A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECTED OLD AGE HOME, AT TRICHY DISTRICT.

A DISSERTATION SUBMITTED TO
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,
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IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
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CERTIFIED BONAFIDE WORK DONE BY

Mrs. THABITHA JOSHI. A

SAKTHI COLLEGE OF NURSING,

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SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING FROM THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI.

INTERNAL EXAMINER **EXTERNAL EXAMINER**

1._____ **2. _____**

CERTIFICATE

This is a bonafide work of **Mrs. THABITHA JOSHI. A,** M.Sc. (N)., II year student from Sakthi College of Nursing, Dindigul, Tamilnadu, India, submitted in partial fulfillment for the Degree of Master of Science in Nursing under the Tamilnadu Dr. M.G.R. Medical University, Chennai.

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ACKNOWLEDGMENT

The journey had been long, had to pass through bright and dark days, calm and storm. There were times when the path was rough and many at times it was smooth. There were many guiding and supporting hands in this journey, which made it easier. I take this opportunity to acknowledge them.

First and foremost, all praise and thanks to God Almighty for his abundant blessings, guidance, wisdom, courage, and strength to do this research study.

At the outset, I the researcher of this study express my heartfelt gratitude to our chairman **Dr. K. Vembanan, M.B.B.S., M.S.,** and express my deep gratitude and heartfelt thanks to our vice-chairman **Dr. Gokila Vembanan, M.B.B.S, DGO.,** for their encouragement and dedication towards the academic excellence and for providing me an opportunity to finish my project successfully.

I consider myself fortunate to have been piloted by **Dr. V. Janahidevi, M.Sc(N), Ph.D., Principal**, Sakthi College of Nursing, Oddanchattram. With her esteemed suggestion, high scholarly touch, piercing insights, valuable guidance, thought provoking stimulation, creative suggestion, timely help and constant encouragement laid strong foundation in this research.

I express my humble gratitude to **Professor, Mrs. T. Ganga Eswari, M.Sc(N), MBA (HR).,**Class Coordinator Head of the Department of OBG Nursing, Sakthi College of Nursing, for her untiring guidance, timely suggestion and elegant direction in every phase of my study.

I owe my deepest sense of gratitude and heartfelt thanks to **Asso. Professor, Mrs. Thulasimani, M.Sc.(N).,** Department of Medical Surgical Nursing, Sakthi College of Nursing, for the diligent effort the best quality, peaceful, her reassuring plan and a very approachable and inspiring quote that can never be forgotten.

I am thankful to **Asso. Professor, Mrs. Nithyaveni, M.Sc.(N).,** for their constant encouragement throughout the entire course of study also complete the study successfully my Sincere thanks to **Asso. Professor, Mrs. Chinthamani, M.Sc.(N).,** Head of the Department of Community Health Nursing, Sakthi College of Nursing for her generous support, keen interest, valuable corrections, guidance to translate this study into illustration.

My deep sense of gratitude is expressed to **Asst. Professor, Mrs. M. Vijaya, M.Sc.(N).,** Department of Medical Surgical Nursing, Sakthi College of Nursing, for their valuable guidance and Exemplary Suggestions and motivation and kindly approach, encouragement throughout the course and also to complete my study successfully.

The investigator acknowledges with immense sincerity for the help rendered by **Asst. Professor, Mrs. Sahaya Jovitha, M.Sc.(N).,** Head of the Department of Psychiatric Nursing, who was guiding this study to perfection.

I extend my wholehearted thanks to all **Faculty Members** of Sakthi College of Nursing for their continuous encouragement, guidance and valuable suggestions for this study.

I profusely thank all **Medical and Nursing Experts** who validated the content and tool, which helped to incorporate their views in this study, for their constant encouragement, supervision and timely help during the entire course of study.

I am thankful to **Mrs. Poongodi, M.Sc.,** librarian, **Ms. Lakshmi, M.Sc.,** computer technician of Sakthi College of Nursing for helping me with literature work and for extending library facilities throughout the study.

I wish to communicate my extraordinary credit to **Mr. Manikandan**, Biostatistician for his well-timed and opportune aid and backing in statistical analysis and presentation of data.

I extend my special thanks to **Dr. K. Senthil Kumar,** MBBS., D.Ortho, Kavin Hospital, Vaiyampatti, Trichy District.

I extend my special thanks to **Mr. Karthikeyan,** incharge of Shree sayee old age home, **Mr. Raja,** incharge of kangaroo old age home and **Mr. Gopal,** secretary of Vidivelli old age home at Trichydistrict. Who gave me permission to conduct the study and my special heartfelt thanks to **all the participants** for their co-operation throughout the study without their co-operation it would not have been possible to complete my study.

My grateful thanks to **Mr. A. Sebastin, M.A, M.Phil.,** Department of Tamil and **Ms. A. Shine, MA., B.Ed., M.Phil.,** Department of English, M.M Polytechnic college for editing this manuscript and tool in Tamil and English.

A special note of gratitude to my classmates **Mrs. U. Shakila Banu, Mrs. Gayathri** and **Mrs. Mary Nithya** and **my lovable seniors** and **juniors** for their cooperation and help they rendered throughout the study.

My sincere thanks to the editor of this manuscript and suggestion for the precise sense of language were decisive towards the completion of this research study.

I express my heartfelt thanks to my beloved husband **Mr. V. Arul Pragasam,** Admin officer, for his constant support, help, encouragement and fervent prayer throughout the study.

It is my honor and privilege to thanks, my parents, **Mr. Anthony** and **Mrs. Amala,** my brother **Mr. S. I. Raja,** and my sister **Ms. Shine Rose** for their constant and continuous support, timely help, prayer, and encouragement to complete this study as a very successive one.

This study drew upon the knowledge and help, experience and expertise of many persons of goodwill, though too numerous to name, each one of them is remembered for their individual contributions without which the realization and presentation of this research would not have been possible. So I shower my great deal of thanks to those who helped directly and indirectly in this study.

ABSTRACT

A study was conducted **"A QUASI-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECTED OLD AGE HOME, AT TRICHY DISTRICT",** was done by **Mrs. THABITHA JOSHI. A.,** as partial fulfillment of the requirement for the Degree of Master of Science in Nursing to the Tamilnadu Dr. M.G.R. Medical University Chennai, During the year of 2017-2019.

Osteoarthritis is a classic age related disorder. It is often described as a chronic degenerative disease and thought by many to be an inevitable consequence of growing old. In Osteoarthritis, degradation and loss of the articular cartilage is a central feature that is sometimes attributed to "wear and tear".

The objectives of the study were, 1. To assess the pretest and post-test level of knee pain among elderly people who has osteoarthritis in the control group and the experimental group. 2. To assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in the experimental group. 3. To find out the association between the pre-test level of knee pain among elderly people who has osteoarthritis with their selected demographic variables and clinical variables in the experimental group and control group.

In this study, a quasi-experimental, pre-test and post-test control group design was adopted. Non-probability purposive sampling techniques were used to select every 30 samples in the experimental group and control group. Data collection under demographic variables and clinical variables, numerical pain scale was used to assess

the level of knee pain. The experimental group received the intervention of mustard plaster application for 10-15 minutes once a time for 14 days.

The result shows that majority of elderly people in the experimental group, most of them 15(50%) were in the age group of 60 – 65 years, 15(50%) were male and female respectively, 15(50%) were divorced, 16(53.33%) were educated upto primary, 11(36.67%) were homemakers and agriculturists respectively, 24(80%) were non voluntaries, 12(40%) were staying in old age home for 3 – 4 years, 17(56.67%) were vegetarian, 15(50%) had no other habits, 26(86.67%) had no previous history of sports involvement, 17(56.67%) had a body mass index of 22 – 25, 10(33.33%) had diabetes mellitus, 15(50%) had knee pain on both knees, 16(53.33%) had severe pain, 18(60%) had been suffering from knee pain for more than 6 months, 17(56.67%) had pain while doing work, 12(40%) expressed topical application as commonest remedy they follow during pain and 14(46.67%) had opined mustard for cooking.

In the control group, most of them 11(36.67%) were in the age group of 60 – 65 years, 20(66.67%) were female, 17(56.67%) were divorced, 13(43.33%) were illiterates, 10(33.33%) were homemakers, 19(63.33%). were no voluntaries, 16(53.33%) have stayed in old age home for 3 – 4 years, 21(70%) were non-vegetarian, 10(33.33%) had tobacco chewing , 22(73.33%) had no previous history of sports involvement, 13(43.33%) had a body mass index of 22 – 25, 12(40%) had no other illness, 16(53.33%) had knee pain on both knees, 16(53.33%) had moderate pain, 19(63./33%) had been suffering from knee pain for more than 6 months, 12(40%) had pain while doing work, 13(43.33%) expressed topical application as commonest remedy they follow during pain and 12(40%)had opined mustard for cooking.

In the pre-test of the experimental group, 18(60%) had severe pain, 8(26.67%) had moderate pain and 4(13.33%) had worst pain whereas, in the post-test, 15(50%) had mild pain, 14(46.67%) had no pain and only one (3.33%) had moderate pain. In the pre-test of the control group, 18(60%) had severe pain, 7(23.33%) had the worst pain and 5(16.67%) had moderate pain whereas, in the post-test, 19(63.33%) had severe pain, 7(23.33%) had moderate pain and 4(13.33%) had the worst pain.

In the experimental group knee pain, the pre-test mean score was 7.66 with SD of 1.56 and the post-test mean score was 1.03 with SD of 1.16. The mean difference was 6.63 i.e., 66.3%. The calculated paired‘t’ test value of t = 26.390 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that mustard plaster application on knee pain administered to the elderly people was found to effective in reducing the level of the knee pain among the elderly in the experimental group. In the control group knee pain, pre-test mean score was 8.00 with SD of 1.62 and the post-test mean score was 7.67 with SD of 1.56. The mean difference was 0.33 i.e., 3.3%. The calculated paired‘t’ test value of t = 1.836 was not found to be statistically significant. This clearly indicates that there was no difference in the pre-test and post-test level of knee pain among the elderly in the control group.

In the comparison of the pre-test experimental group, the mean score was 7.66 with SD of 1.56 and the mean score of pain in the control group was 8.00 with SD of 1.62. The mean difference was 0.34 i.e., 3.3%. The calculated student independent‘t’ test value of t = 0.812 was not found to be statistically significant. This clearly indicates that there was no difference in the pre-test level of knee pain among the elderly between the experimental and control group. In the comparison of the post-test experimental group, the mean score of 1.03 with SD of 1.16 and the mean score of pain in the control group was 7.67with SD of 1.56. The mean difference was 6.63

i.e., 66.3%. The calculated student independent ‘t’ test value of t = 18.686 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that there was significant difference in the post-test level of knee pain among elderly between the experimental and control group which clearly infers that mustard plaster application on knee pain administered to the elderly people was found to effective in reducing the level of the knee pain among elderly in the experimental group than the elderly in the control group who had no intervention.

Association revealed that the clinical variables (Body mass index, knee pain and type of pain) had shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis at $p<0.05$, $p<0.05$ and $p\leq0.001$ respectively and the other demographic variables had not shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis in the experimental group. Association revealed that the clinical variables (knee pain and type of pain) had shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis at $p<0.05$ and the other demographic variables had not shown statistically significant association with pre-test level of knee pain among fulfillment with osteoarthritis in the control group.

The study findings revealed that there was a significantly reduce the level of knee pain among elderly people in the experimental group. Hence the mustard plaster application was effective on knee pain among elderly people who has osteoarthritis.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER – I

INTRODUCTION

CHAPTER – I

INTRODUCTION

Aging is a natural process. Old age is a crucial phase where the physiological, psychological and socio-cultural changes take place. It should be considered as a normal, inevitable biological phenomenon. Geriatrics is a medical specialty that deals with the health and social care of the elderly. The skeletal system serves as a framework for tissues and organs to attach themselves to this system act as a protective structure for vital organs.

Musculoskeletal disorders are injuries or pain in the body's joints, ligaments, muscles, nerves, tendons, and structures that support limbs, neck, and back. Musculoskeletal disorders are degenerative diseases and inflammatory conditions that cause pain and impair normal activities.

Osteoarthritis is a degenerative joint disease that involves the degradation of joints, articular cartilage, and subchondral bone as a result of mechanical stress on the area. The word osteoarthritis is derived from the Greek word **"Osteo"** which means **"of the bone",** "**Arthro"** which means **"joint", "itis"** means **inflammation** Osteoarthritis (OA) is a slowly progressive non inflammatory disorder of the synovial joints that affect the joint cartilage, synovial and joint capsule and affects around 60% of individuals aged over 50 years. In generally Osteoarthritis affects 9% of men and 18% women over 65 years old. Osteoarthritis is high in India, ranging from 22%-39%.

Osteoarthritis is most common among adults over 65 years of age but people of any age can develop the disease. Prevalence rises significantly after the age of 50 in men and after the age of 40 in women. 70 percent of people over as person grow older

the cartilage that serves as a shock absorber between bones can no longer sustain the rubbery and become stiff. It also loses its elasticity and becomes damaged. When these cartilages and ligaments wear out. They cause joint pain. Joint pain is the common most problem of old age people.

Joanne Stocks (2018): The prevalence of Osteoarthritis increases with old age. In those under age 50, about one-fifth have Osteoarthritis of the hands, while for those aged 75 to 79 years, 85% have Osteoarthritis of the hands. Osteoarthritis of the knee occurs in less than 0.1% of those aged 25 to 34 years, but in 10% to 20% of those aged 65 to 74 years. The overall incidence of knee Osteoarthritis is approximately 200 per 100,000 person-years. The incidence of knee Osteoarthritis is greater in women than in men, whereas the rate for knee Osteoarthritis is similar between genders. In men, rates of knee Osteoarthritis increase with age, but in women, rates remain stable. Based on these population data, one-half million symptomatic cases of idiopathic Osteoarthritis are estimated to occur annually in the U.S. The reason behind the onset of this endemic is said to be increasing longevity of Indians. By 2020 the number of 65+ populations in India is likely to be about 177 million, whereas India had 100 million people in this age group in 2010.

Although exercise is recommended for anyone, osteoarthritis therapies are intended to maintain and build muscle strength without aggravating the body in those suffering from the disease. Natural therapies involve a safe, gradual program designed to increase mobility while, at the same time reducing pain. Osteoarthritis physical therapy can be extremely beneficial and with increased endurance and the build-up of muscle tissue, and activities of the old age people.

Regular natural therapies cost reducer is crucial when dealing with arthritis as it helped to increase both muscle and bone strength while increasing relief pain and

decreasing other muscles congestion another common symptom of osteoarthritis is considered to be strengthening Applications for natural remedies those who are affecting with knee pain with osteoarthritis, especially old age people.

Many inflammatory and non- inflammatory conditions like rheumatoid arthritis, gout, osteoarthritis, osteoporosis, obesity, surgical procedures may affect joints. Disorders of the musculoskeletal system cause considerable morbidity, leading to decreased quality of life and often results in decreased life expectancy.

It is available easily and readily. It is a naturally occurring plant product that has anti-fungal, anti-microbial, counter-irritant, anti-congestant properties. The elderly in our country are not interested to spend more money on their health especially in rural parts. Mustard can be beneficial to such an elderly where they need not be dependent economically on the present generation.

The elderly in our country are not interested to spend more money on their health especially in rural parts. In India, most suffering from knee pain with an age group of above 50 years 95% of them less than 85years. Mustard can be beneficial to such elderly where they need not be dependent economically on the present generation. The researcher was interested to investigate the effects of mustard plaster application on knee pain among elderly people. The evidence can be disseminated and utilized in various care settings to achieve its maximum benefits.

NEED FOR THE STUDY

A physically active individual lives a much healthier and active life than physically inactive people. This is true for everyone but especially for people with osteoarthritis Knee pain.

Pain particularly experienced by the elderly is one of the most common clinical situations which encounters health professionals especially nurses. The nurse is most effective in providing comfort by understanding the nature of pain and the client's perception and working closely with the clients able to find out the best relief measures. There are many ways to relieve pain, from drugs to surgery depending on the type of severity risk factors involved with using a particular treatment and personal preference. Commonly used treatments for pain are Analgesics, Opioids, etc. Pain is often under treatment with complementary therapies that can be followed which avoids unnecessary complications.

Pain and stiffness are the main features and it may result in deformity and disability. So people are commonly worried about the pain. People with knee pain need pain management & easier movement. This study aims to reduce the dependence of elderly on the over the counter medications to reduce joint pain by introducing the home remedies, thereby reducing the side effects of the over the counter drugs and to improve the quality of life.

Since elderly patients are more prone to develop complications of Non-steroidal, anti-inflammatory drugs, physicians should be careful in selecting proper drugs on an individual basis looking into the cost, efficacy and toxic profile. Osteoarthritis knee pain is often progressive despite treatments such as pain medication, exercises, hot application, cold application, corticosteroid injection before eventually requiring joint replacement. The use of topical substances for the relief of symptoms in osteoarthritis has been addressed in a few studies.

Alexandriya (2018): A study was conducted that on the effect of mustard plaster application reduces in osteoarthritis knee pain in Mumbai old age home. The

study sample 60 knee pain include study criteria. They were randomly divided into two groups of experimental and control the experimental group received mustard application 10 minutes with a 48 hours interval. The findings of the study concluded that there is a meaningful difference between the mean score of pain severity before and after application in the intervention group at $p<0.001$. The researcher concluded that mustard application is a safe and effective intervention. It could be used as an easy, cheap and executable method for treating pain even at persons home.

Mustard has claimed to have beneficial effects on osteoarthritis knee pain in particular on joint pain, stiffness. Mustard seeds sold when it comes to fighting pain, their elixir is rich in anti-diuretic,anti-emetic, stimulant and rubefacient and is a traditional medication treating osteoarthritis knee pain that helps inhibit a common joint pain-causing mechanism in the body.

Knee pain is a sensation that is caused by stimuli of harmful nature, it's common and distressing manifestation the standard treatment for knee pain has been an administration of non-steroidal anti-inflammatory drugs, and they worked well to mask the pain. Alternative and complementary therapies are increasing in popularity. Patients are seeking alternatives to relieve themselves of their symptoms to improve their quality of life.

Mustard is an easily available and comparatively cheap material, mustard is well known for its counter-irritant, anti-congestant property. Its antifungal and microbial activity substance in mustard is allyl-isothiocyanates, it can inhibit carcinogenesis in breast, colon and lung cancer. Mustard increase circulation and reduces pain at application site improvements were made on mustard plaster and water mixed paste.

Mustard plaster application works primarily through chemical action and secondarily by the action of heat, it reduces the muscle stiffness, they will improve the quality of life for elderly people with osteoarthritis knee pain and their families. A mustard paste plaster procedure may help improve blood flow to the area and provide arthritis pain relief.

During clinical posting, the investigator has seen many elderly patients diagnosed with osteoarthritis knee pain. Elderly people struggled a lot of pain and disability. The researcher more considering moreover many evidence suggests that the long term use of routine drugs which were used in the treatment of joint pain had many side effects which disable a patient chronically. This along with the use of a wide range of pharmacological and non-pharmacological therapies prompted the researcher to evaluate the effectiveness of mustard paste application reducing knee pain among osteoarthritis elderly people.

The nurse has a great part in caring for such elderly; especially with those suffering from pain. Mustard can be very well used by the home. Due to its countrywide presence, easy availability, affordability, and safety, mustard is the best choice. Hence the researcher was interested in using mustard as plaster in her intervention to reduce knee joint pain among the elderly thus improving the quality of life.

STATEMENT OF THE PROBLEM

A Quasi-Experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home, at Trichy district.

OBJECTIVES OF THE STUDY

- To assess the pretest and post-test level of knee pain among elderly people who has osteoarthritis in the control group and the experimental group.
- To assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in the experimental group.
- To find out the association between the pre-test level of knee pain among elderly people who has osteoarthritis with their selected demographic variables and clinical variables in the experimental group and control group.

RESEARCH HYPOTHESIS

- H_1: The mean post-test level of knee pain will be significantly lower than the mean pretest level of knee pain among Elderly people who has osteoarthritis in the experimental group.
- H_2: The mean post-test level of knee pain among elderly people who has osteoarthritis in the experimental group will be significantly lower than the mean post-test level of knee pain in the control group.
- H_3: There will be a significant association between the mean pre-test level of knee pain who has osteoarthritis with selected demographic and clinical variables of elderly people among the experimental group and control group.

OPERATIONAL DEFINITIONS

ASSESS

It is the organized systematic and continuous process of collecting data from the elderly people regarding the level of knee pain.

EFFECTIVENESS

Effectiveness means the outcome of the intervention measured using scales.

In this study, it refers to the outcome of the mustard paste application measured by the investigator in terms of the significant reduction in knee pain level as determined by the difference between pain score level.

MUSTARD PLASTER

Mustard is a condiment made from seeds of a mustard plant, it is anti-contestant,ally-isthiocyanate (help to reduce the knee pain) mustard seeds have multiple benefits of antiviral, antimicrobial, antifungal, and high anti-inflammatory properties. Mustard seeds, as well as good pain, reduce for arthritis. It is considered to improve the circulation of blood through the body.

In this study, it refers to mustard powder 10 grams add the Luke warm water to make a paste. The paste should be spread on a double piece of a soft cloth. It applies the affected area for a maximum of 15 minutes for 14 days.

OSTEOARTHRITIS

Osteoarthritis is the degeneration of joints cartilage and underlying bone causes pain and joint stiffness.

KNEE PAIN

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

In this study, it refers to the intensity of pain in knee joint experienced and verbalized by the elderly which was assessed by a numerical pain rating scale.

ELDERLY PEOPLE

Elderly people consist of ages nearing or surpassing the average life span of human beings, and thus the end of the human life cycle. Elderly people have limited regenerative abilities and are more bone to disease, syndromes, and sickness than other adults. Hence they require specific care and skilled support.

In this study, those who are fall in the age group 55 years and above with knee pain is taken as sample for the study.

OLD AGE HOME

Old age home is a multi-residence housing facility intended for senior citizens. Typically each person or couple in the home has a separate room. Additional facilities are provided within the building, including facilities for meals, gathering, recreation, and some form of health or hospice care.

In this study, I have selected at the old age home for the pilot study and the main study at Trichy District.

ASSUMPTIONS

- Elderly people with osteoarthritis will have pain in the knee.
- Mustard plaster application will reduce inflammation and increase blood flow.
- Mustard plaster improves the tone of supportive muscles, enhances joint flexibility and relieve pain
- It is considered to improve the circulation of blood through the body and arthritis.

- A mustard soak or bath is also considered helpful in relieving backaches, muscle aches.

DELIMITATIONS

- The study is limited to only elderly people who has osteoarthritis knee pain.
- The Size of the sample is only 60.
- Elderly people who are willing to participate.
- The Study is only for 6 weeks.

PROJECTED OUTCOME

- The study findings will be able to the effectiveness of mustard plaster application on reducing knee pain who has osteoarthritis among elderly people in selected old age home at Trichy.

CHAPTER – II

REVIEW OF LITERATURE

CHAPTER – II

REVIEW OF LITERATURE

A Literature review may consist of simply a summary of key sources, but in the social sciences, a literature review usually has an organizational pattern and combines both summaries any synthesis, often within specific conceptual categories.

(Anson and Chris. M, 2010)

A review of literature is the process of reading, analyzing, evaluating and summarizing scholarly materials about a specific topic. A literature review assists the researcher to have an insight into the selection and development of the theoretical and methodological approaches of the problem.

This chapter has a review of studies done, Methodology adopted and conclusion obtained by another investigator which helps to study the problem in depth. The sources obtained are mostly from textbooks, journals and internet searches.

The literature is organized in following headings;

Section: A - Studies related to prevalence and risk factors of osteoarthritis knee pain among elderly people.

Section: B - Studies related to Osteoarthritis knee pain among elderly people.

Section: C - Studies related to the effectiveness of mustard plaster application on osteoarthritis knee pain among elderly people.

SECTION-A

Studies related to prevalence and risk factors of osteoarthritis knee pain among elderly people.

Martin, (2018) Cross-sectional study was conducted on the prevalence of self-reported lower limb joint pain complaints of musculoskeletal disorders in the community was done in Heme, Germany. A total of 200 patients were selected by random sampling techniques. The pain was assessed by using self-complete postal questionnaires. The result revealed that complaints of bilateral knee joint pain (80%), unilateral knee joint pain (60%) and hip bilateral joint pain (30%), and hip unilateral joint pain (30%). This study concluded that the lower limb joint pain complaints prevalence with increasing age group people. It highlighted the frequent problem for a large number of elderly people.

Lawrence, (2017) Conducted a descriptive study to assess the prevalence of aged related joints problems among above 50 years in a selected urban community in Hyderabad, India. A house to house survey conducted, there were 100 people aged above 50 years in the 2 communities, 60 out of them were selected as the sample with help of simple random sampling technique. The tool was used to interview questionnaires and rating scale. The scoring system was devised to categories people into those having mild, moderate, severe problems. The result shows that the, 30(68.4%) had severe joint-related problems, 20(15.6%) had moderate joint-related problems and 10(16%) had mild joint-related problems. This study concluded that the joint problem is one of the major problems among elderly peoples.

Sharma, et.al., (2016) Conducted a longitudinal study to assess the prevalence of joint problems and physical disability among aged above 55 years in selected old age people in Sreepur, Bangladesh. The sample size consisted of a total of 150 people was taken by purposively sampling techniques using the interview method. The result shows that the 125(88.7%) had only joints related problems, 17(5.3%) had only physical disability problems, and 8(6%) had both problems affected. This study concluded that the above 55 years old age group of people most suffered from joint problems and physical disability.

Hedrick, (2016) Conducted a longitudinal study to assess the prevalence of osteoarthritis knee pain among elderly women in the UK. The sample consisted of 100 women and the simple random sampling techniques were used. The tool used was interview questionnaires and a pain intensity rating scale. The result shows that the 85(91.6%) had severe knee pain, 7(5.2%) had moderate knee pain and 8(3.2%) had mild knee pain. Hence study concluded that osteoarthritis knee pain prevalent in elderly women.

Poomalar, (2015) Conducted a descriptive study to assess the prevalence of risk factors osteoarthritis knee pain among the rural women age group of 45 years and above in Sri Vinayaga medical college at Pondicherry. Totally 60 women were selected by cluster sampling technique. The data were collected by a structured interview questionnaire. The result shows that the risk factors had osteoarthritis knee pain, 42(80%), 10(12.2%) had obesity-related factors, and 8(8%) had physically demanding jobs related factors. This study concludes that the prevalence of knee pain suggesting osteoarthritis in rural women is highest among the women over 45 years of old.

Veerath L, (2014) Conducted a prospective longitudinal study on the epidemiology of knee osteoarthritis and related factors in India. The study consists of 100 samples adapted by simple random sampling techniques was used. The data collected by a structured questionnaire and the kellgren-Lawrence scale. The result revealed that 75(87.4%) had age-related factors, 15(8.6%) had obesity-related factors, 10(4%) had sedentary work-related factors. Hence the study concluded that the age-related factor is a large percentage of evidence of elderly population osteoarthritis in India.

Park, et.al., (2013) Conducted a longitudinal study to determine the health concerns of osteoarthritis knee pain among geriatric above 55 years of the age group of men, at Missouri district hospital. The study consists of 50 samples with a clinical diagnosis of osteoarthritis selected by convenient sampling technique. This study used to osteoarthritis impact measurement scale. The result shows that the osteoarthritis knee pain men had more concerned about 38(58.7%) had knee pain, 5(17.2%) had walking difficulty, 3(17%) had to bend difficulty, and 3(7.1%) had stairs climbing difficulty. This study concluded that osteoarthritis would be a major health problem, so the intervention should focus on strategies to deal with the health concern of osteoarthritis knee pain.

Alice, (2012) Performed a cohort study on the prevalence of comorbidities in patients with osteoarthritis knee pain and altered physical function among the old age people in Benin City in Nigeria. In this study, 200 people were selected by random sampling technique. The data was collected by using a structured interview questionnaire and VAS scale. The result shows that about 145(78.6%) had osteoarthritis knee pain and altered physical function, and 55(21.4%) had secondary co-morbidities which status that also one of the causes of osteoarthritis. This study concludes that comorbidities among old age people are the leading causes of osteoarthritis knee pain.

SECTION - B

Studies related to Osteoarthritis knee pain among elderly people.

Carmona-teres, (2017) A conducted qualitative analysis of the osteoarthritis-related knee pain among aged above 50 years old age people at slums in Assam. The study consist of 15 samples, the study tool was assessed by a visual analogue scale. The result shows that the 10(96.3%) had severe pain, 3(2.7%) had moderate pain and 2(1%) had mild pain. Hence study concluded that 50 years of old age group people most affected osteoarthritis knee pain.

Sangeetha, (2016) A conducted an experimental study to evaluate the Osteoarthritis knee pain among 55 -70 years of old age people in a tertiary care hospital at Tamil Nadu. The studies consist of 50 samples, purposive sampling techniques were used. The level of knee pain assessed by numerical pain scale and health assessment questionnaires. The study results show that out of 50 samples, 43(94%) had severe pain, 4(3%) had moderate pain 3(3%) had mild pain and 0(0%) had no pain. This study concluded that the (94%) of old age people suffered from severe knee pain due to osteoarthritis.

Anusha, (2015) A conducted an experimental study to assess the pain and stiffness associated with knee joint osteoarthritis among old age patients at Bangalore. The study adopted 50 samples, true experimental design, randomly sampling techniques were used. The knee joint pain, stiffness, functions score assessed by a pain rating scale. The result shows that the 43(94.3%) had worst pain, 3(2.4%) had severe pain, 2(2.3%) had moderate pain, 2(1%) mild pain and 0(0%) had no pain. This study concluded that the osteoarthritis knee pain is one of the major problems of old age people.

Nisha, (2015) A conducted non-experimental analysis study to assess the knee pain related to osteoarthritis among rural settings in North America. The study consist of 150 samples was selected by cluster sampling techniques. The study tool according to medical records. The result shows that 80(50.8%) had osteoarthritis knee pain in women and 80(50.2%) had osteoarthritis knee pain in men. Hence the study concluded that both genders were suffered from osteoarthritis knee pain.

Mohan, et.al., (2014) A case-control study was done to assess the knee pain among osteoarthritis people at the NIUM hospital Bangalore. The study consist of a total of 250 patients has participated. This study's pre-test semi-structured schedule was used for osteoarthritis people. The study tool according to medical record classification of grade systems. The result revealed that maximum osteoarthritis people grade-I 130(40.82%), grade-II 120(25.64%), grade-III 80(15.78%) and grade-IV 20(0.99%). This study concluded found that people with osteoarthritis were more likely to suffer.

T. Felson, (2013) A conducted descriptive population-based study, to estimate the severity of osteoarthritis among the age group of 55-75 years at Bhubaneswar. The study consists of 100 samples. The study design systemic random sampling technique used. The survey method tool was used to collect the data on the pre-test format. The result shows as 70(57.6%) had males are suffered, and 30(43.4%) had females is suffered. This report says both were most suffered from osteoarthritis knee pain.

SECTION - C

Studies related to the effectiveness of mustard plaster application on osteoarthritis knee pain among elderly people.

T. Rosemann, (2017) Conducted a study on the effectiveness of mustard plaster application on lower limb osteoarthritis knee pain and immobility among old age people

in the Chennai district. The study design adopted a non-equivalent pre-test, post-test control group design. The total number of samples was 60, 30 in the experimental group, and another 30 in the control group. Non-probability, convenient sampling techniques were used. Knee pain level was assessed by Western Ontario and mc master universities osteoarthritis index scale. The result shows that the pain level in the post-test experimental group, 15(50%) fully independent, 12(40%) partially independent, 3(10%) partially dependent and 0(0%) dependent. This study concluded that the mustard plaster application was found to be effective in people with osteoarthritis knee pain.

Maheswari, (2016) Conducted a study to evaluate the effectiveness of mustard paste application on osteoarthritis knee pain among 50-60 years of women in the rural area at Salem district. The study adapted 30 samples pre-experimental one group pre-test, post-test design, simple random and lottery method sampling techniques was used. The pain levels were assessed by a modified visual analogue scale. The result showed that the 26(90.6%) had no pain, 4(10.4%) had mild pain and 0(0%) had no moderate and severe pain. Hence study concluded that the mustard paste application was highly effective on osteoarthritis knee pain women.

Lakshmanan, (2015) Conducted a study to assess the effectiveness of massage with mustard paste on arthritis joints pain among old age people at Kumbakonam. The study adapted true experimental design, convenient sampling techniques were used. The total number of samples was 60. The descriptive pain scale was assessed by the level of joints pain. The result shows that the reduced arthritis joint pain 45(96.8%) had no pain, 5(4.2%) had mild pain and 0(0%) had no moderate and severe pain. This study concluded that the massage with mustard paste was effective on arthritis joint pain among old age people.

Girija Bhaskaran, (2015) Conducted a study to assess the effectiveness of warm mustard seed plaster reduced on knee joint pain and improve the physical ability among rural women at Pondicherry district. The study adopted a quasi-experimental one-group pre-test and post-test design among 30 samples, purposive sampling techniques were used. The knee joint pain and muscle stiffness assessed by the WOMAC scale. The study findings are the experimental group that 27(93.3%) had mild physical inability, 3(6.7%) had moderate physical inability, there is no severe and extreme physical inability. So this study concluded that the most effective of warm mustard seed plaster to diminish the knee joint pain and improve the physical ability.

Yashoda, (2014) Conducted a study to evaluate the effectiveness of mustard plaster application on knee joint pain and inability function among rural women selected in old age home at Vellore district. The study adapted 50 samples, pre-experimental one group pre-test, post-test design, non-randomized purposive sampling techniques was used .this study pain and inability function level was assessed by the WOMAC scale and numerical pain scale. The result shows that the 47(95.4%) had no pain and fully independent, 3(4.6%) mild pain and partially independent and 0(0%) had no moderate and severe pain with dependent. This study concluded that the mustard plaster application was effective on osteoarthritis knee joint pain and improve the ability function of old age women.

Richert, (2014) Conducted a study to evaluate the effectiveness of hot mustard pack application with osteoarthritis knee pain patients among 45-60 years age group in naturopathy hospital at Mumbai. The study adapted 30 samples true experimental post-test only control group design by convenient sampling techniques were used. This study pain score assessed by VAS (visual analogue scale). The result shows that the 28(96.7%) had no pain, 2(3.3%) had mild pain and 0(0%) had no moderate and severe

pain. This study concluded that the highly effective of hot mustard pack application on knee pain and it has low toxicity.

S. Dhivya, (2012) A Conducted a quasi-experimental study to assess the effect of mustard paste plaster application on knee pain osteoarthritis and functional disability among old age in the University of Kerala at Kerala district. The study adopted a non-equivalent post-test only design, convenient sampling techniques were used. A total of 50 number of the sample were selected disability assessed by lower extremity functional scale. The result shows that 48(96.6%) had no difficulty, 2(4.4%) had moderate difficulty and 0(0%) had no severe difficulty. The study concluded that the mustard paste plaster application had its beneficial role to improve functional ability.

CONCEPTUAL FRAMEWORK

Polit and Hungler stated that the conceptual framework is interrelated concepts on abstractions that are assembled in some rational under this relevance to a common scheme. It is a device that helps to stimulate research and the extension of knowledge by providing both direction and impetus.

The present study was aimed at determining the effectiveness of mustard paste application in reducing osteoarthritis knee pain among elderly people. The conceptual framework of this study was derived from the Gate control theory.

GATE CONTROL THEORY OF PAIN

The gate control theory first postulated by Ronald Melzack and Patrick David Wall in 1965. This theory suggests that for the pain to pass through the gate there must be an unopposed passage for nociceptive information arriving at the synapses in the substantia gelatinosa. The pain impulses will be carried out by the small diameters, slow conducting α, β and C fibres. Impulses travelled through small diameter fibres will open the pain gate and the person feels pain. Pain gate is also receiving impulses produced by stimulation of thermos receptors or mechanoreceptors transmitted via large diameter myelinated α, β fibres inhibit and superimpose the small diameter impulse. Many non-pharmacological procedures such as the application of pressure, TENS stimulate the nerve endings connected with large diameter fibres which can produce a reduction of pain by closing the pain gate.

If nociceptive information is allowed through the gate then this traffic will continue up the lateral spinothalamic tract of the spinal cord to the thalamus, and from here to the cerebral cortex. As this stimulus passes through the brain stem it may cause

an interaction between the grey matter and the midbrain, hence transmitting the pain. Suppression system and their descending neurons can release an endogenous opiate substance into substantia gelatinosa at the spinal cord level. The chemical nature of this endogenous opiate, which may be endorphin or encephalin, is such as to cause inhibition of transmission in the nociceptive circuit synapses. This is achieved by blocking the release of the chemical transmitter (substance P) in the pain circuit.

- Based on the principles of gate control theory, the conceptual framework was developed. Methods used to reduce the pain are influenced by selected demographic variables such as Age, Gender, Marital status, Educational status, occupation, mode of admission, duration of stay, Food habits, any other habits, Previous history of Sports involvement

- Clinical Variables such as Height, Weight, Body mass index, do you have any other illness? Do you have any knee pain? What is the type of pain you will have? How long have you had knee pain? When will you feel knee pain? What type of pain relief method do you use during pain? Do you have any opinion about mustard?

OSTEOARTHRITIS KNEE PAIN

Osteoarthritis is the degeneration of joints cartilage and underlying bone causes pain and joint stiffness. Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

PATHOPHYSIOLOGY

Osteoarthritis is traditionally thought of as a ‘wear and tear’ disease which occurs as we age. However, recent research suggests otherwise.

The pathogenesis of OA involves degradation of cartilage and remodelling of bone due to an active response of **chondrocytes** in the articular cartilage and the inflammatory cells in the surrounding tissues. The release of enzymes from these cells breaks down collagen and proteoglycans, destroying the **articular cartilage**. The exposure of the underlying subchondral bone results in sclerosis, followed by reactive remodelling changes that lead to the formation of osteophytes and bone cysts.

MODULATION

Knee pain perception ⟹ Transduction ⟹ Transmission

The sensory experience of pain depends on the interaction between the nervous system and the environment.

GATING MECHANISM

During the osteoarthritis knee pain impulses are transmitted through the degeneration of joints cartilage and underlying bone causes pain and stiffness which are travelled through small diameter and slow conducting myelinated fibres and reach the pain gate and open the gate those elderly perceives pain. Impulses from mustard plaster application mechanisms travel through the joint inflammations, cartilage and knee pain reduce fast feedback conducting the myelinated A, B fibres which superimpose small fibres and closes the pain gate and endorphin which is released from the interneuron at bone causes level which also closes the gate of pain. Thus patient perceives a reduction in knee pain level.

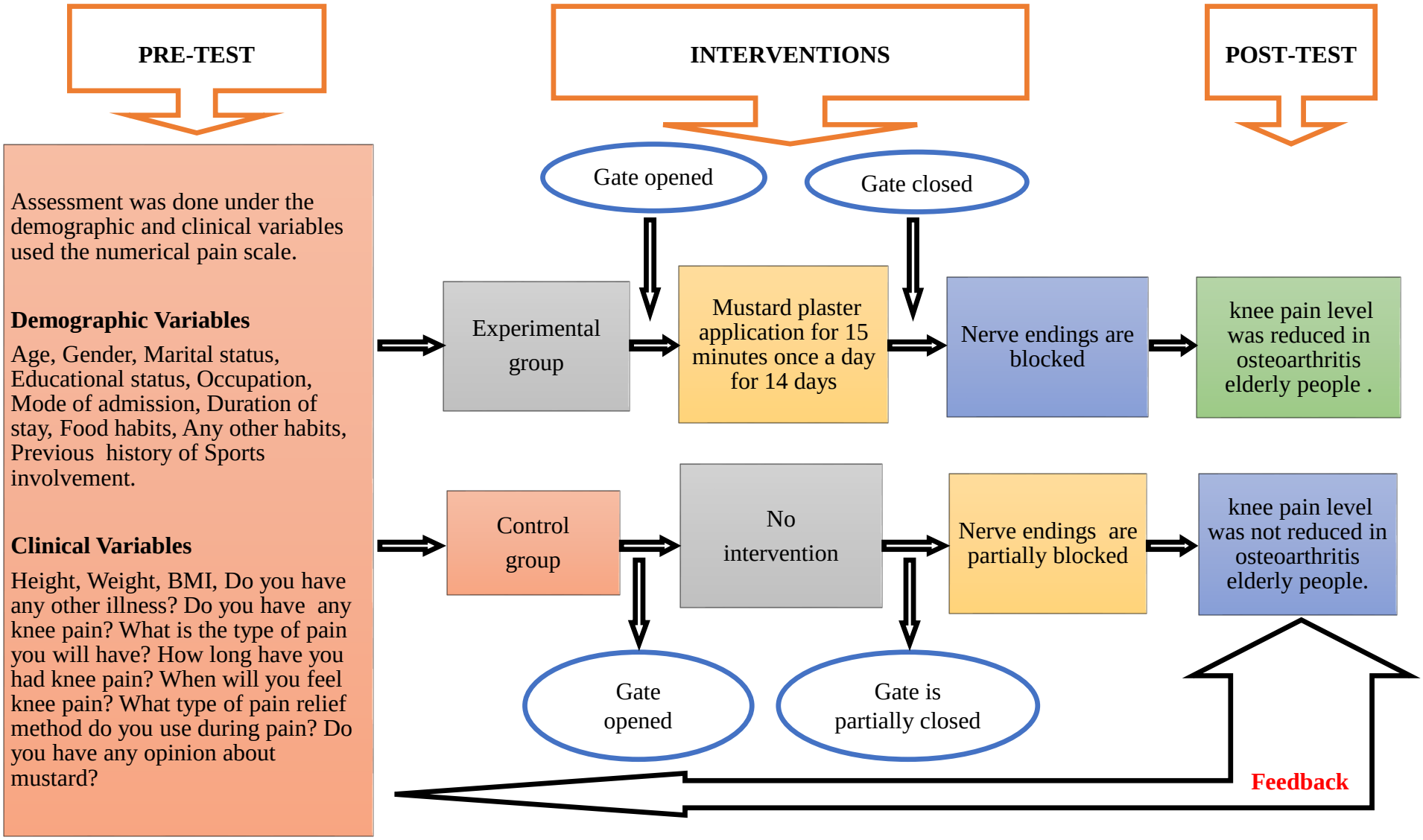


Figure 1: Conceptual framework based on modified wall and melzack's gate control theory.

CHAPTER – III

RESEARCH METHODOLOGY

CHAPTER – III

RESEARCH METHODOLOGY

"Every discourse, even a poetic or oracular sentence, carries with it a system of rules for producing analogous things and thus an outline methodology"

- ***Jacques Derrida***

The methodology is the systematic, theoretical analysis of the methods applied to a field study. Typically it encompasses concept such as paradigm, theoretical model, phases and quantitative or qualitative techniques. A methodology does not set out to provide a solution, it is therefore not the same as method.

This chapter dealt with the research approach ,research design, variables under the study, setting of the study, population of the study ,sample size, sample technique, criteria for selection of sample, description of the tool, scoring interpretation, validity and reliability of the tool, pilot study, data collection procedure, statistical analysis and protection of human rights.

RESEARCH APPROACH

The research approach tells the researcher from where the data is to be collected, what is to be collected, how to collect and how to analyze them. It also suggests a possible conclusion and helps the researcher in answering the specific research question in an accurate and efficient way.

The research approach adopted for this study was a quantitative evaluative approach.

RESEARCH DESIGN

Research design is the overall plan for obtaining an answer, to the research question for testing the research hypothesis.

(**Polit and Hungler, 2010**)

The research design used for this study Quasi-experimental – pre-test &post-test control group design was adopted for the present study.

The design can be represented as:

GROUP	PRE-TEST	INTERVENTION	POST-TEST
Experimental group	O_1	X	O_2
Control group	O_1	No intervention	O_2

KEYS:

O_1 - Assess the level of knee pain among elderly people who has osteoarthritis before administering the mustard plaster application in the experimental group and control group.

X - Application of mustard plaster once a day 15 minutes for 14 days to the experimental group.

O_2 - Assess the level of knee pain among elderly people who has osteoarthritis after administering the mustard plaster application in the experimental group and no intervention in the control group.

VARIABLES UNDER THE STUDY

A variable is measurable or potentially components of an object or event that may be different from quality and quantity from one individual, object or event to another individual object or event to same general class.

(Polit and Beck, 2010)

INDEPENDENT VARIABLES

The independent variable is a stimulus or activity that is manipulated or varied by the researcher to create an effect on the dependent variable.

(Polit and Beck, 2010)

In this present study independent variable was mustard plaster application on knee pain among elderly people who has osteoarthritis.

DEPENDENT VARIABLES

A dependent variable is what you measure in the study and what is affected during the experiment.

(Polit and Beck, 2010)

In this present study dependent variable was reduced knee pain among elderly people who has osteoarthritis.

SETTING OF THE STUDY

The setting is the general location and condition in which data collection takes place for the study.

(Polit and Beck, 2010)

This study was conducted among the elderly people who has osteoarthritis in selected old age home at Shree sayee old age home, Vidivelli old age home and Kangaroo old age home, Trichy district.

POPULATION

The population is defined as the entire set of individuals or subjects having common characteristics some time universe.

(Polit and Beck, 2010)

TARGET POPULATION

The group of the population that the researcher aims to study and to whom the study findings will be generalized**.**

For this study, the target population comprises of elderly people in selected old age home at Trichy.

ACCESSIBLE POPULATION

A list of the population were the researcher finds in a study area well-defined set which that certain specified properties**.**

For this study accessible population Elderly people who has osteoarthritis knee pain in selected old age home at Trichy.

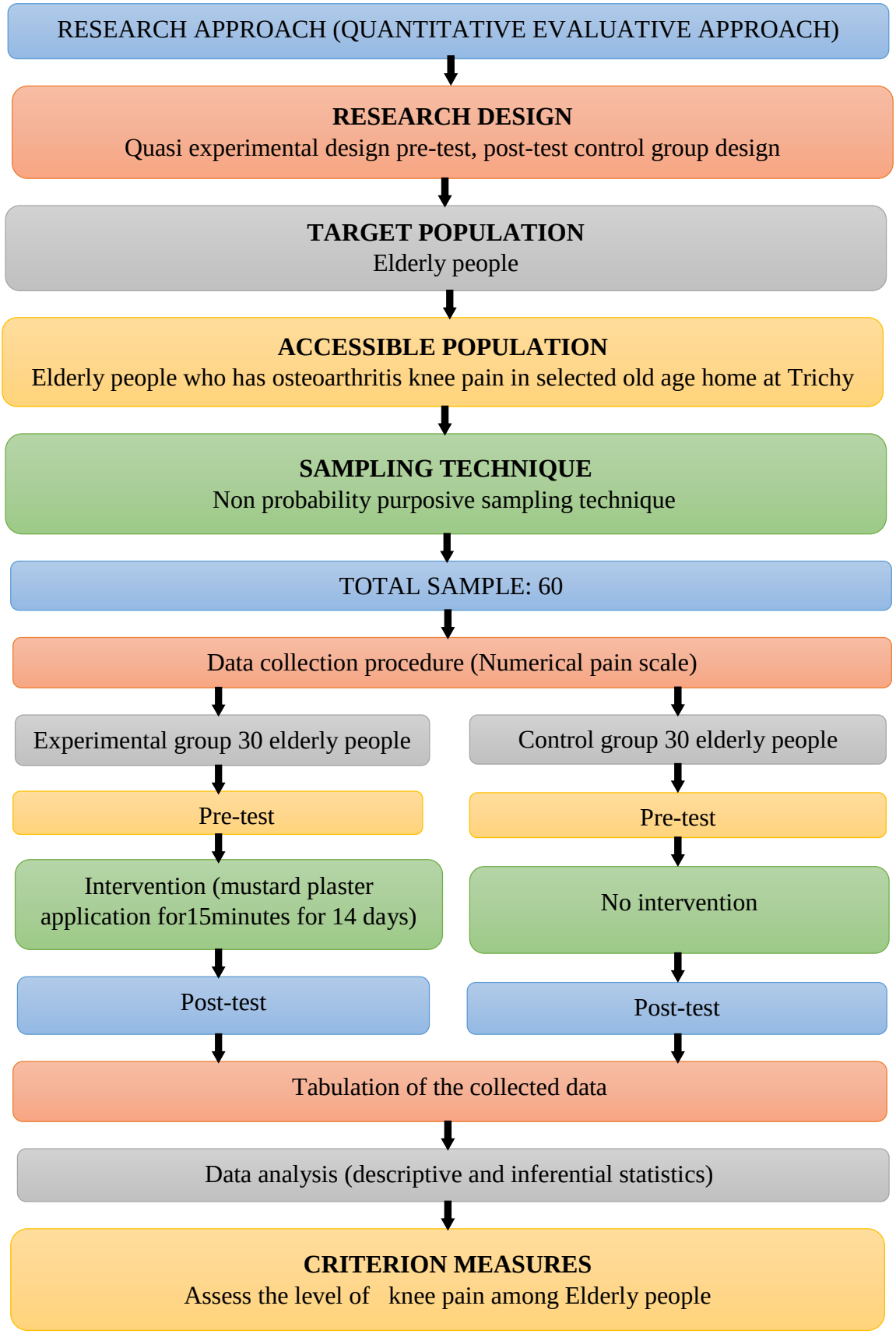


Figure 2: Schematic representation of research methodology.

SAMPLE

A subset of a population selected to participate in a study.

(Polit and Hungler, 2013)

The Sample selected for the present study was 60 elderly who has osteoarthritis knee pain in selected old age home at Trichy.

SAMPLE SIZE

Sample size means very large samples become heterogeneous and do not exhibit the characteristic of the whole population in general also there are always chances of a biased sample. It sample is too small, the researcher may not be able to generalize the study findings to the whole population.

(Polit and Hungler, 2013)

In this study, the total sample size was 60 sample, 30 samples for the experimental group, and 30 samples for the control group.

SAMPLING TECHNIQUE

Sampling technique is the process of selecting a representative part of the population.

(Polit and Hungler, 2013)

The sampling technique adopted for the study was Non-Probability purposive sampling technique.

CRITERIA FOR SAMPLE SELECTION

The study samples will be selected keeping in view of the following predetermined criteria.

Inclusion criteria

- Elderly people with osteoarthritis knee pain both male and female.
- Elderly people who were willing to participate in the study.
- Elderly people who had both unilateral and bilateral knee pain.

Exclusion criteria

- Elderly people with an unresolved neurological disorder.
- Pain due to other reason than osteoarthritis.
- Elderly people with fractures and knee surgeries.

DESCRIPTION OF THE TOOL

The instruments consist of two parts,

SECTION: 1 ----- a) Demographic variables

b) Clinical variables

SECTION: 2 ----- Numerical pain scale

SECTION: 1

A) DEMOGRAPHIC VARIABLES

It consists of demographic variables like age, gender, marital status, educational status, occupation, mode of admission, duration of stay, food habits, any other habits, previous history of sports involvement.

B) CLINICAL VARIABLES

Clinical Variables such as Height, Weight, BMI, Do you have any other illness? Do you have any knee pain? What is the type of pain you will have? How long have you had knee pain? When will you feel knee pain? What type of pain relief method do you use during pain? Do you have any opinion about mustard?

SECTION: 2

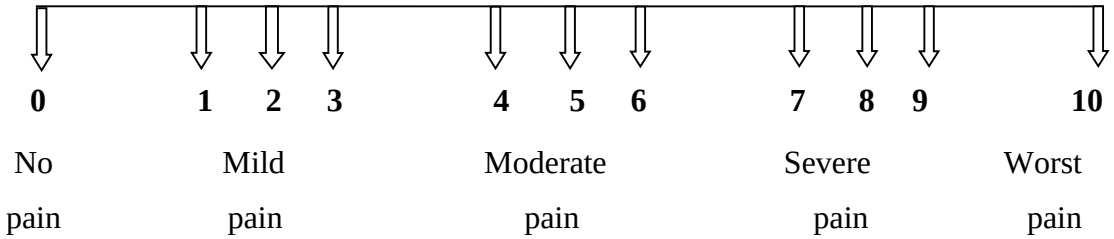
NUMERICAL PAIN SCALE

It consists of a numerical pain scale. The numerical pain scale was shown to the participants by the investigator to mark the intensity knee pain among elderly people with osteoarthritis.

DESCRIPTION OF TOOL

The Numerical pain scale is composed of "0" (no pain) to "10" is (worst pain).

Scoring was given according to the level of pain.



SCORING INTERPRETATION

SCORE	LEVEL OF PAIN
0	No Pain
1-3	Mild Pain
4 -6	Moderate Pain
7 -9	Severe Pain
10	Worst pain

VALIDITY OF THE TOOL

Validity is the degree to which an instrument measures what is intended to measure.

(Polit and Hungler, 2010)

The validity of the tool obtained from the 5 experts in the field of nursing and medicine. The suggestion and pieces of advice given by the experts were considered and duly corrected.

RELIABILITY OF THE TOOL

Reliability is the degree of consistency or dependability with instruments measures the attributes is designed to measure. The reliability of the numerical pain scale was used to assess by using test and retest method.

PILOT STUDY

The pilot study was conducted to find out the feasibility of the study. It was conducted in Vidivelli Old Age Home at Manapparai. Knee pain among elderly people who has osteoarthritis. The investigator got the formal permission from the college authority of Sakthi College of Nursing and concerned authority of old age homes doing a pilot study the study participants those who are full fill their inclusion criteria were selected by nonprobability purposive sampling techniques. The total number of samples are 6 in that 3for the experimental group, and 3 for the control group were assigned.

A brief explanation of the study purpose and objective has given to elderly people. Assurance is given to the elderly people that the collected data will be utilized only for the purpose of the study, written consent is obtained from each elderly people and it will be maintained confidentially. The investigator should introduce our self with kindly manner and maintained the good rapport with elderly people and collect the data regarding the demographic variables and clinical variables with the use of "10" point numerical pain scale assessed the knee pain level for the experimental group and control group. The investigator should give the mustard plaster application only for the experimental group for 14 days once a day for 15 minutes. No intervention for the control group. The results of the pilot study showed that the study was feasible.

DATA COLLECTION PROCEDURE

The investigator got formal permission from the college authority, Sakthi College of nursing and concerned authority of the old age home. By use of non-probability purposive sampling technique for selecting the subjects those who full fill the inclusion criteria. The total numbers of samples were 60 in that 30 were the experimental group and 30 were the control group.

A brief explanation about the purpose of the study was instructed to elderly people and assurance was given to elderly people. Written consent obtained from each subject and maintained confidentiality. The investigator established a good rapport and given a self-introduction, about the study to the elderly people. The investigator collected and gathered data regarding demographic and clinical variables with the use of a numerical pain scale to assess the level of knee pain before giving intervention. The investigator selected 60 elderly peoples (30 elderly in the experimental group, and 30 people in the control group) according to inclusion criteria. The investigator-assessed the affected knee by observing before applying the mustard plaster application.

The pre-test was conducted to both the experimental group and control group and assessed the level of knee pain by use of numerical pain scale. After that mustard plaster application has given on affected knee among elderly people in experimental group.no intervention has given to control group. The mustard plaster application intervention given for a period of 14 days, once in a day with the duration of 15 minutes to the experimental group. While applying the mustard plaster, the skin was cleaned, applied small cotton cloth to wipe off the affected knee. After application of mustard plaster on the affected knee, wait for 15 minutes to remove from the knee among the experimental group. The post-test was conducted on 15 the day at that time the level of knee pain assessed by using a numerical pain scale for both experimental and control group.

PREPARATION OF MUSTARD PLASTER

Mustard powder 10 grams add the lukewarm water to make a paste. The paste should be spread on a double piece of a soft cloth. It applies the affected knee for a maximum of 15 minutes for 14 days.

PLAN FOR DATA ANALYSIS

The data were analyzed with the help of descriptive statistics like mean, frequency, and percentage distribution, standard deviation and inferential statistics like independent, paired " t " test and chi-square test. The association between the level of knee pain among elderly people with their selected demographic and clinical variables will be analyzed with the help of the chi-square test.

PROTECTION OF HUMAN RIGHTS

The study was conducted after getting approval from the director of old age home, Trichy District. Written permission was obtained from the authorities and oral consent was obtained from the subjects after explaining the purpose of the study. The information obtained was kept confidential.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data elderly people at selected old age home at Trichy district. To assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis. The data collected for the study were grouped and analyzed as per the objectives set for the study. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANIZATION OF DATA

The findings of the study were grouped and analyzed under the following sections:

Section I: Data on the demographic variables and clinical variables of elderly people who has osteoarthritis.

Section II: Data on the assessment of pre-test and post-test level of knee pain among elderly people with osteoarthritis in the experimental and control group.

Section III: Data on the effectiveness of mustard plaster application on knee pain among elderly people with osteoarthritis of the experimental group.

Section IV: Data on the association of pre-test level of knee pain among elderly people with osteoarthritis with their selected demographic variables and clinical variables in the experimental and control group.

SECTION I: DATA ON THE DEMOGRAPHIC VARIABLES AND CLINICAL VARIABLES OF ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS.

Table 1: Frequency and percentage distribution of elderly people with osteoarthritis according to their demographic and clinical variables.

N = 60 (30+30)

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Age				
50 – 55 years	1	3.33	2	6.67
55 – 60 years	4	13.33	8	26.67
60 – 65 years	15	50.00	11	36.67
Above 70 years	10	33.33	9	30.00
Gender				
Male	15	50.00	10	33.33
Female	15	50.00	20	66.67
Marital status				
Married	7	23.33	5	16.67
Unmarried	5	16.67	1	3.33
Widow/Widower	3	10.00	7	23.33
Divorcer	15	50.00	17	56.67
Educational status				
Degree	1	3.33	0	0.00
High school	3	10.00	5	16.67
Primary	16	53.33	12	40.00
Illiterate	10	33.33	13	43.33

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Occupation				
Homemaker	11	36.67	10	33.33
Private employee	8	26.67	8	26.67
Government employee	0	0.00	4	13.33
Agriculture	11	36.67	8	26.67
Mode of admission				
Voluntary	6	20.00	11	36.67
Non voluntary	24	80.00	19	63.33
Duration of stay				
1 - 2 years	8	26.67	8	26.67
3 - 4 years	12	40.00	16	53.33
Above 5 years	10	33.33	6	20.00
Food habits				
Vegetarian	17	56.67	9	30.00
Non-vegetarian	13	43.33	21	70.00
Any other habits				
Smoking	4	13.33	7	23.33
Alcoholism	2	6.67	5	16.67
Tobacco chewing	9	30.00	10	33.33
No other habits	15	50.00	8	26.67
Previous history of sports involvement				
Yes	4	13.33	8	26.67
No	26	86.67	22	73.33

Clinical Variables	Experimental Group		Control Group	
	No.	%	No.	%
Body Mass Index				
20 - 22 Normal	5	16.67	4	13.33
22 - 25 Moderate	17	56.67	13	43.33
25 - 30 Obesity	8	26.67	12	40.00
<30 Morbid obesity	0	0.00	1	3.33
Do you have any other illness?				
Diabetes mellitus	10	33.33	5	16.67
Hypertension	9	30.00	8	26.67
Others	3	10.00	5	16.67
Nil	8	26.67	12	40.00
Do you have any knee pain?				
Right knee	9	30.00	7	23.33
Left knee	6	20.00	7	23.33
Both knees	15	50.00	16	53.33
What is the type of pain you will have?				
Mild	0	0.00	0	0.00
Moderate	14	46.67	16	53.33
Severe	16	53.33	14	46.67
How long have you had knee pain?				
More than 6 months	18	60.00	19	63.33
Less than 6 months	12	40.00	11	36.67
When will you feel knee pain?				
Walking	12	40.00	9	30.00
Sitting	0	0.00	0	0.00
Any doing work	17	56.67	12	40.00
Always	1	3.33	9	30.00

Clinical Variables	Experimental Group		Control Group	
	No.	%	No.	%
What type of pain relief method do you use during pain?				
Topical application	12	40.00	13	43.33
Home based remedies	9	30.00	9	30.00
Oral analgesic	5	16.67	6	20.00
Nil	4	13.33	2	6.67
Do you have any opinion about mustard?				
Cooking	14	46.67	12	40.00
Medical use	10	33.33	6	20.00
Pain reducing agent	0	0.00	0	0.00
Nothing	6	20.00	12	40.00

The table 1 shows that in the experimental group, most of them 15(50%) were in the age group of 60 – 65 years, 15(50%) were male and female respectively, 15(50%) were divorced, 16(53.33%) were educated up to primary, 11(36.67%) were homemakers and agriculturists respectively, 24(80%) were non voluntaries, 12(40%) were staying in old age home for 3 – 4 years, 17(56.67%) were vegetarian, 15(50%) had no other habits, 26(86.67%) had no previous history of sports involvement, 17(56.67%) had a body mass index of 22 – 25, 10(33.33%) had diabetes mellitus, 15(50%) had pain on both knees, 16(53.33%) had severe pain, 18(60%) had been suffering from knee pain for more than 6 months, 17(56.67%) had pain while doing work, 12(40%) expressed topical application as commonest remedy they follow during pain and 14(46.67%) had opined mustard for cooking.

The table 1 also shows that in the control group, most of them 11(36.67%) were in the age group of 60 – 65 years, 20(66.67%) were female, 17(56.67%) were divorced, 13(43.33%) were illiterates,10(33.33%) were homemakers, 19(63.33%) were non voluntaries, 16(53.33%) were staying in old age home for 3 – 4 years, 21(70%) were non-vegetarian, 10(33.33%) had tobacco chewing, 22(73.33%) had no previous history of sports involvement, 13(43.33%) had a body mass index of 22 – 25, 12(40%) had no other illness, 16(53.33%) had pain on both knees, 16(53.33%) had moderate pain, 19(63./33%) had been suffering from knee pain for more than 6 months, 12(40%)had pain while doing work, 13(43.33%) expressed topical application as commonest remedy they follow during pain and 12(40%) had opined mustard for cooking.

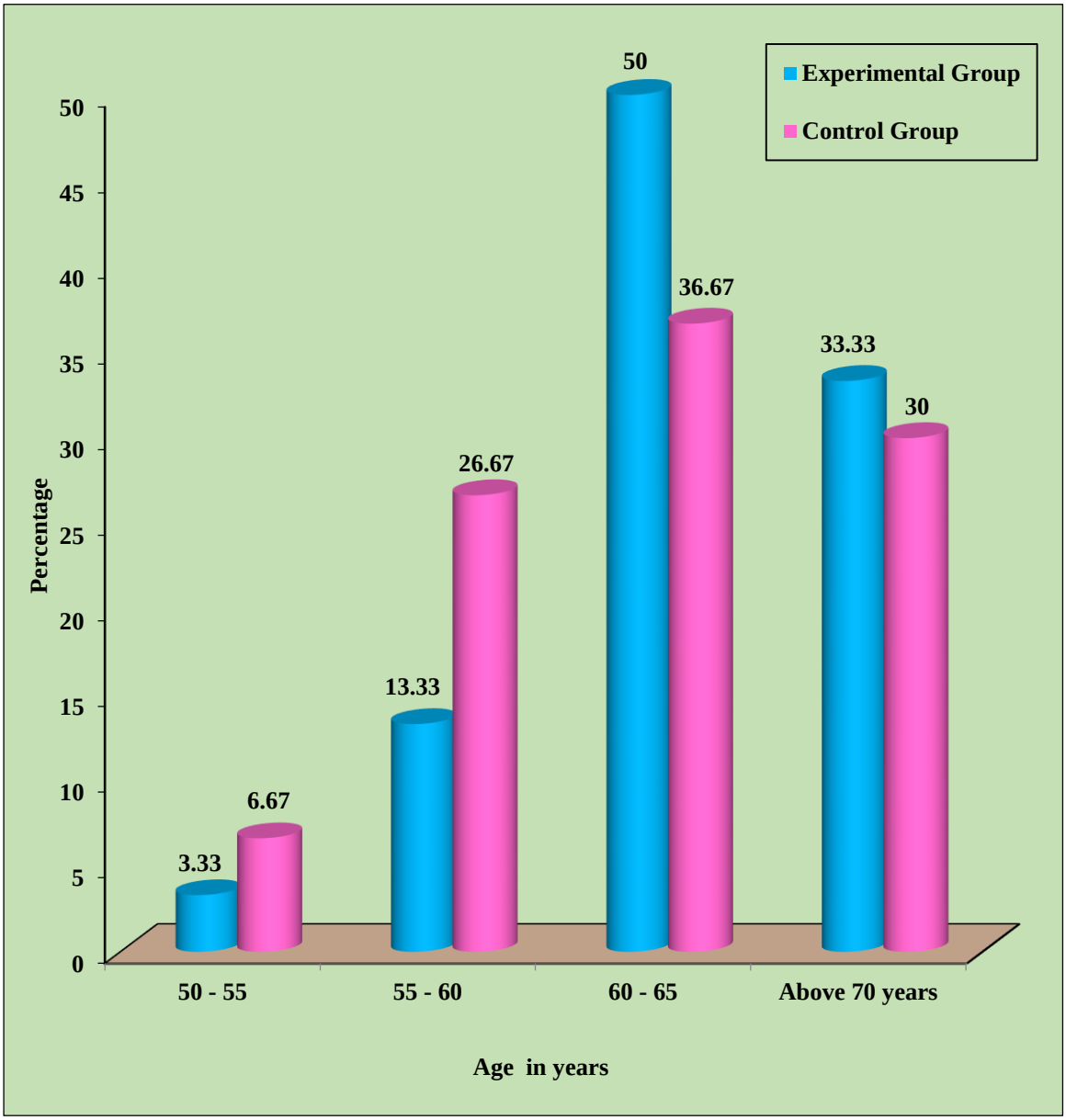


Figure 3: Distribution of subject based on their age among elderly people in the experimental and control group.

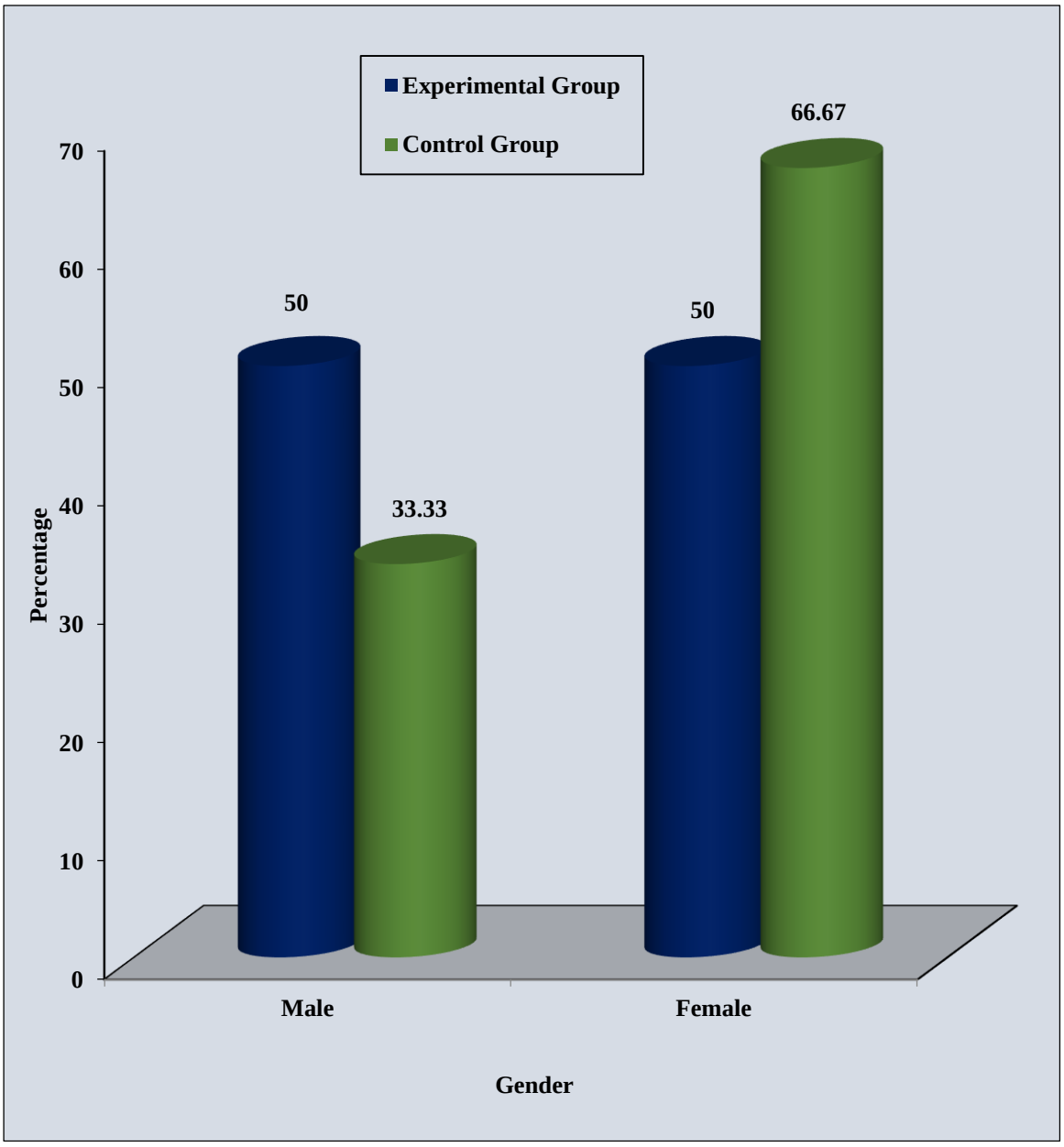


Figure 4: Distribution of subject based on their gender among elderly people in the experimental and control group.

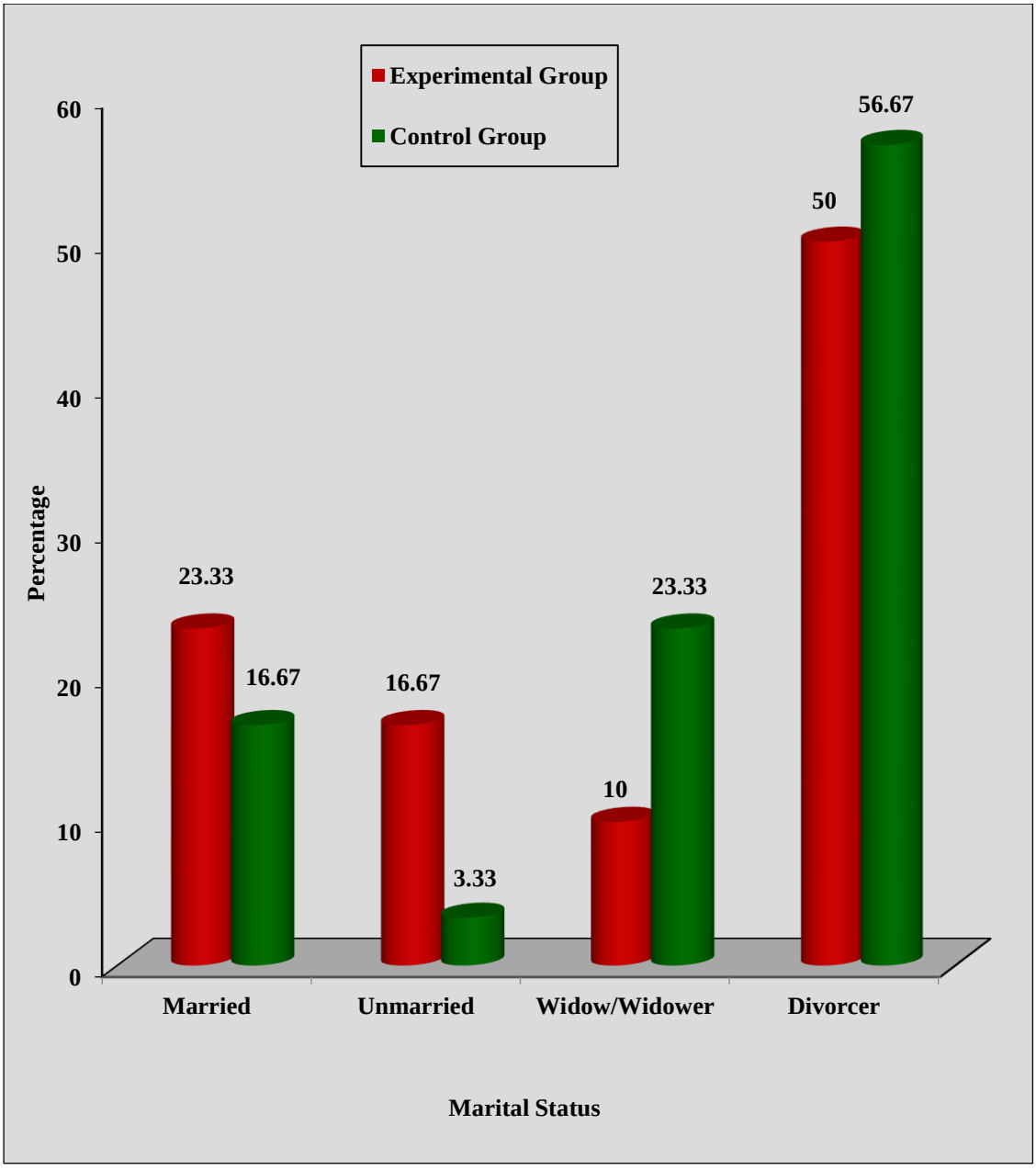


Figure 5: Distribution of subject based on their marital status among elderly people in the experimental and control group.

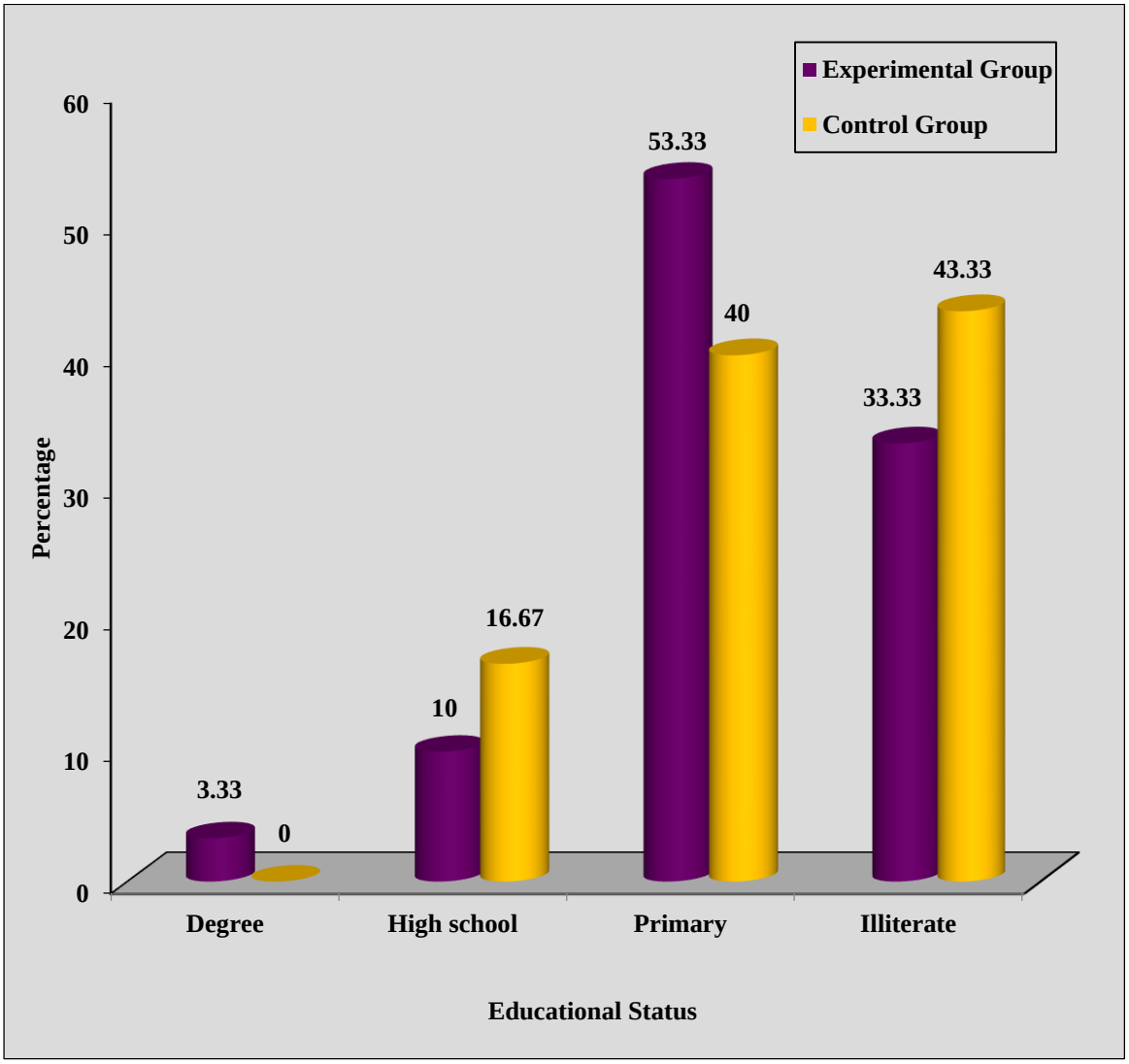


Figure 6: Distribution of subject based on their educational status among elderly people in the experimental and control group.

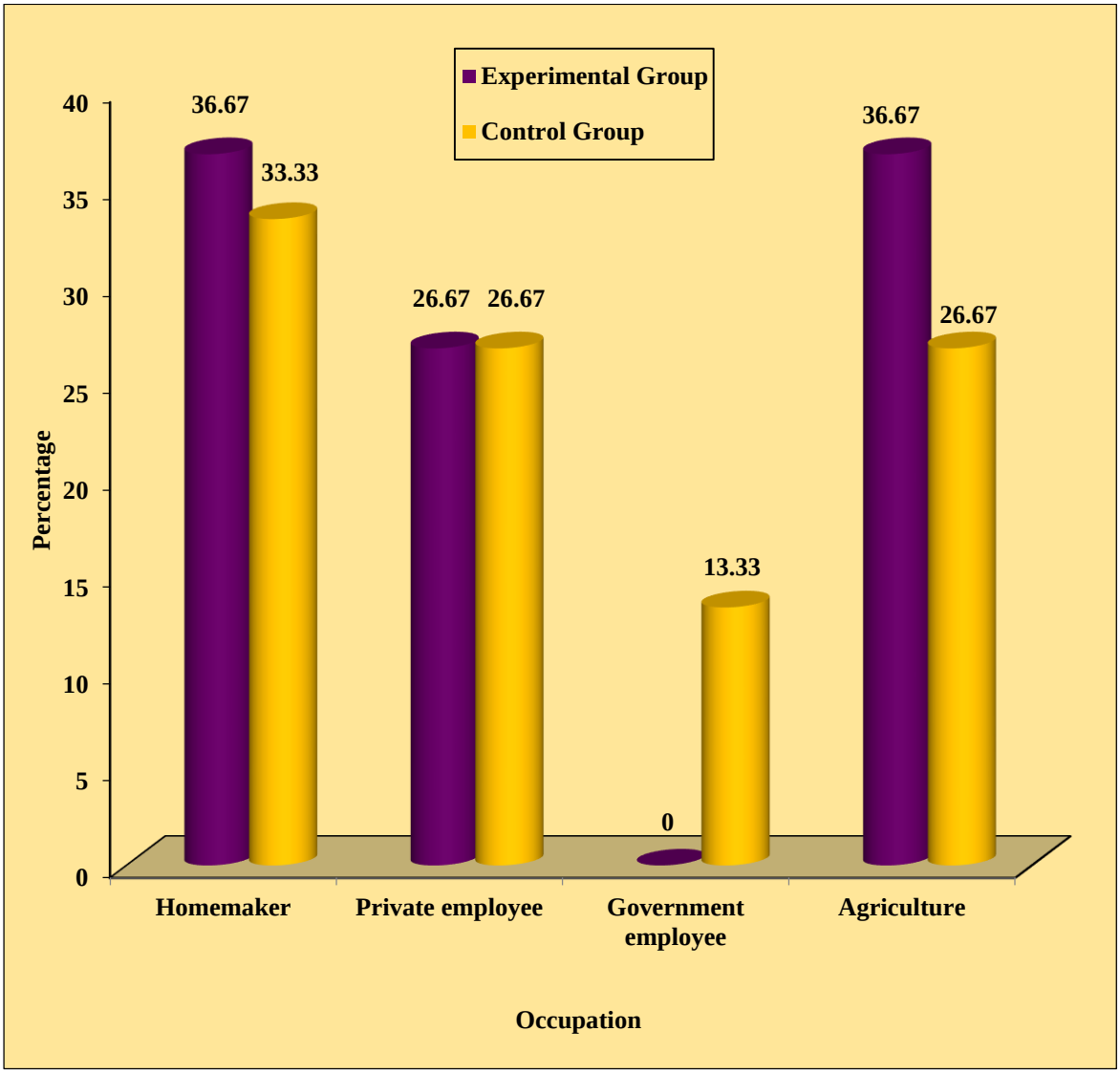


Figure 7: Distribution of subject based on their occupation among elderly people in the experimental and control group.

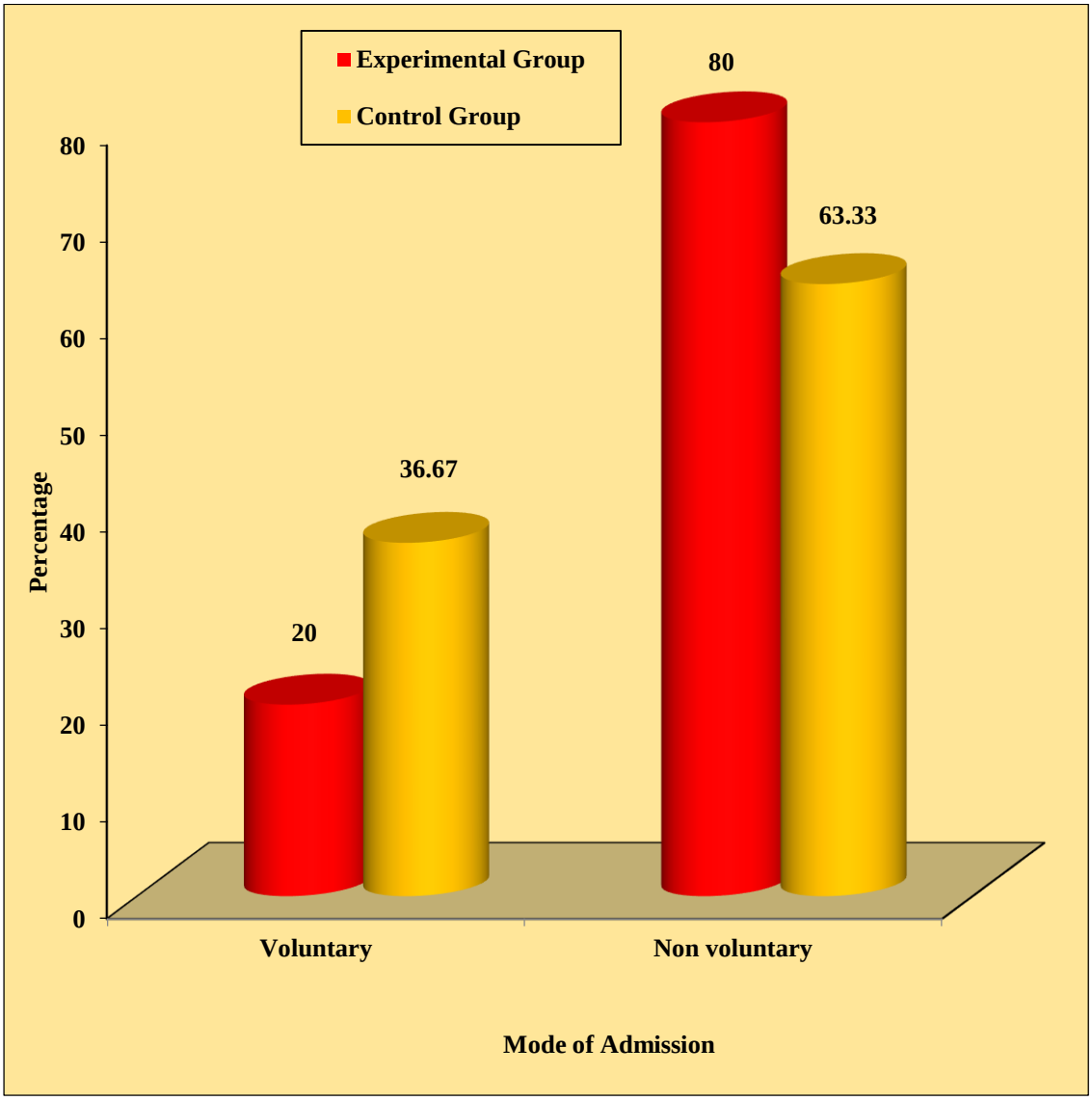


Figure 8: Distribution of subject based on their mode of admission among elderly people in the experimental and control group.

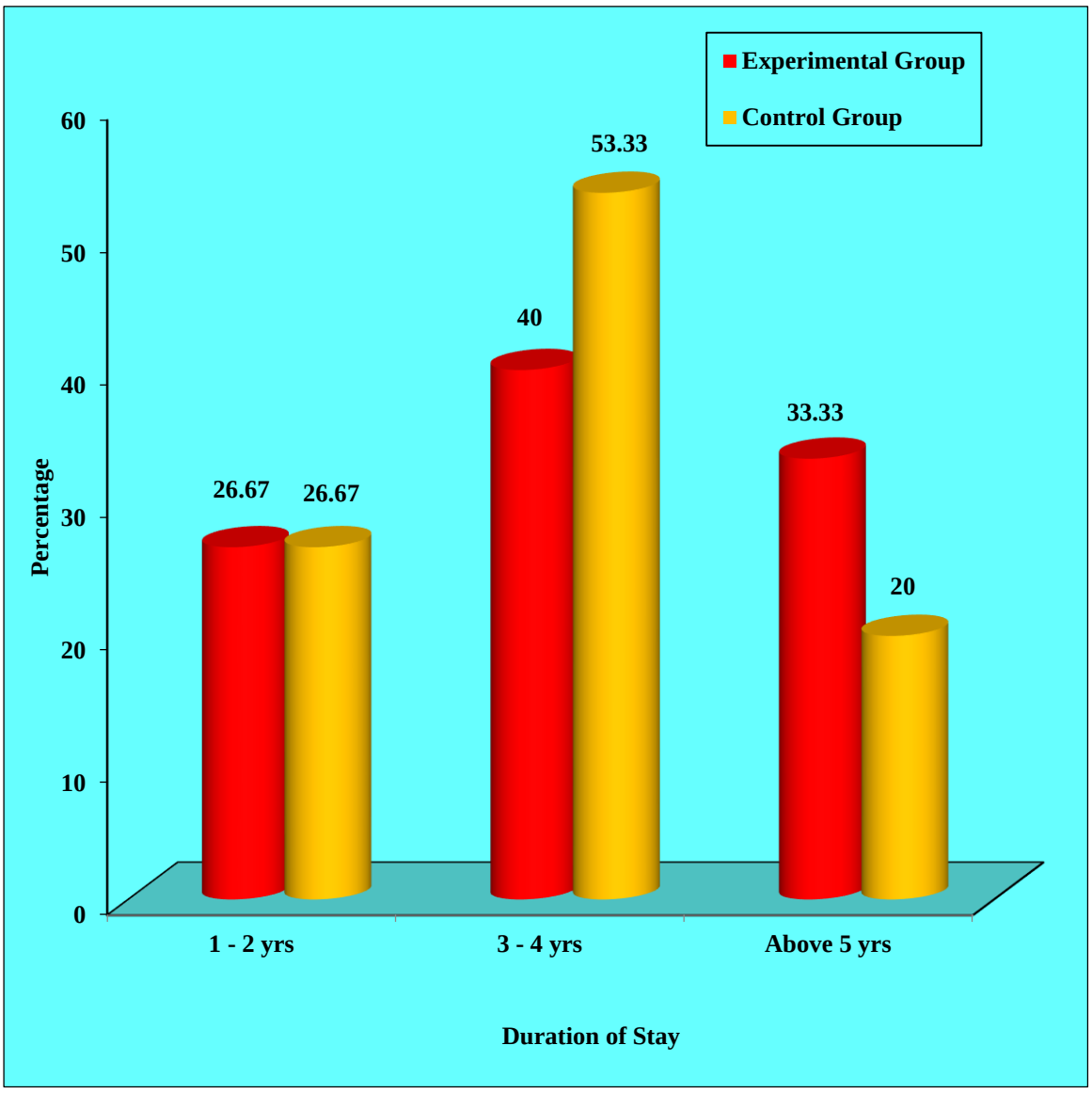


Figure 9: Distribution of subject based on their duration of stay among elderly people in the experimental and control group.

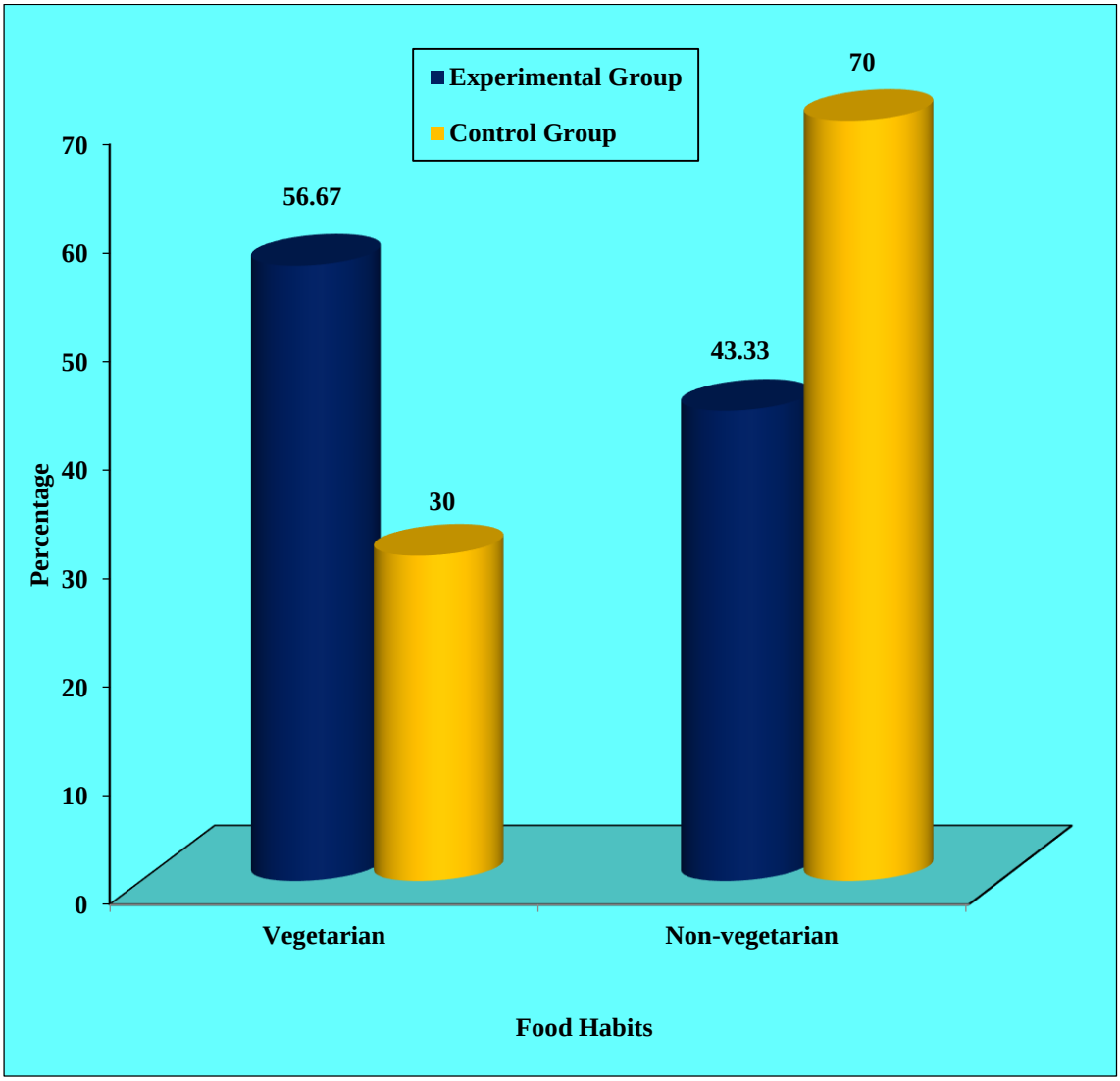


Figure 10: Distribution of subject based on their food habits among elderly people in the experimental and control group.

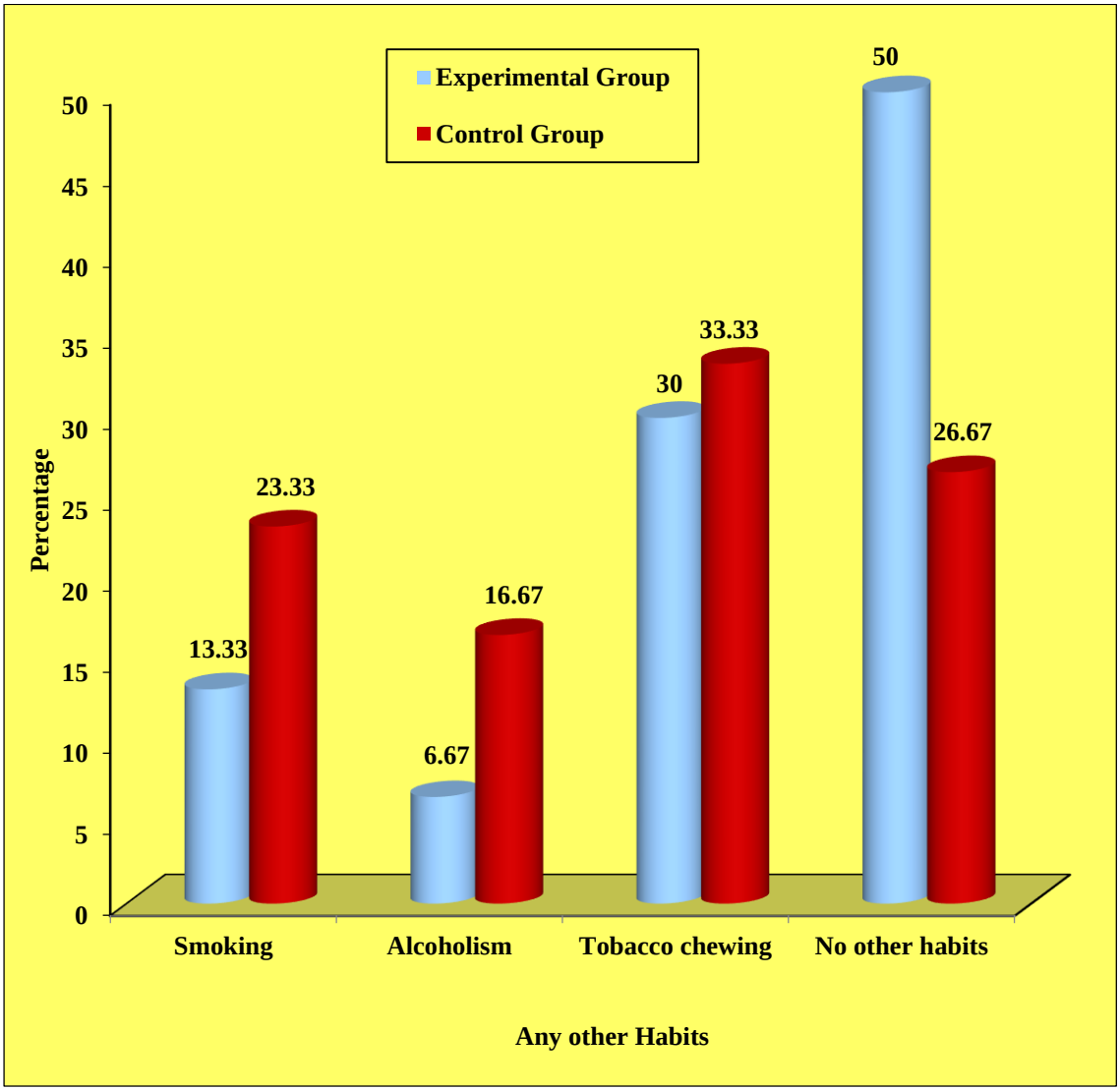


Figure 11: Distribution of subject based on their any other habits among elderly people in the experimental and control group.

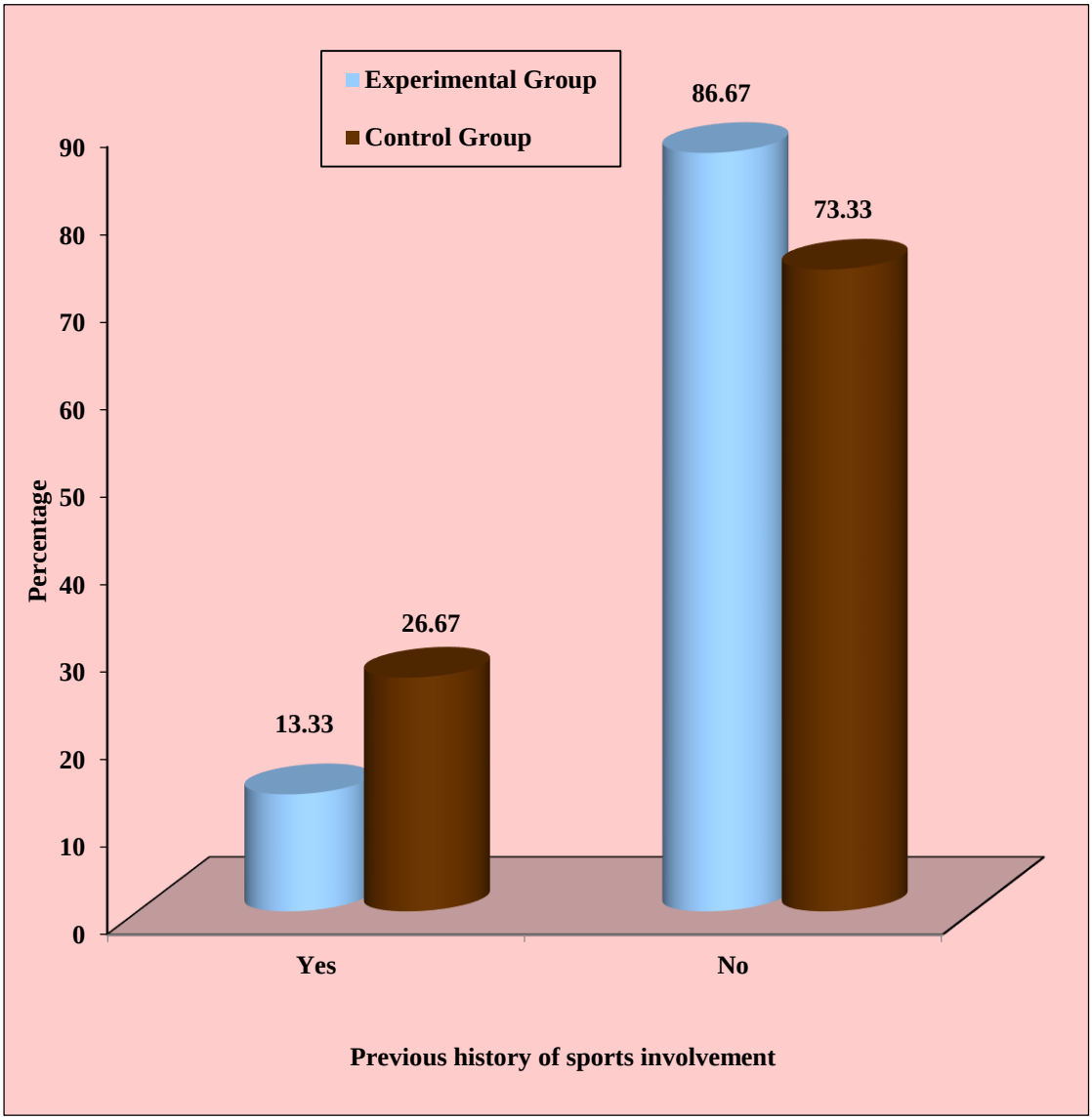


Figure 12: Distribution of subject based on their previous history of sports involvement among elderly people in the experimental and control group.

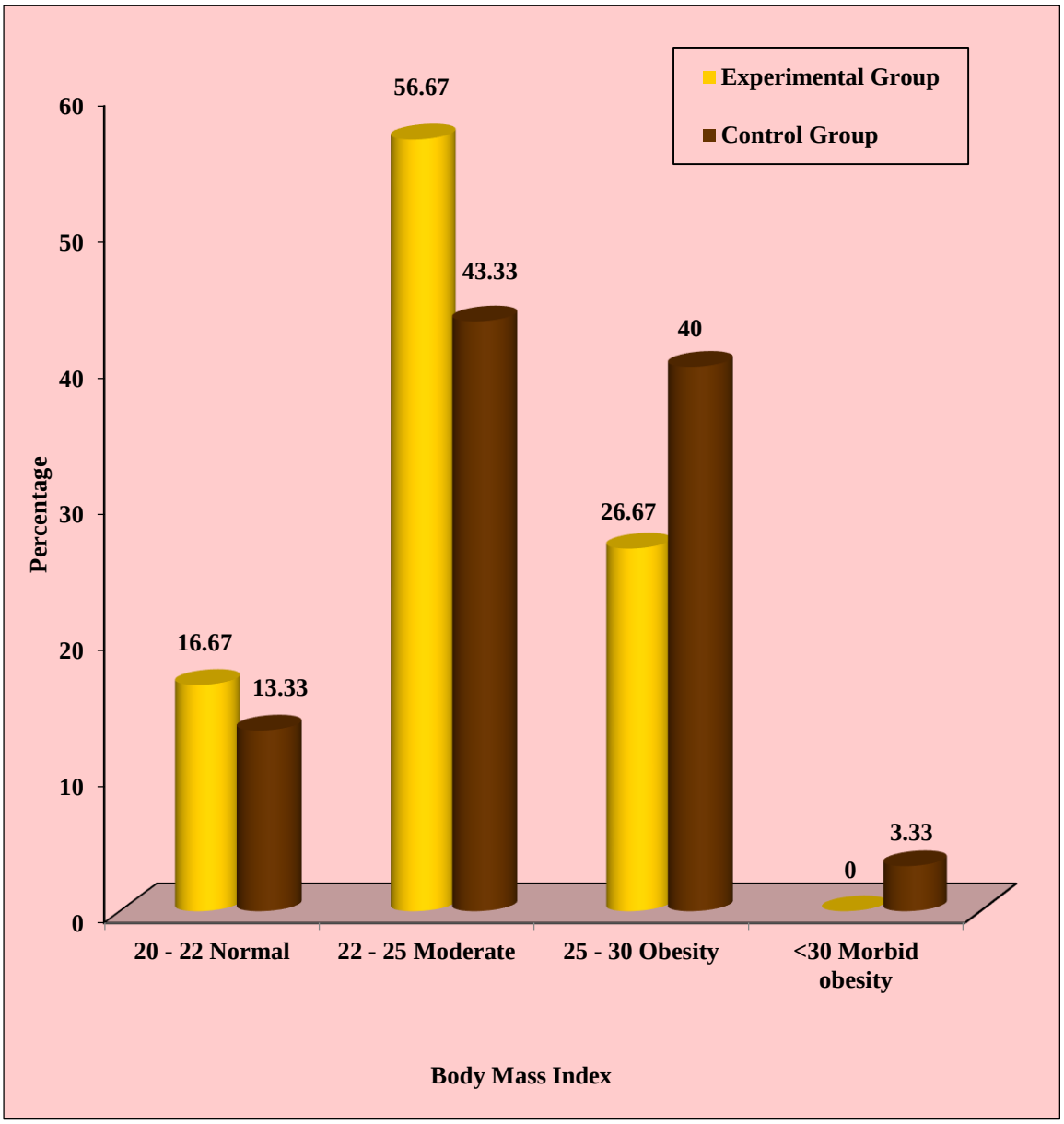


Figure 13: Distribution of subject based on their Body Mass Index among elderly people in the experimental and control group.

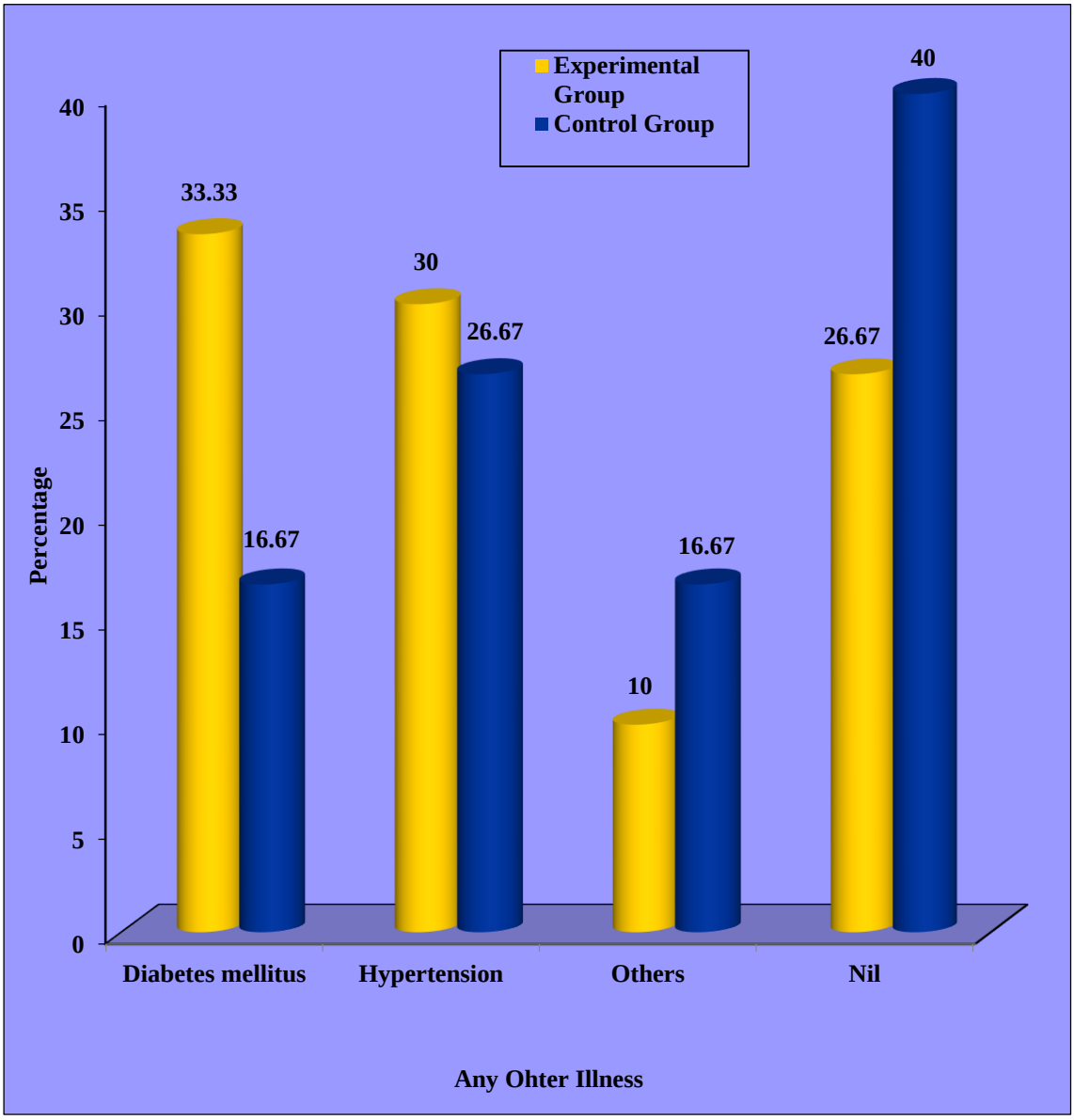


Figure 14: Distribution of subject based on their elderly people having any other illness in the experimental and control group.

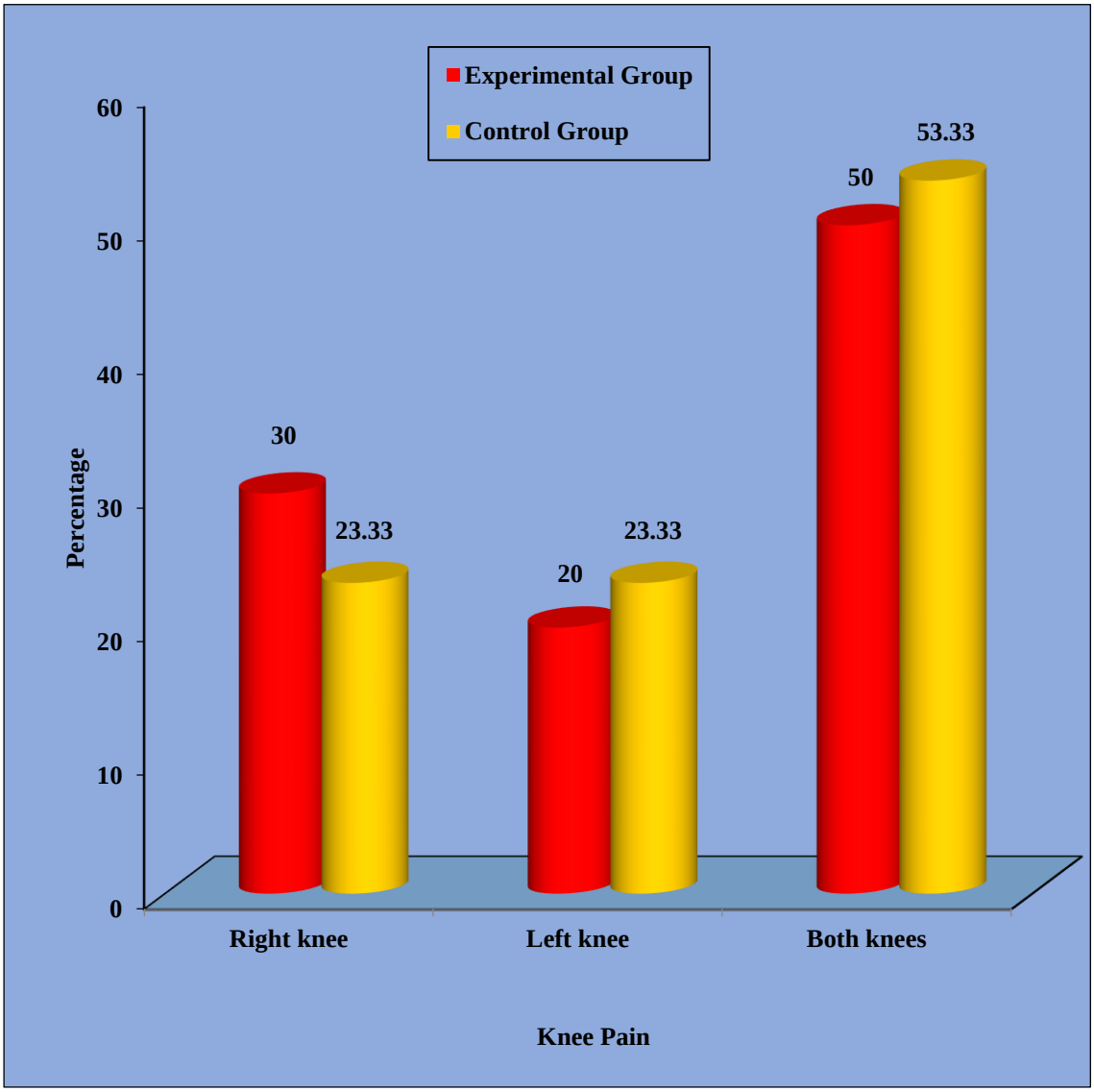


Figure 15: Distribution of subject based on their level of knee pain among elderly people in the experimental and control group.

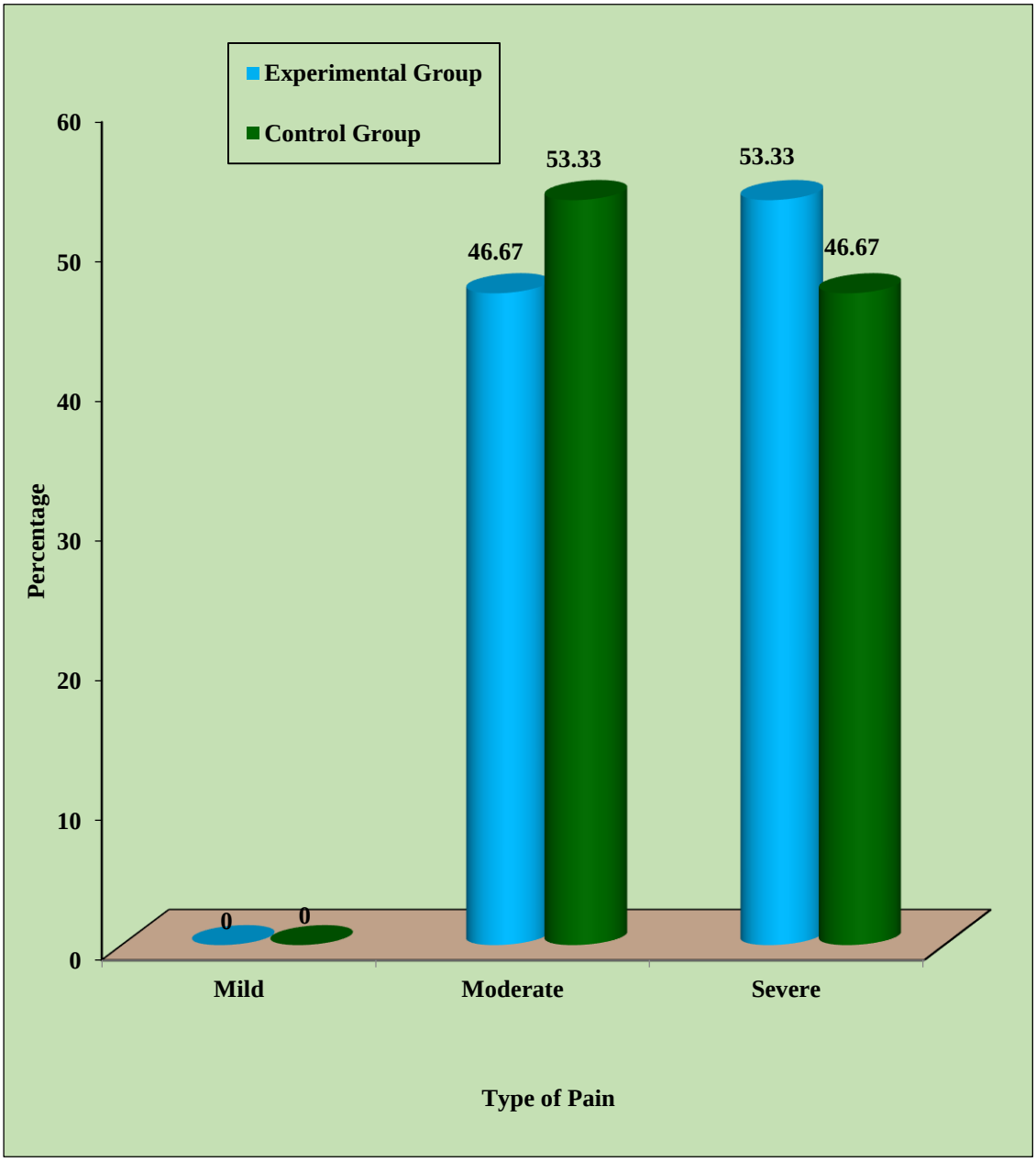


Figure 16: Distribution of subject based on their type of pain among elderly people in the experimental and control group.

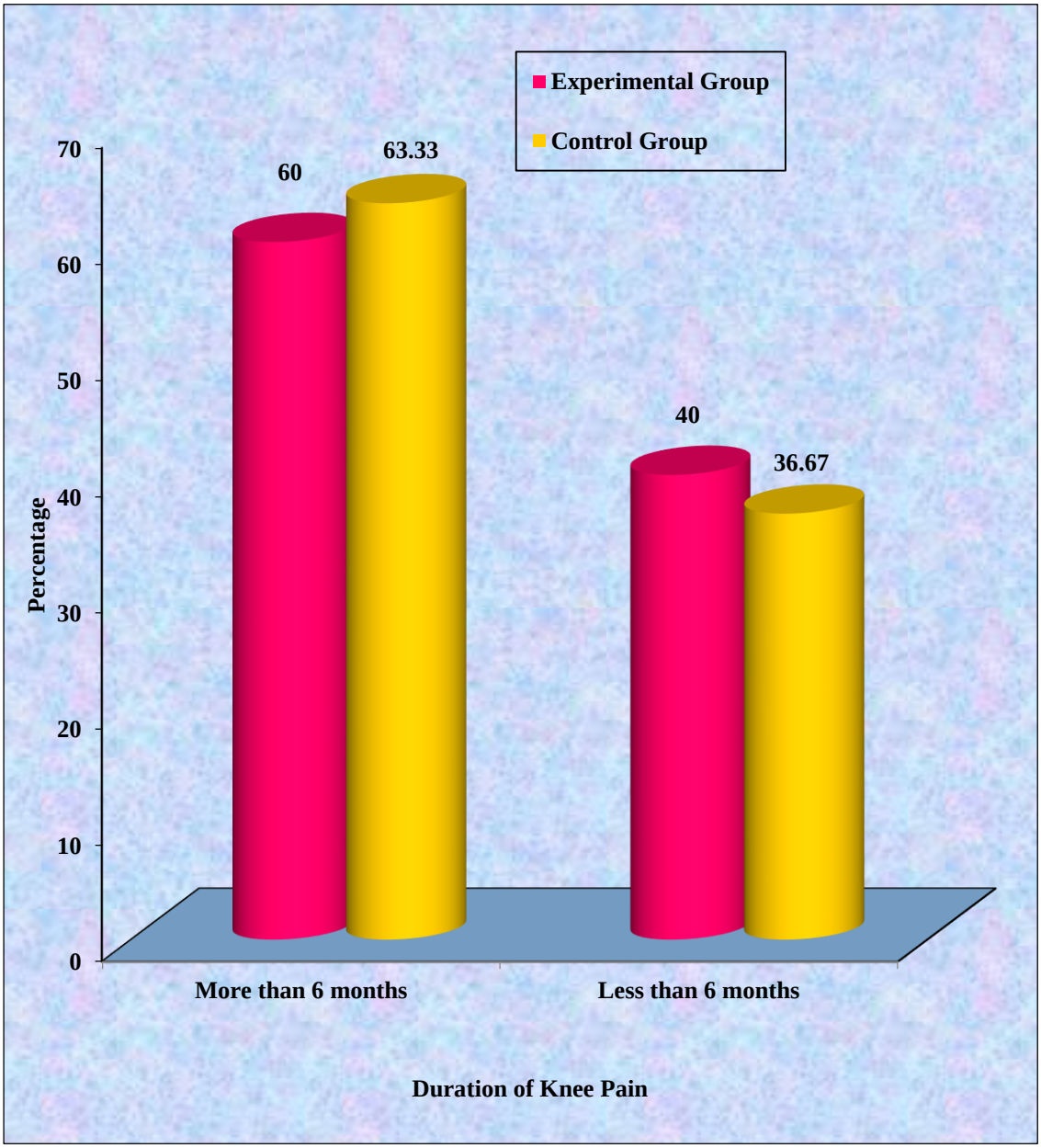


Figure 17: Distribution of subject based on their duration of knee pain among elderly people in the experimental and control group.

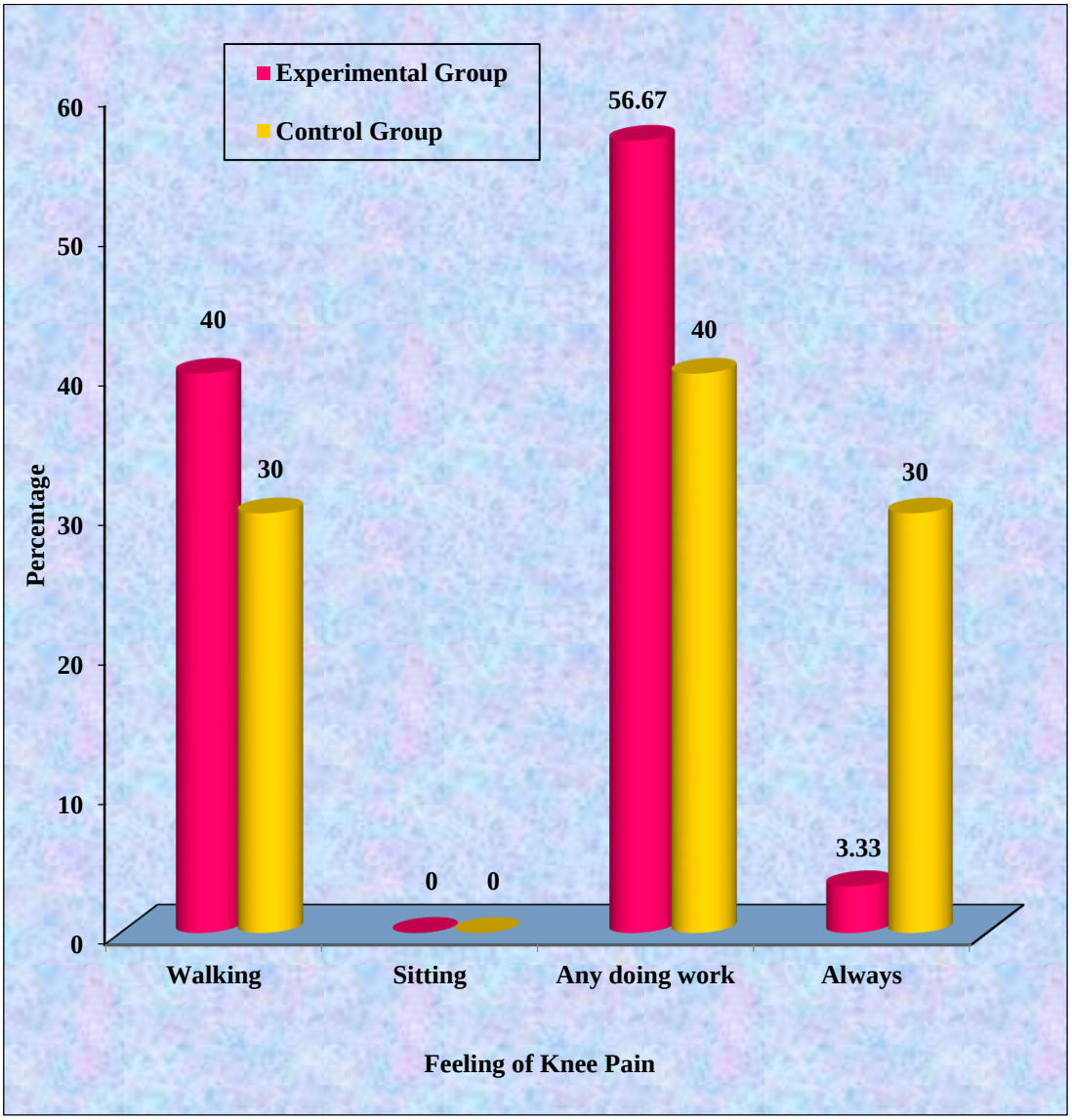


Figure 18: Distribution of subject based on their feeling of knee pain among elderly people in the experimental and control group.

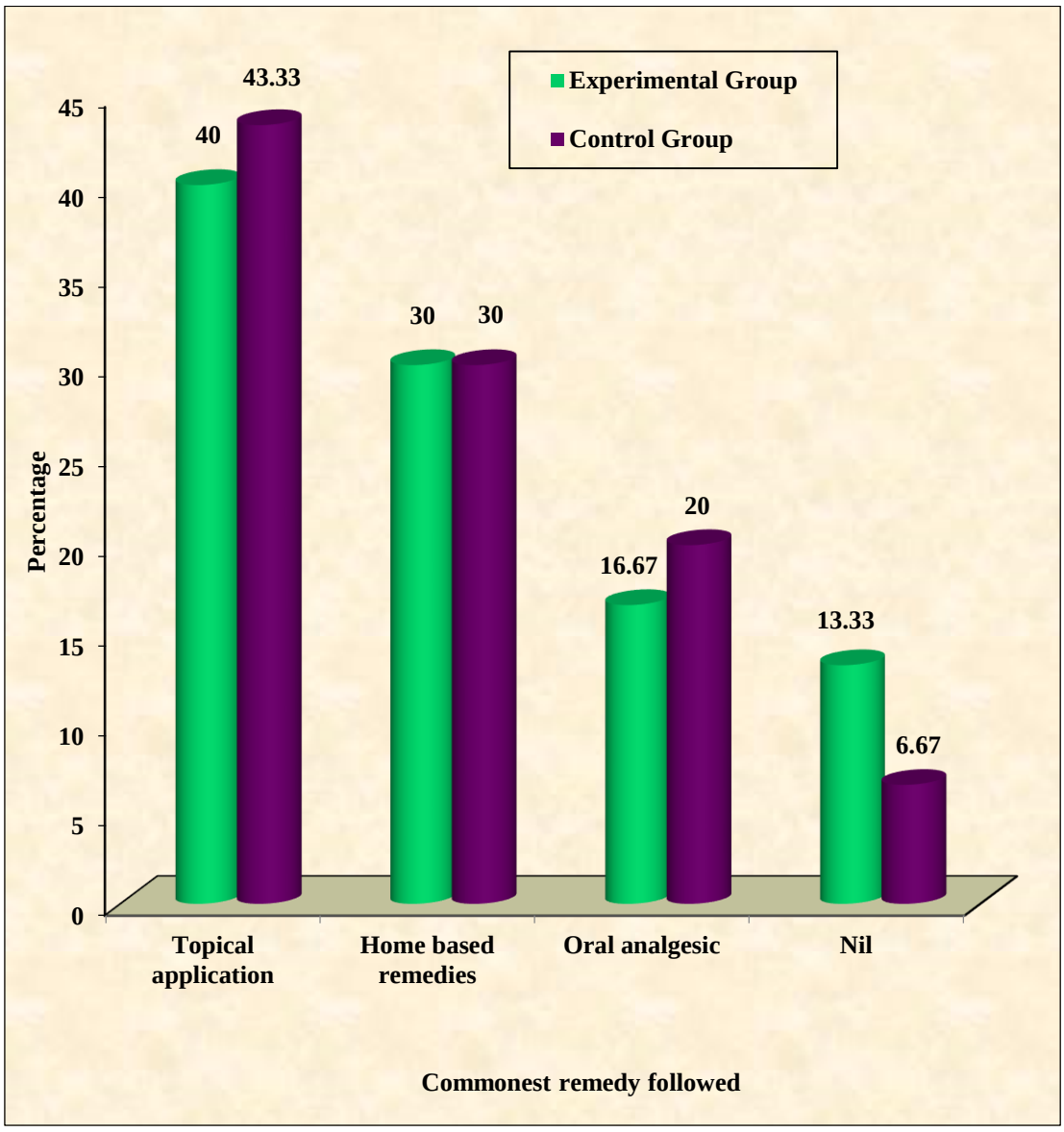


Figure 19: Distribution of subject based on their commonest remedy followed among elderly people in the experimental and control group.

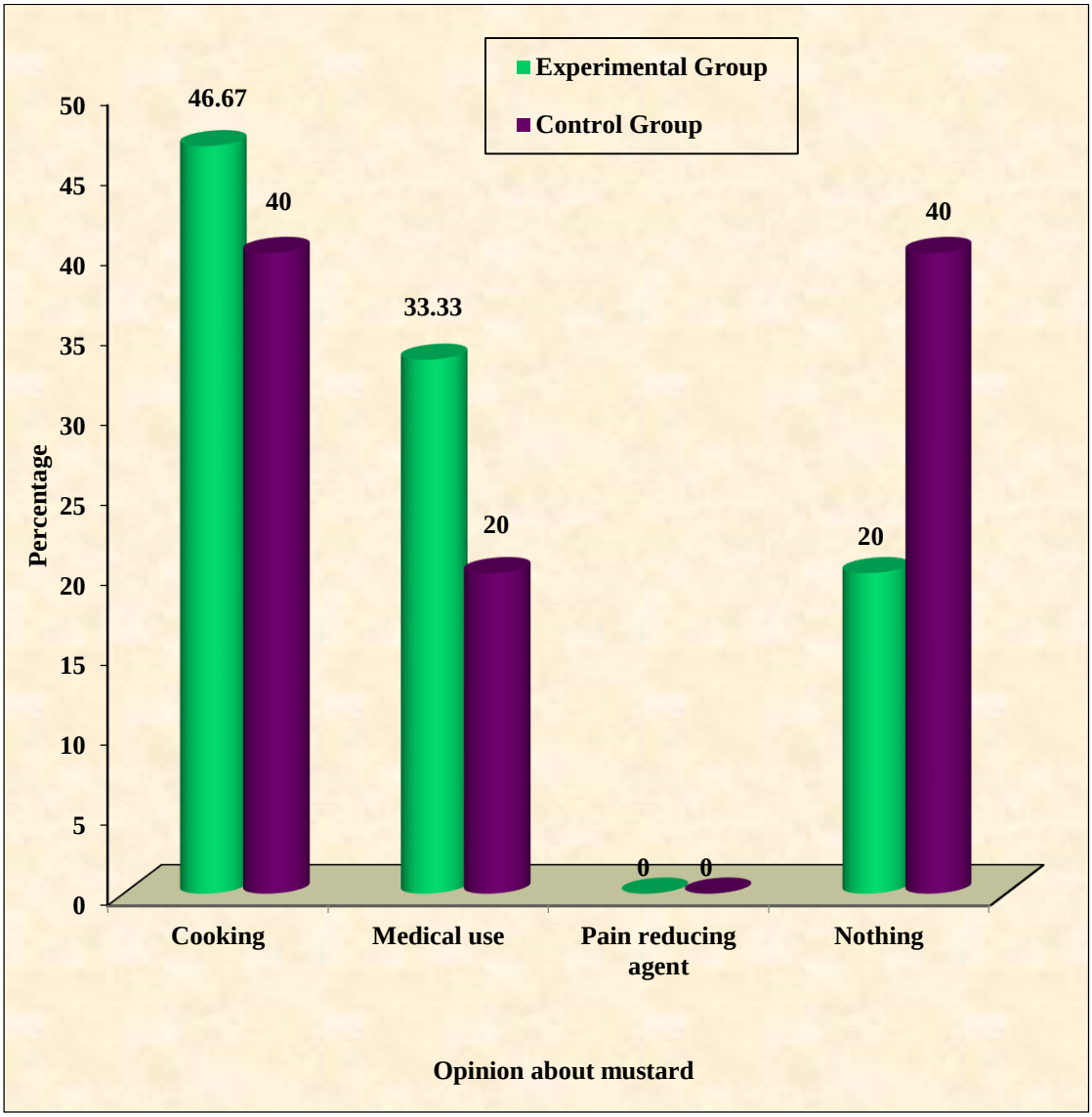


Figure 20: Distribution of subject based on their opinion about mustard among elderly people in the experimental and control group.

SECTION II: DATA ON THE ASSESSMENT OF PRETEST AND POST TEST LEVEL OF KNEE PAIN AMONG ELDERLY PEOPLE WITH OSTEOARTHRITIS IN EXPERIMENTAL AND CONTROL GROUP.

Table 2: Frequency and percentage distribution of pre-test and post-test level of knee pain among elderly people in the experimental and control group.

N = 60(30+30)

Group	Test	No Pain		Mild Pain		Moderate Pain		Severe Pain		Worst Pain	
		No.	%	No.	%	No.	%	No.	%	No.	%
Experimental group	Pre-test	0	0	0	0	8	26.67	18	60.0	4	13.33
	Post-test	14	46.67	15	50.0	1	3.33	0	0	0	0
Control Group	Pre-test	0	0	0	0	5	16.67	18	60.0	7	23.33
	Post-test	0	0	0	0	7	23.33	19	63.33	4	13.33

Table 2 depicts that in the pre-test of the experimental group, 18(60%) had severe pain, 8(26.67%) had moderate pain and 4(13.33%) had worst pain whereas, in the post-test, 15(50%) had mild pain, 14(46.67%) had no pain and only one (3.33%) had moderate pain. In the pre-test of the control group, 18(60%) had severe pain, 7(23.33%) had the worst pain and 5(16.67%) had moderate pain whereas, in the post-test, 19(63.33%) had severe pain, 7(23.33%) had moderate pain and 4(13.33%) had worst pain.

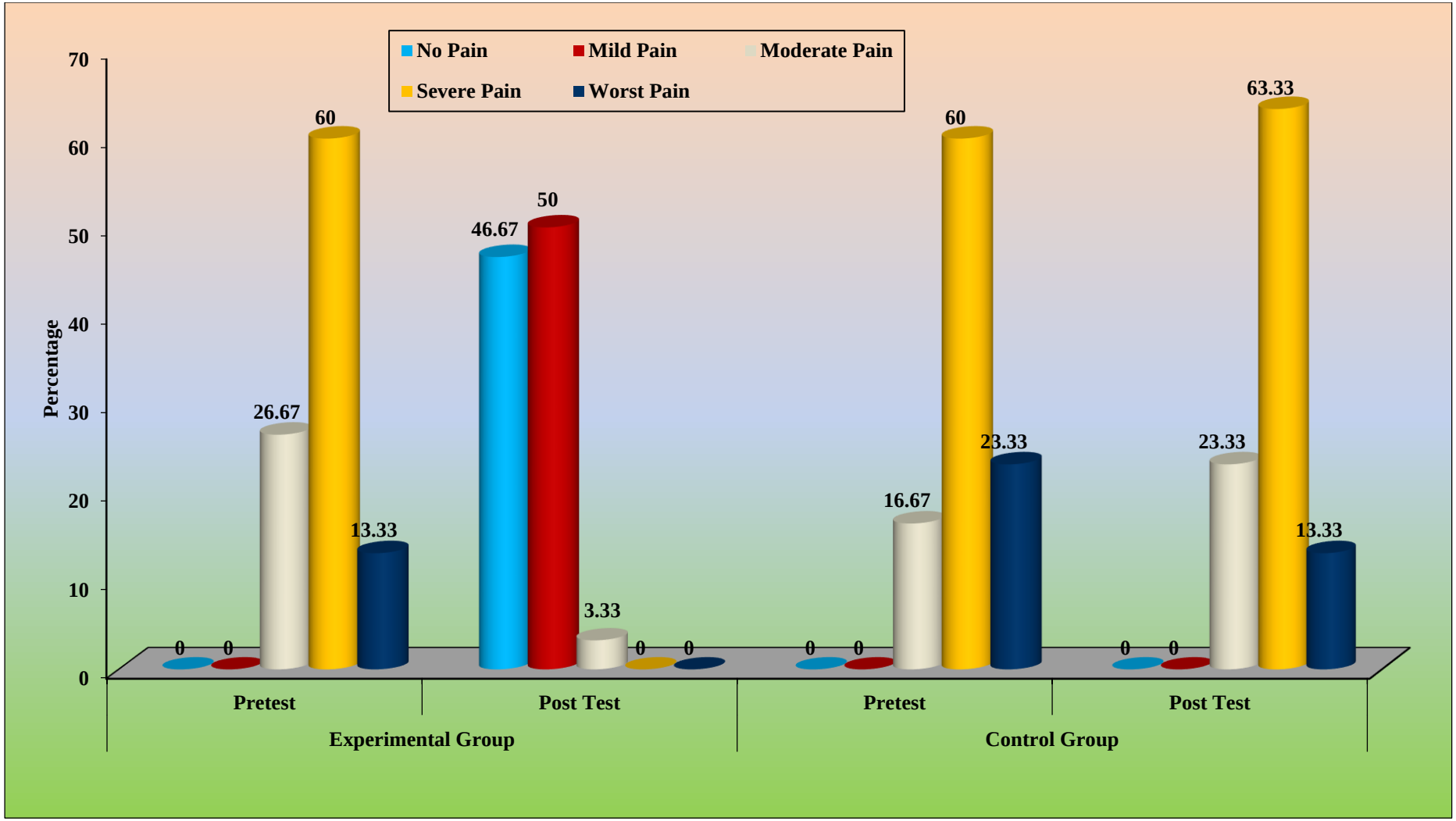


Figure 21: Distribution of subject based on their pre-test and post-test level of knee pain among elderly people in the experimental and control group.

SECTION III: DATA ON THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WITH OSTEOARTHRITIS OF EXPERIMENTAL GROUP.

Table 3: Effectiveness of mustard plaster application on knee pain among elderly people with osteoarthritis in the experimental group.

n = 30

Knee Pain	**Mean**	**S.D**	**Mean Difference & %**	**'t' value**
Pre-test	7.66	1.56	6.63 (66.3%)	**t = 26.390 p = 0.001, S*** **
Post-test	1.03	1.16		

***p<0.001, S – Significant

Table 3 portrays that in the pre-test, the mean score of 7.66 ± 1.56 and the mean score of pain in the post-test was 1.03 ± 1.16. The mean difference was 6.63 i.e., 66.3%. The calculated paired 't' test value of t = 26.390 was found to be statistically highly significant at p<0.001 level. This clearly indicates that mustard plaster application on knee pain administered to the elderly people was found to effective in reducing the level of the knee pain among the elderly in the experimental group.

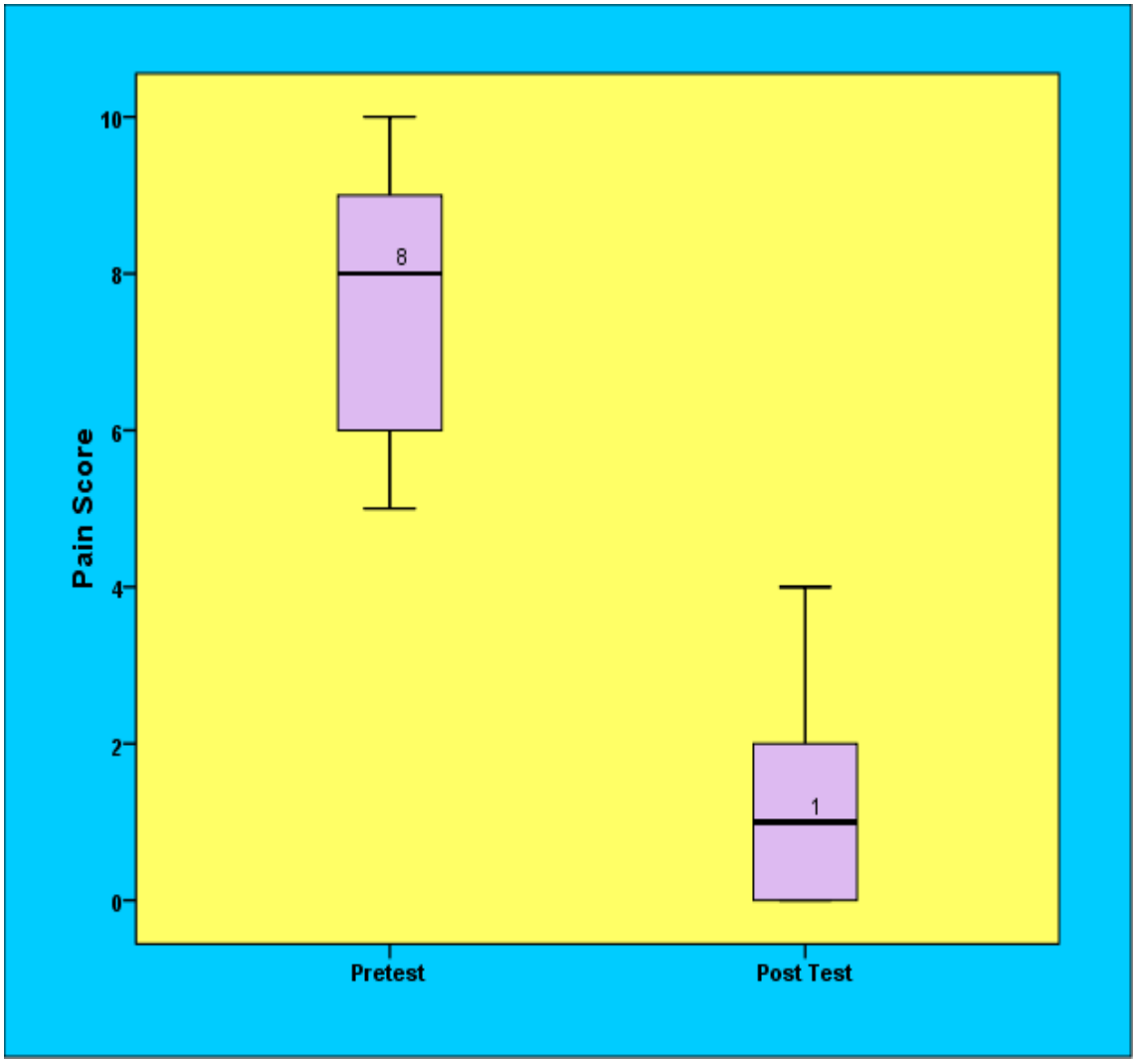


Figure 22: Boxplot showing the effectiveness of mustard plaster application on knee pain among elderly people with osteoarthritis in the experimental group.

Table 4: Comparison of pre-test and post-test knee pain scores among elderly people with osteoarthritis in the control group.

n = 30

Knee Pain	Mean	S.D	Mean Difference & %	't' test value
Pre-test	8.00	1.62	0.33 (3.3%)	**t = 1.836**
Post-test	7.67	1.56		**p = 0.077, N.S**

N.S – Not Significant

Table 4 portrays that in the pre-test, the mean score of 8.00 ± 1.62 and the mean score of pain in the post-test was 7.67 ± 1.56. The mean difference was 0.33 i.e., 3.3%. The calculated 't' value of t = 1.836 was not found to be statistically significant. This clearly indicates that there was no difference in the pre-test and post-test level of knee pain among the elderly in the control group.

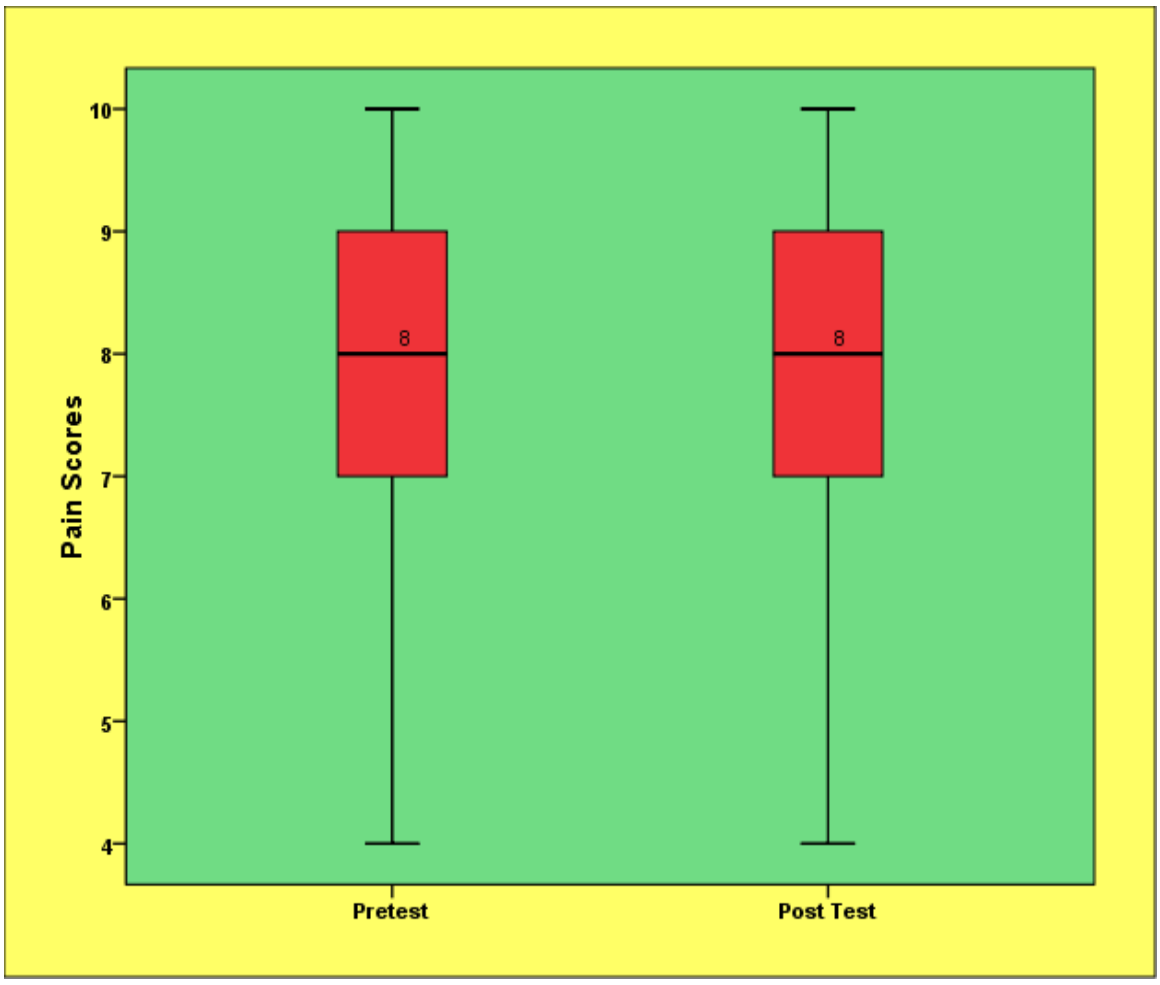


Figure 23: Boxplot showing the comparison of pre-test and post-test knee pain score among elderly people with osteoarthritis in the control group.

Table 5: Comparison of pre-test and post-test knee pain score among elderly with osteoarthritis between the experimental and control group.

N = 60(30+30)

Test	Group	Mean	S.D	Mean Difference & %	't' test
Pre-test	Experimental	7.66	1.56	0.34 (3.3%)	**t = 0.812 p = 0.420, N.S**
	Control	8.00	1.62		
Post-test	Experimental	1.03	1.16	6.63 (66.3%)	**t =18.686 p = 0.001, S*** **
	Control	7.67	1.56		

***p<0.001, S – Significant, N.S – Not Significant

Table 5 portrays that in the pre-test of the experimental group, the mean score of 7.66± 1.56 and the mean score of pain in the control group was 8.00 ± 1.62. The mean difference was 0.34 i.e., 3.3%. The calculated student independent 't' test value of t = 0.812 was not found to be statistically significant. This clearly indicates that there was no difference in the pre-test level of knee pain among the elderly between the experimental and control group.

Table 5 also portrays that in the post-test of the experimental group, the mean score of 1.03 ± 1.16 and the mean score of pain in the control group was 7.67 ± 1.56. The mean difference was 6.63 i.e., 66.3%. The calculated student independent 't' test value of t = 18.686 was found to be statistically highly significant at p<0.001 level. This clearly indicates that there was significant difference in the post-test level of knee pain among elderly between the experimental and control group which clearly infers that mustard plaster application on knee pain administered to the elderly people was found to effective in reducing the level of the knee pain among elderly in the experimental group than the elderly in the control group who had no intervention.

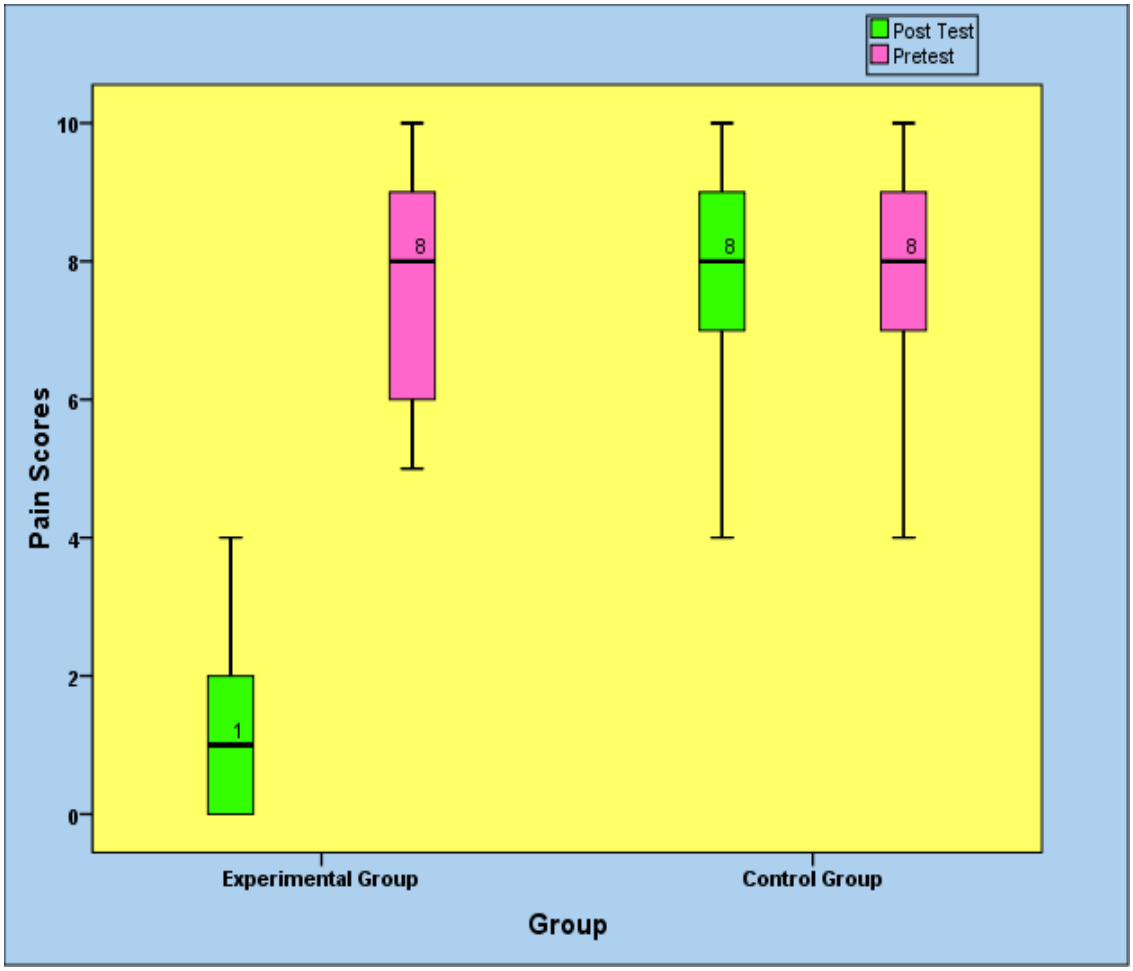


Figure 24: Boxplot showing the comparison of pre-test and post-test knee pain score among elderly people with osteoarthritis between the experimental and control group.

SECTION IV: DATA ON THE ASSOCIATION OF PRETEST LEVEL OF KNEE PAIN AMONG ELDERLY PEOPLE WITH OSTEOARTHRITIS WITH THEIR SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 6: Association of pre-test level of knee pain among elderly people with osteoarthritis with selected demographic and clinical variables in the experimental group.

n = 30

Demographic Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
Age							
50 – 55 years	1	3.3	0	0	0	0	χ^2=9.819 N.S
55 – 60 years	0	0	4	13.3	0	0	
60 – 65 years	2	6.7	10	33.3	3	10.0	
Above 70 years	5	16.7	4	13.3	1	3.3	
Gender							χ^2=0.000 N.S
Male	4	13.3	9	30.0	2	6.7	
Female	4	13.3	9	30/0	2	6.7	
Marital status							
Married	0	0	6	20.0	1	3.3	χ^2=8.698 N.S
Unmarried	1	3.3	4	13.3	0	0	
Widow/Widower	0	0	2	6.7	1	3.3	
Divorcer	7	23.3	6	20.0	2	6.7	
Educational status							
Degree	0	0	1	3.3	0	0	χ^2=2.800 N.S
High school	1	3.3	2	6.7	0	0	
Primary	3	10.0	10	33.3	3	10.0	
Illiterate	4	13.3	5	16.7	1	3.3	

Demographic Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
Occupation							
Homemaker	3	10.0	6	20.0	2	6.7	χ^2=6.477 N.S
Private employee	0	0	6	20.0	2	6.7	
Government employee	-	-	-	-	-	-	
Agriculture	5	16.7	6	20.0	0	0	
Mode of admission							χ^2=1.962 N.S
Voluntary	1	3.3	5	16.7	0	0	
Non voluntary	7	23.3	13	43.3	4	13.3	
Duration of stay							
1 - 2 years	3	10.0	5	16.7	0	0	χ^2=5.156 N.S
3 - 4 years	1	3.3	9	30.0	2	6.7	
Above 5 years	4	13.3	4	13.3	2	6.7	
Food habits							χ^2=2.002 N.S
Vegetarian	3	10.0	12	40.0	2	6.7	
Non-vegetarian	5	16.7	6	20.0	2	6.7	
Any other habits							
Smoking	1	3.3	3	10.0	0	0	χ^2=7.549 N.S
Alcoholism	0	0	2	6.7	0	0	
Tobacco chewing	5	16.7	3	10.0	1	3.3	
No other habits	2	6.7	10	33.3	3	10.0	
Previous history of sports involvement							χ^2=1.635 N.S
Yes	2	6.7	2	6.7	0	0	
No	6	20.0	16	53.3	4	13.3	

Clinical Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
Body Mass Index							
20 - 22 Normal	1	3.3	2	6.7	2	6.7	**χ^2=10.608 S***
22 - 25 Moderate	5	16.7	11	36.7	1	3.3	
25 - 30 Obesity	2	6.7	5	16.7	1	3.3	
<30 Morbid obesity	-	-	-	-	-	-	
Do you have any other illness?							
Diabetes mellitus	2	6.7	7	23.3	1	3.3	χ^2=4.838 N.S
Hypertension	4	13.3	4	13.3	1	3.3	
Others	0	0	3	10.0	0	0	
Nil	2	6.7	4	13.3	2	6.7	
Do you have any knee pain?							
Right knee	5	16.7	2	6.7	2	6.7	**χ^2=11.059 S*****
Left knee	1	3.3	5	16.7	0	0	
Both knees	2	6.7	11	36.7	2	6.7	
What is the type of pain you will have?							
Mild	-	-	-	-	-	-	**χ^2=13.929 S*****
Moderate	8	26.7	6	20.0	0	0	
Severe	0	0	12	40.0	4	13.3	
How long have you had knee pain?							
More than 6 months	5	16.7	12	40.0	1	3.3	χ^2=2.396 N.S
Less than 6 months	3	10.0	6	20.0	3	10.0	

Clinical Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
When will you have feel knee pain?							
Walking	4	13.3	7	23.3	1	3.3	χ^2=3.999
Sitting	-	-	-	-	-	-	N.S
Any doing work	3	10.0	11	36.7	3	10.0	
Always	1	3.3	0	0	0	0	
What type of pain relief method do you use during pain?							
Topical application	4	13.3	8	26.7	0	0	χ^2=3.248
Home based remedies	2	6.7	5	16.7	2	6.7	N.S
Oral analgesic	1	3.3	3	10.0	1	3.3	
Nil	1	3.3	2	6.7	1	3.3	
Do you have any opinion about mustard?							
Cooking	3	10.0	9	30.0	2	6.7	χ^2=0.571
Medical use	3	10.0	6	20.0	1	3.3	N.S
Pain reducing agent	-	-	-	-	-	-	
Nothing	2	6.7	3	10.0	1	3.3	

***p≤0.001, S – Significant, N.S – Not Significant

The table 6 shows that the clinical variable (body mass index, knee pain and type of pain) had shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis at p≤0.001 and the other demographic variables had not shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis in the experimental group.

Table 7: Association of pre-test level of knee pain among elderly people with osteoarthritis with selected demographic and clinical variables in the control group.

n = 30

Demographic Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
Age							
50 – 55 yrs	0	0	1	3.3	1	3.3	χ^2=4.201 N.S
55 – 60 yrs	2	6.7	6	20.0	0	0	
60 – 65 yrs	2	6.7	6	20.0	3	10.0	
Above 70 years	1	3.3	5	16.7	3	10.0	
Gender							χ^2=0.636 N.S
Male	2	6.7	5	16.7	3	10.0	
Female	3	10.0	13	43.3	4	16.7	
Marital status							
Married	1	3.3	4	13.3	0	0	χ^2=3.739 N.S
Unmarried	0	0	1	3.3	0	0	
Widow/Widower	2	6.7	3	10.0	2	6.7	
Divorcer	2	6.7	10	33.3	5	16.7	
Educational status							
Degree	-	-	-	-	-	-	χ^2=3.189 N.S
High school	1	3.3	4	13.3	0	0	
Primary	3	10.0	6	20.0	3	10.0	
Illiterate	1	3.3	8	26.7	4	13.3	
Occupation							

Demographic Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
Homemaker	1	3.3	7	23.3	2	6.7	
Private employee	2	6.7	4	13.3	2	6.7	χ^2=3.112
Government employee	1	3.3	3	10.0	0	0	N.S
Agriculture	1	3.3	4	13.3	3	10.0	
Mode of admission							χ^2=1.900
Voluntary	3	10.0	5	16.7	3	10.0	N.S
Non voluntary	2	6.7	13	43.3	4	13.3	
Duration of stay							
1 - 2 yrs	2	6.7	4	13.3	2	6.7	χ^2=1.348
3 - 4 yrs	2	6.7	11	36.7	3	10.0	N.S
Above 5 yrs	1	3.3	3	10.0	2	6.7	
Food habits							χ^2=0.287
Vegetarian	2	6.7	5	16.7	2	6.7	N.S
Non-vegetarian	3	10.0	13	43.3	5	16.7	
Any other habits							
Smoking	2	6.7	3	10.0	2	6.7	χ^2=2.835
Alcoholism	1	3.3	3	10.0	1	3.3	N.S
Tobacco chewing	2	6.7	6	20.0	2	6.7	
No other habits	0	0	6	20.0	2	6.7	
Previous history of sports involvement							χ^2=1.015
Yes	2	6.7	5	16.7	1	3.3	N.S
No	3	10.0	13	43.3	6	20.0	

Clinical Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
Body Mass Index							
20 - 22 Normal	1	3.3	3	10.0	0	0	χ^2=2.649 N.S
22 - 25 Moderate	2	6.7	8	26.7	3	10.0	
25 - 30 Obesity	2	6.7	6	20.0	4	16.7	
<30 Morbid obesity	0	0	1	3.3	0	0	
Do you have any other illness?							
Diabetes mellitus	1	3.3	3	10.0	1	3/3	χ^2=3.262 N.S
Hypertension	2	6.7	3	10.0	3	10.0	
Others	0	0	4	13.3	1	3/3	
Nil	2	6.7	8	26.7	2	6.7	
Do you have any Knee pain?							
Right knee	2	6.7	4	13.3	1	3.3	**χ^2=9.714 S***
Left knee	0	0	5	16.7	2	6.7	
Both knees	3	10.0	9	30.0	4	13.3	
What is the type of pain you will have?							
Mild	-	-	-	-	-	-	**χ^2=8.843 S***
Moderate	1	3.3	12	40.0	3	10.0	
Severe	4	16.7	6	20.0	4	13.3	
How long have you had knee pain?							χ^2=2.003 N.S
More than 6 months	3	10.0	10	33.3	6	20.0	
Less than 6 months	2	6.7	8	26.7	1	3.3	

Clinical Variables	Moderate Pain		Severe Pain		Worst Pain		χ^2 Value
	No.	%	No.	%	No.	%	
How long have you had knee pain?							
Walking	2	6.7	6	20.0	1	3.3	χ^2=4.792
Sitting	-	-	-	-	-	-	N.S
Any doing work	3	10.0	7	23.3	2	6.7	
Always	0	0	5	16.7	4	13.3	
What type of pain relief method do you use during pain?							
Topical application	1	3.3	10	33.3	2	6.7	χ^2=4.746
Home based remedies	2	6.7	5	16.7	2	6.7	N.S
Oral analgesic	2	6.7	2	6.7	2	6.7	
Nil	0	0	1	3.3	1	3.3	
Do you have any opinion about mustard?							
Cooking	3	10.0	5	16.7	4	13/3	χ^2=3.024
Medical use	1	3.3	4	13.3	1	3.3	N.S
Pain reducing agent	-	-	-	-	-	-	
Nothing	1	3.3	9	30.0	2	6.7	

N.S – Not Significant

The table 7 shows that none of the clinical variables (knee pain and type of knee pain) had shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis in the control group.

CHAPTER – V

DISCUSSION

CHAPTER – V

DISCUSSION

This study was conducted to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home, at Trichy District. A non-probability purposive sampling technique was used to collect data from the study participants. 60 samples were taken, 30 in experimental and 30 in the control group. Pre-test and post-test were conducted. The Data were collected for a period of six weeks in selected old age home, at Trichy district. The discussion was based on the objectives specified in this study.

The first objective was to assess the pre-test and post-test level of knee pain among elderly people who has osteoarthritis in the control group and the experimental group.

Findings of the pre-test level of pain in the control group, 18(60%) had severe pain, 7(23.33%) had the worst pain and 5(16.67%) had moderate pain whereas, in the post-test, 19(63.33%) had severe pain, 7(23.33%) had moderate pain and 4(13.33%) had worst pain.

Where in experimental group the pre-test level of pain, 18(60%) had severe pain, 8(26.67%) had moderate pain and 4(13.33%) had worst pain whereas, in the post-test, 15(50%) had mild pain, 14(46.67%) had no pain and only one (3.33%) had moderate pain. Thus mustard plaster application on knee pain was found to be effective in reducing the level of pain among elderly people in the experimental group.

The above findings are consistent with the findings of:

A study was conducted at **Kayalvarath health complex in 2010** to determine the effectiveness of mustard plaster application in reducing the knee joint pain. The study group consists of 60 clients. Mustard plaster was applied and hot water application is given. Post-procedural pain score indicated a significant reduction in knee joint pain among the client.

In 2014 study conducted by **Joredt et al.** found that topical application of mustard oil (allyl –ISO thiocyanate) to skin activates underlying sensory nerve ending, thereby producing pain, inflammation and hypersensitive to thermal and mechanical stimuli. Mustard oil depolarizes a subpopulation of primary sensory neurons. This finding identifies a cellular and molecular target for pungent action for mustard oils and supports an emerging role for TRP channels as ionotropic cannabinoid receptors.

The table 3 shows that the calculated "t" value 26.390 was highly significant at $p<0.001$ level. The pre-test mean in case of the experimental group was 8.66 whereas the post-test mean was 1.03 and its mean difference was 6.63 which had greater improvement than the control group. It clearly concluded that there was a significant reduction in the level of knee pain among girls after the administration of mustard plaster application in the experimental group. Hence research hypothesis H_1 is accepted.

The second objective was to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in the experimental group.

From table 7 the calculated pre-test 't' value of pain between the experimental and control group was 0.812 which was not found to be statistically significant. This clearly infers that there was no difference in the pre-test level of pain among elderly people between the control and experimental group.

Whereas after the administration of mustard plaster application to elderly people in the experimental group, the post-test mean score was 1.03 and the post-test mean score in the control group was 7.67. The mean difference means the score was 6.63 and calculated 't' value of 18.686 was statistically highly significant at $p<0.001$ level. This clearly infers that the mustard plaster application administered to elderly people in the experimental group had significant improvement in the level of pain than the elderly people in the control group. There was a significant difference in the level of pain between the two groups. Hence the hypothesis H_2 is accepted.

The above findings are consistent with the findings of **Richert in 2014** tried successfully mustard as a topical treatment for arthritis. The study group contained 90 arthritis clients. Mustard was applied over the painful joint and massaged. The post-procedural pain scores indicated a significant reduction in joint pain among participants.

The third objective was to find out the association between the pre-test level of knee pain among elderly people who has osteoarthritis with their selected demographic variables and clinical variables in the experimental group and control group.

The findings in table 6 show that the clinical variable (body mass index, knee pain and type of knee pain) had shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis at $p\leq0.001$ and the other demographic variables had not shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis in the experimental group.

Hence research hypothesis H_3 is accepted for type of pain and not accepted for other demographic variables such as age, gender, marital status, educational status, occupation, mode of admission, duration of stay, food habits, any other habits, previous history of sports involvement, Body Mass Index, knee pain, type of pain, how long do you have knee pain, felt knee pain, type of pain relief method and opinion about mustard.

The findings in table 7 show that none of the clinical variables (knee pain and type of knee pain) had shown statistically significant association with pre-test level of knee pain among elderly people with osteoarthritis in the control group.

Hence research hypothesis H_3 is not accepted.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATIONS

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATIONS

This chapter gives a brief account of the present study along with the conclusion drawn from the findings, recommendation, implication, conclusion, suggestions for further studies and nursing implications.

SUMMARY OF THE STUDY

The whole research work depends on the findings of the study. The experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home, at Trichy district.

OBJECTIVES OF THE STUDY

1. To assess the pre-test and post-test level of knee pain among elderly people who has osteoarthritis in the control group and the experimental group.
2. To assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in the experimental group.
3. To find out the association between the pre-test levels of knee pain among elderly people who has osteoarthritis with their selected demographic variables and clinical variables in the experimental group and control group.

HYPOTHESIS

- H_1 - The mean post-test level of knee pain will be significantly lower than the mean pretest level of knee pain among Elderly people who has osteoarthritis in the experimental group.

- H_2–The mean post-test level of knee pain among elderly people who has osteoarthritis in the experimental group will be significantly lower than the mean post-test level of knee pain in the control group.
- H_3- There will be a significant association between mean pre-test level of knee pain who has osteoarthritis with selected demographic and clinical variables of elderly people among the experimental group and control group.

The design of the study was quasi-experimental pre-test and post-test control group design. The conceptual framework was based on the gate control theory of pain.

The gate control theory was first postulated by Ronald Melzack and Patrick David Wall in 1965. This theory suggests that for the pain to pass through the gate there must be an unopposed passage for nociceptive information arriving at the synapses in the substantia gelatinosa. The pain impulses will be carried out by the small diameters and it will open the pain gate and the person feels pain.

Many non-pharmacological procedures such as mustard plaster application, TENS stimulate the nerve endings connected with large diameter fibers which can produce a reduction of pain by closing the pain gate.

The sample size of the study was 60, in this 30 consider as an experimental group and 30 consider as a control group for this study the non-probability purposive sampling technique was adopted for the selection of the sample .demographic variables and clinical variables of the subjects were collected.

The investigators collected pre-test data using a numerical pain scale for both the group's experimental group has received the interventions of mustard plaster application for one time 14 days duration of 15 minutes. Control group received no

intervention. Post-test was conducted by the investigator for both the groups. The experimental group post-test was conducted.

The post result was highly significant (P <0.001 ***) than the pre-test. The study of mustard plaster application is effective on elderly people who had osteoarthritis knee pain.

SUMMARY

This study is a quasi-experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy district. In this study, the total population is 60 in that 30 each in the control group and experimental group to reduce the knee pain. The intervention was given to the experimental group, not to the control group. The mustard plaster application was effective for osteoarthritis knee pain. The knee pain has reduced elderly people.

CONCLUSION

The following conclusions are drawn from the study mustard plaster application could be useful and safe easily available for the elderly to reduce knee pain. The excavated results supported that mustard plaster is one of the best methods to reduce the level of knee pain among elderly people. The effective of mustard plaster application was reduction of knee pain.

IMPLICATIONS

- The nurses are one of the important team members can help the elderly people in health promotion activities with love and care

- The findings of the study have practical application in the field of nursing .the study could be discussed in four areas namely: nursing education, nursing practice, nursing administration, and nursing research.

IMPLICATION OF NURSING PRACTICE

- Many elderly are disabled & there is a lack of activities of daily living due to knee pain.
- It was evident from the present study that mustard plaster application is effective in reducing osteoarthritis knee pain.
- The therapy can also be implemented in ortho- clinics, hospitals, and primary health centers.
- Nurses working in hospitals or Nursing homes should provide and use complementary therapy for pain reduction. Educational program in natural therapies can be designed to create awareness among nurses and the public.

IMPLICATION OF NURSING ADMINISTRATION

- The nursing administrator should take initiative in guiding nursing personnel to teach on therapy for pain reduction.
- Nurse administrators have a responsibility to provide nurses with continuing opportunities for adopting various pain reduction methods. Take steps to promote the quality of life and well-being.
- This will enable the nurses to update their knowledge and acquire special skills in managing pain.

- Formulation of Protocols regarding the care of the elderly with Knee pain and natural method applications and to conduct workshop and seminars regarding therapies for pain relief.
- Nurses Administrator can arrange seminars and workshop to educate the learners and staff nurses regarding the importance of geriatric care.
- Screening programs can be arranged in the community for identifying the vulnerable group for osteoarthritis.
- It helps to provide critical thinking regarding osteoarthritis and its management.

IMPLICATION OF NURSING EDUCATION

- Several implications can be drawn from the present study for nursing education
- The curriculum incorporating the recent trends and demands of the changing Society needed for the progress of nursing education.
- These studies enhance the student to think comprehensively in planning the intervention in preventing the complication of osteoarthritis.
- Practical hours for complementary and alternative medicine including yoga, Massage and natural methods can be included in the nursing curriculum which will help the students to improve their skills.

IMPLICATION OF NURSING RESEARCH

This study motivates nursing personnel to do further studies related to this field.

- This study gives way for further study on other therapies to reduce pain in a patient with osteoarthritis.
- This study helped the researcher to formulate new methods to prevent complication in elderly people due to osteoarthritis.

- The findings of the study sever as a basis for the nursing professionals and the students to conduct further studies in different aspects of the application of Mustard plaster for Knee pain.
- There is a need for wide research in this area to generate more detail and specific database and to provide much-needed information for the consumers and providers.

LIMITATIONS

During the period of study the limitation faced by the investigator were as follows:

- Only the age group of 50 years above old age people were selected for the study.
- Only old age people with knee osteoarthritis.

RECOMMENDATIONS

The following recommendations were made by the researcher after the study.

- The same study can be undertaken for effectiveness along with other therapies
- The same study can be undertaken for a larger sample.
- The same study can be applied for back pain and shoulder pain.
- The same study can be done as an experimental study for two groups

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APPENDICES

APPENDIX - I

LETTER SEEKING PERMISSION TO CONDUCT THE STUDY

SAKTHI COLLEGE OF NURSING

(Approved by Govt. of Tamilnadu, Recognised by INC, TNC & Affiliated to Dr. M.G.R. Medical University)

Sakthi Nagar, Dindigul - Palani Main Road,
Palakkanuthu - (Po.),
Oddanchatram - 624 619.
Dindigul (Dt.), Tamilnadu.

Phone : 0451 - 2050272
Mobile : 97509 56810
Fax : 0451-2554317
E-mail : sakthinursingcollege@gmail.com

PERMISSION LETTER

From

The Principal,
Sakthi College of Nursing,
Oddanchatram, Dindigul (Dt)

To

The secretary.
Sri. Sayee old age home,
Trichy.

Respected Sir / Madam,

Sub.: Request for permission to conduct Research study– reg.

Mrs.Thabitha Joshi.A is a bonafide M.Sc., Nursing student studying in our college. As a partial fulfillment of The Tamilnadu Dr. MGR Medical University requirement for the award of the M.Sc., Nursing Degree, she is undertaking ("**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECETED OLDAGE HOME AT TRICHY DISTRICT**"), she has identified your centre as the best place to conduct the study.

Further details of the proposed project will be furnished by the student personally. She will not hinder your routine in any way and she will abide to the rules and regulations of the institution. All the information collected from institution will be kept confidential.

I kindly request you to grant her permission to conduct the study at your esteemed institution.

Thanking you,

yours sincerely,

Date :

Place :

SHREE SAYEE CHARITABLE TRUST
Shree Sayee Old AGE Home
Old No:60, New No:4
Srinivasa Nagar, 7th Main Road
11th Cross, Vayalur Road
Trichy- 620 017.

SHREE SAYEE CHARITABLE TRUST
Reg No:44/2017
TIRUCHIRAPPALLI-17

PRINCIPAL
Sakthi College of Nursing
Sakthi Nagar, Palakkanuthu
Dindigul - (Dist)
624 624

SAKTHI COLLEGE OF NURSING

(Approved by Govt. of Tamilnadu, Recognised by INC, TNC & Affiliated to Dr. M.G.R. Medical University)

Sakthi Nagar, Dindigul - Palani Main Road,
Palakkanuthu - (Po.),
Oddanchatram - 624 619.
Dindigul (Dt.), Tamilnadu.

Phone : 0451 - 2050272
Mobile : 97509 56810
Fax : 0451-2554317
E-mail : sakthinursingcollege@gmail.com

PERMISSION LETTER

From

The Principal,
Sakthi College of Nursing,
Oddanchatram, Dindigul (Dt)

To

The secretary
vidivelli rural development society
mettukadi, kavilappatti. manapparai (Tk)
Trichy (D.T) - 621305.

Respected Sir / Madam,

Sub.: Request for permission to conduct Pilot study– reg.

Mrs.Thabitha Joshi.A is a bonafide M.Sc., Nursing student studying in our college. As a partial fulfillment of The Tamilnadu Dr. MGR Medical University requirement for the award of the M.Sc., Nursing Degree, she is undertaking ("**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECETED OLDAGE HOME AT TRICHY DISTRICT"**), she has identified your centre as the best place to conduct the study.

Further details of the proposed project will be furnished by the student personally. She will not hinder your routine in any way and she will abide to the rules and regulations of the institution. All the information collected from institution will be kept confidential.

I kindly request you to grant her permission to conduct the study at your esteemed institution.

Thanking you,

yours sincerely,

Date :

Place :

27.3.19
SECRETARY

VIDIVELLI RURAL DEVELOPMENT SOCIETY
METTUKKADAI
KOVILPATTI POST.
MANAPPARAI TALUK
TRICHY DIST - 621305
TAMIL NADU.

PRINCIPAL
Sakthi College of Nursing
Sakthi Nagar, Palakkanuthu
Dindigul - (Dist)
624 624

SAKTHI COLLEGE OF NURSING

(Approved by Govt. of Tamilnadu, Recognised by INC, TNC & Affiliated to Dr. M.G.R. Medical University)

Sakthi Nagar, Dindigul - Palani Main Road,
Palakkanuthu - (Po.),
Oddanchatram - 624 619.
Dindigul (Dt.), Tamilnadu.

Phone : 0451 - 2050272
Mobile : 97509 56810
Fax : 0451-2554317
E-mail : sakthinursingcollege@gmail.com

PERMISSION LETTER

From

The Principal,
Sakthi College of Nursing,
Oddanchatram, Dindigul (Dt)

To

The Director,
kangayan Trust and old Age home,
Trichy.

Respected Sir / Madam,

Sub.: Request for permission to conduct Research study– reg.

Mrs.Thabitha Joshi.A is a bonafide M.Sc., Nursing student studying in our college. As a partial fulfillment of The Tamilnadu Dr. MGR Medical University requirement for the award of the M.Sc., Nursing Degree, she is undertaking ("**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECETED OLDAGE HOME AT TRICHY DISTRICT"**), she has identified your centre as the best place to conduct the study.

Further details of the proposed project will be furnished by the student personally. She will not hinder your routine in any way and she will abide to the rules and regulations of the institution. All the information collected from institution will be kept confidential.

I kindly request you to grant her permission to conduct the study at your esteemed institution.

Thanking you,

yours sincerely,

Date :

Place :

For HEED INDIA
EXECUTIVE DIRECTOR.

PRINCIPAL
Sakthi College of Nursing
Sakthi Nagar, Palakkanuthu
Dindigul - (Dist)
624 624

APPENDIX - II

LETTER SEEKING PERMISSION FOR CONTENT VALIDITY

From:

Mrs. A. Thabitha Joshi, M.Sc (Nursing) II Year,

Medical Surgical Nursing,

Sakthi College of Nursing,

Oddanchatram, Dindigul.

To:

Respected Madam/Sir,

Sub: Requisition for expert opinion and content validity regarding.

I am Thabitha Joshi. A, M.Sc. (Nursing) II year student of Sakthi College of Nursing, Oddanchatram, Dindigul, under Dr. M.G.R. Medical University. As partial fulfillment of my M.Sc. (Nursing) the degree program, I am conducting a research study on "**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECTED OLD AGE HOME AT TRICHY DISTRICT".** I am sending the tool for content validity and for your expert & valuable opinion. I will be very thankful if you return it at the earliest. Herewith I have enclosed the necessary documents.

Thanking you.

Yours sincerely,

(Thabitha Joshi. A)

Enclosure:

1. Statement of the problem & objectives of the study.
2. Tool for data collection.
3. A brief note on the research methodology and intervention tool.
4. Certificate of content validity.

APPENDIX - III

CERTIFICATE OF CONTENT VALIDITY

CERTIFICATE OF CONTENT VALIDITY

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the tool prepared by **Mrs.THABITHA JOSHI** M.Sc Nursing II Year student of Sakthi College of Nursing for the conduction of the research study on **"A quasi experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy district"** is valid. She can proceed in conducting data collection.

SERVITE COLLEGE OF NURSING ★ TRICHY-12. ★ MANIKANDAM (PO)

Signature of the validator :

PRINCIPAL
SERVITE COLLEGE OF NURSING
MANIKANDAM (PO)
EDAMALAIPATTIPUTHUR (VIA)
TRICHIRAPPALLI - 620 012.

Name of the validator :

Designation :

CERTIFICATE OF CONTENT VALIDITY

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the tool prepared by **Mrs.THABITHA JOSHI** M.Sc Nursing II Year student of Sakthi College of Nursing for the conduction of the research study on **"A quasi experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy district"** is valid. She can proceed in conducting data collection.

Signature of the validator :

Name of the validator :

Designation :

[A SARMILA MSc(N)]

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool prepared by **Mrs. A.THABITHA JOSHI**., M.Sc(Nursing) II year Student of Sakthi College of Nursing oddanchattram, for the conduction of the research study on " **A Quasi experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy district**" is valid . She can proceed in conducting data collection.

B. Santhanalakshi.
Signature of Validator

Name of the Validator : B. Santhanalakshmi

Designation : Associate professor

JENNIS COLLEGE OF NURSING TRICHY-9

CERTIFICATE OF CONTENT VALIDITY

To Whom So Ever It May Concern

This is to certify that the tool prepared by **MRS. A.THABITHA JOSHI MSc (N)** II Year student of Sakthi College of Nursing for the conduction of the research study on **"A quasiexperimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy district"** is valid. She can proceed in conducting data collection.

Signature

Name of the Validator: Dr. K.P. Senthilkumar

Designation

Dr.K.P.SENTHILKUMAR M.B.B.S. D.Ortho.
REGD. No. 58903
KAVIN HOSPITAL,
VAIYAMPATTY-621318. TRICHY-DT.

APPENDIX – IV

LIST OF EXPERTS

1. **Dr. K. Senthil Kumar,** MBBS, D (Ortho),
   Kavin Hospital, Vaiyammpatti**,**
   Trichy District.

2. **Dr. V. Janahi Devi, M.Sc. (N), Ph.D.,**
   Principal,
   Sakthi College of Nursing,
   Oddanchatram,
   Dindugal district.

3. **Dr. A. Mangaiyarkarasi, M.Sc. (N)**, **Ph.D.,**
   Principal,
   Servitecollege of nursing
   Trichy district.

4. **Prof. A. Sarmila, M.Sc(N),**
   Dr. Sakunthala College of Nursing,
   Trichy district.

5. **Prof. B. Santhanalakshmi, M.Sc.(N),**
   Jennys College of Nursing,
   Trichy district.

6. **Mr. Manikandan,**
   Statistician,
   Madurai.

APPENDIX – V

RESEARCH CONSENT FORM

Dear Participant,

I am Mrs. Thabitha Joshi. A, M.Sc., (Nursing) II year student of Sakthi College of Nursing, Oddanchattram. As a part of my study, a research on **"A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOART5HRITIS IN SELECTED OLD AGE HOME AT TRICHY DISTRICT",** is to be conducted. The study will be helpful to reduce knee pain among elderly people with knee osteoarthritis.

I hereby seek your consent and co-operation to participate in the study. I request you to be frank and honest in your responses. The information collected will be kept confidential and anonymity will be maintained.

Thanking you.

Signature of the researcher

Hereby I …… consent to participate and undergo the study.

Signature of participant

Place:

Date:

ஆய்வில் பங்கு கொள்ள ஒப்புதல் படிவம்

அன்பார்ந்த பங்களிப்பாளர்களே,

A.தபித்தா ஜோஷி ஆகிய நான் சக்தி செவிலியர் பயிற்சியில் முதுகலைப் பட்டம் பெறுவதற்கு பயிற்சியின் ஒரு பகுதியாக முதியவர்களுக்கான கீல் வாதம் மற்றும் அதனால் ஏற்படும் கீல்வாத மூட்டுவலிக்கான கடுகு பத்து ஒத்தடம் மூலம் வலியைக் குறைக்கலாம் என்பதைப் பற்றி அறிவதற்கான ஆய்வு செய்கிறேன். இதனால் இந்த ஆராய்ச்சியில் நீங்கள் பங்குபெற உங்களுடைய ஒப்புதல் மற்றும் ஒத்துழைப்பையும் வேண்டுகிறேன். மேலும் உங்களுடைய பதில்கள் வெளிப்படையாகவும் உண்மையாகவும் இருக்க வேண்டும். உங்களுடைய குறிப்புகள் இரகசியமாக வைக்கப்படும். மற்றும் உங்களுடைய பெயர் வேறு எங்கும் வெளியிடப்படமாட்டாது.

ஆராய்ச்சியாளரின் கையொப்பம்

_____ என்ற நான் இந்த ஆராய்ச்சியில் பங்கு பெற ஒப்புதல் அளிக்கிறேன்.

பங்குபெறுவோரின் கையொப்பம்

APPENDIX – VI

CERTIFICATE OF ENGLISH EDITING

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation "**A quasi experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy** by **Mrs. Thabitha Joshi, M.Sc.,** II year student of Sakthi College of Nursing, has been edited for English language appropriateness by **Ms. A. Shine Rose, M.A., B.Ed., M.Phil., HOD of English department** working in M.M. Polytechnic college at Trichy district.

Signature,

APPENDIX – VII

CERTIFICATE OF TAMIL EDITING

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation "**A quasi experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy** by **Mrs. Thabitha Joshi, M.Sc.** II year student of Sakthi College of Nursing, has been edited for Tamil language appropriateness by **Mr. A. Sebastin Ignatious Raj, M.A., B.Ed., M.Phil.,** working in Aadhavan Arts and Science College at Trichy district.

Signature,

APPENDIX – VIII

SAKTHI COLLEGE OF NURSING

CERTIFICATE FOR ETHICAL CLEARANCE

Committee members **Chairman:** 1. Dr. k. Vembanan, M.B.B.S, M.S., President, Sakthi educational institution. **Members:** 1. Dr.v. Janahi Devi, M.Sc. (N), Ph.D., Principal, Sakthi College of Nursing 2. Dr. k.Senthil Kumar**,** MBBS., D (Ortho), Kavin Hospital, Vaiyammpatti**,** Trichy District. 3. Mrs. D. Thulasimani. M.Sc. (N), Medical Surgical Nursing, Associate Professor, Sakthi College of Nursing. 4. Mr. V. Palanichamy, B.A.B.L., Advocate 5. Mr. DiazPrabhakaran, M.A., Sociology 6. Ms. Mariyammal, Ph.D., Psychology	This is to certify that Mrs. A. Thabitha Joshi, M.Sc. Nursing student, Medical Surgical Nursing, submitted a protocol on study as "Effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home at Trichy district." The above protocol was received by Ethical clearance committee approved and mentioned that the study is feasible to carry out under the guidance of an eligible guide. **Signature of the Chairman**

APPENDIX – IX

SECTION - A

DEMOGRAPHIC VARIABLES

Introduction to participants

Dear participants,

This section consists of personal information and you are requested to answer the questions correctly, the information collected from you will be kept confidential.

Sample No: _____

1. Age [ ]

a) 50-55

b) 55 -60

c) 60- 65

d) above 70 years

2. Gender [ ]

a) Male

b) Female

3. Marital Status [ ]

a) Married

b) Unmarried

c) Widow / Widower

d) Divorcer

4. Educational Status [ ]

a) Degree

b) High school

c) Primary

d) Illiterate

5. Occupation (before coming to the old age home) [ ]

a) Homemaker

b) Private employee

c) Government employee

d) Agriculture

6. Mode of admission [ ]

a) Voluntary

b) Non-voluntary

7. Duration of stay [ ]

a) 1-2 years

b) 3-4 years

c) above 5 years

8. Food Habits [ ]

a) Vegetarian

b) Non-Vegetarian

9. Any Other Habits [ ]

a) Smoking

b) Alcoholism

c) Tobacco chewing

d) No other habits

10. Previous history of sports involvement. [ ]

a) Yes

b) No

பகுதி – I

பிரிவு – அ

சொந்த விவரங்கள்

அன்பார்ந்த பங்களிப்பாளர்களே இந்த பகுதிகயில் உங்கள் சொந்த விவரங்கள் கொடுக்கப்பட்டுள்ளது. இதற்கு தகுதியான விடை அளிக்குமாறு கேட்டுக்கொள்கிறேன். இந்க விவரங்கள் பாதுகாத்து வைத்துக்கொள்ளப்படும்.

1. வயது [ ]

   அ) 50 – 55

   ஆ) 55 – 60

   இ) 60 – 65

   ஈ) 65 வயதிற்கு மேல்

2. இனம் [ ]

   அ) ஆண்

   ஆ) பெண்

3. திருமண நிலை [ ]

   அ) திருமணமானவர்

   ஆ) திருமணமாகாதவர்

   இ) விவாகரத்தானவர்

   ஈ) வாழ்க்கை துணை இழந்தவர்

4. கல்வித் தரம் [ ]

   அ) பட்டப்படிப்பு

   ஆ) உயர்கல்வி

   இ) ஆரம்பக் கல்வி

   ஈ) கல்வி பயிலாதவர்

5. தொழில் (முதியோர் இல்லம் வருவதற்கு முன்) [ ]

அ) இல்லத்தவர்

ஆ) தனியார் துறையில் வேலை செய்தவர்

இ) அரசாங்க வேலை

ஈ) விவசாயம்

6. சேர்க்கையின் விபரம் [ ]

அ) தன் சொந்த விருப்பத்தில்

ஆ) பிறரால் சேர்த்து விடப்பட்டோர்

7. தங்கியிருந்த காலம் [ ]

அ) ஒன்று முதல் இரண்டு வருடம்

ஆ) மூன்று முதல் நான்கு வருடம்

இ) ஐந்து வருடத்திற்கு மேல்

8. உணவு முறை [ ]

அ) சைவம்

ஆ) அசைவம்

9. வேறு ஏதேனும் பழக்கம் உள்ளதா? [ ]

அ) புகைப்பழக்கம்

ஆ) குடிப்பழக்கம்

இ) வெற்றிலை போடுதல் பழக்கம்

ஈ) எதுவும் இல்லை

10. விளையாட்டு விளையாடுவதில் முந்கைய ஈடுபாடு உள்ளதா? [ ]

அ) ஆம்

ஆ) இல்லை

SECTION - B

CLINICAL VARIABLES

Introduction to participants

Dear participants,

This section consists of personal information and you are requested to answer the questions correctly, the information collected from you will be kept confidential.

Sample No: _____

1. Height in cm _____

2. Weight in kg _____

3. Body Mass Index [ ]

   a) 20 – 22 Normal

   b) 22 – 25 moderate

   c) 25 – 30 Obesity

   d) >30 Morbid obesity

4. Do you have any other illness? [ ]

   a) Diabetes mellitus

   b) Hypertension

   c) Others

   d) Nil

5. Do you have any knee pain? [ ]

   a) Right knee

   b) Left knee

   c) Both knee

6. What is the type of pain you will have? [ ]

a) Mild

b) Moderate

c) Severe

7. How long have you had knee pain? [ ]

a) More than 6 month

b) Less than 6 month

8. When will you feel knee pain? [ ]

a) Walking

b) Sitting

c) Any doing work

d) Always

9. What type of pain relief method do you use during pain? [ ]

a) Topical application

b) Home-based remedies

c) Oral analgesic

d) Nil

10. Do you have any opinion about mustard? [ ]

a) Cooking

b) Medical use

c) Pain reducing agent

d) Nothing

பிரிவு – ஆ

மருத்துவ மாறிகள்

அன்பார்ந்த பங்களிப்பாளர்களே இந்த பகுதிகயில் உங்கள் சொந்த விவரங்கள் கொடுக்கப்பட்டுள்ளது. இதற்கு தகுதியான விடை அளிக்குமாறு கேட்டுக்கொள்கிறேன். இந்க விவரங்கள் பாதுகாத்து வைத்துக்கொள்ளப்படும்.

1. உயரம் _____

2. எடை _____

3. எடை உயர விகிதக் குறியீடு [ ]

   அ) 20 – 22 சரியான உடல்

   ஆ) 22 – 25 மிதமான எடை

   இ) 22 – 30 பருமனான உடல்

   ஈ) 30 –க்கு மேல் நோயுற்ற உடல் பருமன்

4. உங்களுக்கு கீழ்க்கண்ட நோய்கள் உள்ளனவா? [ ]

   அ) நீரிழிவு

   ஆ) இரத்தக்கொதிப்பு

   இ) வேறு ஏதேனும் நோய்

   ஈ) எதுவும் இல்லை

5. முழங்காலில் மூட்டுவலியை எந்த பகுதியில் நீங்கள் உணர்கிறீர்கள்? [ ]

   அ) வலது முழங்காலில்

   ஆ) இடது முழங்காலில்

   இ) இரண்டு முழங்காலிலும்

6. எந்த வகையான வலியை நீங்கள் உணர்கிறீர்கள்? [ ]

   அ) லேசான வலி

   ஆ) மிதமான வலி

   இ) கடுமையான வலி

7. உங்களுக்கு எவ்வளவு நாட்களாக மூட்டுவலி உள்ளது? [ ]

அ) ஆறு மாதத்திற்கு மேல்

ஆ) ஆறுமாதத்திற்க்குள்

8. நீங்கள் எப்போது முழங்கால் வலியினை உணர்வீர்கள்? [ ]

அ) நடக்கும் போது

ஆ) அமரும் போது

இ) ஏதேனும் வேலை செய்யும் போது

ஈ) அனைத்து நேரங்களிலும்

9. வலியின் போது எந்த வகையான வலி தீர்க்கும் முறையினை உபயோகிப்பீர்கள்? [ ]

அ) களிம்பினை தடவுதல்

ஆ) வீட்டு வைத்தியம்

இ) வலி நிவாரணி மாத்திரைகள்

ஈ) எதுவும் இல்லை

10. கடுகைப்பற்றிய உங்களுடைய கருத்து என்ன? [ ]

அ) சமையல் செய்ய

ஆ) மருத்துவ குணம்

இ) வலியை குறைக்கும் காரணி

ஈ) எதுவும் இல்லை

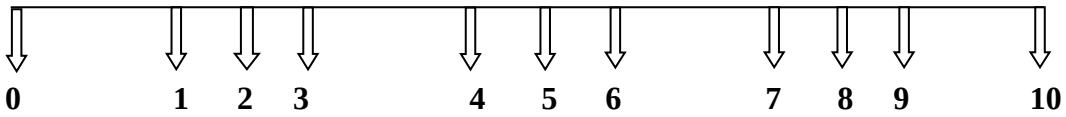
NUMERICAL PAIN SCALE

The numerical pain scale was shown to the participants by the investigator to mark the intensity knee pain among elderly people with osteoarthritis.

DESCRIPTION OF TOOL

The Numerical pain scale is composed of "0" (no pain) to "10" is (worst pain).

Scoring was given according to the level of pain.



No Pain | Mild pain | Moderate pain | Severe pain | Worst pain

SCORING INTERPRETATION

SCORE	**LEVEL OF PAIN**
0	No Pain
1-3	Mild Pain
4 -6	Moderate Pain
7 -9	Severe Pain
10	Worst pain

APPENDIX – X

PREPARATION OF MUSTARD PLASTER APPLICATION

The word of application means applies pressure with gentle movement mustard paste it is the scientific manipulation of superficial and deep layers of muscles and joints of the legs especially to relieve pain, inflammation.

PURPOSE

- To improve function and circulation.
- To reduce pain, inflammation, and arthritis.
- To promote relaxation.
- Helps to maintain blood pressure levels with the vein and capillaries.
- Aid in the healing process

PREPARATION OF THE MUSTARD PASTE

- Prepare the environment or room
- Arrange the needed articles like a bowl with, 10 grams mustard powder, and another bowl Luke warm water.
- Add the 10 grams muster powder and add needed lukewarm water and mix thickly.
- Mixing and evenly spread on a double piece of a soft cloth.

BENEFITS OF MUSTARD PASTE

- Mustard seeds are the small round seeds of various mustard plants.
- It contains carbohydrate 28.09g, fat 36.24g, protein 26.08g, vitamins, minerals, water, etc.

- Mustard seed paste helps in relieving pain and spasms. It will be promoted relaxes and warms the muscles, fights inflammation.
- It’s antibacterial and antifungal and anti-inflammatory uses.
- Mustard seeds have an advantageous chemical composition such as its protein content and fairly well-balanced amino acid composition, rich in dietary fiber and natural antioxidants.
- Mustard seeds are rich in a nutrient called selenium, known for its high anti-inflammatory effects.
- Mustards are still used today in mustard plasters to treat rheumatism, arthritis, chest congestion, aching back, and sore muscles.
- It is considered to improve the circulation of blood through the body and arthritis.
- A mustard soak or bath is also considered helpful in relieving backaches, muscle aches, and tired feet.

PROCEDURE

- Place the elderly people in a comfortable position.
- Apply and ready to prepare a mustard paste.
- Mustard powder 10 grams and add lukewarm water and the paste is mixing and evenly spread on a double piece of soft cloth then applied to the knee.
- Check the knee joint, skin condition to make sure there are no contraindications for the use of local heat.
- Check the knee visually before applying the mustard plaster
- Apply the mustard plaster on the affected knee for a maximum of 15 minutes.

- After application ask the elderly people any irritation, burning sensation in the skin if any above the complaints is present immediately discontinue the procedure. Otherwise, continue the procedure still 15 minutes.
- After 15 minutes wipe the skin with the help of the clean cotton cloth.

APPENDIX – XI

CERTIFICATE OF PLAGIARISM

This is to certify that this dissertation work titled "**A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSTARD PLASTER APPLICATION ON KNEE PAIN AMONG ELDERLY PEOPLE WHO HAS OSTEOARTHRITIS IN SELECTED OLD AGE HOME AT TRICHY DISTRICT".** Of the candidate **THABITHA JOSHI. A** with registration number 301712355 for the award of **MASTER OF SCIENCE IN NURSING** in the branch of **Medical Surgical Nursing**. I personally verified the iThenticate Plagiarism Detection Software for the purpose of plagiarism Check. I found that the uploaded thesis file contains from introduction to conclusion pages and the result shows **9%** of plagiarism in the dissertation.

_____ _____

Name and Signature of Guide Name and Signature of Principal

APPENDIX – XII

REPORT OF PLAGIARISM

Email: info@iThenticate.com

Phone: +1-510-764-7610

iThenticate Plagiarism Detection Software

CERTIFICATE

This is to certify that the manuscript submitted by THABITHA JOSHI .A, **Sakthi College of Nursing, Dindigul** with the following details has been processed using iThenticate Software and it is acceptable for submission as a thesis/ dissertation.

Reference No: 2214

Title: "A Quasi-Experimental study to assess the effectiveness of mustard plaster application on knee pain among elderly people who has osteoarthritis in selected old age home, at Trichy".

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Similarity Index	**9%**

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APPENDIX – XIII

PHOTO GALLERY