptible to chronic health conditions such as Musculoskeletal disorders. Among these, knee pain is one of the most common complaints in the geriatric population, significantly affecting mobility and quality of life. Osteoarthritis, a degenerative joint disease, is the leading cause of knee pain in elderly individuals and is characterized by progressive cartilage deterioration, joint stiffness, and

functional disability. The burden of knee pain increases with age, especially after 50 years, and is considered a major public health concern worldwide [2].

In recent years, there has been a growing interest in complementary and alternative therapies for managing chronic conditions such as knee pain. Traditional systems of medicine, including Ayurveda, emphasize the use of natural remedies such as herbal oils and massage therapy for pain relief and improvement of joint function. Topical applications of medicinal oils are believed to enhance blood circulation, reduce inflammation, and promote relaxation of muscles and joints. Studies have demonstrated that the use of herbal oils such as sesame oil and black cumin oil can provide significant relief in knee osteoarthritis and improve functional outcomes among geriatric patients [3].

NEED OF THE STUDY

Knee pain among the geriatric population has emerged as a major public health concern worldwide, particularly due to the increasing life expectancy and aging population. Osteoarthritis of the knee is recognized as one of the leading causes of chronic pain and disability among older adults. In India, recent systematic reviews have reported

that approximately 47% of elderly individuals suffer from knee osteoarthritis, indicating that nearly one out of every two older adults are affected by this condition [4]. This high prevalence highlights the urgent need for effective, affordable, and culturally acceptable interventions for managing knee pain, especially in rural and semi-urban settings where access to advanced healthcare services is limited. The burden of knee osteoarthritis extends beyond physical discomfort, significantly affecting the quality of life and functional independence of elderly individuals. Studies have shown that musculoskeletal disorders, particularly osteoarthritis, account for nearly 50% of all chronic conditions affecting mobility in older adults, making it one of the most disabling noncommunicable diseases globally. The inability to perform daily activities such as walking, climbing stairs, and standing for prolonged periods leads to increased dependency, psychological distress, and reduced social participation among geriatric individuals. Therefore, identifying simple and cost-effective interventions become essential to improve their overall well-being [5]. In developing countries like India, the economic burden of managing knee pain is substantial due to the high cost of long-term pharmacological treatments and surgical interventions such as knee Replacement. Reports indicate that joint-related disorders are among the top causes of outpatient visits and healthcare expenditure, placing financial strain on both families and the healthcare system. Moreover, elderly individuals in rural areas often rely on traditional remedies and homebased care due to limited access to specialized medical services. This situation underscores the need to scientifically evaluate traditional practices like mustard oil application, which are widely used but lack sufficient empirical validation [6].

PROBLEM STATEMENT

A problem is an interrogative sentence or statement that asks what relation exists between two or More variables. The answer to the question will provide what is sought in research. A study to assess the effectiveness of Mustard oil application in Reducing knee pain among Geriatric People at selected villages area of Kanpur Uttar Pradesh.

OBJECTIVES OF THE STUDY

- To assess the pre-intervention level of knee pain among geriatric individuals in the selected villages area of Kanpur.
- To evaluate the effectiveness of mustard oil application by comparing pre-test and post-test knee pain scores among geriatric individuals.
- To find the association between post-intervention knee pain scores and selected demographic Variables.

HYPOTHESIS

A Hypothesis is a tentative prediction or explanation of the relationship between the variables.

POSITIVE HYPOTHESIS

H₁: There is a significant difference between pre-test and post-test knee pain scores after mustard oil application.

H₂: There is a significant association between pain reduction and selected demographic variables.

NULL HYPOTHESIS: -

H₀₁: There is no significant difference in the level of knee pain among geriatric people before and after the mustard oil application.

H₀₂: There is no significant association between the level of knee pain among geriatric people and their selected demographic variables.

METHODS AND MATERIALS

Research Approach

The research approach is the board-based procedure for collecting data in a particular situation. In View the nature of the problem and accomplishing the objective of the study.

Research approach is a systematic, controlled, empirical, and critical investigation of natural phenomena guided by theory and hypothesis about presumed relations among the phenomena. The research approach for this study is a quantitative, evaluative research approach.

Research Design

The term research design refers to an overall plan for addressing a research question. The research design used in this study is a pre-experimental one-group pre-test post-test design.

Research Setting

Context is Venue location and quality in which data collection takes place in the Study. The Research was conducted, at selected villages of Kanpur, U.P.

Variables

Variables are qualities, properties, or aspects of people, things or situations that shift or alter.

Research Variables

Variables are attributes, traits characteristic of a person's things or situation that change or transform, In any pre-experimental one-group pretest and posttest, variables are the measurable characteristics that help the researcher determine the relationship between an intervention and its outcome. In this study, the variables are classified into independent variables, dependent variables, and demographic variables.

Independent Variable

The independent variables are the factors that are introduced or manipulated by the researcher to observe their effect on the outcome. In the present study, the independent variable is Mustard oil application on the knee joint.

Dependent Variable

The dependent variables are the outcome or response that is measured to determine the effect of the independent variable. In this study, the dependent variable is the level of knee pain among geriatric people.

Demographic Variables

In this study, demographic variables include Age, Gender, Marital Status, Educational status, Occupation, Monthly Income and Duration of knee pain.

Population

The people are defined as the complete collection of cases that assemble with a designated set of criteria. The population for the present study is geriatric people.

Target Population

The total population in which the researcher engaged again and to which they would like to generalize the research findings. The Target population of the present study consists of geriatric people who are living in the villages of Kanpur, U.P.

Accessible Population

The assortment of cases that confirm assigned inclusion or exclusion criteria and that are accessible as subjects of the study. Accessible population of the present study consists of rural geriatric people in selected villages of Kanpur U.P.

Sample

A part of the subcategory of population components is selected to participate in a research study. In this study, the sample consists of geriatric people who fulfilled the sampling criteria for the present study.

Sample Size

Sample size refers to the number of subjects selected from the target population to participate in the study. The sample size for the present study consists of 60 geriatric people.

Sampling Technique

Sampling technique is the process of selecting a representative portion of the population to represent the whole population. In this study, the non-probability purposive sampling technique was used.

Methods of Data Collection

Likert scale questionnaire was used to assess the effectiveness of mustard oil application in reducing knee pain among geriatric people at selected villages area of Kanpur, Uttar Pradesh.

Development and Description of Tools Used In the Study

Based on developing a framework to achieve the objectives of the study. A structured questionnaire on Knee Pain was prepared to find out the effectiveness of the mustard oil application among Geriatric People in the selected villages in Kanpur, Uttar Pradesh. The Tool was initially prepared by researchers. The tool was used by experts in the selected villages in Kanpur, Uttar Pradesh.

SECTION A: Socio Demographic Variables.

SECTION B: Likert Scale Questionnaire related to effectiveness of mustard oil application in reducing knee pain among geriatric people.

RESULTS AND DISCUSSION

Section A: Frequency and percentage-wise distribution of demographic variables.

The major findings of the study were as follows:

1. Majority 23(38%) geriatric people belongs to the age group between 60-65 years old.
2. Majority 50(50%) geriatric people belongs to both male and female
3. Majority 46(76.67%) belongs to married geriatric people.
4. Majority 50(83.34%) geriatric people belongs to primary level of education..
5. Majority 35(58.34%) geriatric people belongs to occupation of farmers.
6. Majority 36(60%) geriatric people belongs to monthly income 5000 rupees.
7. Majority 23(38.33%) geriatric people belongs to duration of knee pain less than 6 months.

Section B: Comparison of pre test and post test in the effectiveness of mustard oil application in reducing knee pain among the geriatric people.

Table 01: Comparison of Pre-Test and Post-Test Mean Scores of Knee Pain Among Participants Using a Paired t-Test

S.No	Level of knee pain	Mean	Mean Difference	SD	Paired t test	Table value
1.	Pre Test	103.55	34.93	12.96	12.26	1.99 at 0.05 level of significance
2.	Post Test	68.62		17.90		

Section C: Association between the effectiveness of the mustard oil application in reducing the level of pre test score with the selected demographic variables of geriatric people.

The result shows that the association of demographic variables with the pre test of knee pain by chi-square test revealed there were significant association with Age, Occupation, Monthly Income

But there Gender, Marital Status, Educational Status, Duration of knee pain was non significance with other selected socio demographic variables. Hence the Research Hypothesis H1 was accepted and Null Hypothesis H0 was rejected.

CONCLUSION

On the basis of findings of the study it was concluded that after mustard oil application the knee pain is reduced among the geriatric people indicated by significant decreased knee pain in posttest mean scores.

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AUTHOR CONTRIBUTION

All Authors are Contributed Equally.

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